

Large Filing Separator Sheet

Case Number: 09-1066-EL-BGN

File Date: 12/21/09

Section: 4

Number of Pages: 199

Description of Document: Application
Volume 2

PLANT SPECIES LIST
Blue Creek Wind Farm
September-October 2009

Scientific Name	Common Name	Successional Woodland/ Hedgerows	Scrub	Open Field/ Ag Field/ Roadside	Wetland
<i>Abutilon theophrasti</i>	Velvet leaf		X	X	
<i>Acer negundo</i>	Box elder	X			
<i>Acer saccharinum</i>	Silver maple	X			X
<i>Acer saccharum</i>	Sugar maple	X			
<i>Achillea millefolium</i>	Yarrow			X	
<i>Aesculus glabra</i>	Ohio buckeye	X			
<i>Agrimonia parviflora</i>	Small-flowered agrimony	X			
<i>Alisma plantago-aquatica</i> (<i>Alisma subcordatum</i>)	Water plantain				X
<i>Alliaria petiolata</i>	Garlic mustard	X			
<i>Allium vineale</i>	Field garlic			X	
<i>Amaranthus hybridus</i>	Green amaranth			X	
<i>Ambrosia artemisiifolia</i>	Common ragweed	X	X	X	
<i>Ambrosia trifida</i>	Giant ragweed			X	
<i>Andropogon gerardii</i>	Big bluestem			X	
<i>Andropogon virginicus</i>	Broom sedge			X	
<i>Apocynum cannabinum</i>	Indian hemp	X			X
<i>Arctium minus</i>	Burdock			X	
<i>Asarum canadense</i>	Wild ginger	X			
<i>Asclepias incarnata</i>	Swamp milkweed				X
<i>Asclepias syriaca</i>	Common milkweed			X	
<i>Aster cordifolius</i>	Heart-leaved aster	X			
<i>Aster novae-angliae</i>	New England aster			X	
<i>Aster pilosus</i>	Hairy white oldfield aster			X	
<i>Aster simplex</i>	White panicle aster	X			
<i>Aster umbellatus</i>	Comle-leaf whitetop			X	
<i>Bromus inermis</i>	Japanese brome			X	
<i>Bromus tectorum</i>	Brome grass			X	
<i>Carex frankii</i>	Frank's sedge				X
<i>Carex pennsylvanica</i>	Pennsylvania sedge	X			
<i>Carex tribuloides</i>	Sedge				X
<i>Carex vesicaria</i>	Blister sedge	X			X
<i>Carex vulpinoidea</i>	Fox sedge				X
<i>Carya laciniosa</i>	Shellbark hickory	X			

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<i>Carya ovata</i>	Shagbark hickory	X			
<i>Celtis occidentalis</i>	Hackberry	X			
<i>Cephalanthus occidentalis</i>	Buttonbush				X
<i>Chenopodium album</i>	Lamb's quarters			X	
<i>Gichorium intybus</i>	Chickory			X	
<i>Cinna arundinacea</i>	Wood reed				X
<i>Cirsium arvense</i>	Canada thistle	X	X	X	
<i>Coreopsis sp.</i>	Coreopsis			X	
<i>Cornus amomum</i>	Silky dogwood				X
<i>Cornus racemosa</i>	Gray dogwood	X	X		
<i>Crataegus sp.</i>	Hawthorn	X			
<i>Cyperus strigosus</i>	Yellow nutsedge			X	
<i>Cyperus esculentus</i>	Chufa			X	
<i>Dactylis glomerata</i>	Orchard grass			X	
<i>Datura stramonium</i>	Jimsonweed			X	
<i>Daucus carota</i>	Queen Anne's lace			X	
<i>Digitaria sanguinalis</i>	Crabgrass			X	
<i>Dipsacus sylvestris</i>	Teasel			X	X
<i>Echinochloa crus-galli</i>	Barnyard grass			X	X
<i>Echinochloa muricata</i>	Barnyard grass			X	
<i>Elaeagnus umbellata</i>	Autumn olive		X		
<i>Eleocharis obtusa</i>	Spikerush				X
<i>Elymus riparius</i>	Riparian wild rye	X			
<i>Elymus virginicus</i>	Virginia wild rye	X			
<i>Euonymus obovatus</i>	Running strawberry bush	X			
<i>Festuca arundinacea</i>	Kentucky fescue			X	
<i>Fragaria virginiana</i>	Wild strawberry	X			
<i>Fraxinus pennsylvanica</i>	Green ash	X			X
<i>Geum macrophyllum</i>	Avens	X			
<i>Glechoma hederacea</i>	Ground ivy	X			
<i>Gleditsia triacanthos</i>	Honey locust	X			
<i>Glyceria striata</i>	Fowl manna grass				X
<i>Glycine max</i>	Soybean			X	

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<i>Hibiscus trionum</i>	Flower-of-an-hour			X	
<i>Hordeum jubatum</i>	Squirrel tail grass			X	
<i>Ipomoea purpurea</i>	Common morning glory			X	
<i>Juglans nigra</i>	Black walnut	X			
<i>Juncus tenuis</i>	Path rush	X			
<i>Lactuca sp.</i>	Wild lettuce			X	
<i>Lamium purpureum</i>	Self heal			X	
<i>Leersia oryzoides</i>	Rice cutgrass				X
<i>Leersia virginica</i>	Virginia rice cutgrass	X			
<i>Lespedeza</i>	Lespedeza			X	
<i>Ligustrum vulgare</i>	Common privet	X			
<i>Lonicera japonica</i>	Japanese honeysuckle			X	
<i>Lonicera maackii</i>	Amur honeysuckle	X	X		
<i>Ludwigia palustris</i>	Marsh seedbox				X
<i>Lycopus americanus</i>	Cutleaf water horehound				X
<i>Lysimachia nummularia</i>	Moneywort				X
<i>Maclura pomifera</i>	Osage orange	X			
<i>Medicago officinalis</i>	Yellow sweet clover			X	
<i>Morus rubra</i>	Mulberry	X	X	X	
<i>Oenothera biennis</i>	Evening primrose			X	
<i>Oxalis stricta</i>	Sorrel			X	
<i>Panicum sp.</i>	Panic grass			X	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	X	X		
<i>Penthorum sedoides</i>	Ditch stonecrop				X
<i>Pastinaca sativa</i>	Meadow parsnip			X	
<i>Phalaris arundinacea</i>	Reed canary grass			X	X
<i>Phleum pratense</i>	Timothy			X	
<i>Phytolacca americana</i>	Pokeweed	X		X	
<i>Plantago lanceolata</i>	English plantain			X	
<i>Plantago major</i>	Plantain			X	
<i>Platanus occidentalis</i>	Sycamore	X	X		
<i>Poa pratensis</i>	Kentucky bluegrass			X	
<i>Polygonum pennsylvanicum</i>	Pennsylvania knotweed				X

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Scientific Name	Common Name	Successional Woodland/ Hedgerows	Scrub	Open Field/ Ag Field/ Roadside	Wetland
<i>Polygonum persicaria</i>	Lady's thumb				X
<i>Polygonum virginianum</i>	Virginia knotweed	X			
<i>Populus deltoides</i>	Eastern cottonwood	X			X
<i>Prunella vulgaris</i>	Self-heal			X	
<i>Prunus serotina</i>	Black cherry	X			
<i>Quercus palustris</i>	Pin oak	X			
<i>Quercus bicolor</i>	Swamp white oak	X			X
<i>Quercus muhlenbergii</i>	Chinquapin oak	X			
<i>Quercus rubra</i>	Northern red oak	X			
<i>Quercus macrocarpa</i>	Bur oak	X			
<i>Rhamnus frangula</i>	Buckthorn	X			
<i>Ribes americanum</i>	Wild black currant	X			
<i>Robinia pseudoacacia</i>	Black locust	X	X		
<i>Rosa multiflora</i>	Multiflora rose	X		X	
<i>Rosa setigera</i>	Pasture rose	X			
<i>Rubus allegheniensis</i>	Blackberry		X		
<i>Rubus occidentalis</i>	Black raspberry		X		
<i>Rudbeckia hirta</i>	Black-eyed susan			X	
<i>Rumex crispus</i>	Curly dock			X	
<i>Salix exigua</i>	Sandbar willow				X
<i>Salix nigra</i>	Black willow				X
<i>Sambucus canadensis</i>	Elderberry	X			X
<i>Sanicula gregaria</i>	Snakeroot	X			
<i>Schoenoplectus tabernaemontani</i> (<i>Scirpus validus</i>)	Soft stem bulrush				X
<i>Scirpus atrovirens</i>	Dark green bulrush				X
<i>Scirpus cyperinus</i>	Woolgrass				X
<i>Scirpus fluviatilis</i>	River bulrush				X
<i>Setaria faberii</i>	Japanese bristleglass			X	
<i>Setaria glauca</i>	Yellow foxtail			X	
<i>Smitax rotundifolia</i>	Common greenbriar	X			
<i>Solanum carolinense</i>	Carolina horsenettle			X	
<i>Solidago canadensis</i>	Canada goldenrod			X	
<i>Solidago gigantea</i>					X

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<i>Solidago graminifolia</i>	Narrow leaf goldenrod				X
<i>Sorghastrum nutans</i>	Indian grass			X	
<i>Taraxacum officinale</i>	Dandelion			X	
<i>Tilia americana</i>	Basswood	X			
<i>Toxicodendron radicans</i>	Poison Ivy				X
<i>Tridens flavus</i>	Purple top grass			X	
<i>Trifolium pratense</i>	Red clover			X	
<i>Trifolium repens</i>	White clover			X	
<i>Typha angustifolia</i>	Narrow leaf cattail				X
<i>Typha latifolia</i>	Common cattail				X
<i>Ulmus americana</i>	American elm	X			
<i>Ulmus rubra</i>	Slippery elm	X			
<i>Verbascum thapsus</i>	Wooly mullein			X	
<i>Vernonia gigantea</i>	Tall ironweed			X	
<i>Viburnum dentatum</i>	Arrowwood	X			
<i>Viburnum acerifolium</i>	Mapleleaf viburnum	X			
<i>Viburnum prunifolium</i>	Black haw	X			
<i>Viola sp.</i>	Violets	X			
<i>Vitis aestivalis</i>	Summer grape	X			
<i>Xanthium strumarium</i>	Clotbur			X	X
<i>Xanthoxylum americanum</i>	Prickly ash	X			
<i>Zea mays</i>	Corn			X	

*Wetland and Waterbody Delineation
Report*

Blue Creek Wind Farm
Paulding and Van Wert Counties, Ohio

Prepared for
Heartland Wind, LLC

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November 2009

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Acronyms and Abbreviations

AEP	American Electric Power
Certificate	Certificate of Environmental Compatibility and Public Need
EWI	exceptional warmwater habitat
Facility	350-megawatt capacity wind power facility
FEMA	Federal Emergency Management Agency
GPS	global positioning system
HHEI	Headwater Habitat Evaluation Index
Heartland	Heartland Wind, LLC
kV	kilovolt
LRW	limited resource water
MW	megawatt
MWH	modified warmwater habitat
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
O&M	operations and maintenance
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
O&M	Operations and Maintenance
OHWM	ordinary high water mark
OPSB	Ohio Power Siting Board
ORAM	Ohio Rapid Assessment Method
OWI	Ohio Wetland Inventory
PEM	palustrine emergent marsh
PFO	palustrine forested
PHWH	primary headwater habitat
PJM	PJM Interconnection LLC
Project	Blue Creek Wind Farm
PSS	palustrine scrub-shrub

QHEI	Qualitative Habitat Evaluation Index
Report	Wetland and Waterbody Delineation Report
RPW	relatively permanent water
RTO	regional transmission organization
SODAR	sonic detection and ranging
TNW	traditional navigable water
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UT	unnamed tributary
WWH	warmwater habitat

SECTION 1

Introduction

Heartland Wind, LLC (Heartland), a Limited Liability Company whose sole member and manager is Iberdrola Renewables, Inc., has proposed to construct, own and operate the Blue Creek Wind Farm (Project), an up to 350-megawatt (MW) capacity wind power facility (Facility) in Paulding and Van Wert Counties, Ohio (Exhibit 1). The proposed Project is located within an approximate 36,350-acre area in Benton, Blue Creek, and Latty townships in Paulding County and Tully, Union, and Hoaglin townships in Van Wert County, Ohio. The Project area was selected based primarily upon the wind resource, transmission access, land availability, community support, site accessibility, and minimal environmental, ecological, and agricultural impact risk.

As shown in Exhibit 1, this Project would include the following:

- 167 wind-powered turbine generators;
- An electrical collection system using underground and aboveground 34.5 kilovolt (kV) lines;
- Some aboveground 115 kV electrical lines;
- Two intra-project collection substations;
- An interconnection substation;
- Gravel access roads;
- A temporary staging and construction laydown area;
- A permanent meteorological facility, consisting of a "met tower" and a sonic detection and ranging (SODAR) facility;
- A temporary concrete batch plant; and
- An operations and maintenance (O&M) building.

An additional eight turbines may be added to the Project during final design. This request includes six of the eight potential additional turbine locations. Two additional turbine sites may be added during the micro-siting in 2010. The wind turbine model to be utilized for the Project has not yet been selected; however, each turbine would have a nameplate capacity rating of 1.5 to 2.4 MW, which would result in a total generating capacity of up to 350 MW.

Four new substations would be required for the Project. The first (the Interconnection Substation) would function to gather the generated power and connect the Facility to American Electric Power's (AEP's) existing 345 kV transmission line for delivery of the power to the PJM Interconnection transmission grid system. PJM Interconnection LLC (PJM) is a regional transmission organization (RTO) that is part of the Eastern Interconnection grid, operating one of the leading and most efficient, regional transmission systems in the

country. The area required for this substation would be approximately 5 acres in the southeastern corner of the Project area (Exhibit 1). Immediately adjacent to the Interconnection Substation is a Project collection substation, which would gather the power from the turbines at 115 kV and transform it to 345 kV for interconnection. The area required for this substation would be approximately 5 acres. The third and fourth substations would each gather power from wind turbines and transform the voltage from 34.5 kV to 115 kV for delivery to the Project collection substation located adjacent to the PJM Interconnection Substation. The proposed locations of these substations are shown on Exhibit 1; final locations would be determined as a part of final electrical design.

A permanent O&M building would be constructed as part of the Project and would be located on a 10-acre parcel in the southeastern portion of the Project area adjacent to the Project collection and PJM Interconnection Substation. A temporary staging and construction laydown area and temporary concrete batch plant would be located on the same parcel of land that would house the O&M building.

This Wetland and Waterbody Delineation Report (Report) summarizes the results of the wetland and waterbody delineation surveys conducted in the Project area. These surveys were completed to determine the extent and jurisdiction of wetlands and waterbodies within the Project area. Results of the surveys will be utilized during Project planning and construction to minimize potential construction impacts to wetlands and waterbodies, where practicable and feasible.

This study supports the Applicant's submittal to the Ohio Power Siting Board (OPSB) for a Certificate of Environmental Compatibility and Public Need ("Certificate"), in accordance with Chapter 4906-17 of the Ohio Administrative Code (OAC), Application Filing Requirements for Wind-Powered Electric Generating Facilities. Preparation of the OPSB Certification Application began in August 2009 and will continue into early December 2009. Site-specific geotechnical studies will be conducted from April to May 2010, with the final geotechnical report to be submitted in June 2010. It is anticipated that the Certificate would be issued by August 2010. The final design drawings for the Project would be prepared beginning in August 2010. Phase I Facility Construction is anticipated to begin in September 2010 and extend through November 2011. Phase I of the facility would be placed into service in December 2011. Phase II Facility Construction is anticipated to begin in September 2011 and extend through November 2012. Phase II of the facility would be placed into service in December 2012.

Points of Contact for the Project include the following:

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Appendix A contains nine exhibits, which show the proposed turbine locations, access roads, electrical collector lines, substation, and the locations of identified wetlands and waters. These exhibits include a series of United States Geological Survey (USGS) topographic maps with National Hydrography Dataset (NHD) (USGS-mapped streams), National Wetland Inventory (NWI), and Ohio Wetland Inventory (OWI) wetland overlays. A second series shows Natural Resource Conservation Service (NRCS) soils overlay data on a 2008 aerial photo.

Appendix B contains United States Army Corps of Engineers (USACE) wetland determination data forms and Ohio Rapid Assessment Method (ORAM) scoring forms for each of the wetlands identified. Also in Appendix B are Ohio Environmental Protection Agency (OEPA) Headwater Habitat Evaluation Index (HHEI) and Qualitative Habitat Evaluation Index (QHEI) datasheets that were completed for the streams identified in the Project area, as well as photographic documentation of the wetlands and waterbodies delineated.

Wetland and Waterbody Delineations

This section of the Report describes the Project area and methodology used during the wetland and waterbody delineations.

2.1 Project Location

The Project area is located within Paulding and Van Wert Counties, Ohio and encompasses approximately 5,700 acres in the Townships of Benton, Blue Creek, and Latty in Paulding County and the Townships of Hoaglin, Tully, and Union in Van Wert County. The Project lies in the north-central portion of Van Wert County, approximately 3.0 miles north of the City of Van Wert, and in south-central portion of Paulding County, approximately 8.0 miles south of the Village of Paulding. The Project area stretches generally in a southwesterly to northeasterly direction from State Route 30 just northeast of the Village of Convoy.

The Project area for this survey was defined as a 250-foot radius surrounding the proposed locations of the turbines, access roads and collector lines, plus substation locations (Appendix A, Exhibits 2A-2D). The perimeter area was surveyed to allow the designers flexibility to avoid and minimize impacts to wetlands and waters where possible. The Project layout underwent some changes during the course of the field studies. Some properties that fell within the 250-foot radius survey area had not been leased for the Project at the time of the field studies; therefore, the survey area is somewhat irregular. The approximate center point of the Project area has the latitude and longitude of 40.9733 and 84.613422.

2.1.1 Project Relationship to Traditional Navigable Waters

The Project area is located just north of the Lake Erie-Ohio River drainage divide and is situated within the Maumee River Drainage Basin (HUC 04100007) (Ohio Department of Natural Resources [ODNR], 2009a). The Maumee River is designated as a traditional navigable water (TNW) by the USACE from the mouth at Lake Erie near Toledo, Ohio, to Hosey Dam near Fort Wayne, Indiana. The Project area is within the Auglaize River Watershed (HUC 04100007-080). The Auglaize River, a tributary to the Maumee River, is approximately 102 miles in length and drains approximately 2,435 square miles. (ODNR, 2009b)

Neither the Auglaize River nor the Maumee River (nor any other navigable waterway) is located within the Project area; however, several named tributaries to the Auglaize River are present (USGS, 1973a; USGS, 1973b; USGS, 1980; USGS, 1988; Geology.com, 2009; TerraServer-USA, 2009). The USGS-mapped streams within the Project area include Blue Creek, Dry Creek, Hagerman Creek, Hoaglin Creek, Hog Run, Maddox Creek, Pottawatomie Creek, Prairie Creek, Middle Creek, and Upper Prairie Creek, as shown in Table 2-1. These tributaries flow into the Auglaize River approximately 9 miles northeast of the Project area.

TABLE 2-1

Watersheds and Streams in the Project Area
Blue Creek Wind Farm

8-Digit HUC	10-Digit HUC	12-Digit HUC	Description
04100007	Auglaize River		
	04100007-07 Prairie Creek		
		04100007-0701	Hagerman Creek
		04100007-0702	West Branch Prairie Creek
			Includes: Hoaglin Creek
			Pottawatomie Creek
			Hog Run
		04100007-0703	Prairie Creek above Hagerman Creek
			Includes: Dry Creek
	04100007-08 Little Auglaize River (above Dog Creek except Prairie Creek)		
		04100007-0803	Maddox Creek
	04100007-10 Auglaize River (below Little Auglaize River to above Flatrock Creek)		
		04100007-1001	Upper Prairie Creek
			Includes: Middle Creek
		04100007-1003	Blue Creek below Upper Prairie Creek to below Cunningham Creek

None of the streams within the Project area, as listed above, are designated as "high quality waters" by the OAC, Chapter 3745-1 *Water Quality Standards*. The reach of the Auglaize River receiving flow from the Project area is designated a "state resource water" per the *Water Quality Standards*. (OAC, 2009) The reach of the Maumee River receiving flow from the Auglaize River is designated an "outstanding state water" based on recreational values.

2.1.2 Background Information

The Project area is located within the Maumee Lake Plains subsection of the Huron-Erie Lake Plains section of the Central Lowland physiographic province. The area is generally characterized by topography with very low relief that includes beach ridges, bars, dunes, deltas, and clay flats, and is slightly dissected by present day streams (ODNR, 2009c). Topography within the Project area is nearly level, ranging in elevation from about 730 feet above sea level in the northeast corner to about 775 feet above sea level in the southwest corner, a distance of approximately 10 miles (Appendix A, Exhibits 2A-2D).

Land use and habitat types observed within the Project area are predominantly cultivated crops, with some isolated areas of deciduous forest and wooded or shrubby riparian buffers along streams (Appendix A, Exhibits 3A-3D). The predominant crops are corn and soybeans, with very few pastures or alfalfa fields. Small, developed villages, occasional

livestock operations (cattle and hogs) are also present within the Project area. The turbines have been sited to be a minimum of 1,640 feet (500 meters) from any woodlots. Access roads and collector lines have been sited to avoid woodlots, although in a few cases woodlots are located within the 250-foot radius survey area.

Prior to conducting the field investigation, CH2M HILL reviewed the following resources to identify the potential locations and extent of wetlands and waterbodies within the Project area:

- USGS topographic maps NHD (USGS mapped streams)
- Aerial photo-based maps
- NWI
- OWI
- Federal Emergency Management Agency (FEMA) 100-year floodplains
- NRCS Soil Surveys

The USGS topographic maps show intermittent and perennial streams and a few ponds. The NHD mapped streams indicate the network of drainages, many linear, leading to the named tributaries that drain the area. These maps do not identify any wetlands in the Project area.

A review of recent (Spring 2008) aerial photography of the project area shows the predominant agricultural land use (mostly row crops) which occupies more than 90 percent of the project area (Appendix A, Exhibits 3A-3D). Scattered woodlots are also visible on the aerial. The vast majority of the agricultural areas appear to be effectively drained. In some locations, some surface water can be seen in plowed fields on the aerials. The ponding was compared to historical aerials (2003 to 2006) available on-line through Google Earth to attempt to determine the extent and periodicity of regular ponding. Relatively few features were found in the comparison that appear to represent areas that are consistently wet, that is, farmed wetlands.

The NWI data shows few wetlands in the project area (Appendix A, Exhibits 2A-2D). The largest wetlands are palustrine forested (PFO) wetlands located along Blue Creek northwest of the project area. Otherwise, there are scattered palustrine, unconsolidated bottom ponds in the general Project vicinity.

The OWI shows many of the woodlots in the Project area as "woods on hydric soil." Otherwise, there are a few farmed wetlands and open water wetlands in the Project vicinity. Scrub-shrub, marsh and wet meadow wetlands are very few and small.

In the Project vicinity, FEMA has mapped narrow 100-year floodplains along Blue Creek, the lower reach of Prairie Creek, Hoaglin Creek, and Maddox Creek.

The NRCS soil surveys of Paulding and Van Wert Counties show 10 soil series and 27 soil unit types within the Project area (Table 2-2 and Appendix A, Exhibits 3A-3D). Hydric soils comprise approximately 94 percent of the Project area.

TABLE 2-2
Soils in the Project Area
Blue Creek Wind Farm

Symbol	Soil Description	Drainage Class	Hydric/ Inclusion	Proportion of Study Area
BnA	Blount loam, 0 to 2 percent slopes	Somewhat poorly drained	Inclusion	0.1%
BnB	Blount loam, 2 to 6 percent slopes	Somewhat poorly drained	Inclusion	0.2%
Cx	Cut and fill land	---	--	0.0%
DmB	Digby loam, 2 to 6 percent slopes	Somewhat poorly drained	Inclusion	0.1%
HnA	Haskins loam, 0 to 2 percent slopes	Somewhat poorly drained	Inclusion	0.5%
HnB	Haskins loam, 2 to 6 percent slopes	Somewhat poorly drained	Inclusion	<0.1%
Ho	Hoytville silty clay loam, 0 percent slopes (flats)	Very poorly drained	Hydric	4.7%
Hs	Hoytville silty clay loam, moderately shallow variant (flats)	Very poorly drained	Hydric	0.6%
Ht	Hoytville silty clay, 0 percent slopes (flats)	Very poorly drained	Hydric	65.5%
Hv	Hoytville clay, 0 percent slopes (flats)	Very poorly drained	Hydric	3.6%
La	Latty silty clay loam, 0 percent slopes (flats)	Very poorly drained	Hydric	0.1%
Lb	Latty silty clay, 0 percent slopes (flats)	Very poorly drained	Hydric	5.4%
Lc	Latty clay, 0 percent slopes (flats)	Very poorly drained	Hydric	12.9%
Md	Mermill silt loam, 0 percent slopes (beach ridges)	Very poorly drained	Hydric	<0.1%
NaA	Nappanee loam, 0 to 2 percent slopes	Somewhat poorly drained	Inclusion	<0.1%
NnA	Nappanee loam, 0 to 2 percent slopes	Somewhat poorly drained	Inclusion	<0.1%
NpA	Nappanee silt loam, 0 to 2 percent slopes	Somewhat poorly drained	Inclusion	2.7%
NpB	Nappanee silt loam, 2 to 6 percent slopes	Somewhat poorly drained	Inclusion	0.2%
NpB2	Nappanee silty clay loam, 2 to 6 percent slopes	Somewhat poorly drained	Inclusion	<0.1%
NtA	Nappanee silty clay loam, 0 to 2 percent slopes	Somewhat poorly drained	Inclusion	1.9%

TABLE 2-2
Soils in the Project Area
Blue Creek Wind Farm

Symbol	Soil Description	Drainage Class	Hydric/ Inclusion	Proportion of Study Area
NtB2	Nappanee silty clay loam, 2 to 6 percent slopes (moderately eroded)	Somewhat poorly drained	Inclusion	0.1%
Qu	Quarry	--	—	0.3%
Sb	Saranac silty clay loam, occasionally flooded	Poorly drained	Hydric	0.2%
To	Toledo silty clay	Very poorly drained	Hydric	0.3%
Wa	Wabasha silty clay loam	Poorly drained	Hydric	0.3%
Wb	Wabasha silty clay loam, moderately shallow variant	Poorly drained	Hydric	0.2%
Wh	Wabasha silty clay	Poorly drained	Hydric	0.2%

Source: NRCS, 2009

2.2 Methodology

CH2M HILL conducted wetland and waterbody delineation surveys for the Project on September 16 to 21, 2009 and October 14 to 15, 2009 in accordance with applicable Federal and State regulations and guidance. Wetland boundaries were field delineated according to the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* (USACE, 1987), and subsequent guidance documents (USACE, 1992). While it was confirmed with USACE Buffalo District Office prior to beginning the field surveys that the wetlands in the Project area could be delineated using the 1987 manual, elements of the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*, such as identification of farmed wetlands, were also utilized and referenced (USACE, 2008).

Field data collection utilized handheld global positioning system (GPS) units to map wetlands and waterbody boundaries as well as to collect information (vegetation, hydrology, soils, adjacent land issues, and general observations) about the features. Shapefiles of the Project boundary were pre-loaded onto Trimble Pathfinder® ProXT™ GPS units to facilitate navigation within the study area. Two (2) two-person field crews utilized two data dictionary files that were pre-loaded onto the GPS units to record information. The data dictionary files prompt the field crews to enter specific information in order to automate data collection as modeled on information required in the Routine Wetland Delineation Data Forms and the Approved Jurisdictional Determination Form.

The outer boundaries of each wetland and waterbody within the 250-foot radius Project survey area were delineated and recorded using the GPS unit to sub-meter accuracy. For all waterbodies, the ordinary high water mark (OHWM) was recorded as the jurisdictional

boundary. As wetland and waterbody features were collected, they were assigned a FEATURE_ID with the format of FNNNXY, where:

- F = Feature Type (W for wetland, U for upland, S for stream, P for pond, M for man-made, and N for natural)
- NNN = Nearest Turbine (001 - 173)
- X = Facility Type (that is, A for access road, C for collector line, and T for turbine site)
- Y = Feature Number (A - X for each wetland or stream feature sited at each facility).

The naming convention varies slightly for features along "main" collector lines that serve many turbines. In these cases, a truncated name of the roadway that the line follows was substituted for the turbine number. The name "MAIN" was used for features along an old railroad bed running south from the village of Scott.

Wetland delineation data are reported on routine wetland determination data forms consistent with the 1987 manual, as confirmed with the USACE Buffalo District Office prior to initiating field investigations. In addition, each of the identified wetlands was evaluated in accordance with the ORAM (Version 5.0), developed by the OEPA. Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000).

According to recent guidance from the United States Environmental Protection Agency (USEPA) and the USACE, wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the Clean Water Act (USACE and USEPA, 2007). A significant nexus must meet a number of criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. Typically, a significant nexus requires a surface water connection to the TNW or a relatively permanent water (RPW) that is tributary to the TNW. Each wetland was evaluated for significant nexus to RPWs according to these directives. Those wetlands with no apparent surface nexus to a RPW or TNW were considered "isolated."

Jurisdictional streams were identified as those waters that had an OHWM, a defined channel, and an open water feature, such as surface water or at least a non-vegetated area through the channel that indicated periodic flowing water. Defined channels that were dominated by hydrophytes, without an open water feature, and otherwise met the definition of wetlands according the USACE 1987 manual methodology were considered linear wetlands. Those streams in the Project area that run generally perpendicular or diagonal to the alignment of the roadway and that have definable beds and banks were included as jurisdictional. In addition, channels that were apparently created in hydric soil units were included as jurisdictional waters. Channels that parallel the roadway, do not have an identifiable OHWM, are dominated by upland vegetation, and do not represent a relocation of a natural channel were eliminated as jurisdictional.

Each stream was categorized in regards to its flow regime as perennial, intermittent, or ephemeral, as defined by the USACE (USACE, 2007). Perennial streams with a drainage area of greater than one square mile were evaluated using the OEPA's QHEI. The QHEI assessment examines a number of stream characteristics and yields a score ranging from 0 to

100. Based on the QHEI score, an Aquatic Use Designation was assigned in accordance with OEPA, 1989. A score of 60 typically indicates a stream has the physical characteristics needed to support diverse macroinvertebrate and fish populations and attain the warmwater habitat (WWH) designation. Scores of 32 to 60 may be indicative of a modified warmwater habitat (MWH), meaning a WWH that has been disturbed but could potentially recover. Scores less than 32 typically indicate a limited resource water (LRW). Scores that are greater than 75 are indicative of a possible exceptional warmwater habitat (EWH). Scores obtained in the field were compared to the use designations assigned by statute in the Water Quality standards for those streams that have been so designated.

Streams with drainage areas less than one square mile were evaluated using the OEPA HHEI, which is used to determine the status of smaller streams as one of three classes of primary headwater habitats (PHWH). The method scores streams on a range of 0 to 80 based on physical characteristics. Scores less than 30 indicate a Class I PHWH (typically ephemeral streams), scores 30 to 50 indicate a Class II PHWH (intermittent, warm water streams), scores greater than 50 can be either Class II or Class III depending on their conditions, and Scores 70 or greater indicate a Class III PHWH (perennial, cool water streams).

As shown in Table 2-3, rainfall recorded in Van Wert County for 2009 was higher than normal in April, slightly less than normal in June and July, and less than normal August through September. Rainfall was considerably higher than normal in October, as approximately 3.4 inches of rain fell between October 1 and October 13 before the second field investigation.

TABLE 2-3
Precipitation in the Project Area, 2009
Blue Creek Wind Farm

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	1.52	2.95	1.75	5.52	3.15	3.14	2.24	1.41	1.58	6.36	-	-
Average 1970-2000	2.03	1.84	2.62	3.47	3.81	4.33	3.9	3.42	2.85	2.59	3.05	2.75

Source: National Oceanic and Atmospheric Administration, 2009

Survey Results

The dominant agricultural land use in the Project area has led to extensive drainage of the widespread native hydric soils using a network of open drainage ditches. These ditches are largely manmade and maintained (periodically dredged), and in keeping with their intended purpose of drainage, they are continuous to RPWs within and outside of the Project area. Many of the natural, named streams have been modified as well to accommodate the drainage.

A total of 76 wetland and 41 waterbody sites were delineated within the Project area, many of which are agricultural drainage features. Combined, they total approximately 37.2 acres or about 0.5 percent of the 6,982-acre Project survey area. Not all of these sites represent independent features; many represent several locations along the same waterbody or wetland ditch that cross the survey area at multiple locations.

Drainage features were determined to be wetlands or waterbodies based on the site characteristics at the location where the proposed Project component (turbine, access road, collector line) crossed the feature. The linear, defined channels/ditches where hydrophytes dominate the entire channel with little or no indication of a lentic (flowing) water character, and otherwise met the definition of wetlands according the USACE 1987 manual, were considered linear wetlands. Ditches that contained open water or indication of recent flooding that excluded hydrophytes were considered to be streams, even though many of these also supported a fair amount of wetland vegetation. Most reaches of the named streams had sustained flow and were considered streams. However, by this definition, even a substantial, headwater length of the aptly named Dry Creek, which has been extensively modified, was identified as wetland (W151CA). One ditch (S048CA) would likely have been a typical linear wetland except for the sustained flow and extensive backwater feature created by dewatering from the nearby gravel quarry. In more than one case was a continuous ditch considered to be wetland at one location and stream at another (usually downstream of the wetland). Thus, this designation is largely dependent on the site conditions found in the survey area at the time of the survey. At other times of the year, when the vegetation is dormant and the water table is high, more ditches might be considered streams. The dominance of many ditches with hydrophytes is also dependent on the lack of a riparian canopy, which led to some, equally manipulated ditches to be called streams. Therefore, the differentiation of wetlands and streams in the Project area is sometimes problematic.

Tables 3-1 and 3-2 contain summaries of the characteristics for each wetland and waterbody feature delineated during the surveys. Appendix A, Exhibits 2A to 2D provide an overview map of the Project area and the relationships of the identified waters to the tributary system and to the proposed wind energy facilities. Individual site details are provided in the field datasheets, evaluation forms (QHEI and HHEI forms for streams; ORAM forms for wetlands), and detail maps and photos in Appendix B.

3.1 Wetland Site Descriptions

All wetlands delineated within the Project area are within mapped hydric soil units. As noted above, the majority of the identified wetlands were linear drainage ditches, along roadsides or through agricultural fields. Consequently, the wetlands delineated within the Project area were primarily palustrine emergent marsh (PEM). These linear wetlands appeared to be seasonally or periodically flooded or saturated, and hydrology was often indicated by the presence of saturated soils, small areas of inundation, water marks, and/or drainage patterns. Hydric soils were confirmed at all linear ditch wetlands. Plant species commonly observed in linear drainage ditches included broadleaf cattail (*Typha latifolia*), narrowleaf cattail (*Typha angustifolia*), Pennsylvania smartweed (*Polygonum pennsylvanicum*), rice cutgrass (*Leersia oryzoides*), green bulrush (*Scirpus atrovirens*), softstem bulrush (*Scirpus validus*), water plantain (*Alisma subcordatum*), indeterminant sedge species (*Carex* spp.), giant goldenrod (*Solidago gigantea*), and rough barnyard grass (*Echinochloa muricata*). The linear wetlands were consistently documented as being Category 1 wetlands based on the ORAM score (ranging from 19 to 28), in accordance with rule 3745-1-54 of the OAC. These wetlands typically had minimal to no natural buffers, with the surrounding land use typically consisting of existing paved roads and/or active agricultural fields. Further, they exhibited little or no habitat diversity or interspersions, and the habitat is not likely to naturally succeed because of periodic dredging and/or mowing.

Farmed wetlands were identified based hydrology indicators, typically substantial crop suppression and rack lines of crop stubble in depressions, and the presence of invasive wetland indicator plants. While the identified farmed wetlands retained some of the planted row crops, other vegetation including barnyard grass (*Echinochloa* sp.) and smartweeds (*Polygonum* spp.) had also become established through the growing season. As described in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE, 2008), barnyard grass and smartweed are often found in and considered indicative of cropped areas that are retaining wetland hydrology, i.e., farmed wetlands. Areas with suppressed crop but found to largely support more upland species such as Japanese bristlegrass (*Setaria faberi*) and velvetleaf (*Abutilon theophrasti*) were not considered wetlands, also consistent with the guidance in the Midwest Regional manual. While velvetleaf and bristlegrass were sometimes found in the identified farmed wetlands, farmed wetlands were delineated based on the greater dominance of barnyard grass and smartweed in conjunction with crop suppression. Given the recurrent disturbance and lack of any buffer, the farmed wetlands were also categorically determined to be Category 1 wetlands, with ORAM scores of 12 to 16. Most of the farmed wetlands were considered isolated, since they had no surface connections to streams. The exception was W038AB and W038AD, which are adjacent to a wooded wetland and were rated in unison with that wetland. Combined, these three wetlands were rated as a Modified Category 2 wetland.

In total, only 10 Category 2 wetlands were identified. All Category 2 wetlands were located within remnant woodlots. Many woodlots in the project vicinity appear to be effectively drained by the surrounding agricultural tile drainage system, based on the lack of hydrophytes (particular in the understory and at the ground layer) and lack of hydrologic indicators, and therefore were not considered wetlands.

W026AA is a relatively large wetland at more than 8 acres. Many of the woodlots are bordered by active agricultural fields, and artificial drainage within these agricultural fields appears to affect adjacent woodlots by modifying their hydrology. This appears to be true for **W026AA**, although at least portions of this wetland exhibited water marks and water-stained leaves that indicated the area retained wetland hydrology. Hydric soil conditions were also confirmed. Plant species commonly observed within this wetland included pin oak (*Quercus palustris*), swamp white oak (*Quercus bicolor*), green ash (*Fraxinus pennsylvanica*), and occasional shagbark hickory (*Carya ovata*). The wetland appears to have a shallow connection to the roadside ditch that connects to the tributary system. It is a Modified Category 2 wetland.

W038AC is also in a remnant woodlot and relatively large (6 acres). This woodland also appears to be affected to some extent by drainage of the surrounding agricultural lands. It has a similar canopy composition to **W026AA** with pin oak, swamp white oak, and ash. The ground layer is dominated by indicator species, notably *Carex vesicaria* (OBL). This vegetation, as well as two areas of farmed wetlands (**W038AB** and **W038AD**) adjacent to the woodland, indicates that the area retains wetland hydrology. For the purposes of the ORAM evaluation, the farmed wetlands and the wooded wetland were considered a single wetland. The area appears to have no surface connections to any RPWs and therefore appears to be isolated. It is a Modified Category 2 wetland.

Several of the wooded wetlands are remnant drainage swales along the old railroad embankment that runs south from the village of Scott (**WMAINCD**, **WMAINCE**, **WMAINCG**, **WMAINCH**, and **WMAINCJ**). These wetlands are nearly identical in that they exhibit wetland hydrology as water stained leaves and water marks, and most are dominated by green ash with very little ground layer or understory. Two of these are isolated (**WMAINCD** and **WMAINCE**), while the others are located in the floodplain of Hoaglin Creek and therefore are considered adjacent to this stream. All are Modified Category 2 wetlands.

The most notable wetlands in the project area are **WMAINCF** and **WMAINCK**. Both of these wetlands are located in a mature, predominantly upland forest adjacent to Hoaglin Creek. Both exhibit wetland hydrology as water marks and water stained leaves, and are dominated by mature trees such as pin oak and green ash. By virtue of their buffer, depth of flooding, and habitat features, these wetlands have the highest ORAM scores of all wetlands in the project area. **WMAINCF** is Category 2; **WMAINCK** is larger, and its ORAM score is in the Category 2 to 3 gray zone.

Finally, **WMAINCJ** is a small depression in the woodlands adjacent to Hoaglin Creek. It also contains typical wetland species such as green ash with an ample growth of sedges (*Carex vesicaria*, OBL) in the ground layer. It is a Modified Category 2 wetland.

3.2 Waterbody Site Descriptions

As noted above, the tributary system throughout the Project area has been extensively modified to improve drainage. This modification includes most of the larger named streams, as well as smaller drainages and ditches.

A majority of the identified waterbodies were linear drainage ditches flowing along roadsides or through agricultural fields. These ditches had well-vegetated (planted grasses) and usually stable banks, where they had not been recently dredged. The beds often contained a collection of hydrophytes similar to that recorded in the linear drainage wetlands. Few ephemeral, non-RPW streams were identified within the Project area, as these features typically were dominated by hydrophytes and therefore identified as wetlands. The OHWM in these waterbodies was exhibited by matted vegetation, shelving, water lines, and changes in the vegetation.

Those linear ditches with drainage areas less than one square mile were evaluated using the OEPA's HHEI, which consistently classified these streams as Modified Class I or Modified Class II headwaters (HHEI score 21 to 59). These headwater streams primarily had manipulated or artificial channels that ran relatively straight. Riparian corridors were limited or absent due to adjacent roads and active agricultural lands. Open water, when present, was typically shallow and slow moving, creating glide habitats, and no riffle/pool complexes. Some linear ditches delineated as waterbodies had no water present at the time the surveys were conducted.

A majority of the larger, named streams were observed to be of medium quality with wide, deep trapezoidal channels that varied from straight to somewhat meandering. The water depth of the main channels ranged from 6 to 12 inches, while the water width ranged between 10 to 20 feet. Several of these streams had a primary substrate of cobbles, although many had substrates that were embedded with fine sand and silt. The water observed within these main channels was generally clear, with some areas exhibiting slight turbidity, at generally slow to moderate velocity. These streams were generally typified by glide habitats; riffles and pools typically occurred at manmade features, such as fords or where riprap/bank stabilization had been installed. Some of the larger streams appear to be recovering more natural stream habitat characteristics, such as Blue Creek, Hagerman Creek, and Prairie Creek, although woody riparian vegetation is largely absent. Small fish and frogs were commonly observed within the main channels; mussel shells (dead) were found in several streams as well.

Prairie Creek, Hagerman Creek, Blue Creek, Dry Creek and Hoaglin Creek are all designated MWHs in the Water Quality standards. For the most part, the QHEI scores were consistent with that use designation (most scores in the range of 22 to 55). In two areas in the lower reach of Prairie Creek in the Project area, the stream habitat QHEI score approached or exceeded the WWH criterion (QHEI \geq 60). Blue Creek also had a relatively higher score, just below the WWH criterion. The other larger streams had QHEI scores consistent with MWHs.

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
1	W003AA	Van Wert	40.9748/ 84.6887	PEM	0.14	15	1	Farmed	041000071001	None (isolated)
2	W003CA	Van Wert	40.9742/ 84.6826	PEM	0.07	23.5	1	Drainage ditch	041000071001	Adjacent to Upper Prairie Creek
3	W004AA	Van Wert	40.9895/ 84.6878	PEM	0.01	17	1	Drainage ditch	041000071001	Adjacent to Upper Prairie Creek
4	W005CA	Van Wert	40.9823/ 84.6882	PEM	0.25	27	1	Drainage ditch	041000071001	Adjacent to Upper Prairie Creek
5	W005CB	Van Wert	40.9815/ 84.6826	PEM	0.03	21.5	1	Drainage ditch	041000071001	Adjacent to Upper Prairie Creek
6	W007AA	Van Wert	40.9895/ 84.6795	PEM	0.03	23.5	1	Drainage ditch	041000071001	Adjacent to Upper Prairie Creek
7	W009AA	Van Wert	40.9828/ 84.6675	PEM	0.07	21.5	1	Drainage ditch	041000071003	Adjacent to UT to Prairie Creek
8	W013AA	Van Wert	40.9677/ 84.6748	PEM	0.23	21	1	Drainage ditch	041000071003	Adjacent to UT to Prairie Creek
9	W015AA	Van Wert	40.9605/ 84.6954	PEM	0.09	22.5	1	Drainage ditch	041000071001	Continuous with W003CA; adjacent to Upper Prairie Creek
10	W015CD	Van Wert	40.953/ 84.6951	PEM	0.45	13.5	1	Farmed	041000071001	None (isolated)
11	W017AA	Van Wert	40.9461/ 84.6952	PEM	0.05	14	1	Farmed	041000071001	None (isolated)
12	W017AB	Van Wert	40.95/ 84.6951	PEM	0.69	16	1	Farmed	041000071001	None (isolated)

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
13	W017AC	Van Wert	40.9501/ 84.6947	PEM	0.23	15	1	Farmed	041000071001	None (isolated)
14	W018AA	Van Wert	40.9459/ 84.6962	PEM	0.22	23.5	1	Drainage ditch	041000071001	Continuous with W003CA; adjacent to Upper Prairie Creek
15	W018CA	Van Wert	40.9459/ 84.6929	PEM	0.07	22	1	Drainage ditch	041000071001	Adjacent to W003CA to Upper Prairie Creek
16	W020CA	Van Wert	40.9314/ 84.6882	PEM	0.06	13	1	Farmed	041000071001	None (isolated)
17	W021CA	Van Wert	40.9428/ 84.6827	PEM	0.11	21	1	Drainage ditch	041000070703	Adjacent to UT to Prairie Creek
18	W021CB	Van Wert	40.9423/ 84.6772	PEM	0.07	20	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
19	W023AA	Van Wert	40.9495/ 84.6677	PEM	0.15	22.5	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
20	W026AA	Van Wert	40.9351/ 84.6706	PFO1	2.44	41.5	Modified 2	Wooded	041000070703	Adjacent to roadside ditch to S021CB to Prairie Creek
21	W027CB	Van Wert	40.9314/ 84.6772	PEM	0.03	20	1	Drainage ditch	041000070703	Continuous with W021CB; adjacent to Prairie Creek
22	W031CA	Van Wert	40.9578/ 84.6676	PEM	0.25	24	1	Drainage ditch	041000070703	Adjacent to Prairie Creek

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
23	W035CA	Van Wert	40.9458/ 84.6528	PEM	0.64	23	1	Drainage ditch	041000070703	Continuous with W035AA; adjacent to UT to Prairie Creek
24	W036CA	Van Wert	40.9427/ 84.6582	PEM	0.02	22	1	Narrow wetland swale between woodland and cropland	041000070703	Continuous with W035CA; adjacent to UT to Prairie Creek
25	W038AA	Van Wert	40.9327/ 84.6675	PEM	0.44	23.5	1	Drainage ditch	041000070701	Abuts UT to Hagerman Creek
26	W038AB	Van Wert	40.9333/ 84.6609	PEM	0.28	44	Modified 2	Farmed	041000070701	None (isolated)
27	W038AC	Van Wert	40.9329/ 84.6622	PFO1	1.37	44	Modified 2	Wooded	041000070701	None (isolated)
28	W038AD	Van Wert	40.9331/ 84.6624	PEM	0.45	44	Modified 2	Farmed	041000070701	None (isolated)
29	W039CA	Van Wert	40.9366/ 84.6582	PEM	0.19	13	1	Farmed	041000070701	Adjacent to UT to Hagerman Creek
30	W039CB	Van Wert	40.9378/ 84.6397	PEM	0.05	22	1	Drainage ditch	041000070701	None (isolated)
31	W042AA	Van Wert	40.9239/ 84.6487	PEM	0.10	21.5	1	Drainage ditch	041000070701	Adjacent to Hagerman Creek
32	W043AA	Van Wert	40.9167/ 84.6576	PEM	0.07	23.5	1	Drainage ditch	041000070702	Adjacent to Hoaglin Creek

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
33	W050AA	Van Wert	40.9642/ 84.6394	PEM	0.11	23.5	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
34	W053AA	Van Wert	40.9565/ 84.6486	PEM	0.28	13	1	Drainage ditch	041000070703	Adjacent to UT to Prairie Creek
35	W053CA	Van Wert	40.9603/ 84.6441	PEM	0.02	21	1	Drainage ditch	041000070703	Continuous with W050AA; adjacent to Prairie Creek
36	W062CA	Van Wert	40.9533/ 84.622	PEM	0.19	28	1	Drainage ditch	041000070703	Adjacent to UT to Prairie Creek
37	W070AA	Paulding	40.9996/ 84.6497	PEM	0.10	20.5	1	Drainage ditch	041000071003	Adjacent to Blue Creek
38	W072CA	Van Wert	40.9894/ 84.6482	PEM	0.09	21	1	Drainage ditch	041000070703	Continuous with W071HCB; adjacent to UT to Prairie Creek
39	W073CA	Paulding	41.004/ 84.6398	PEM	0.24	20	1	Drainage ditch	041000071003	Continuous with W075CA; adjacent to UT to Blue Creek
40	W075CA	Paulding	41.0041/ 84.6353	PEM	0.31	22	1	Drainage ditch	041000071003	Adjacent to UT to Blue Creek
41	W080AA	Van Wert	40.9787/ 84.6304	PEM	0.06	19	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
42	W085AA	Van Wert	40.9895/ 84.6188	PEM	0.09	21	1	Drainage ditch	041000070703	Continuous with W097AA; adjacent to Prairie Creek
43	W088CA	Van Wert	40.9801/ 84.6113	PEM	0.11	19	1	Drainage ditch	041000070703	Adjacent to Prairie Creek

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
44	W087AA	Paulding	41.0151/ 84.6211	PEM	0.04	22	1	Drainage ditch	041000071003	Adjacent to UT to Blue Creek
45	W090CA	Paulding	41.0062/ 84.6113	PEM	0.17	23.5	1	Drainage ditch	041000071003	Adjacent Blue Creek
46	W093CA	Paulding	41.0043/ 84.6067	PEM	0.06	19	1	Drainage ditch	041000070703	Continuous with W142CA; adjacent to Prairie Creek
47	W097AA	Van Wert	40.9896/ 84.6062	PEM	0.12	21	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
48	W100CA	Van Wert	40.9765/ 84.6015	PEM	0.12	20	1	Drainage ditch	041000070703	Adjacent to UT to Prairie Creek
49	W105AA	Van Wert	40.9751/ 84.6063	PEM	0.03	21	1	Drainage ditch	041000070702	Continuous with W100CA; adjacent to UT to Prairie Creek
50	W110CA	Van Wert	40.9632/ 84.5918	PEM	0.07	19	1	Drainage ditch	041000070703	Continuous with WELMCB; adjacent to Prairie Creek
51	W119CA	Van Wert	40.9397/ 84.6016	PEM	1.12	26	1	Drainage ditch	041000070702	Adjacent to Pottawatomie Creek
52	W122AA	Van Wert	40.9392/ 84.5868	PEM	0.05	14	1	Farmed	041000070702	None (isolated)
53	W136CA	Van Wert	40.9681/ 84.5743	PEM	0.02	12	1	Farmed	041000070701	None (isolated)
54	W142CA	Paulding	41.0045/ 84.592	PEM	0.22	23	1	Drainage ditch	041000070703	Adjacent to Prairie Creek

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
55	W147CA	Paulding	41.0069/ 84.5729	PEM	0.07	23.5	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
56	W150CA	Van Wert	40.986/ 84.5823	PSS1	0.01	31	1-2	Drainage ditch	041000070703	None (isolated)
57	W151AA	Van Wert	40.9899/ 84.5663	PEM	0.20	17	1	Drainage ditch	041000070703	Adjacent Hagerman Creek
58	W151CA	Van Wert	40.9863/ 84.5786	PEM	0.75	20	1	Drainage ditch	041000070703	Abuts Dry Creek
59	W160CA	Paulding	41.0045/ 84.544	PEM	0.52	22.5	1	Drainage ditch	041000070701	Adjacent Hagerman Creek
60	W167AA	Paulding	41.0045/ 84.5221	PEM	0.12	20	1	Drainage ditch	041000070702	Adjacent to Hog Run
61	W168AA	Van Wert	40.9805/ 84.5338	PEM	0.06	17	1	Drainage ditch	041000070701	Adjacent to UT to Hagerman Creek
62	W169AA	Van Wert	40.9751/ 84.5453	PEM	0.09	17	1	Drainage ditch	041000070702	Adjacent to Hoaglin Creek
63	WELMCA	Van Wert	40.9753/ 84.5836	PEM	0.29	22	1	Drainage ditch	041000070703	Abuts Dry Creek
64	WELMCB	Van Wert	40.9755/ 84.592	PEM	0.21	19	1	Drainage ditch	041000070703	Adjacent to Prairie Creek
65	WMAINCA	Van Wert	40.9756/ 84.5823	PEM	0.01	23	1	Drainage ditch	041000070703	None (isolated)
66	WMAINCC	Van Wert	40.9624/ 84.5821	PFO1	0.19	29	1	Wooded, old railroad embankment drainage	041000070701	Adjacent to Hagerman Creek

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
67	WMAINC D	Van Wert	40.9561/ 84.5821	PFO1	0.12	42	Modified 2	Wooded, old railroad embankment drainage	041000070701	None (isolated)
68	WMAINC E	Van Wert	40.9562/ 84.5819	PFO1	0.06	42	Modified 2	Wooded, old railroad embankment drainage	041000070701	None (isolated)
69	WMAINC F	Van Wert	40.9371/ 84.5815	PFO1	0.10	56	2	Wooded floodplain wetland	041000070702	Adjacent to Hoaglin Creek (floodplain)
70	WMAINC G	Van Wert	40.9358/ 84.5819	PFO1	0.15	42	Modified 2	Wooded, old railroad embankment drainage	041000070702	Adjacent to Hoaglin Creek (floodplain)
71	WMAINC H	Van Wert	40.9358/ 84.5819	PFO1	0.11	42	Modified 2	Wooded, old railroad embankment drainage	041000070702	Adjacent to Hoaglin Creek (floodplain)
72	WMAINC I	Van Wert	40.9352/ 84.5817	PFO1	0.08	42	Modified 2	Wooded, old railroad embankment drainage	041000070702	Adjacent to Hoaglin Creek (floodplain)
73	WMAINC J	Van Wert	40.9364/ 84.5821	PFO1	0.03	40	Modified 2	Wooded floodplain wetland	041000070702	Adjacent to Hoaglin Creek (floodplain)
74	WMAINC K	Van Wert	40.9381/ 84.581	PFO1	0.32	64	2-3	Wooded floodplain wetland	041000070702	Adjacent to Hoaglin Creek (floodplain)

TABLE 3-1
Existing Wetland Resources Identified within the Project Area
Blue Creek Wind Project

No. of Wetland	Feature ID	County	Latitude/ Longitude	Cowardin Classification ¹	Area within Project Boundary	ORAM Score	OEPA Wetland Category ²	General Condition	12-Digit HUC	Hydrological Connection
75	WRICHCA	Van Wert	40.9858/ 84.6486	PEM	0.08	23	1	Drainage ditch	041000070703	Adjacent to UT to Prairie Creek
76	WSUBA	Van Wert	40.9314/ 84.5597	PEM	0.07	12	1	Farmed	041000070703	None (isolated)

Footnotes:

- 1 PEM palustrine emergent marsh
PFO1 palustrine forested, deciduous
PSS palustrine scrub-shrub
- 2 Wetland Category determined based on ORAM score, in accordance with OEPA, 2000.
- 3 UT unnamed tributary

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PHWH Class/Use Designations ³	TNW Connection
Prairie Creek													
1	S014CA	Van Wert	40.965/ 84.6691	Prairie Creek	Perennial	3.1	596	041000070703	RPW	N/A	--	MVWH ⁴	Tributary to Auglaize River
2	SRICHCA	Van Wert	40.9743/ 84.6492	Prairie Creek	Perennial	5.0	386	041000070703	RPW	48.0	--	MVWH ⁴	Tributary to Auglaize River
3	S080AA	Van Wert	40.978/ 84.6304	Prairie Creek	Perennial	9.3	1925	041000070703	RPW	22.0	--	MVWH ⁴	Tributary to Auglaize River
4	S082CA	Van Wert	40.98/ 84.6253	Prairie Creek	Perennial	9.6	596	041000070703	RPW	N/A	--	MVWH ⁴	Tributary to Auglaize River
5	S086CA	Van Wert	40.982/ 84.6132	Prairie Creek	Perennial	13.1	1,137	041000070703	RPW	36.0	--	MVWH ⁴	Tributary to Auglaize River
6	S098CA	Van Wert	40.9858/ 84.6035	Prairie Creek	Perennial	14.8	2,083	041000070703	RPW	42.5	--	MVWH ⁴	Tributary to Auglaize River
7	S145CA	Paulding	40.9988/ 84.5901	Prairie Creek	Perennial	17.1	3,230	041000070703	RPW	63.75	--	MVWH ⁴	Tributary to Auglaize River
8	S143CA	Paulding	41.007/ 84.5824	Prairie Creek	Perennial	17.5	977	041000070703	RPW	51.5	--	MVWH ⁴	Tributary to Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PHSW Class/Use ³	TNW Connection
Unnamed Tributaries (UT) to Prairie Creek													
9	S021AA	Van Wert	40.9458/ 84.6858	Prairie UT 1	Intermittent	0.2	884	041000070703	RPW	--	46	Modified Class II	Tributary to Prairie Creek, and Auglaize River
10	S021CA	Van Wert	40.9458/ 84.6868	Prairie UT 2	Ephemeral	0.1	1,074	041000070703	Non-RPW	--	22	Modified Class I	Tributary to Prairie Creek, and Auglaize River
11	S048CA	Van Wert	40.986/ 84.6486	Prairie UT 3	Intermittent (flow from gravel quarry dewatering)	0.5	5,270	041000070703	RPW	--	59.0	Modified Class II	Tributary to Prairie Creek, and Auglaize River
12	SR1CHCB	Van Wert	40.9531/ 84.6493	Prairie UT 4	Ephemeral	0.4	230	041000070703	RPW	--	37	Modified Class II	Tributary to Prairie Creek, and Auglaize River
13	S081CA	Van Wert	40.9845/ 84.6214	Prairie UT 5	Ephemeral	0.9	631	041000070703	RPW	--	27.0	Modified Class I	Tributary to Prairie Creek, and Auglaize River
14	S088AA	Van Wert	40.9825/ 84.6015	Prairie UT 6	Ephemeral	1.0	2,086	041000070703	Non-RPW	--	27.0	Modified Class I	Tributary to Prairie Creek, and Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PWHH Class/Use Designations ³	TNW Connection
15	S143CB	Paulding	41.0073/ 84.5823	Prairie UT 7	Intermittent	1.5	189	041000070703	RPW	30.0	--	LRW	Tributary to Prairie Creek, and Auglaize River
Upper Prairie Creek													
16	S005CA	Van Wert	40.9822/ 84.6827	Upper Prairie Creek	Perennial	8.7	2,602	041000071001	RPW	39.5	--	MWH	Tributary to Blue Creek, and Auglaize River
Hagerman Creek													
17	S019AA	Van Wert	40.9366/ 84.693	Hagerman Creek	Perennial	2.3	2,049	041000070701	RPW	39.0	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
18	S028AA	Van Wert	40.9258/ 84.681	Hagerman Creek	Perennial	2.9	1,796	041000070701	RPW	37.5	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
19	S059CA	Van Wert	40.9386/ 84.6332	Hagerman Creek	Perennial	5.5	2,518	041000070701	RPW	41.0	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
20	S064CA	Van Wert	40.9423/ 84.6249	Hagerman Creek	Perennial	7.2	1,084	041000070701	RPW	N/A	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PWHH Class/Use Designations ³	TNW Connection
21	S115CA	Van Wert	40.9513/ 84.5982	Hagerman Creek	Perennial	7.8	525	041000070701	RPW	N/A	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
22	S126CA	Van Wert	40.9585/ 84.5865	Hagerman Creek	Perennial	8.5	507	041000070701	RPW	N/A	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
23	SMAINCA	Van Wert	40.9626/ 84.5819	Hagerman Creek	Perennial	8.7	3,340	041000070701	RPW	N/A	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
24	S136CA	Van Wert	40.9681/ 84.5759	Hagerman Creek	Perennial	9.4	978	041000070701	RPW	44.5	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
25	S160CA	Paulding	41.0014/ 84.5466	Hagerman Creek	Perennial	13.6	2,470	041000070701	RPW	55.0	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PHEI Class/Use Designations ³	TNW Connection
Unnamed Tributaries to Hagerman Creek													
26	S039CA	Van Wert	40.9387/ 84.6485	Hagerman UT 1	Intermittent	0.5	1,928	041000070701	RPW	–	21.0	Modified Class I	Tributary to Hagerman Creek, Prairie Creek, and Auglaize River
27	SMAINCB	Van Wert	40.9658/ 84.5822	Hagerman UT 2	Ephemeral	0.4	466	041000070701	Non-RPW	–	27.0	Modified Class I	Tributary to Hagerman Creek, Prairie Creek, and Auglaize River
28	S163AA	Paulding	41.0092/ 84.5343	Hagerman UT 3	Intermittent	0.2	1,568	041000070701	RPW	28.0	41.0	Modified Class II	Tributary to Hagerman Creek, Prairie Creek, and Auglaize River
29	S052AA	Van Wert	40.9639/ 84.6301	Hagerman UT 4	Intermittent	0.6	1,057	041000070703	RPW	–	22.0	Modified Class I	Tributary to Hagerman Creek, Prairie Creek, and Auglaize River
Blue Creek													
30	S069CA	Paulding	41.0064/ 84.6564	Blue Creek	Perennial	42.5	1,883	041000071003	RPW	57.25	–	MWH ⁴	Tributary to Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi.)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PWHH Class/Use ³	TNW Connection
Pottawatomie Creek													
31	S122CA	Van Wert	40.9454/ 84.5918	Pottawatomie Creek	Perennial	2.4	560	041000070702	RPW	N/A	-		Tributary to Hageman Creek, Prairie Creek, and Auglaize River
32	SMAINCC	Van Wert	40.9475/ 84.5821	Pottawatomie Creek	Perennial	2.7	470	041000070702	RPW	29.5	-	LRW	Tributary to Hageman Creek, Prairie Creek, and Auglaize River
Unnamed Tributaries to Pottawatomie Creek													
33	S120CA	Van Wert	40.9445/ 84.5964	Pottawatomie UT 1	Intermittent	0.1	875	041000070702	RPW	-	46	Modified Class II	Tributary to Pottawatomie Creek, Hageman Creek, Prairie Creek, and Auglaize River
34	S121CA	Van Wert	40.9387/ 84.5917	Pottawatomie UT 2	Intermittent	0.2	2,171	041000070702	RPW	-	27	Modified Class I	Tributary to Pottawatomie Creek, Hageman Creek, Prairie Creek, and Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PHEI Class/Use Designations ³	TNW Connection
Dry Creek													
35	S149CA	Van Wert	40.9929/ 84.5709	Dry Creek	Perennial	1.5	1,502	041000070703	RPW	31.0	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
36	S158CA	Paulding	41.0117/ 84.5528	Dry Creek	Intermittent	3.4	682	041000070703	RPW	30.5	--	MWH ⁴	Tributary to Prairie Creek, and Auglaize River
Unnamed Tributaries to Dry Creek													
37	S153AA	Paulding	41.0063/ 84.5678	Dry UT 1	Intermittent	0.1	1,599	041000070703	RPW	24.5	37.0	Modified Class II	Tributary to Dry Creek, Prairie Creek, and Auglaize River
38	S158CB	Paulding	41.0117/ 84.5534	Dry UT 1	Intermittent	0.6	156	041000070703	RPW	27.0	22.0	Modified Class I	Tributary to Dry Creek, Prairie Creek, and Auglaize River
Maddox Creek													
39	S172TA	Van Wert	40.9556/ 84.5265	Maddox Creek	Perennial	28.0	507	041000070803	RPW	44.5	--	MWH	Tributary to Little Auglaize River, and Auglaize River

TABLE 3-2
Existing Waterbody Resources Identified within the Project Area
Blue Creek Wind Project

No. of Waterbody	Feature ID	County	Latitude/ Longitude	Stream Name	Flow Regime ¹	Drainage Area (sq. mi)	Length within Project Area (ft)	12-Digit HUC	RPW or Non-RPW ²	QHEI Score	HHEI Score	Provisional Stream PWH Class/Use Designations ³	TNW Connection
Hoaglin Creek													
40	SMAINCD	Van Wert	40.9368/ 84.5816	Hoaglin Creek	Perennial	33.0	435	041000070702	RPW	43.5	--	MWH ⁴	Tributary to Hageman Creek, Prairie Creek, and Auglaize River
41	S139CA	Van Wert	40.9456/ 84.5678	Hoaglin Creek	Perennial	34.1	762	041000070702	RPW	N/A	--	MWH ⁴	Tributary to Hageman Creek, Prairie Creek, and Auglaize River

Footnotes:

- 1 Flow regime is defined as perennial, intermittent, or ephemeral.
- 2 Intermittent and perennial streams were recorded as RPWs, while ephemeral streams were recorded as non-RPWs
- 3 Provisional Use designations score for streams with watersheds greater than one square mile are defined based on the QHEI score, as MWH (warmwater habitat), MWH (modified warmwater habitat), and LRW (limited resource water). Primary headwater habitat class for streams with watersheds less than one square mile is defined based on HHEI score according to OEPA, 2002.
- 4 Use designation specified in Ohio Water Quality Standards, OAC 3745-1-11.

Conclusions

The Project area is more than 90 percent row croplands with a network of drainage ditches leading to larger, relatively permanent waters. The drainage ditches are considered either streams or wetlands, depending on the predominant condition of the ditch. As these ditches were largely, if not entirely, excavated through hydric soils and had a continuous connection to relatively permanent waters (named streams which connect to the Auglaize and Maumee Rivers), they were considered to have a nexus to traditionally navigable waterways and therefore to be jurisdictional. There are a few isolated waters, mostly small, farmed wetlands, wooded depressions or remnant wet woodlands with no apparent surface connections to relatively permanent waters.

No wetlands or waterbodies were delineated near any of the proposed turbine locations; therefore, the construction of the turbines is not anticipated to impact wetlands or other waters. However, potential impacts to wetlands or waters within the Project area may occur during the installation of the proposed collector lines and access roads.

The construction of the proposed access roads will require the installation of culverts across some ditches and would result in localized, permanent impacts to the wetlands or streams crossed. Access roads have been sited to avoid larger stream crossings and any impacts to woodlands.

Most collector lines will be installed underground generally utilizing an open-cut method. Where the collector lines cross wetlands, the wetlands would be restored to their pre-construction conditions following installation, so that the impacts to wetlands from the installation of the collector lines will be temporary. At larger stream crossings, such as Blue Creek, Dry Creek, or Hagerman Creek, the collector lines will be installed using horizontal directional drilling to avoid impacts to these streams.

Overhead electrical lines will be installed on poles with localized impacts. It is expected that these lines can be installed with minimal or no impact to wetlands.

Consequently, the culverting of linear, roadside ditches at the proposed access roads would constitute the majority of the permanent impacts to wetlands and waters from the Project. It is anticipated that wooded wetlands will be avoided. In total, it is the intent of Heartland Wind to minimize impacts to wetlands, and to keep total impacts to less than 0.5 acres total, in keeping with the Nationwide Permit allowance.

SECTION 5

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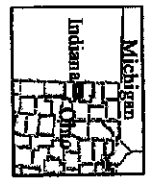
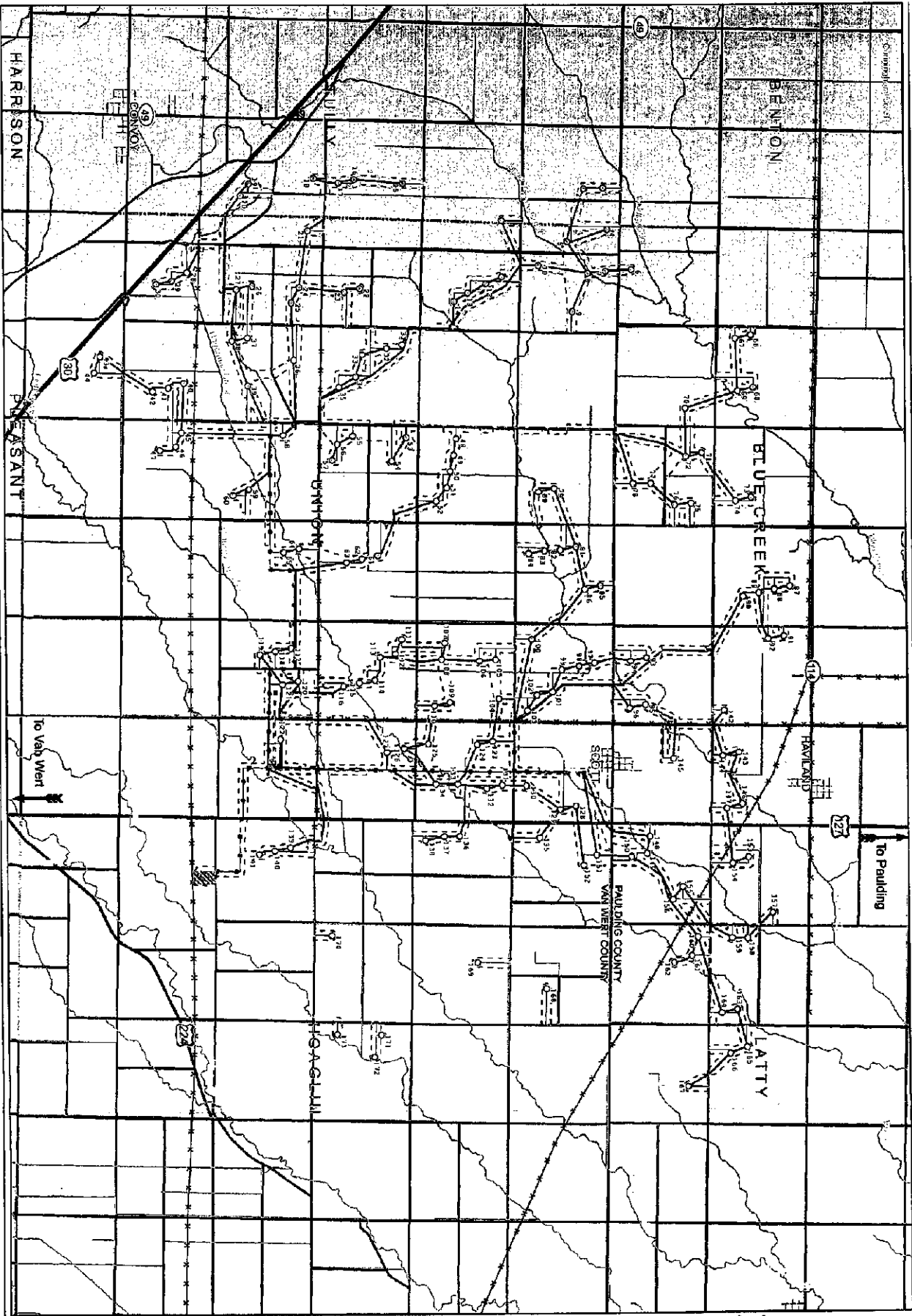
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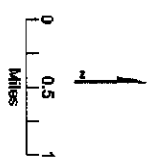
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Appendix A
Exhibits

Appendix B
Datasheets and Photographic Documentation



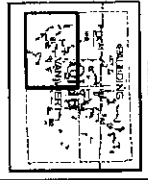
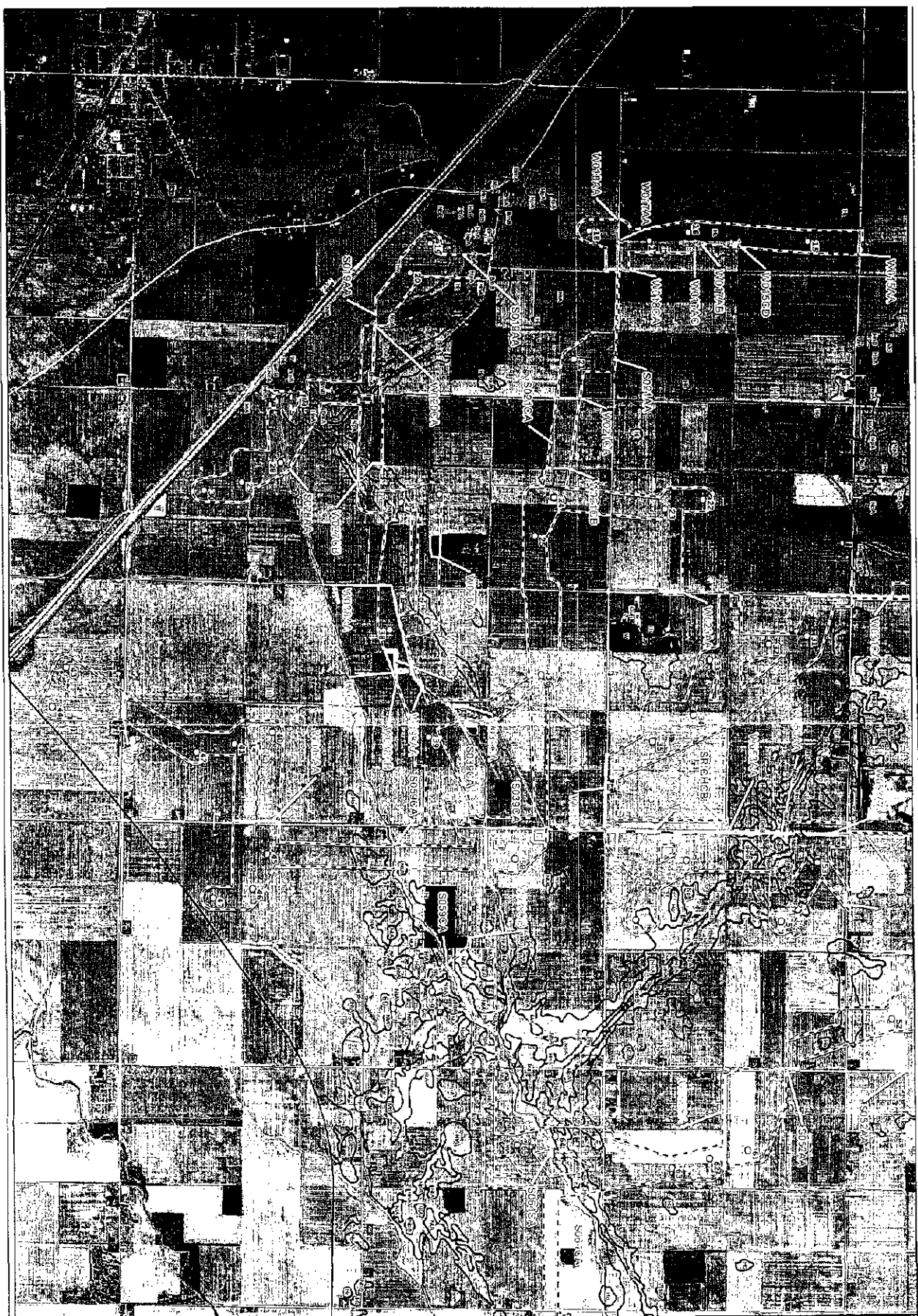
- Legend**
- Waterway Center Line
 - Waterway Center Line
 - Access Road
 - Private Transmission Line
 - Substation
 - Subway Transmission Line
 - Subway Boundary
 - USGS 1:250,000 Scale
 - County Boundary
 - County Boundary
 - City Boundary



Blue Creek Wind Farm
Project Location
Van Wert and
Paulding Counties, OH
1/10/2009

Exhibit 1

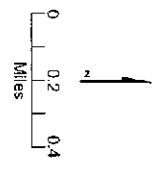




- Turbine
- Substation
- Waterbody Site
- Wetland Site
- Soil Units
- - Survey Boundary
- County Boundary

Note
The SOILS UNIT (S016) IS NOT SHOWN ON THIS MAP.

Sources
USDA, NRCS, S016, SOILS UNIT (S016) IS NOT SHOWN ON THIS MAP.



Blue Creek Wind Farm
NRCS Mapped Soils
Van Wert and Paulding Counties, OH
1/1/2009
EXHIBIT 3C

THE ARIZONA

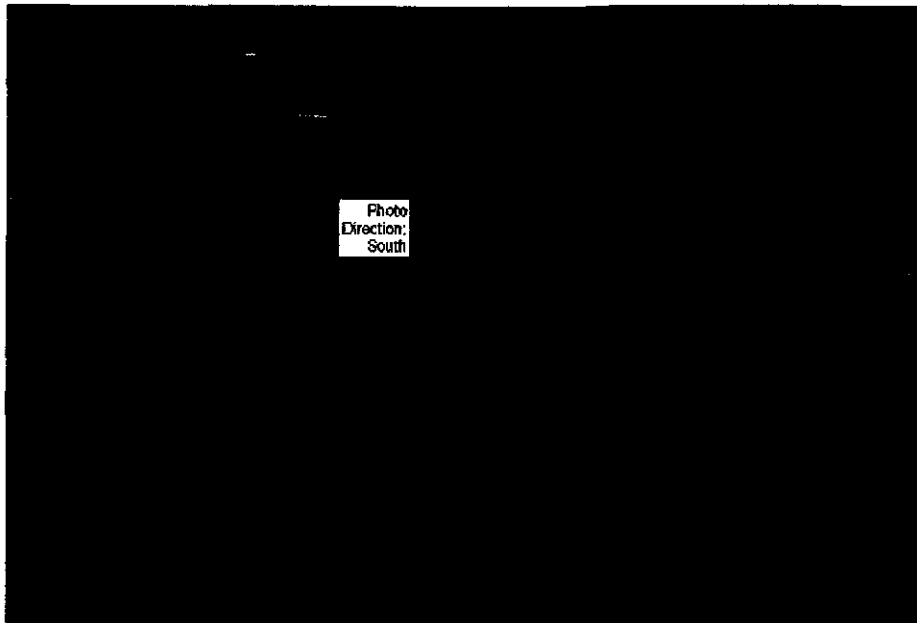


Photo
Direction:
South



0 100 200 Feet

Wetland
W003AA



Wetland W003AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W003AA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/ Van Wert	ROVER FILE: RAH090920.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. <i>Setaria glauca</i>		Herbaceous	Fac
2. <i>Glycine max</i>		Herbaceous	Upland
3.			%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 50			
VEGETATION REMARKS: farmed wet			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drift Lines		Local Soil Survey	
REMARKS: farmed wet, suppressed crop			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	A	10YR 4/2	
6+	B	10YR 4/2	
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silt Loam			
Clay			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? Yes
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W003AF Rater(s): MATTHEW DEAN Date: 7/20/00

1	1
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Metric 1. Wetland Area (size).

max 8 pts. subtotal

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)

1	2
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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)

9	11
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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)
- ☐ 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	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input checked="" type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

3	14
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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.

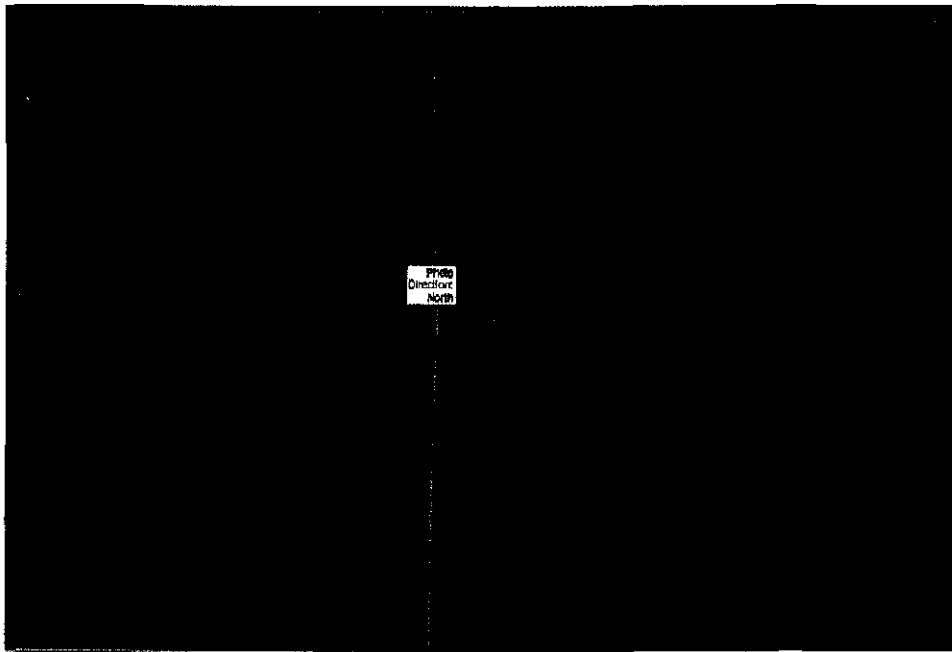
- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☒ Recent or no recovery (1)

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

14

subtotal this page

Site:	Rater(s):	Date:
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N
A



Wetland
W003CA



Wetland W003CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W003CA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000071001	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	50 %
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	50 %
3.			%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: roadside drainage			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drift Lines		Local Soil Survey	Oxi Root Channels
Water Marks		FAC Neutral Test	
REMARKS: roadside drainage			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-4	B	10YR 3/2	Silt Loam
4+	C	10YR 4/4	10YR 6/1 ped surfaces Clay
HYDRIC SOIL INDICATORS:			
Listed Hydric			
REMARKS: Deep excavation into substratum. Dominance by OBL species.			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u> </u>	Rater(s): <u> </u>	Date: <u> </u>
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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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1	3
max 10 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)

2.5	11.5
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 (16.7 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	
<input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

7	20.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

20.5
subtotal this page

Site: 100020	Rater(s): J. Brown, K. Green	Date: 8/7/97
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Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Bog (10) |
| <input type="checkbox"/> | Fen (10) |
| <input type="checkbox"/> | Old growth forest (10) |
| <input type="checkbox"/> | Mature forested wetland (5) |
| <input type="checkbox"/> | Lake Erie coastal/tributary wetland-unrestricted hydrology (10) |
| <input type="checkbox"/> | Lake Erie coastal/tributary wetland-restricted hydrology (5) |
| <input type="checkbox"/> | Lake Plain Sand Prairies (Oak Openings) (10) |
| <input type="checkbox"/> | Relict Wet Prairies (10) |
| <input type="checkbox"/> | Known occurrence state/federal threatened or endangered species (10) |
| <input type="checkbox"/> | Significant migratory songbird/water fowl habitat or usage (10) |
| <input type="checkbox"/> | Category 1 Wetland. See Question 1 Qualitative Rating (-10) |



Fig. 20. (a) (b)

Metric 6. Plant communities, interspersion, 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)

Gr. 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.

- | | |
|---|---------------------------------|
| U | Vegetated hummocks/mosses |
| 2 | Coarse woody debris >15cm (6in) |
| 2 | Standing dead >25cm (10in) dbh |
| U | Amphibian breeding pools |

Vegetation Community Cover Scale

Vegetation community cover score	Definition
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

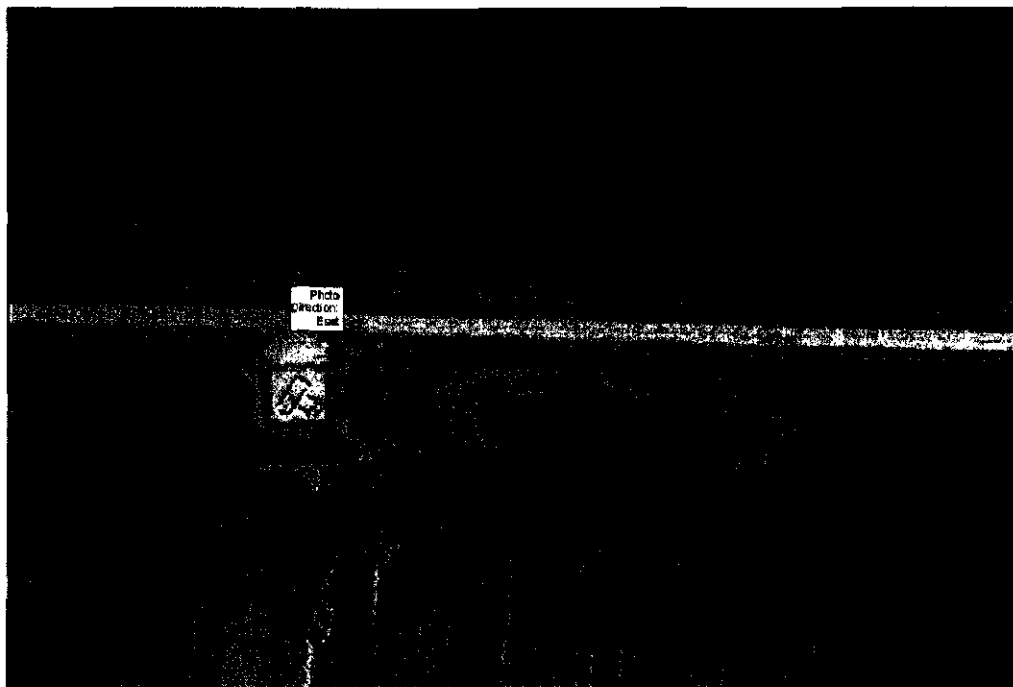
Mudflat and Open Water Class Quality

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 Score

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

23.5 GRAND TOTAL(max 100 pts)



□ Photo Location
 USGS NHD Mapped Streams
 Wetland Boundary
 Additional Features



Wetland W004AA



Wetland W004AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm

WETLAND ID No.: W004AA

ASSOCIATED STREAM ID No: N/A

DATE: 09/18/2009

CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm

INVESTIGATORS: D.West, M. Nechvatal

STATE/COUNTY: Ohio/Van Wert

ROVER FILE: R091809ADW.cor

QUAD NAME: Convoy

HUC 12 CODE: 041000071001

TOWNSHIP: Union

PHOTO No.: 004A15E

WETLAND QUALITY: Low

WETLAND TYPE: Palustrine
SUBTYPE: Emergent

PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	60 %
2. <i>Polygonum persylvanicum</i>	Herbaceous	Fac Wet	30 %
3. <i>Carex vulpinoidea</i>	Herbaceous	Obligate	10 %
4.			%
5.			%
6.			%

PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100

VEGETATION REMARKS: roadside ditch, linear wetland; existing rd to N, ag field (soybean) to S

HYDROLOGY

RECORDED DATA?

DESCRIBE:

DEPTH OF SURFACE WATER: N/A (in)

DEPTH TO SATURATED SOIL: >16 (in)

DEPTH TO FREE WATER IN PIT: None (in)

PRIMARY WETLAND INDICATORS:

SECONDARY WETLAND INDICATORS:

Drainage Patterns

Local Soil Survey

FAC Neutral Test

REMARKS: roadside ditch, linear wetland; existing rd to N, ag field (soybean) to S

SOILS

MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)

DRAINAGE CLASS: Very poorly drained

TAXONOMY (SUBGROUP):

FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?

PROFILE DESCRIPTION

DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-8	A	10YR 4/1	2% 10YR 4/6	Silty Clay Loam
8-12+	B	10YR 6/2	30% 10YR 7/6	Silty clay loam

HYDRIC SOIL INDICATORS:

Listed Hydric

Gleyed

REMARKS:

WETLAND DETERMINATION

HYDROPHYTIC VEGETATION PRESENT? Yes

IS THIS SAMPLING POINT WITHIN A WETLAND? Yes

WETLAND HYDROLOGY PRESENT? Yes

IS THIS AN ISOLATED WETLAND? No

HYDRIC SOILS PRESENT? Yes

NORMAL CIRCUMSTANCES? Yes

SIGNIFICANTLY DISTURBED? Yes

POTENTIAL PROBLEM AREA? No

DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.

MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.

LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY) - UPLAND POINT

SURVEY TYPE: Blue Creek		WETLAND ID No.: U004AA	
		ASSOCIATED WETLAND ID No: W004AA	
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: D.West, M.Nechvatal	STATE/COUNTY: Ohio/Paulding	QUAD NAME: Convoys	
HUC 12 CODE: 041000071001	TOWNSHIP: Blue Creek	PHOTO No.: 004A16W	
WETLAND QUALITY: N/A		WETLAND TYPE: N/A SUBTYPE: Upland	

PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. Trifolium pratense	Herbaceous	Fac Up -	20 %
2. Daucus carota	Herbaceous	Upland	10 %
3. Poa sp.	Herbaceous	Fac Up	70 %
4.			%
5.			%
6.			%

PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC): 0

VEGETATION REMARKS:

HYDROLOGY

RECORDED DATA?	DESCRIBE:
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: (in)
DEPTH TO FREE WATER IN PIT: (in)	
PRIMARY WETLAND INDICATORS:	SECONDARY WETLAND INDICATORS:
None	

REMARKS:

SOILS

MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)	DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):	FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?

PROFILE DESCRIPTION

DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
no soils pit dug		no soils pit dug		
no soils pit dug				

HYDRIC SOIL INDICATORS:

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REMARKS:

WETLAND DETERMINATION

HYDROPHYTIC VEGETATION PRESENT? No	IS THIS SAMPLING POINT WITHIN A WETLAND? No
WETLAND HYDROLOGY PRESENT? No	IS THIS AN ISOLATED WETLAND? N/A
HYDRIC SOILS PRESENT? No	
NORMAL CIRCUMSTANCES? Yes	SIGNIFICANTLY DISTURBED: No POTENTIAL PROBLEM AREA? No

DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.

MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.

LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.

Site: WOODHAR

Rater(s): Michael J. ...

Date: 7/18/05

0	0
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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)

1	1
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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. (6)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

8.5	9.5
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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) (0)

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
- ☐ well
- ☒ stormwater input
- ☐ point source (nonstormwater)
- ☐ rilling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☐ other _____

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)

55	15
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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

15

extrapolate this page

Site: W004AA	Rater(s): J. J. ...	Date: 11/12/01
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2

max 10 pts

0

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)

2

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 (0.247 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

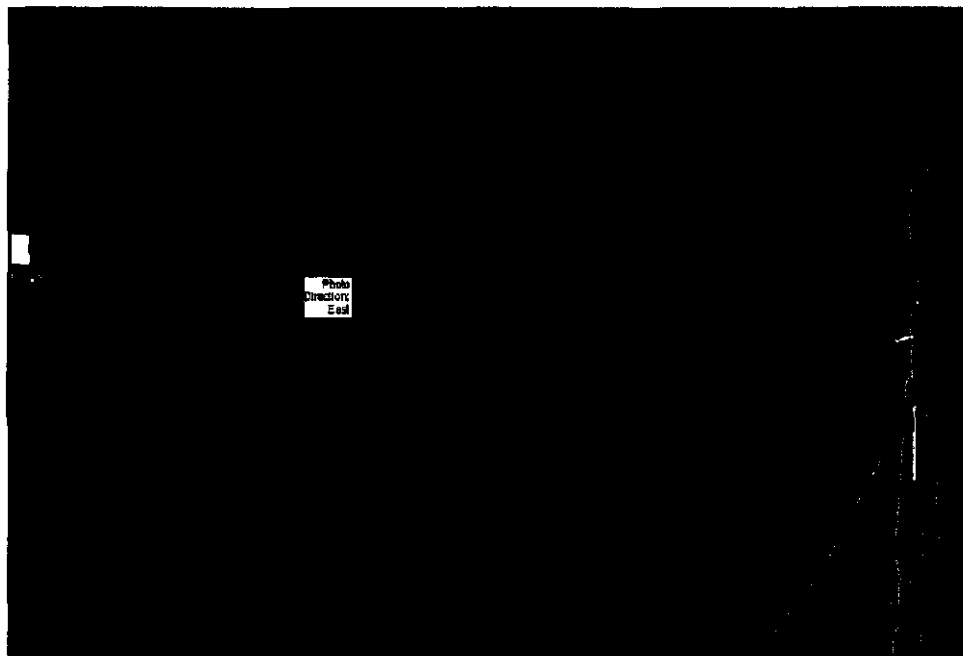
Microtopography Cover Scale

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

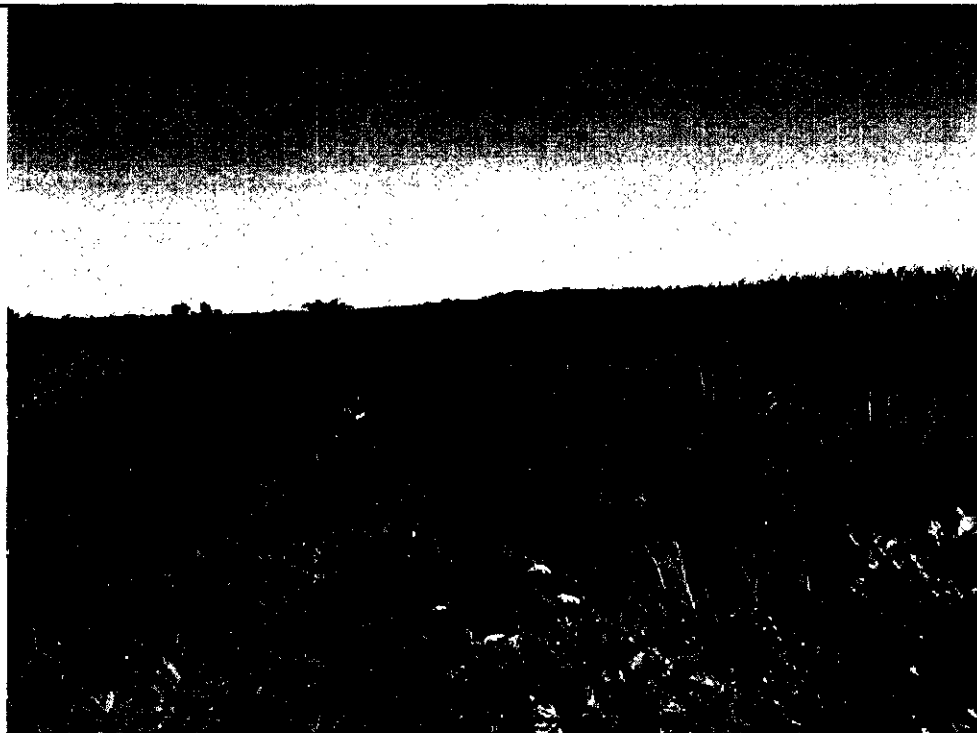
17

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/ram/1/4/1/1.html>



Wetland
W005CA



Wetland W005CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W005CA		
		ASSOCIATED STREAM ID NO: S005CA		
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: D.West, M. Nechvatal	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: R091809ADW.cor	QUAD NAME: Convooy	
HUC12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO NO.: 005C25W, 005C26E		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	10 %	
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	20 %	
3. <i>Scirpus validus</i>	Herbaceous	Obligate	10 %	
4. <i>Typha latifolia</i>	Herbaceous	Obligate	20 %	
5. <i>Solidago gigantea</i>	Herbaceous	Fac Wet	30 %	
6. <i>Aster umbellatus</i>	Herbaceous	FACW	10 %	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS: drainage ditch, linear wetland; ag fields directly adj to N & S				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Drainage Patterns		Local Soil Survey		
		FAC Neutral Test		
REMARKS: drainage ditch, linear wetland; ag fields directly adj to N & S				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-8	A	10YR 4/2	2% 10YR 5/6	Silty Clay Loam
Rock refusal				
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY) - UPLAND POINT

SURVEY TYPE: Blue Creek		WETLAND ID No.: U005CA	
		ASSOCIATED WETLAND ID No: W005CA	
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: D.West, M.Nechvatal	STATE/COUNTY: Ohio/Van Wert	QUAD NAME: Convoys	
HUC 12 CODE: 041000071001	TOWNSHIP: Union	PHOTO No.: 005C31E	
WETLAND QUALITY: N/A		WETLAND TYPE: N/A SUBTYPE: Upland	
PLANT SPECIES		STRATUM	INDICATOR
1. Trifolium repens		Herbaceous	Fac Up -
2. Poa sp.		Herbaceous	Fac Up
3. Seteria sp.		Herbaceous	Fac Up
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 0			
VEGETATION REMARKS:			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
None			
REMARKS:			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
no soils pit dug		no soils pit dug	
no soils pit dug			
HYDRIC SOIL INDICATORS:			
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? No	
WETLAND HYDROLOGY PRESENT? No		IS THIS AN ISOLATED WETLAND? N/A	
HYDRIC SOILS PRESENT? No			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED? No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W005CA

Rater(s): Matthew Nechvatal

Date: 09/18/09

1

1

max 0 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)

1

2

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)

12

14

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

10

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

Site:	Rater(s):	Date:
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3

subtotal this page

0

0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3

3

max 20 pts.

subtotal

Metric 6. Plant communities, 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

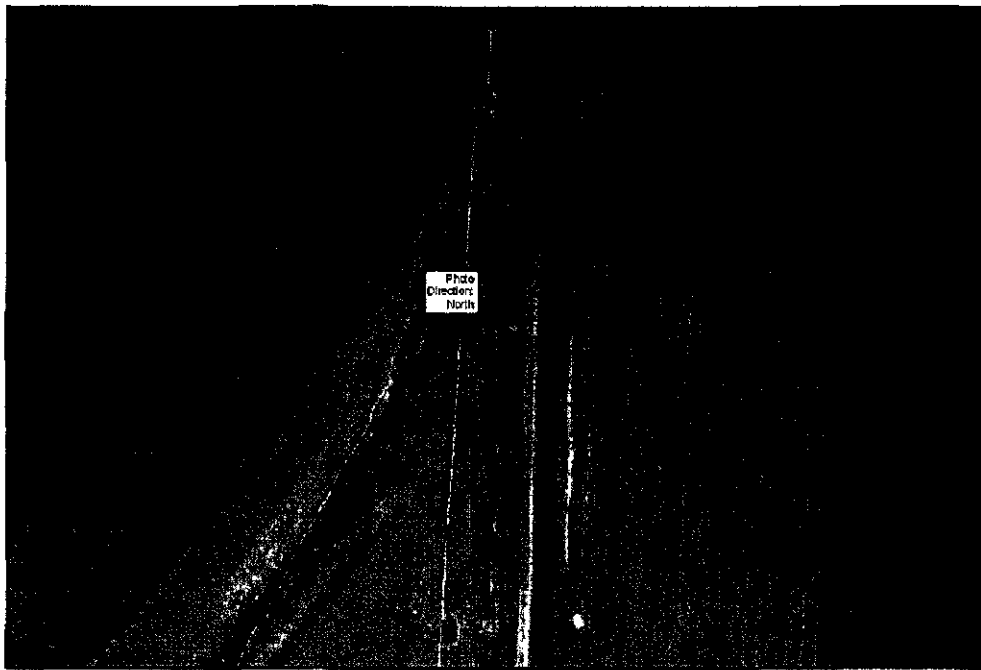
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

27

GRAND TOTAL(max 100 pts)

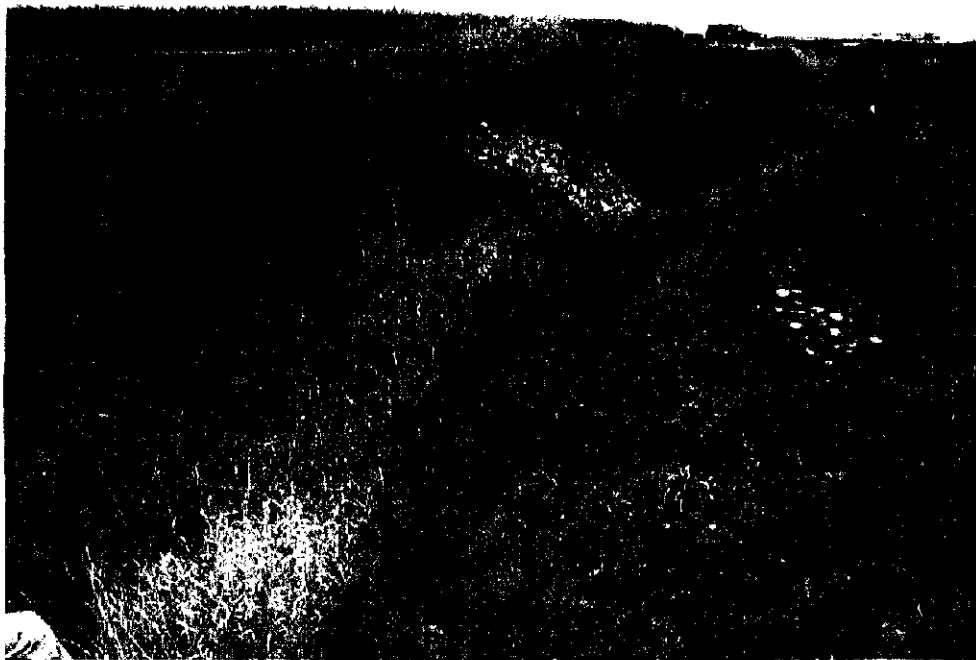


○ Photo Location
 - USGS NHD Mapped Stream
 Wetland Boundary
 Additional Features



0 100 200 Feet

Wetland
W005CB



Wetland W005CB

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W005CB	
		ASSOCIATED STREAM ID NO: S005CA	
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000071001	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Phalaris arundinacea</i>	Herbaceous	Fac Wet	50 %
2. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	50 %
3. <i>Euthamia graminifolia</i>	Herbaceous	Fac	10 %
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: roadside drainage			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Local Soil Survey	Oxi Root Channels
Drift Lines		FAC Neutral Test	
REMARKS: roadside drainage			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	B	10YR 4/2	Silt Loam
6+	C	10YR 4/2	Clay
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED? No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: Rater(s): Date:

2 2

Metric 1. Wetland Area (size).

max 5 pts. subtotal

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (0 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)

1 3

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)

8.2 11.5

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)

3a. 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	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

1 20.5

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)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

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

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

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

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

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

20.5

subtotal this page

Site: _____	Rater(s): _____	Date: _____
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1

subtotal this page

0	0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1	1
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) Interspersions.

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

21.5 GRAND TOTAL(max 100 pts)

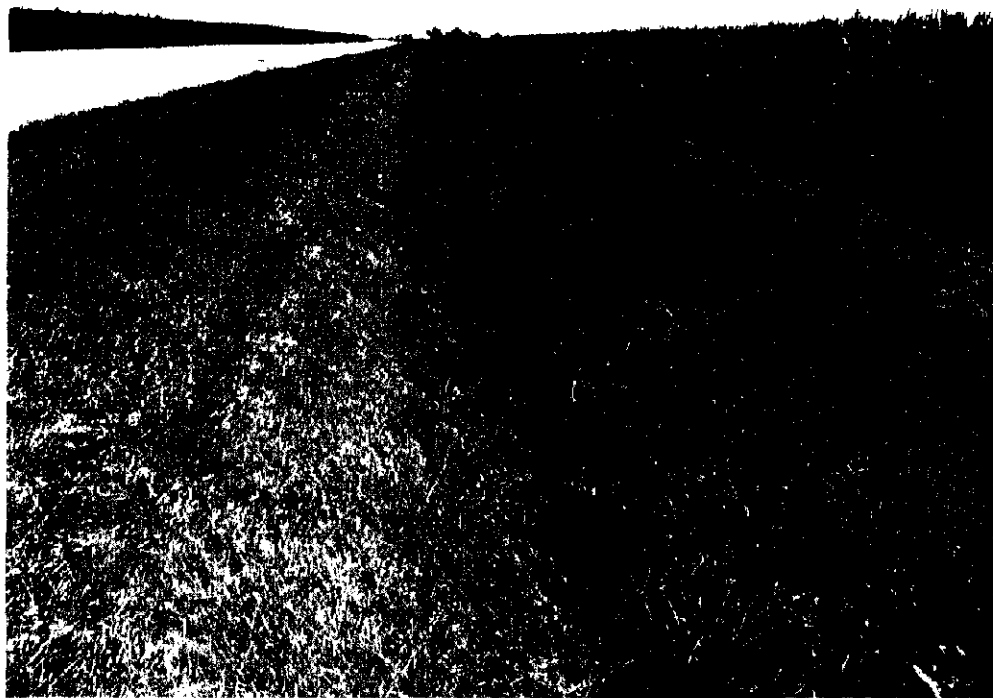


○ Photo Location
 USGS NHD Mapped Stream
 Wetland Boundary
 Additional Features



0 100 200 Feet

Wetland
W007AA



Wetland W007AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W007AA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: D.West, M. Nechvatal	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: R091809ADW.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000071001	TOWNSHIP: Union	PHOTO NO.: 004A18W, 004A19E	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. <i>Scirpus atrovirens</i>		Herbaceous	Obligate
2. <i>Polygonum pensylvanicum</i>		Herbaceous	Fac Wet
3. <i>Rubus</i> sp.		Herbaceous	Fac
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: roadside ditch, linear wetland; existing rd to N, ag field (corn) to S			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drainage Patterns		Local Soil Survey	
		FAC Neutral Test	
REMARKS: roadside ditch, linear wetland; existing rd to N, ag field (corn) to S			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-8	A	10YR 3/1	No mottles
8-12+	B	10YR 5/1	20% 10YR 6/6
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silt loam			
Clay loam			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY) - UPLAND POINT

SURVEY TYPE: Blue Creek		WETLAND ID No.: U007AA	
		ASSOCIATED WETLAND ID No: W007AA	
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: D.West, M.Nechvatal	STATE/COUNTY: Ohio/Paulding	QUAD NAME: Convoys	
HUC 12 CODE: 041000071001	TOWNSHIP: Blue Creek	PHOTO No.: 007A20E	
WETLAND QUALITY: N/A		WETLAND TYPE: N/A SUBTYPE: Upland	

PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Trifolium pratense</i>	Herbaceous	Fac Up -	10 %
2. <i>Daucus carota</i>	Herbaceous	Upland	20 %
3. <i>Poa sp.</i>	Herbaceous	Fac Up	60 %
4. <i>Setaria sp.</i>	Herbaceous	Fac Up	10 %
5.			%
6.			%

PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 0

VEGETATION REMARKS:

HYDROLOGY

RECORDED DATA?	DESCRIBE:
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: (in)
DEPTH TO FREE WATER IN PIT: (in)	
PRIMARY WETLAND INDICATORS:	SECONDARY WETLAND INDICATORS:
None	

REMARKS:

SOILS

MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)	DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):	FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?

PROFILE DESCRIPTION

DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
no soils pit dug		no soils pit dug		
no soils pit dug				

HYDRIC SOIL INDICATORS:

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REMARKS:

WETLAND DETERMINATION

HYDROPHYTIC VEGETATION PRESENT? No	IS THIS SAMPLING POINT WITHIN A WETLAND? No
WETLAND HYDROLOGY PRESENT? No	IS THIS AN ISOLATED WETLAND? N/A
HYDRIC SOILS PRESENT? No	
NORMAL CIRCUMSTANCES? Yes	SIGNIFICANTLY DISTURBED: No POTENTIAL PROBLEM AREA? No

DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.

MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.

LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.

Site: <u>WOLF CREEK</u>	Rater(s): <u>Jim & Helen</u>	Date: <u>4/15/01</u>
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1	1
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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) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1	2
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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)

9.5	11.5
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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)
- ☐ 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	
<input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

10	21.5
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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	
<input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

21.5

subtotal this page

Site: W007AA Rater(s): M. J. ... Date: ...

2

subtotal this page

0 0

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 2

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) Interspersions.

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/bosses
- ☐ 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

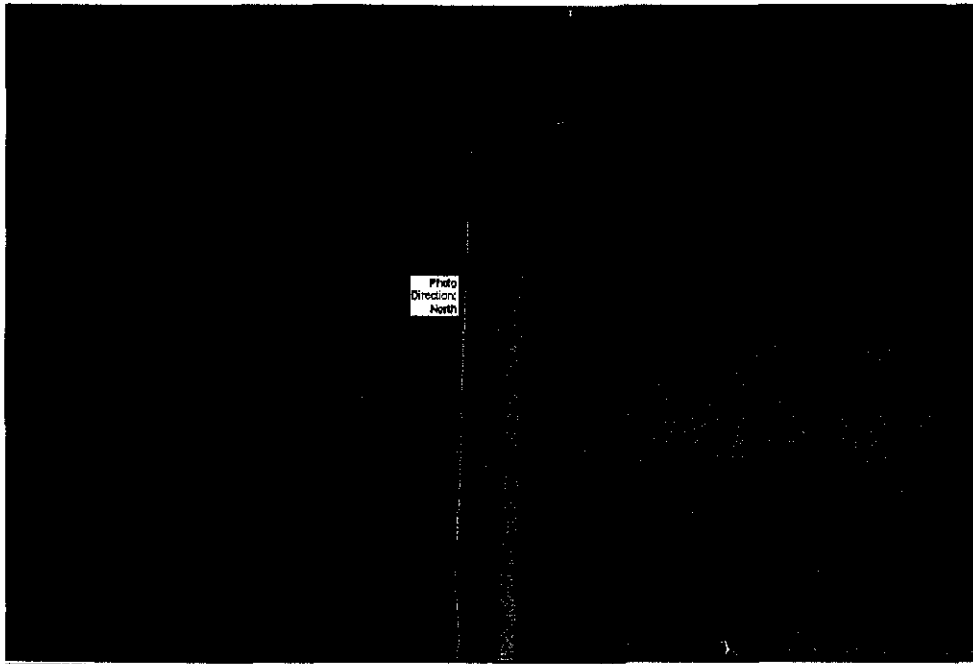
Mudflat and Open Water Class Quality

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

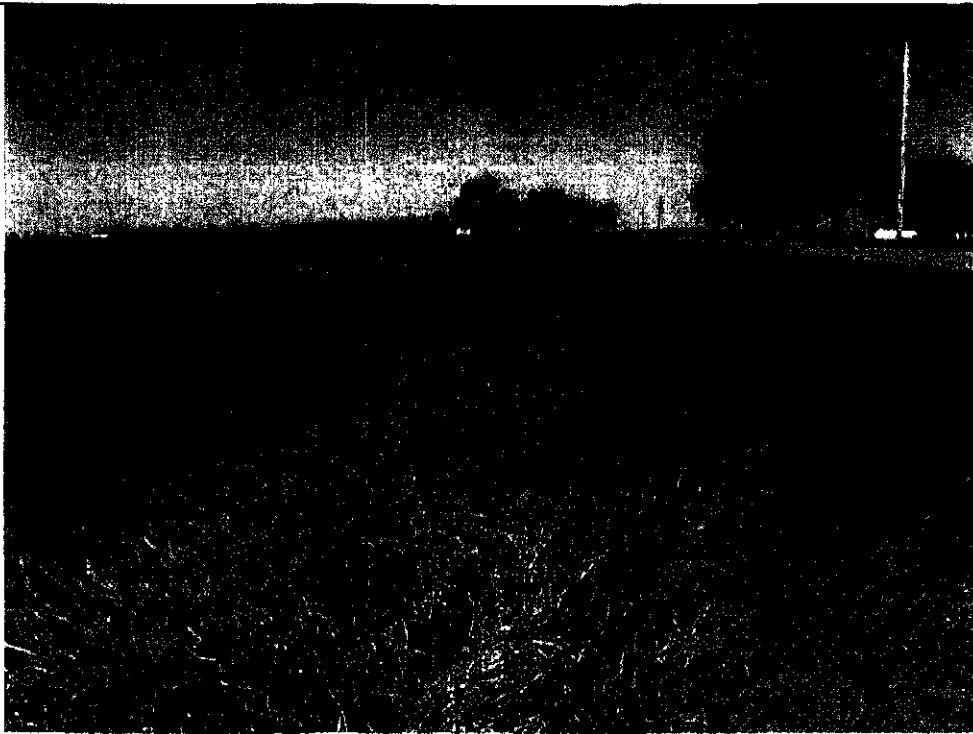
23.5 GRAND TOTAL(max 100 pts)



N



Wetland
W009AA



Wetland W009AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W009AA		
		ASSOCIATED STREAM ID NO: N/A		
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: D.West, M. Nechvatal	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: R091809ADW.cor	QUAD NAME: Convey	
HUC 12 CODE: 041000071003	TOWNSHIP: Union	PHOTO NO.: 009A32N, 009A33S		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	70 %	
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	30 %	
3.			%	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS: roadside ditch, linear wetland; ag field directly adj to W, existing rd to E				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Drainage Patterns		Local Soil Survey		
		FAC Neutral Test		
REMARKS: roadside ditch, linear wetland; ag field directly adj to W, existing rd to E				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-10	A	10YR 4/1	No mottles	Clay loam
10-12+	B	5B 4/1	10% 10YR 6/6	Clay loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY) - UPLAND POINT

SURVEY TYPE: Blue Creek		WETLAND ID No.: U009AA	
		ASSOCIATED WETLAND ID No: W009AA	
DATE: 09/18/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: D.West, M.Nechvatal	STATE/COUNTY: Ohio/ Van Wert	QUAD NAME: Convoys	
HUC 12 CODE: 041000071003	TOWNSHIP: Union	PHOTO No.: 009A35N	
WETLAND QUALITY: N/A		WETLAND TYPE N/A SUBTYPE: Upland	

PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. Taraxacum officinale	Herbaceous	Fac Up -	10 %
2. Poa sp.	Herbaceous	Fac Up	60 %
3. Scleria sp.	Herbaceous	Fac Up	30 %
4.			%
5.			%
6.			%

PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 0

VEGETATION REMARKS:

HYDROLOGY

RECORDED DATA?	DESCRIBE:
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)
DEPTH TO FREE WATER IN PIT: None (in)	
PRIMARY WETLAND INDICATORS:	SECONDARY WETLAND INDICATORS:
None	

REMARKS:

SOILS

MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)	DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):	FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?

PROFILE DESCRIPTION

DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
no soils pit dug		no soils pit dug		
no soils pit dug				

HYDRIC SOIL INDICATORS:

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REMARKS:

WETLAND DETERMINATION

HYDROPHYTIC VEGETATION PRESENT? No	IS THIS SAMPLING POINT WITHIN A WETLAND? No
WETLAND HYDROLOGY PRESENT? No	IS THIS AN ISOLATED WETLAND? N/A
HYDRIC SOILS PRESENT? No	
NORMAL CIRCUMSTANCES? Yes	SIGNIFICANTLY DISTURBED: No POTENTIAL PROBLEM AREA? No

DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.

MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.

LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.

2

Subtotal

<input type="checkbox"/>	>50 acres (>20.2ha) (5 pts)
<input type="checkbox"/>	25 to <50 acres (10.1 to <20.2ha) (5 pts)
<input type="checkbox"/>	10 to <25 acres (4 to <10.1ha) (4 pts)
<input type="checkbox"/>	3 to <10 acres (1.2 to <4ha) (3 pts)
<input checked="" type="checkbox"/>	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
<input type="checkbox"/>	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
<input type="checkbox"/>	<0.1 acres (0.04ha) (0 pts)

3

substantal

<input type="checkbox"/>	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (1)
<input type="checkbox"/>	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
<input type="checkbox"/>	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
<input checked="" type="checkbox"/>	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

☐ 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)

115

***u/p/ot/**

<input type="checkbox"/>	High pH groundwater (5)
<input type="checkbox"/>	Other groundwater (3)
<input checked="" type="checkbox"/>	Precipitation (1)
<input type="checkbox"/>	Seasonal/intermittent surface water (3)
<input type="checkbox"/>	Perennial surface water (lake or stream) (5)

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

<input type="checkbox"/>	None or none apparent (12)
<input checked="" type="checkbox"/>	Recovered (7)
<input checked="" type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input type="checkbox"/>	Part of riparian or upland corridor (1)





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

	ditch
	tile
	dike
	weir
	storm

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

19.

Subjects

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

<input type="checkbox"/>	Excellent (7)
<input type="checkbox"/>	Very good (6)
<input type="checkbox"/>	Good (5)
<input type="checkbox"/>	Moderately good (4)
<input type="checkbox"/>	Fair (3)
<input checked="" type="checkbox"/>	Poor to fair (2)
<input type="checkbox"/>	Poor (1)

<input type="checkbox"/>	None or none apparent (9)
<input checked="" type="checkbox"/>	Recovered (6)
<input type="checkbox"/>	Recovering (3)
<input type="checkbox"/>	Recent or no recovery (1)

<input checked="" type="checkbox"/>	mowing
<input type="checkbox"/>	grazing
<input type="checkbox"/>	clearcutting
<input type="checkbox"/>	selective cutting
<input type="checkbox"/>	woody debris removal
<input type="checkbox"/>	toxic pollutants

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

19.5

31

Site: W117A Rater(s): John A. ... Date: 1/18/01

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 Plains 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/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

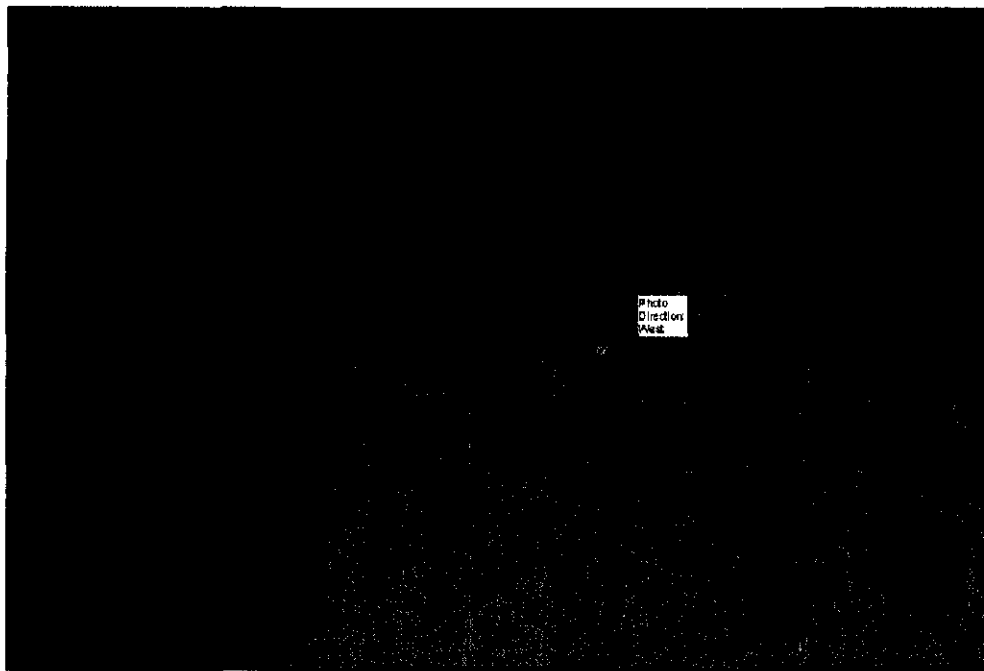
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.68 acres)
3	High 4ha (9.68 acres) or more

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

21.5 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.upstate.edu/dnr/081401.html>



Wetland
w013aa



Wetland w013aa

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W013AA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.cdr	QUAD NAME: Convoy
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. Typha latifolia		Herbaceous	Obligate
2. Scirpus atrovirens		Herbaceous	Obligate
3.			
4.			
5.			
6.			
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: ag drainage			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Local Soil Survey	
Sediment Deposits		FAC Neutral Test	
REMARKS: ag drainage			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-4	B	10YR 4/2	
4+	C	10YR 4/4	10yr 6/1 ped surfaces
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silt Loam			
Clay			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS: Deep excavation into substratum. Dominance by OBL species.			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>W013AA</u>	Rater(s): <u>R. Hook</u>	Date: <u>9/20/09</u>
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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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

0.4 acre

1	3
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)

10	13
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	
<input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

6	19
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 (5)
- ☐ 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 (8)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

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

19

subtotal this page

Site: W013AA Rater(s): R Hook Date: 9/20/09

19

subtotal first 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) Interspersions.

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 (8in)
- ☐ 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

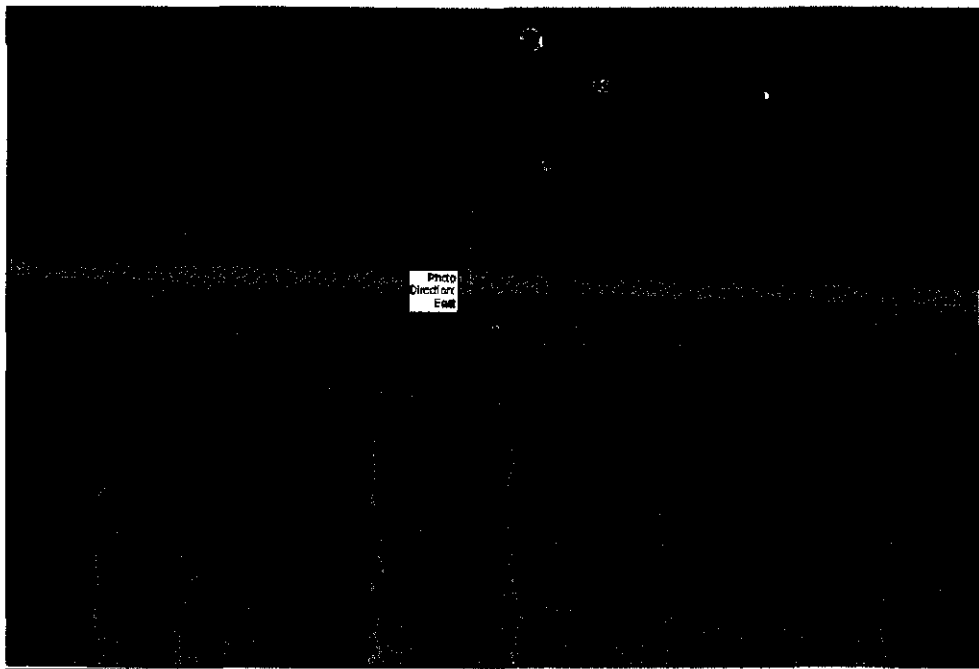
Mudflat and Open Water Class Quality

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

21 GRAND TOTAL (max 100 pts)



Wetland W015AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W015AA	
		ASSOCIATED STREAM ID No: N/A	
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convooy
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. Typha latifolia		Herbaceous	Obligate
2.			
3.			
4.			
5.			
6.			
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: roadside ditch			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Local Soil Survey	Oxi Root Channels
Drift Lines		FAC Neutral Test	
REMARKS: roadside ditch			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-12	A	10YR 3/1	5YR 4/6 2% and Oxidized Rhizospheres
12-14+	B	10YR 4/2	10YR 5/4 30%
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silt Loam			
Silty Clay Loam			
HYDRIC SOIL INDICATORS:			
Concretions	Listed Hydric	Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>10-2-2</u>	Rater(s): <u>John A. Miller</u>	Date: <u>10-2-2001</u>
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1	1
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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)

1	2
---	---

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)

3.5	10.5
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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	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input checked="" type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

9	19.5
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max 20 pts. subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

19.5

subtotal this page

Site: WOISAP Rater(s): MATTHEW NEWMAN Date: 2 2 0

3

subtract this page

0 0

max 10 pts

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3 3

max 20 pts

subtotal

Metric 6. Plant communities, 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

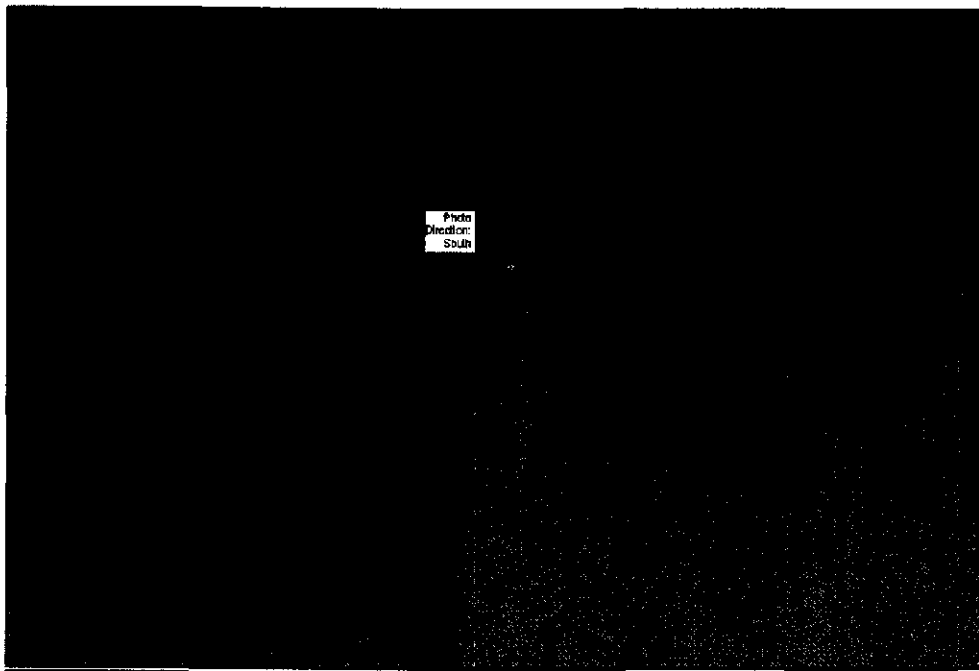
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

21.9 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/4014401.html>

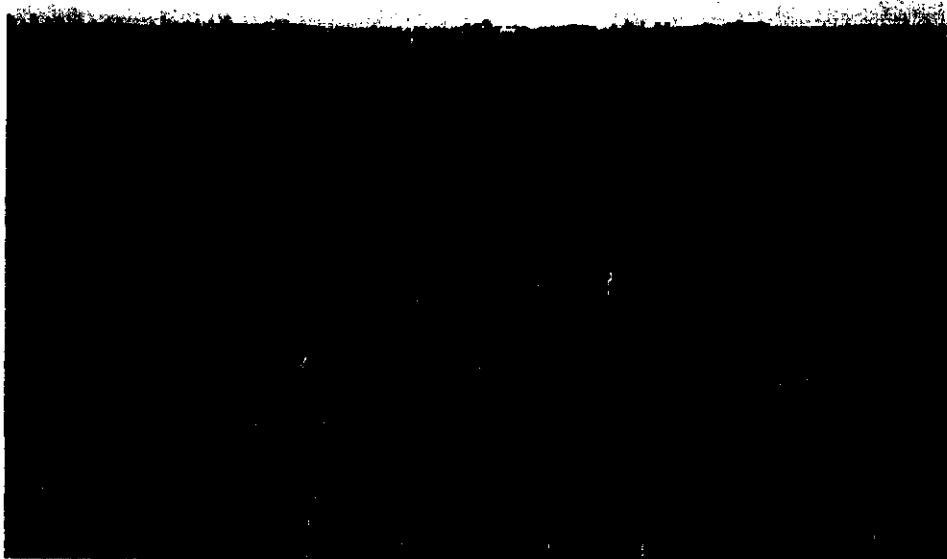


○ Photo Location
USGS NHD Mapped Streams
Wetland Boundary
Additional Feature



0 100 200 Feet

Wetland
W015CD



Wetland W015CD

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W015CD		
		ASSOCIATED STREAM ID No: N/A		
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: AF MN	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: R101509AFMN.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO No.: AF101509_036		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. Glycine max	Herbaceous	Upland	50 %	
2. Polygonum sp. (dead)	Herbaceous	Fac Wet	20 %	
3. Echinochloa sp. (dead)	Herbaceous	Fac	20 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FAC-, FAC+, OR FAC (EXCLUDING FAC-): 66				
VEGETATION REMARKS: Farmed wetland				
HYDROLOGY				
RECORDED DATA?	DESCRIBE:			
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: 0 (in)			
DEPTH TO FREE WATER IN PIT: 0 (in)				
PRIMARY WETLAND INDICATORS:	SECONDARY WETLAND INDICATORS:			
Saturated Upper 12in				
REMARKS: Farmed wetland				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):	FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?			
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-8	A	10YR 3/2		Silt Loam
8+	B	10YR 4/1	10YR 4/6	Silty Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric	Gleyed			
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? Yes	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: W015CD	Rater(s): Matthew Nechvatal	Date: 10/15/09
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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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1	3
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)

6.5	9.5
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

- | | |
|--|--|
| <input type="checkbox"/> ditch
<input type="checkbox"/> tile
<input type="checkbox"/> dike
<input type="checkbox"/> weir
<input type="checkbox"/> stormwater input | <input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> filling/grading
<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> dredging
<input type="checkbox"/> other _____ |
|--|--|

3	12.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbances. 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 (8)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

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

12.5
subtotal this page

Site:	Rater(s):	Date:
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1	
subtotal this page	
0	0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1	
subtotal	
1	1
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

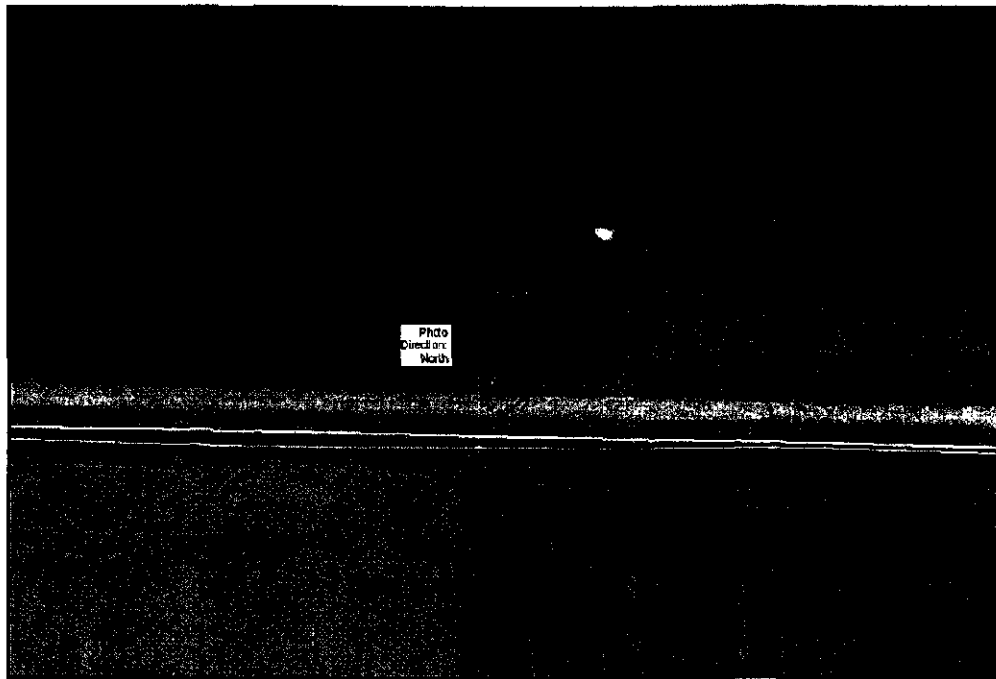
Mudflat and Open Water Class Quality

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

13.5	GRAND TOTAL(max 100 pts)
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○ Photo Location
 USGS NHD Mapped Stream
 Wetland Boundary
 Additional Feature



0 100 200 feet

Wetland W017AA



Wetland W017AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W017AA	
		ASSOCIATED STREAM ID No: N/A	
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH0909Z1.cor	QUAD NAME: Convooy
HUC12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO No.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. Glycine max	Herbaceous	Upland	20 %
2. Setaria glauca	Herbaceous	Fac	40 %
3.			%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 50			
VEGETATION REMARKS: farmed			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
None		Local Soil Survey	
		Other	
REMARKS: farmed, suppressed crop			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	A	10YR 3/2	
6+	B	10YR 4/1	10YR 4/6 25%
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silt Loam			
Silty Clay Loam			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? Yes
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: 10173	Rater(s): J. J. J.	Date:
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1

subtotal this page

6

0

max 10 pts subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1

subtotal

1

1

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) interspersions.

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 9.68 acres)
3	High 4ha (9.68 acres) or more

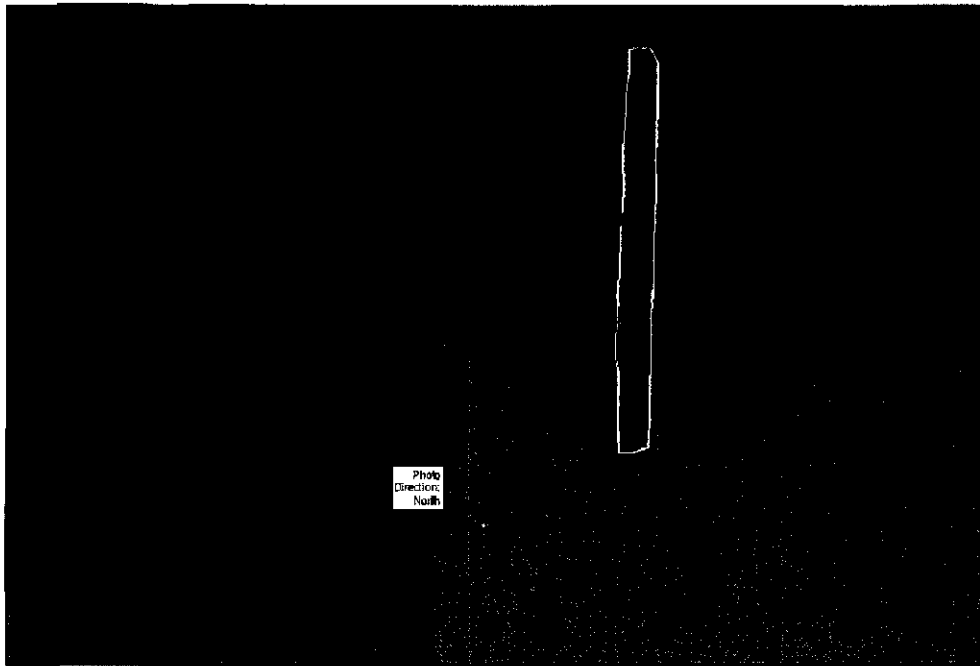
Microtopography Cover Scale

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

14

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.ch.us/dsw/401/401.html>



○ Photo Location
 USGS NHD Mapped Stream
 Wetland Boundary
 Additional Feature



Wetland
W017AB



Wetland W017AB

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W017AB		
		ASSOCIATED STREAM ID NO: N/A		
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO NO.:		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. Glycine max	Herbaceous	Upland	20 %	
2. Polygonum sp. (dead)	Herbaceous	Fac Wet	40 %	
3. Echinochloa sp. (dead)	Herbaceous	Fac	20 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 66				
VEGETATION REMARKS: farmed				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
None		Local Soil Survey		
		Other		
REMARKS: farmed, suppressed crop				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-8	A	10YR 3/2		Silt Loam
8+	B	10YR 4/1	10YR 4/6 25%	Silty Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED? Yes	POTENTIAL PROBLEM AREA? Yes	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: Rater(s): Date:

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

1 **3**
max 12 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)

9 **12**
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	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input checked="" type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

3 **15**
max 30 pts. subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

15
subtotal 5th page

Site: WC17-4B Rater(s): Phyllis J. ... Date: ...

max 10 pts subtotal

0 0

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

1 1

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) Interspersions.

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 no 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

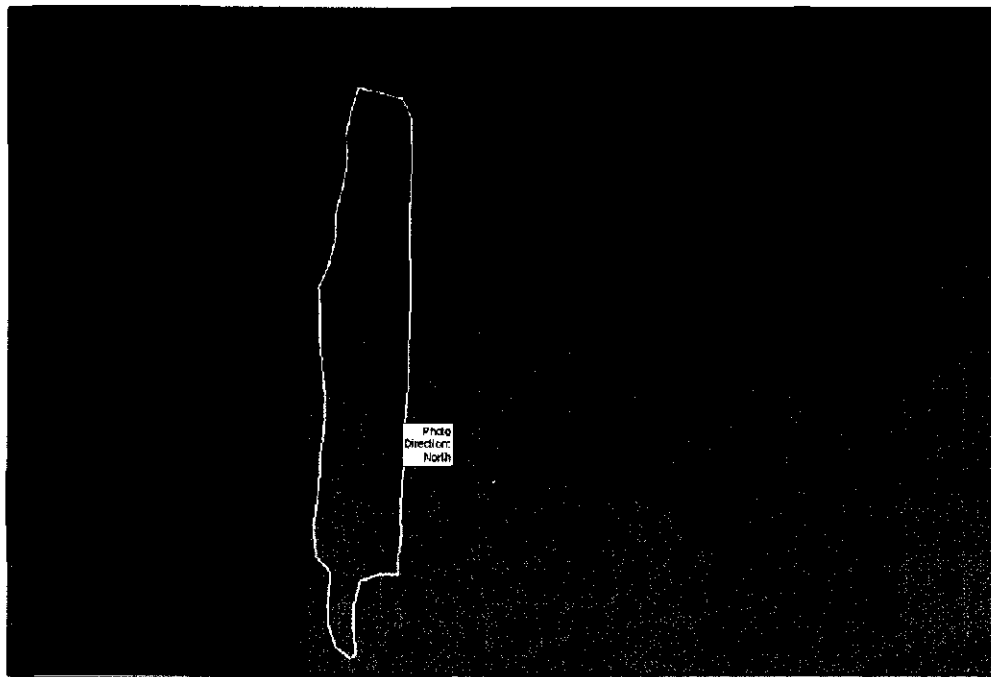
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

16 GRAND TOTAL(max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring discrepancies between wetland categories at the following address: <http://www.epa.state.nh.us/owh101/461.html>



○ Photo Location
 USGS NHD Mapped Streams
 Wetland Boundary
 Additional Features



Wetland
W017AC



Wetland W017AC

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W017AC		
		ASSOCIATED STREAM ID No: N/A		
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO No.:		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. Glycine max	Herbaceous	Upland	50 %	
2. Polygonum sp. (dead)	Herbaceous	Fac Wet	20 %	
3. Echinochloa sp. (dead)	Herbaceous	Fac	20 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FAC-, FAC+, OR FAC (EXCLUDING FAC-): 66				
VEGETATION REMARKS: farmed				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
None		Local Soil Survey		
		Other		
REMARKS: farmed, crop suppression				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-8	A	10YR 3/2		Silt Loam
8+	B	10YR 4/1	10YR 4/6 25%	Silty Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED? Yes	POTENTIAL PROBLEM AREA? Yes	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: J17 HL	Rater(s): A. M. G. H. H. H.	Date: 9/10/00
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1	1
score 5 yrs.	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) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
	<0.1 acres (0.04ha) (0 pts)

max 14 pts	subtotal
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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)

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	11
new 3D size	revised

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.

<input type="checkbox"/>	100 year floodplain (1)
<input type="checkbox"/>	Between stream/lake and other human use (1)
<input type="checkbox"/>	Part of wetland/upland (e.g. forest), complex (1)
<input type="checkbox"/>	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	14
---	----

more 20 ml started

Metric 4. Habitat Alteration and Development.

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

<input type="checkbox"/>	None or none apparent (4)
<input type="checkbox"/>	Recovered (3)
<input type="checkbox"/>	Recovering (2)
<input checked="" type="checkbox"/>	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)

4a. Habitat allocation. Score one or double check and average

☐ None or none apparent (8)
☐ Recovered (6)
☐ Recovering (3)
☒ Retent or no recovery (1)

Check all disturbances observed

<input checked="" type="checkbox"/>	ditch	<input type="checkbox"/>	point source (nonstormwater)
<input type="checkbox"/>	file	<input type="checkbox"/>	filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/>	road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/>	dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/>	other

14

substantiated this again

Site: <u>5.0.12.12</u>	Rater(s): <u>...</u>	Date: <u>...</u>
------------------------	----------------------	------------------

0

0

max 10 pts subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1

1

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

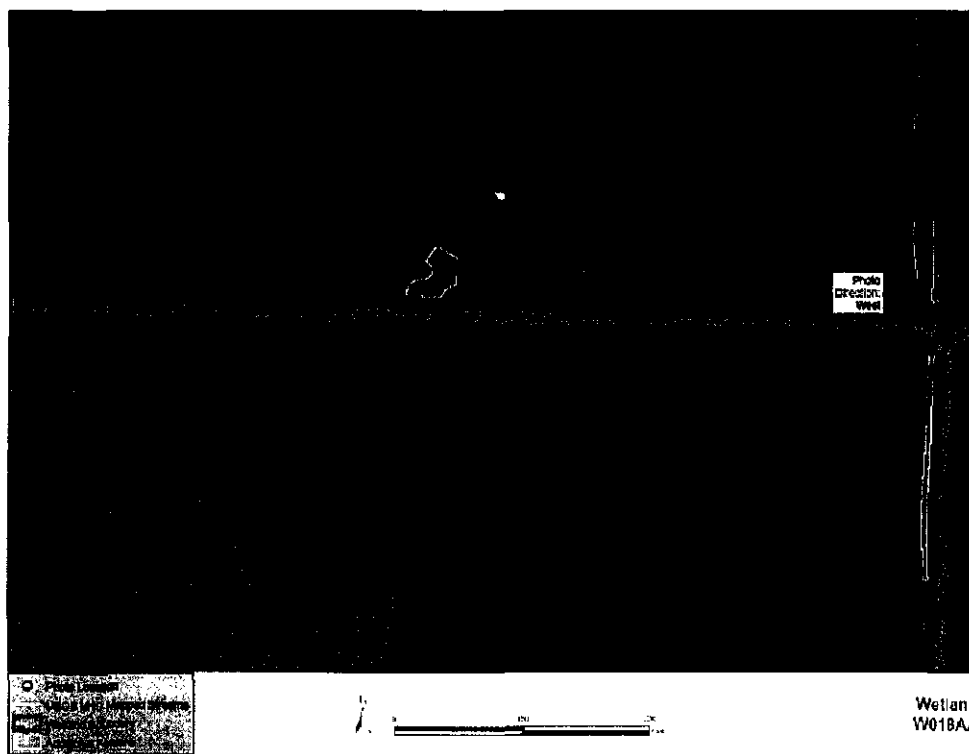
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

15

GRAND TOTAL(max 100 pts)



Wetland
W018AA



Wetland W018AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W018AA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convey
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. <i>Scirpus atrovirens</i>		Herbaceous	Obligate
2. <i>Leersia oryzoides</i>		Herbaceous	Obligate
3. <i>Typha angustifolia</i>		Herbaceous	Obligate
4. <i>Alisma subcordatum</i>		Herbaceous	Obligate
5.			
6.			
			PERCENT COVER
			10 %
			70 %
			10 %
			10 %
			%
			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: roadside/ag drainage			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: 5 (in)	
DEPTH TO FREE WATER IN PIT: 6 (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Local Soil Survey	
Saturated Upper 12in		FAC Neutral Test	
REMARKS: roadside/ag drainage			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	A	2.5Y 3/2	
6+	C	2.5Y 4/2	10YR 4/6 50%
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silty Clay Loam			
Clay Loam			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u> </u>	Rater(s): <u> </u>	Date: <u> </u>
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2	2
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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)

1	3
---	---

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)

8.5	11.5
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max 30 pts. subtotal

Metric 3. Hydrology.

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

- ☐ High pH groundwater (6)
- ☐ 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

- | | |
|--|---|
| <input checked="" type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> fire | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input checked="" type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |

9	20.5
---	------

max 20 pts. subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

Check all disturbances observed

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

20.5

subtotal this page

Site: W019 AA	Rater(s): M. H. ...	Date:
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3

42. 2015年12月31日

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Metric 5. Special Wetlands.

Check all that apply and score as indicated.

<input type="checkbox"/>	Bog (10)
<input type="checkbox"/>	Fen (10)
<input type="checkbox"/>	Old growth forest (10)
<input type="checkbox"/>	Mature forested wetland (5)
<input type="checkbox"/>	Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
<input type="checkbox"/>	Lake Erie coastal/tributary wetland-restricted hydrology (5)
<input type="checkbox"/>	Lake Plain Sand Prairies (Oak Openings) (10)
<input type="checkbox"/>	Relict Wet Prairies (10)
<input type="checkbox"/>	Known occurrence state/federal threatened or endangered species (10)
<input type="checkbox"/>	Significant migratory songbird/water fowl habitat or usage (10)
<input type="checkbox"/>	Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	3
---	---

Metric 6. Plant communities, interspersions, microtopography.

1994 37 618

© 2004 Intel Corporation

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale.

2	Aquatic bed
2	Emergent
2	Shrub
2	Forest
2	Mudflats
2	Open water
2	Other

8b. 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)

5d. Microtopography.

Score all present using 0 to 3 scale

- ☐ Vegetated hummucks/tussucks
- ☐ 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

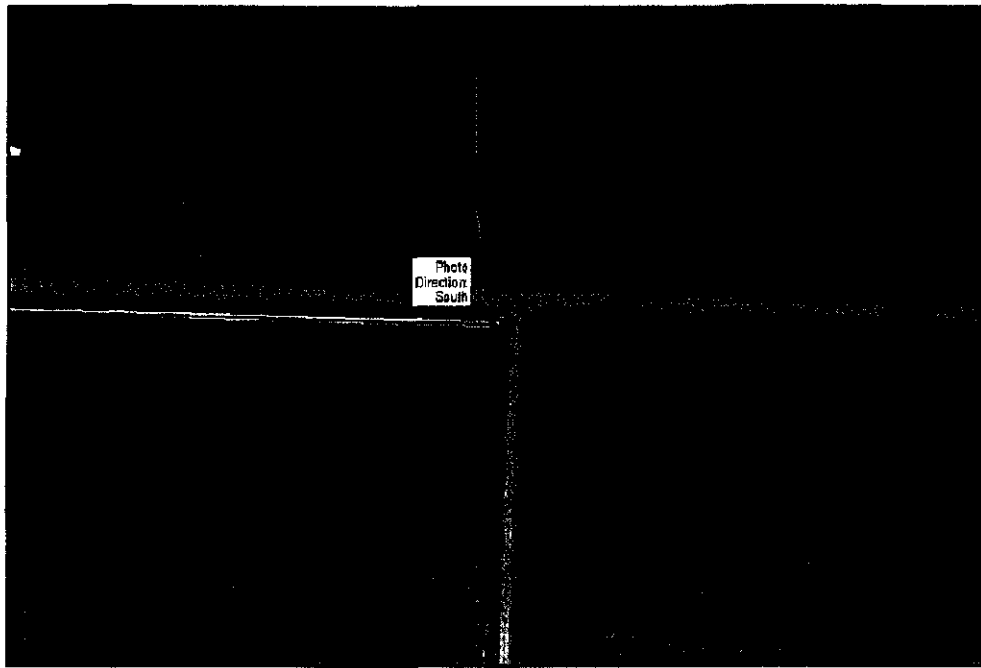
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

235 GRAND TOTAL (max 100 pts)

Refer to the most recent **ORAM Score Calibration Report** for the scoring breakpoints between test and categories at the following address: <http://www.ora.state.oh.us/dsw/401/401.html>



Wetland W018CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W018CA	
		ASSOCIATED STREAM ID No: N/A	
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091015.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000071001	TOWNSHIP: Tully	PHOTO No.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	100 %
2.			%
3.			%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: drainage ditch			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER:	N/A (in)	DEPTH TO SATURATED SOIL: 3 (in)	
DEPTH TO FREE WATER IN PIT:	6 (in)		
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Saturated Upper 12in		Oxi Root Channels	
Drainage Patterns			
REMARKS: drainage ditch			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	O	2.5Y 3/2	7.5YR 4/6
6+	C	10YR 4/2	10YR 4/6
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silty Clay Loam			
Clay			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>W018 CA</u>	Rater(s): <u>R Hook</u>	Date: <u>10/15/09</u>
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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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1.5 acre

1	3
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)

10	13
max 30 pts.	subtotal

Metric 3. Hydrology.

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

- ☐ High pH groundwater (3)
- ☐ 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

- | | |
|---|--|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input | <ul style="list-style-type: none"> <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other |
|---|--|

7	20
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 (8)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants | <ul style="list-style-type: none"> <input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment |
|--|--|

20

subtotal this page

Site: WO18CA	Rater(s): R Hook	Date: 10/15/09
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20

subtotal first page

-	20
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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)

2	22
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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

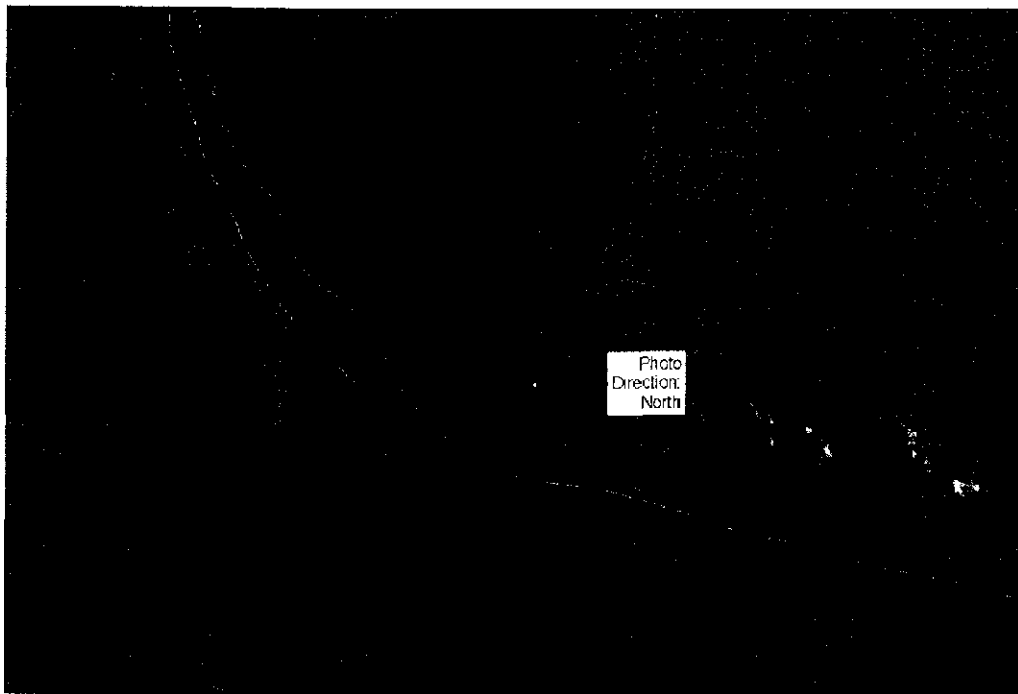
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

22

GRAND TOTAL (max 100 pts)



Wetland W020CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W020CA	
		ASSOCIATED STREAM ID No: S019AA	
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091015.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO No.: 010	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. Glycine max	Herbaceous	Upland	40 %
2. Xanthium strumarium	Herbaceous	Fac	10 %
3. Setaria glauca	Herbaceous	Fac	10 %
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 66			
VEGETATION REMARKS: farmed wet			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Sediment Deposits			
REMARKS: farmed wet, suppressed crop			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay loam, 0 percent slopes (flat)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-9	A	2.5Y 3/2	
9+	B	10YR 4/1	10YR 4/6
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? Yes
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W020 CA

Rater(s): R Hook

Date: 10/14/09

0 0

max 8 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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

0.05

1 1

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)

7 8

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

3 11

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

11

subtotal this page

Site: W020CA Rater(s): R Hook Date: 10/14/09

11

subtotal first page

11

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)

2 13

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

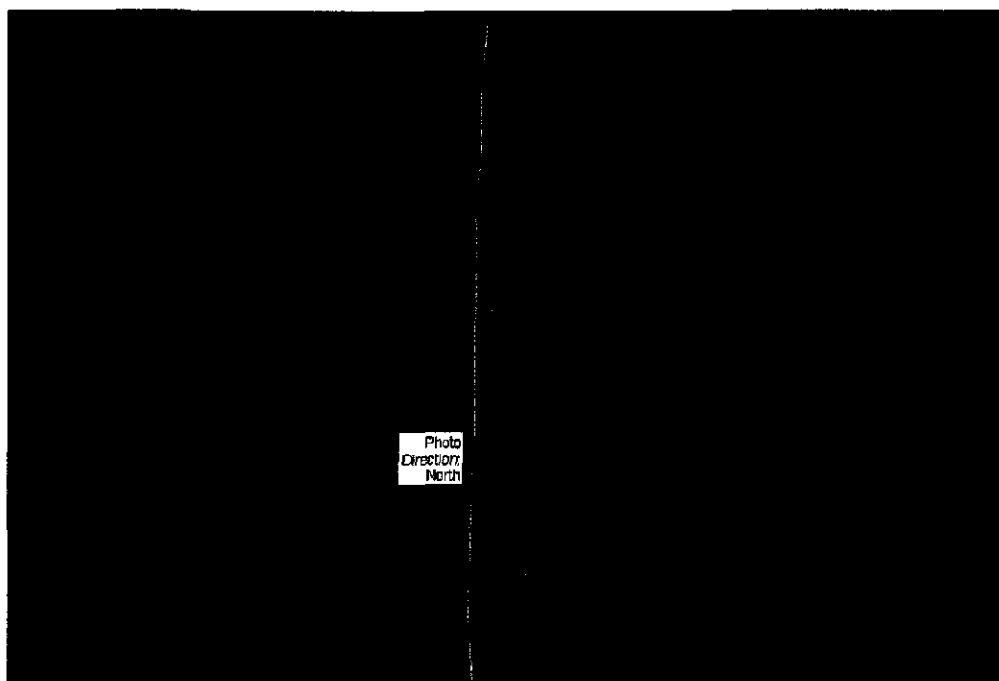
Mudflat and Open Water Class Quality

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

13 **GRAND TOTAL (max 100 pts)**



Wetland
W021CA



Wetland W021CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W021CA	
		ASSOCIATED STREAM ID NO: S021AA	
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC / Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091015.cor	QUAD NAME: Convooy
HUC12 CODE: 041000070703	TOWNSHIP: Union	PHOTO NO.: 17	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	40 %
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	60 %
3.			%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: drainage ditch			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: 3 (in)		DEPTH TO SATURATED SOIL: 0 (in)	
DEPTH TO FREE WATER IN PIT: 0 (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Inundated	Drainage Patterns	Oxi Root Channels	
Saturated Upper 12in			
REMARKS: drainage ditch			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	O	2.5Y 3/2	
6+	C	10YR 4/1	10YR 4/6
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
			Silty Clay Loam
			Clay
HYDRIC SOIL INDICATORS:			
Listed Hydric	Gleyed		
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>WOZICA</u>	Rater(s): <u>R Hook</u>	Date: <u>10/15/09</u>
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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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1.0 acre

1	3
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)

10	13
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	
<input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

7	20
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

20
subtotal this page

Site: WOZICA Rater(s): R Hook Date: 10/15/09

20

subtotal first page

20

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)

1 21

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) interspersions.

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

*pool @ culvert
may dry frequently*

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

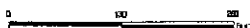
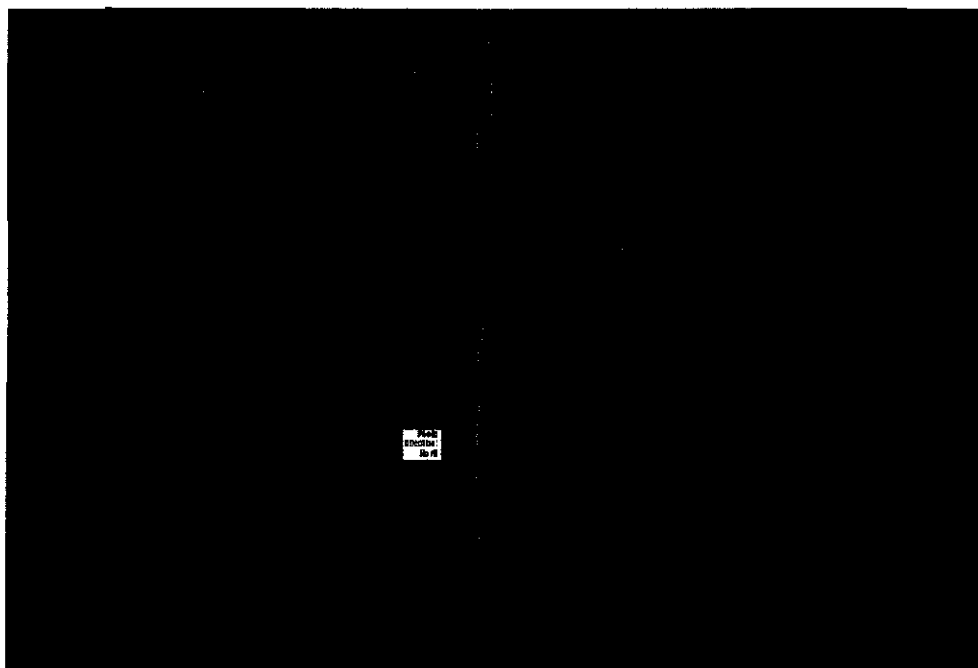
Mudflat and Open Water Class Quality

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

21 **GRAND TOTAL (max 100 pts)**



Wetland
W021CB



Wetland W021CB

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W021CB	
		ASSOCIATED STREAM ID No: S021CA	
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091015.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.: 19	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Alisma subcordatum</i>	Herbaceous	Obligate	20 %
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	70 %
3. <i>Typha angustifolia</i>	Herbaceous	Obligate	10 %
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: drainage ditch			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: 1 (in)		DEPTH TO SATURATED SOIL: 0 (in)	
DEPTH TO FREE WATER IN PIT: 0 (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Inundated	Drainage Patterns	Oxi Root Channels	
Saturated Upper 12in			
REMARKS: drainage ditch			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFORM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	O	2.5Y 3/2	7.5YR 4/6
6+	C	10YR 4/1	10YR 4/6
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silty Clay Loam			
Clay			
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>W021CB</u>	Rater(s): <u>R Hook</u>	Date: <u>10/15/09</u>
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<u>2</u>	<u>2</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)

1.7 acre

<u>1</u>	<u>3</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)

<u>10</u>	<u>13</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 (27.8in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.8in) (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	
<input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

<u>7</u>	<u>20</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	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

<u>20</u>

subtotal this page

Site: WOZ1CB Rater(s): R Hook Date: 10/15/01

20

subtotal first page

max 10 pts. 20 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. 0 20 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

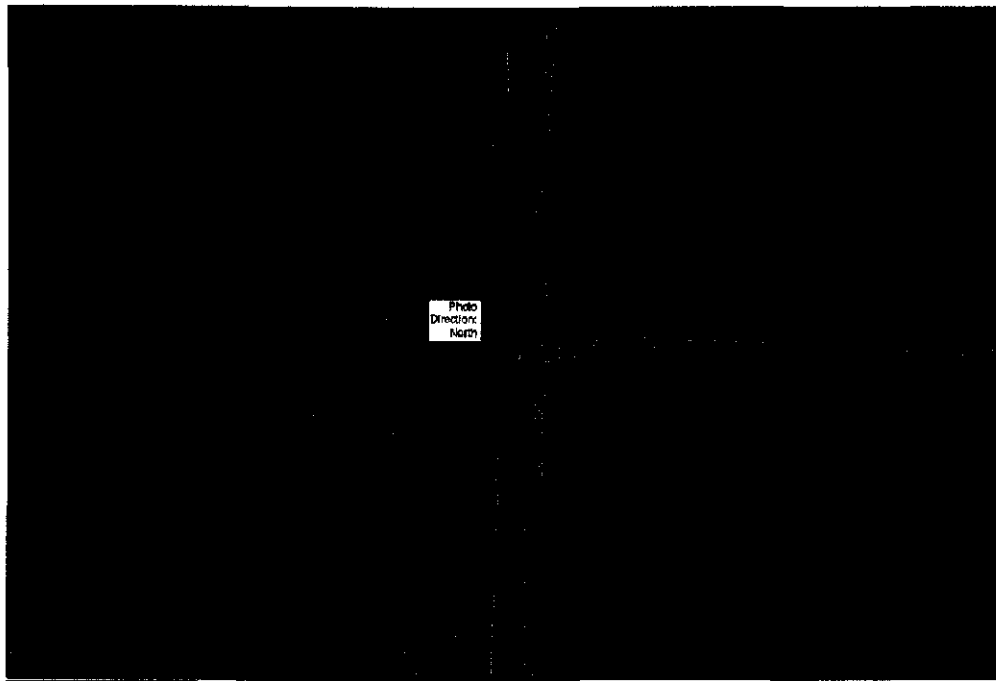
Mudflat and Open Water Class Quality

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

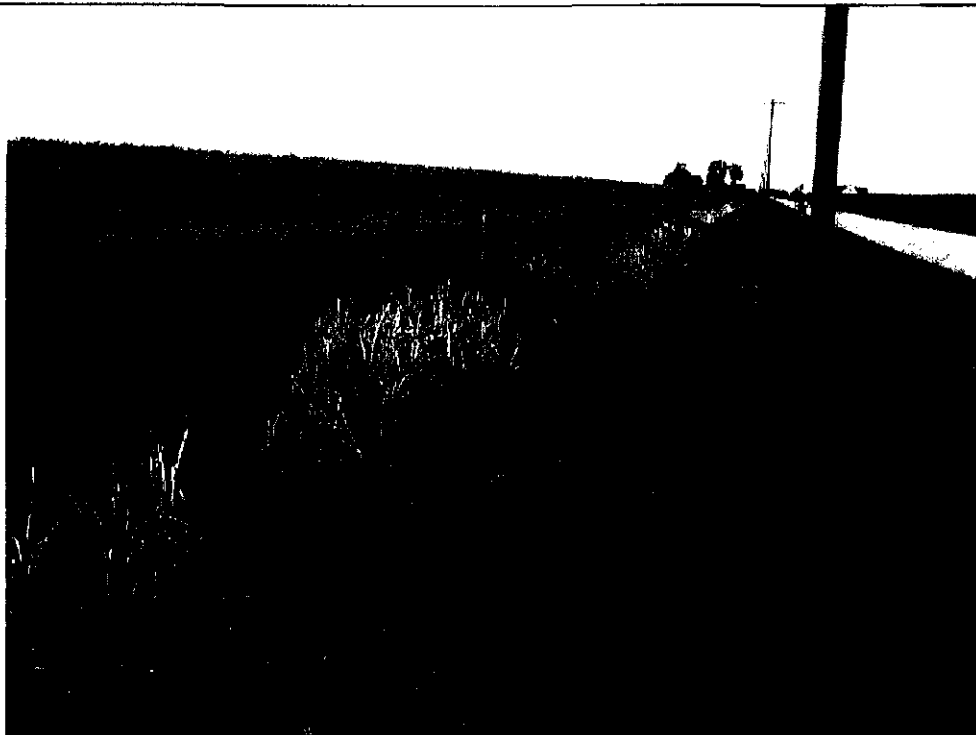
0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

20 GRAND TOTAL (max 100 pts)



0 100 200 feet

Wetland
W023AA



Wetland W023AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W023AA		
		ASSOCIATED STREAM ID No: N/A		
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/ Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.:		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	10 %	
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	20 %	
3. <i>Typha angustifolia</i>	Herbaceous	Obligate	30 %	
4. <i>Typha latifolia</i>	Herbaceous	Obligate	40 %	
5. <i>Alisma subcordatum</i>	Herbaceous	Obligate	10 %	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS: roadside/ag drainage				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Water Marks		Local Soil Survey	Oxi Root Channels	
		FAC Neutral Test		
REMARKS: roadside/ag drainage				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-4	A	10YR 4/2	10YR 4/6 10%	Silty Clay Loam
4+	C	4/N	10YR 4/6 30%	Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: _____	Rater(s): _____	Date: _____
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2	2
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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)

1	3
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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)

15	11.5
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max 30 pts. subtotal

Metric 3. Hydrology.

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

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

3b. 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)

3c. 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)

3d. 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)

3e. 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	
<input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

20	8
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max 20 pts. subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

20.5

subtotal this page

Site: 	Rater(s): 	Date:
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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)

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

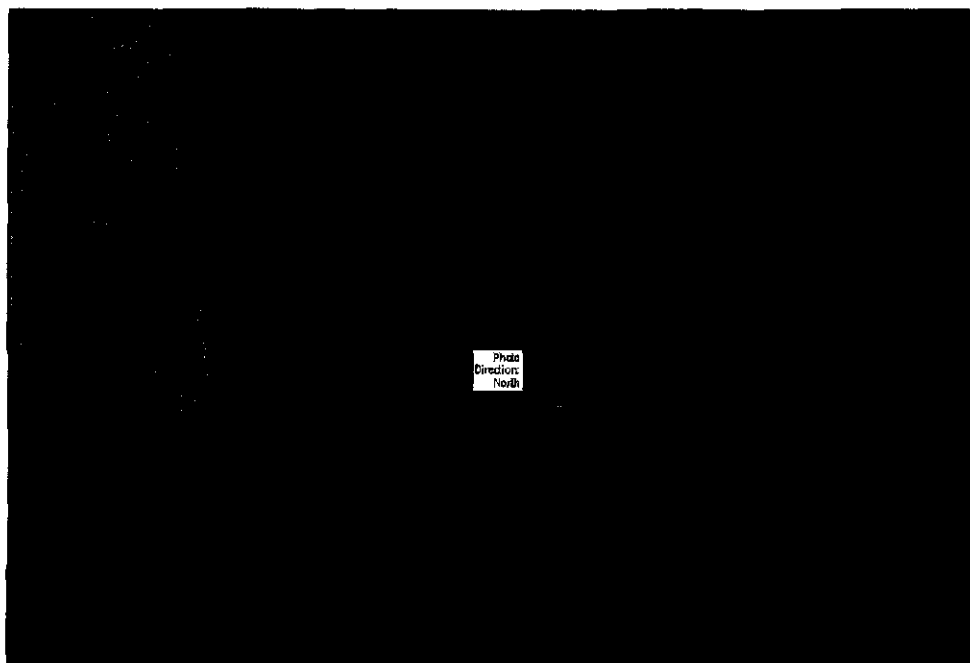
Mudflat and Open Water Class Quality

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

22.5 **GRAND TOTAL(max 100 pts)**



N



Wetland
W026AA



Wetland W026AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W026AA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC. / Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: Medium		WETLAND TYPE: Palustrine SUBTYPE: Forested	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Quercus palustris</i>	Tree	Fac Wet	40 %
2. <i>Quercus bicolor</i>	Tree	Fac Wet +	20 %
3. <i>Fraxinus pennsylvanica</i>	Tree	Fac Wet	10 %
4. <i>Carya laciniosa</i>	Tree	Fac	10 %
5. <i>Glyceria striata</i>	Herbaceous	Obligate	10 %
6. <i>Carex</i> sp.	Herbaceous	Fac Wet	10 %
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS:			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER:	N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN FT:	None (in)		
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Water-Stained Leaves	FAC Neutral Test
		Local Soil Survey	
REMARKS:			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-6	A	10YR 3/1	
6+	B	10YR 4/1	10YR 4/6 20%
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silt Loam			
Sandy Clay Loam			
HYDRIC SOIL INDICATORS:			
Listed Hydric	Gleyed		
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W026AARater(s): Matthew HechmateDate: 9/20/09

3	3
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) (2pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

8+

1	4
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)

15.5	19.5
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 (27.8in) (3)
☐ 0.4 to 0.7m (15.7 to 27.8in) (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)
☐ filling/grading
☐ road bed/RR track
☐ dredging
☐ other

18	37.5
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

37.5

subtotal this page

Site: W026 AA	Rater(s): Matthew Nechvatal	Date: 9/20/09
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37.5

subtotal first page

0	37.5
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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)

4	41.5
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max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

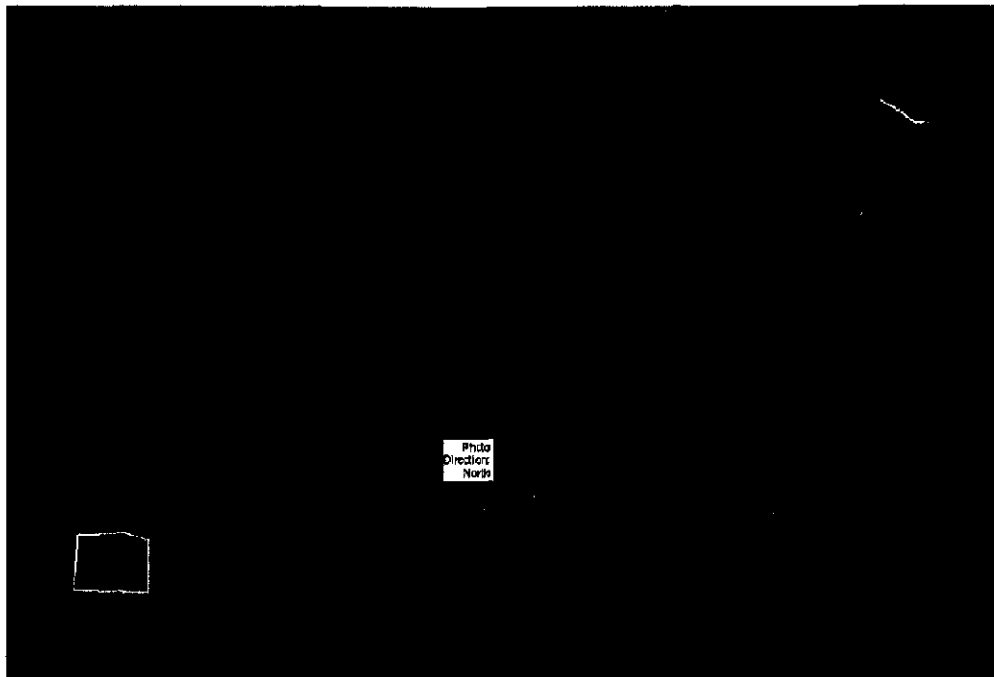
Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

41.5	GRAND TOTAL (max 100 pts)
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Wetland
W027CB



Wetland w027cb

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W027CB		
		ASSOCIATED STREAM ID NO: N/A		
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091015.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO NO.: 008		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. <i>Leersia oryzoides</i>	Herbaceous	Obligate	80 %	
2. <i>Echinochloa</i> sp.	Herbaceous	Fac Wet	10 %	
3. <i>Polygonum</i> sp.	Herbaceous	Fac Wet	10 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS:				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: 1 (in)		DEPTH TO SATURATED SOIL: 0 (in)		
DEPTH TO FREE WATER IN PIT: 0 (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Inundated	Drainage Patterns	Oxi Root Channels		
Saturated Upper 12in				
REMARKS:				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-5	O	10YR 4/1	7.5YR 4/6	Silty Clay Loam
6+	C	10YR 4/6	10YR 5/1	Clay
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: <u>W027CB</u>	Rater(s): <u>R Hook</u>	Date: <u>10/15/09</u>
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2	2
max 5 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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

0.4 acre

1	3
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)

10	13
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
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

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

7	20
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

20

subtotal this page

Site: W027 CB Rater(s): R Hook Date: 10/15/09

20

subtotal first page

max 10 pts. subtotal 20

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 0 20

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) interspersions.

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

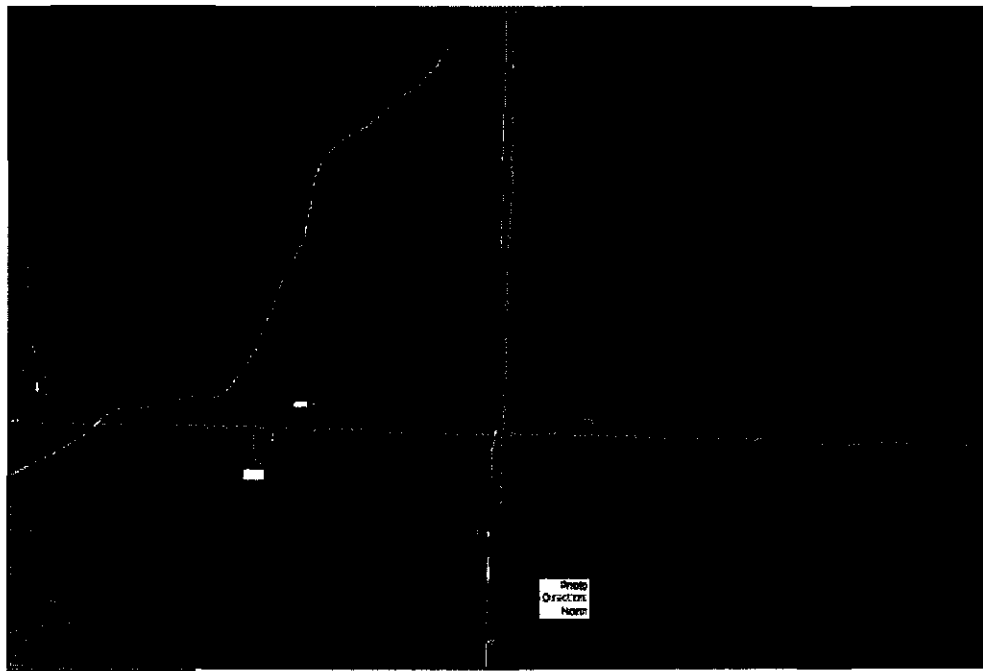
Mudflat and Open Water Class Quality

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

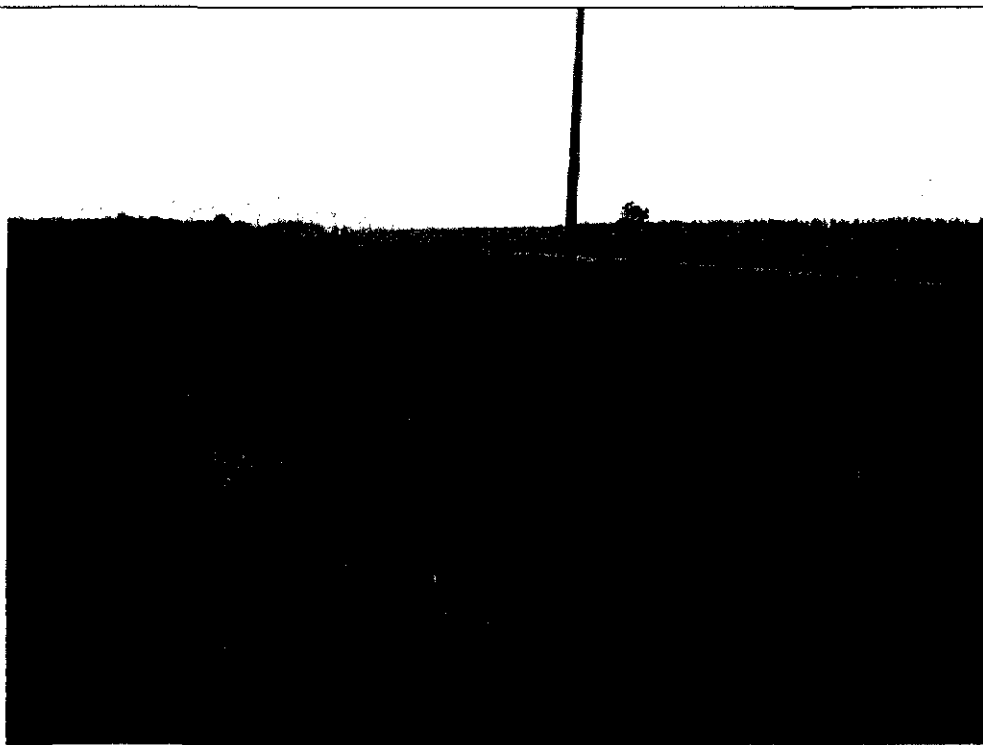
Microtopography Cover Scale

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

20 GRAND TOTAL (max 100 pts)



Wetland
W031CA



Wetland W031CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W031CA	
		ASSOCIATED STREAM ID No: N/A	
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: AF MN	STATE/COUNTY: Ohio/ Van Wert	ROVER FILE: R101509AFMN.cor	QUAD NAME: Convoy
HUC12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.: AF101509_019	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Typha angustifolia</i>	Herbaceous	Obligate	50 %
2. <i>Schoenoplectus tabernaemontani</i>	Herbaceous	Obligate	10 %
3. <i>Leersia oryzoides</i>	Herbaceous	Obligate	30 %
4. <i>Alisma subcordatum</i>	Herbaceous	Obligate	20 %
5. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	10 %
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: Roadside ditch			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: 4 (in)		DEPTH TO SATURATED SOIL: 0 (in)	
DEPTH TO FREE WATER IN PIT: 1 (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Saturated Upper 12in			
Inundated			
REMARKS: Roadside ditch			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-2	A	10YR 4/2	
2-16+	B	10YR 4/2	10Y 5/1
			Clay Loam
HYDRIC SOIL INDICATORS:			
Gleyed	Listed Hydric		
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY) - UPLAND POINT

SURVEY TYPE: Blue Creek		WETLAND ID No.: U031CA		
		ASSOCIATED WETLAND ID No: W031CA		
DATE: 10/15/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: AF MN	STATE/COUNTY: Ohio/Van Wert	QUAD NAME: Convey		
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.: AF101509_020		
WETLAND QUALITY: N/A		WETLAND TYPE: N/A SUBTYPE: Upland		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. Poa sp	Herbaceous	Upland	50 %	
2. Glycine max	Herbaceous	Upland	50 %	
3.			%	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 0				
VEGETATION REMARKS:				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER:	N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT:	None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
None				
REMARKS:				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-16+	A	10yr 3/2	2.5yr 4/6 5%	Clay Loam
HYDRIC SOIL INDICATORS:				
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? No		
WETLAND HYDROLOGY PRESENT? No		IS THIS AN ISOLATED WETLAND? N/A		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? No		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: W031CA	Rater(s): Matthew Nechvatal	Date: 10/15/09
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1	1
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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)

1	2
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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)

11	13
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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

- | | |
|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input | <ul style="list-style-type: none"> <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____ |
|--|--|

9	22
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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

- | | |
|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants | <ul style="list-style-type: none"> <input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment |
|--|--|

22

subtotal this page

Site:	Rater(s):	Date:
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2	
subtotal this page	
0	0
max 10 pts	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	2
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

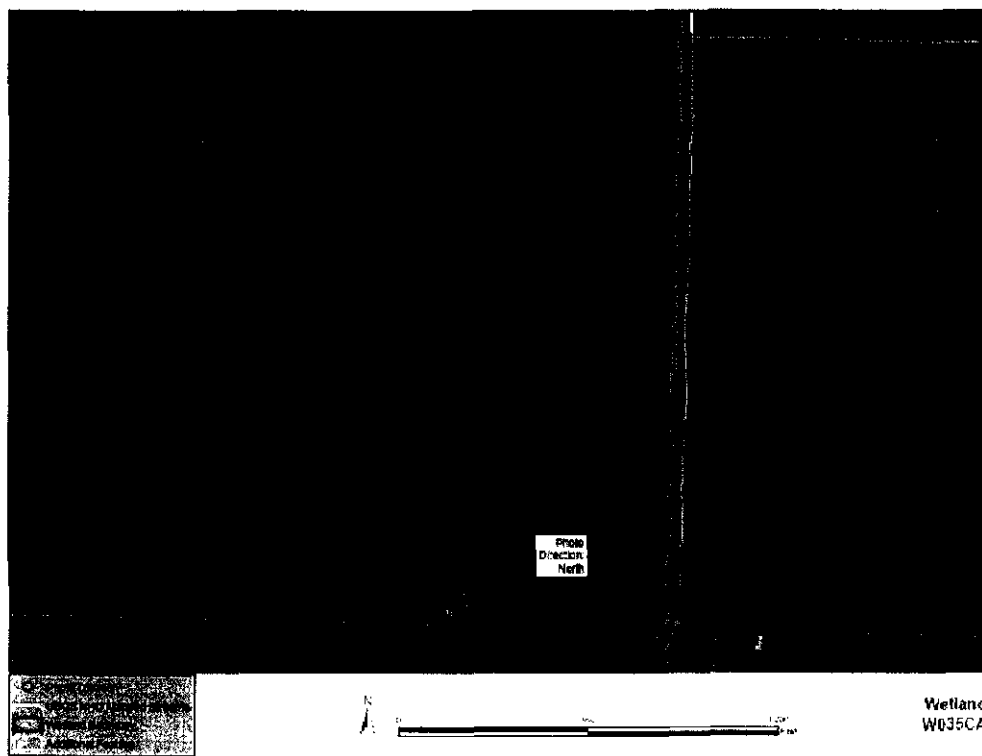
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

24

GRAND TOTAL(max 100 pts)



Wetland W035CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W035CA		
		ASSOCIATED STREAM ID No: S048CA		
DATE 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.cor	QUAD NAME: Convooy	
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.:		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	20 %	
2. <i>Alisma subcordatum</i>	Herbaceous	Obligate	40 %	
3. <i>Leersia oryzoides</i>	Herbaceous	Obligate	30 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS: ag drainage				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Water Marks		Water-Stained Leaves	FAC Neutral Test	
Sediment Deposits		Local Soil Survey	Oxi Root Channels	
REMARKS: ag drainage				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-6	A	10YR 4/3	10YR 5/6 5% and Oxidized Rhizospheres	Silt Loam
8-12+	B	10YR 6/1	10YR 5/6 30%	Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No		POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

Site: <u>W035ca</u>	Rater(s): <u>R Hook</u>	Date: <u>9/20/09</u>
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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) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

1.5 acres

1	3
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)

10	13
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
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

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

7	20
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

20
subtotal this page

Site: W035 CA	Rater(s): R Hook	Date: 9/20/09
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20

subtotal first page

—	20
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	23
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

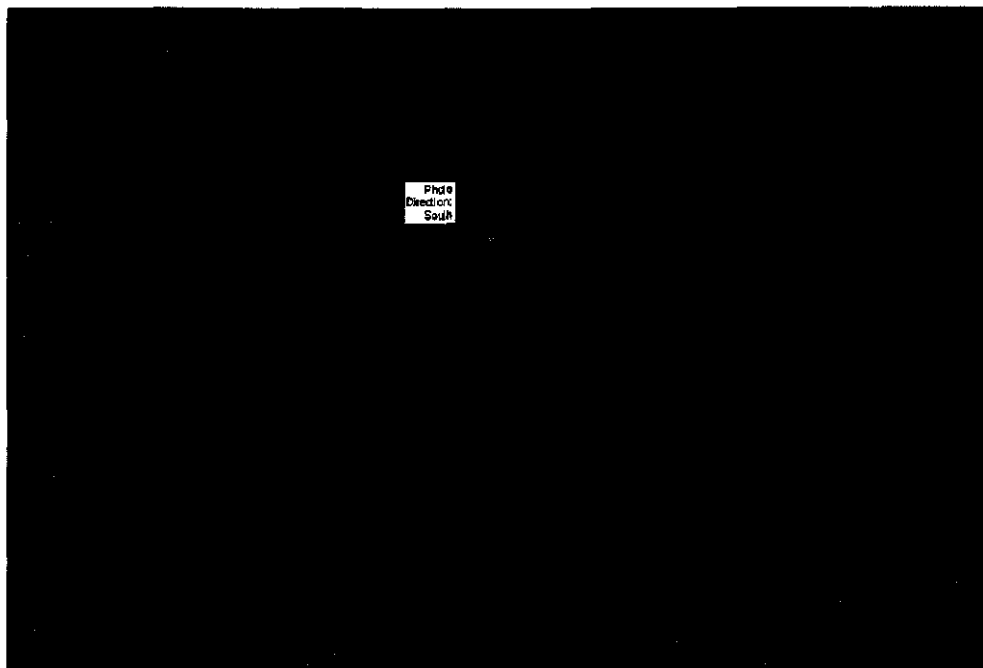
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

23

GRAND TOTAL (max 100 pts)



Wetland
W036CA



Wetland W036CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W036CA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 10/14/2009	CLIENT/PROJECT NAME: Heartland Wind LLC. / Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091014A.cor	QUAD NAME: Convooy
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO NO.: 0	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. <i>Scirpus atrovirens</i>		Herbaceous	Obligate
2. <i>Echinochloa</i> sp.		Herbaceous	Fac Wet
3.			%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: between woods and field			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drainage Patterns		FAC Neutral Test	Oxi Root Channels
		Water-Stained Leaves	
REMARKS: between woods and field			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-10	O	10YR 3/1	7.5YR 4/6
10+	C	10YR 5/1	10YR 4/6
HYDRIC SOIL INDICATORS:			
Gleyed			
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>W036 CA</u>	Rater(s): <u>R Hook</u>	Date: <u>10/14/09</u>
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<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">1</div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">1</div>
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) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

0.12 acre

<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">1</div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">2</div>
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)

<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">10</div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">12</div>
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 (1)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

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

<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">7</div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">19</div>
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">19</div>

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Site: W036 CA Rater(s): R. Hook Date: 10/14/09

19
subtotal first page

- 19
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3 22
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/mussocks
- ☐ 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

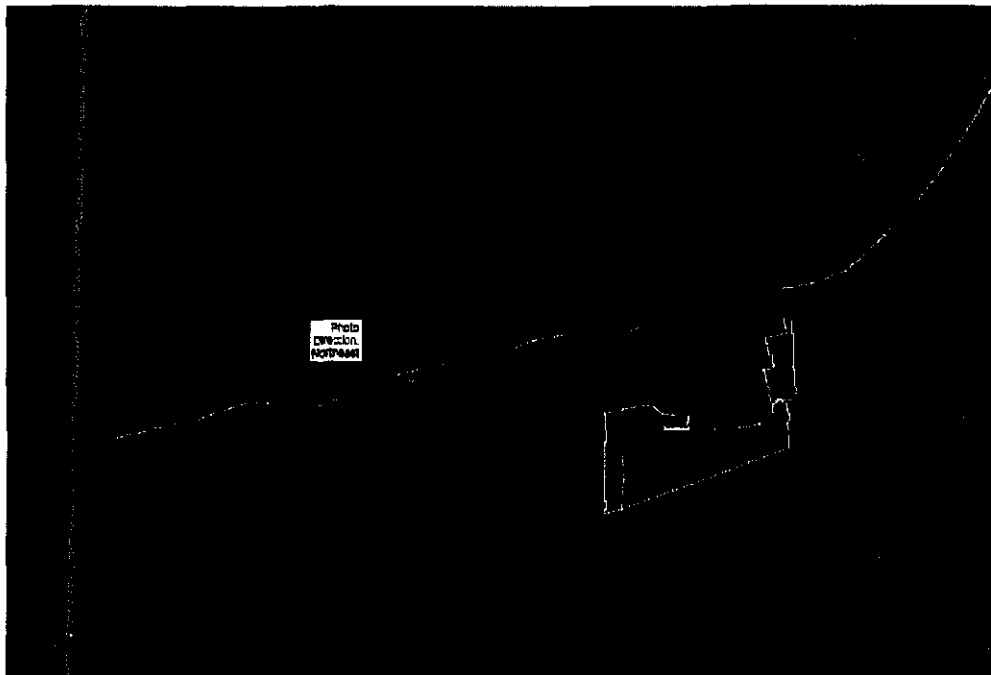
Mudflat and Open Water Class Quality

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

22 **GRAND TOTAL (max 100 pts)**



Wetland
W038AA



Wetland W038AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W038AA		
		ASSOCIATED STREAM ID No: N/A		
DATE: 09/19/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090919B.cor	QUAD NAME: Convey	
HUC12 CODE: 041000070701	TOWNSHIP: Union	PHOTO No.: 38a1		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	40 %	
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	30 %	
3. <i>Carex vulpinoidea</i>	Herbaceous	Obligate	10 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS:				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Drift Lines		FAC Neutral Test		
Water Marks		Local Soil Survey		
REMARKS:				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-5	B	2.5Y 4/2	10YR 4/6 10%	Silty Clay Loam
5+	B	10YR 5/1	10YR 4/6 30%	Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Cleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED? No	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

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

1 3

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)

8.5 11.5

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)
- ☐ 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

1 20.5

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)
- ☒ 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 culling
- ☐ woody debris removal
- ☐ toxic pollutants
- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☒ dredging
- ☐ farming
- ☐ nutrient enrichment

20.5

subtotal this page

Site: <u>235</u>	Rater(s): <u>1</u>	Date: <u>1/2/01</u>
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3

additional Run image

0	0
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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)

3	3
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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

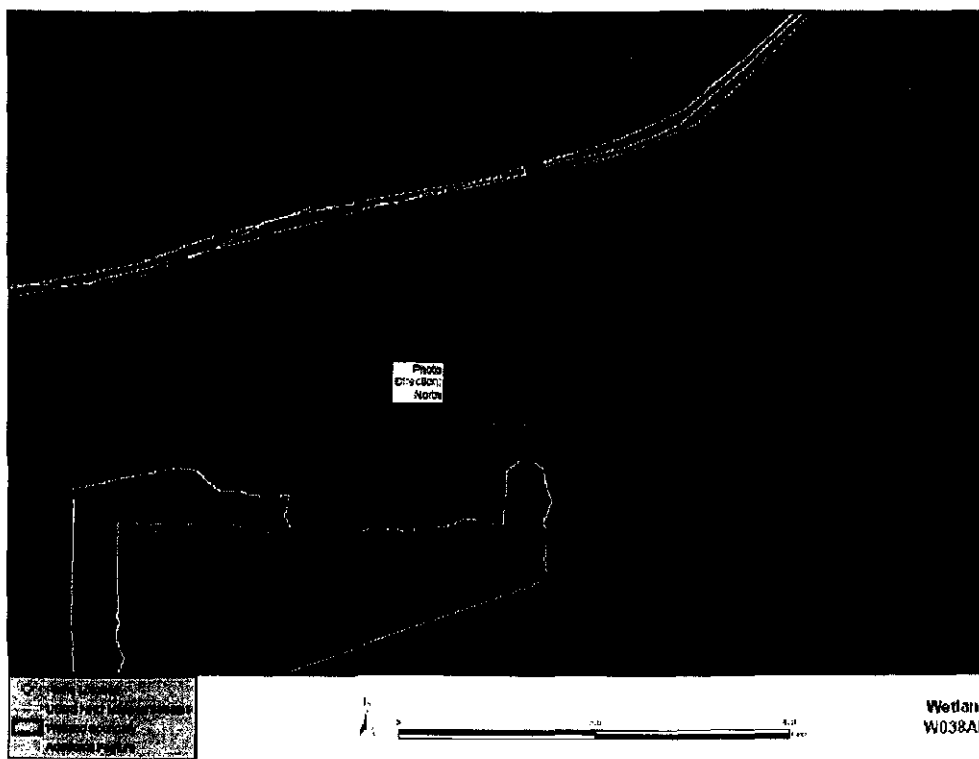
Microtopography Cover Scale

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

235

GRAND TOTAL(max 100 pts)

Refer to the most recent ORAM Score Calculation Report for details on the steps between wetland categories to the following address: <http://www.ora.state.nh.us/draw/041001.htm>



Wetland W038AB

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W038AB	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/19/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090919B.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO NO.: w38ah1	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Setaria faberi</i>	Herbaceous	Upland	10 %
2. <i>Echinochloa</i> sp.	Herbaceous	Fac Wet	10 %
3. <i>Carex vulpinoidea</i>	Herbaceous	Obligate	10 %
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 66			
VEGETATION REMARKS: farmed wetland, largely bare			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drift Lines		Local Soil Survey	
Sediment Deposits			
REMARKS: farmed wetland, suppressed crop			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-5	A	2.5Y 3/1	
5+	B	10YR 4/1	10YR 4/4 30%
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
			Silty Clay Loam
			Clay Loam
HYDRIC SOIL INDICATORS:			
Listed Hydric	Gleyed		
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? No		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? Yes
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W038AC/W038AB Rater(s): Matthew N. Nechuta Date: 7/19/09

3 **3**

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)

6 acres

1 **4**

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)

17 **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)
- ☐ 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

18 **39**

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

39
subtotal this page

Site: W038 AC/AB Rater(s): Matthew Nechvatal Date: 8/19/09

39
subtotal

0 39
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)

5 44
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

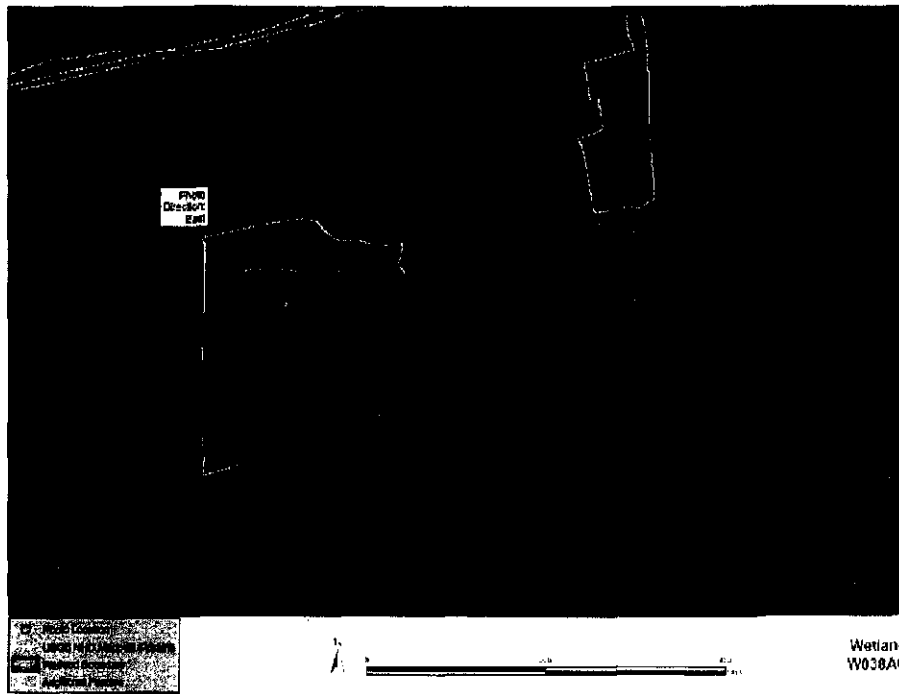
Mudflat and Open Water Class Quality

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

44 GRAND TOTAL(max 100 pts)



Wetland W038AC

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W038AC	
		ASSOCIATED STREAM ID NO:	
DATE: 09/16/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: R Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE:	QUAD NAME: Convooy
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: Medium		WETLAND TYPE: Palustrine SUBTYPE: Forested	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Quercus palustris</i>	Tree	Fac Wet	50 %
2. <i>Quercus bicolor</i>	Tree	Obligate	20 %
3. <i>Praxinus pennsylvanica</i>	Tree	Fac Wet	20 %
4. <i>Cornus amomum</i>	Shrub	Fac Wet	30 %
5. <i>Toxicodendron radicans</i>	Herbaceous	Fac	30 %
6. <i>Carex vesicaria</i>	Herbaceous	Obligate	30 %
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS:			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Water-Stained Leaves	FAC Neutral Test
		Local Soil Survey	
REMARKS:			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-8	A	10YR 2/1	Silt Loam
8+	B	10YR 5/1	Silty Clay Loam
HYDRIC SOIL INDICATORS:			
Listed Hydric	Gleyed		
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W038AC/W038AB Rater(s): Matthew Nechuata Date: 7/19/09

3 **3**

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)

6 acres

1 **4**

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)

17 **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)
- ☐ 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

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |

18 **39**

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

Check all disturbances observed

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

39
subtotal this page

Site: W038 AC/AB Rater(s): Matthew Nechyral Date: 9/19/09

39
subtotal for page

0 39
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)

5 44
max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) interspersions.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

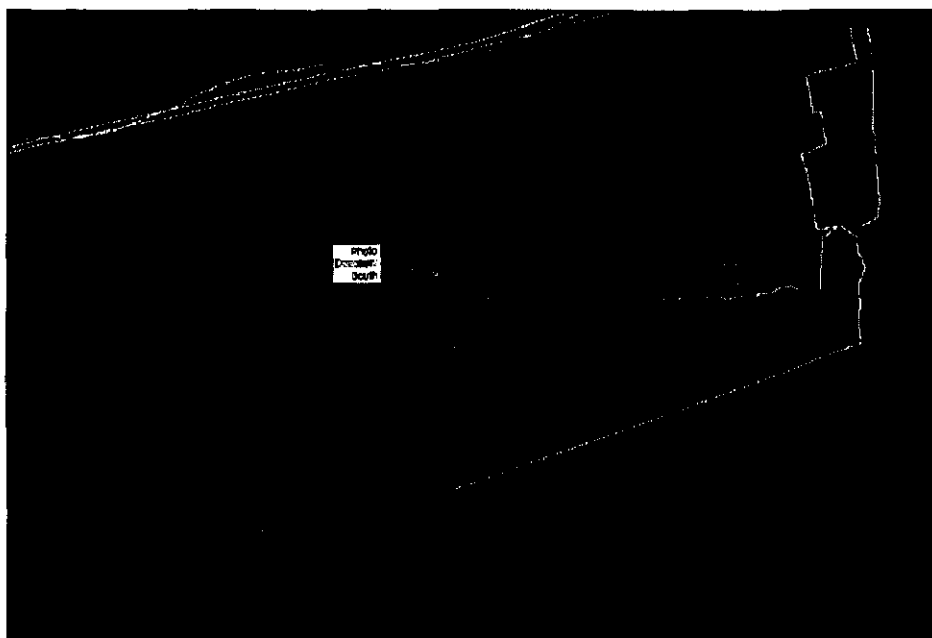
Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

44 GRAND TOTAL(max 100 pts)



Wetland W038AD

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W038AD	
DATE: 09/19/2009		CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm	
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090919B.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO NO.: w38ad1	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Setaria faberi</i>	Herbaceous	Upland	10 %
2. <i>Echinochloa</i> sp.	Herbaceous	Fac Wet	10 %
3.			0%
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 50			
VEGETATION REMARKS: farmed wetland, largely bare			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drift Lines		Local Soil Survey	
Sediment Deposits			
REMARKS: farmed wetland, suppressed crop			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-5	A	2.5Y 3/1	
5+	B	10YR 4/1	10YR 4/4 30%
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? Yes	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? No		SIGNIFICANTLY DISTURBED? Yes	POTENTIAL PROBLEM AREA? Yes
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area – diverse and mature vegetation types – hydrologic and soil indicators are characteristic of the specific community type – provides suitable habitat for wildlife – high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas – slightly altered natural vegetation, hydrology and/ or soil characteristics – provides suitable habitat for wildlife and vegetation – associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology – hydroperiod alterations, if present, have directly affected plant species – community composition has changed – noticeable stress or death of plant species – soil subsidence may have occurred in areas with decreased hydroperiod – mechanical alteration of plant species or soils – grazing from livestock – channelization of stream courses or ditching – little suitable habitat for wildlife and vegetation – associated perennial or intermittent streams significantly disturbed.</p>			

Site: <u>W038AC/W038AB</u>	Rater(s): <u>Matthew Nechevata</u>	Date: <u>7/19/09</u>
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3	3
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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)

6 acres

1	4
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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)

17	21
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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)
- ☐ 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

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other |

18	39
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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

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

39

subtotal this page

Site: W038 AC/AB Rater(s): Matthew Neehyatal Date: 9/19/09

39
subtotal all pages

0 39
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)

5 44
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

44 GRAND TOTAL(max 100 pts)

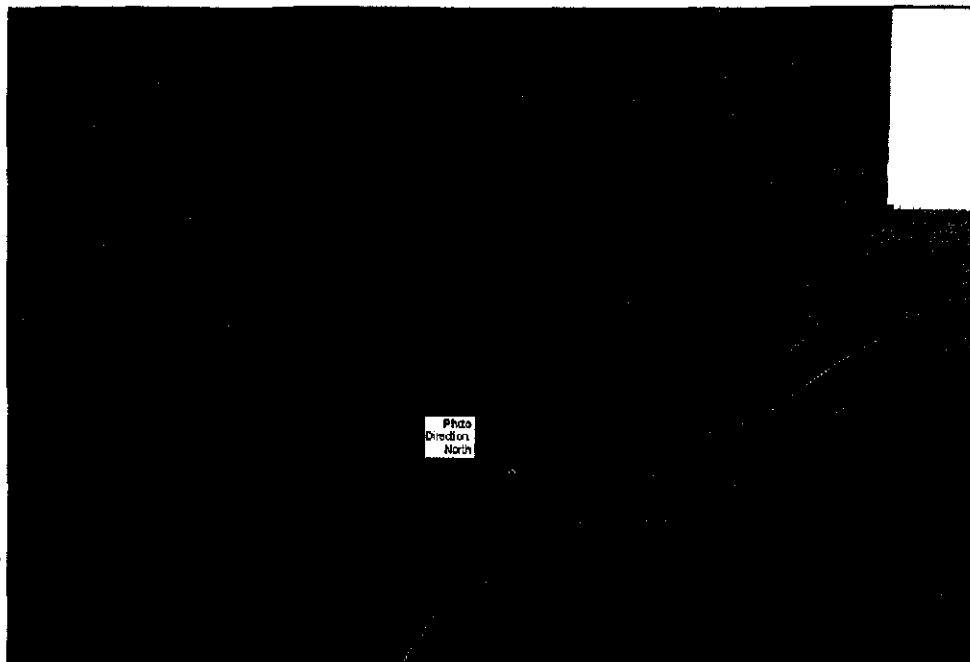


Photo Location
 15025 W. 150th Street
 Photo Direction
 Add North Arrow



0 100 200 feet

Wetland
W039CA



Wetland W039CA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W039CA		
		ASSOCIATED STREAM ID No: S039CA		
DATE: 09/19/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/ Van Wert	ROVER FILE: RAH090919B.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO NO.: w36ca1		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. Glycine max	Herbaceous	Upland	10 %	
2. Echinochloa sp.	Herbaceous	Fac Wet	30 %	
3. Setaria faberi	Herbaceous	Upland	20 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 33				
VEGETATION REMARKS: farmed wetland				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Drift Lines		Other		
Sediment Deposits		Local Soil Survey		
REMARKS: farmed wetland, suppressed crop				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-8	A	10YR 4/2		Silt Loam
8+	B	10YR 4/1	10YR 4/6 10%	Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric		Gleyed		
REMARKS:				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? No		SIGNIFICANTLY DISTURBED: Yes	POTENTIAL PROBLEM AREA? Yes	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>				

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY) - UPLAND POINT

SURVEY TYPE: Blue Creek		WETLAND ID NO.: U039CB	
		ASSOCIATED WETLAND ID NO: W039CB	
DATE: 10/14/2009	CLIENT/PROJECT NAME: Heartland Wind LLC. / Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	QUAD NAME: Convoy	
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: N/A		WETLAND TYPE: N/A SUBTYPE: Upland	
PLANT SPECIES		STRATUM	INDICATOR
1. Quercus muehlenbergii		Canopy	Upland
2. Tilia hetero		Canopy	Fac Up
3. Quercus palustr		Canopy	Fac Wet
4. Viburnum dentatum		Shrub	Fac
5.			
6.			
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 30			
VEGETATION REMARKS:			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
None			
REMARKS:			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-14	A	10yr 3/2	
14+	B	10yr 4/2	10yr 4/6 10%
TEXTURE, CONCRETIONS, STRUCTURE, ETC.			
Silty Clay Loam			
Clay Loam			
HYDRIC SOIL INDICATORS:			
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? No		IS THIS SAMPLING POINT WITHIN A WETLAND? No	
WETLAND HYDROLOGY PRESENT? No		IS THIS AN ISOLATED WETLAND? N/A	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W039CA	Rater(s): Matthew Nechvatal	Date: 09/19/09
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1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

1	2
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)

7	9
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	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____

3	12
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

12
subtotal this page

Site:	Rater(s):	Date:
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1	
subtotal this page	
0	0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1	1
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

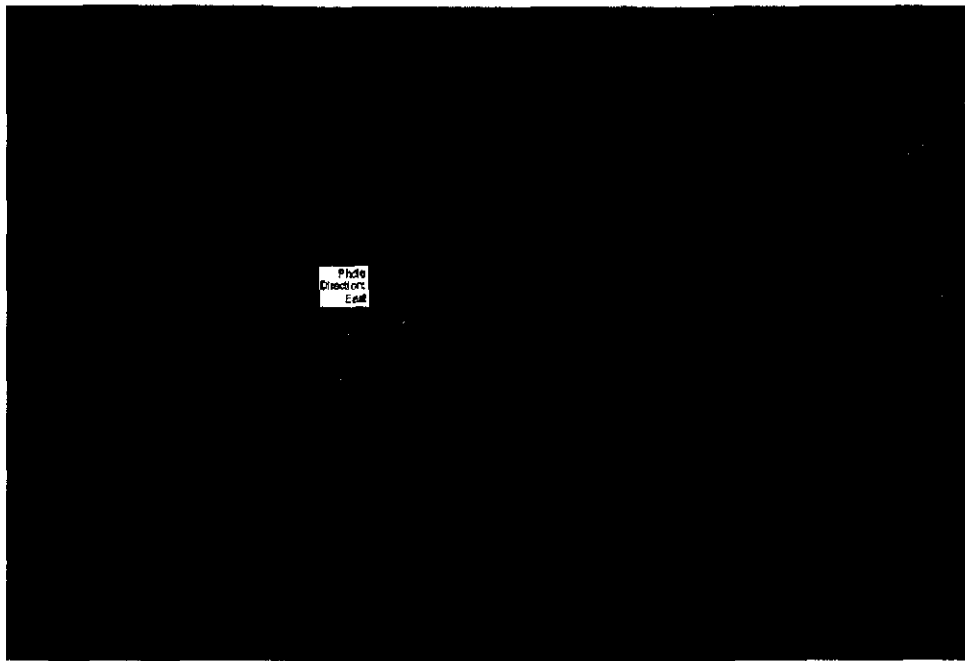
Mudflat and Open Water Class Quality

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

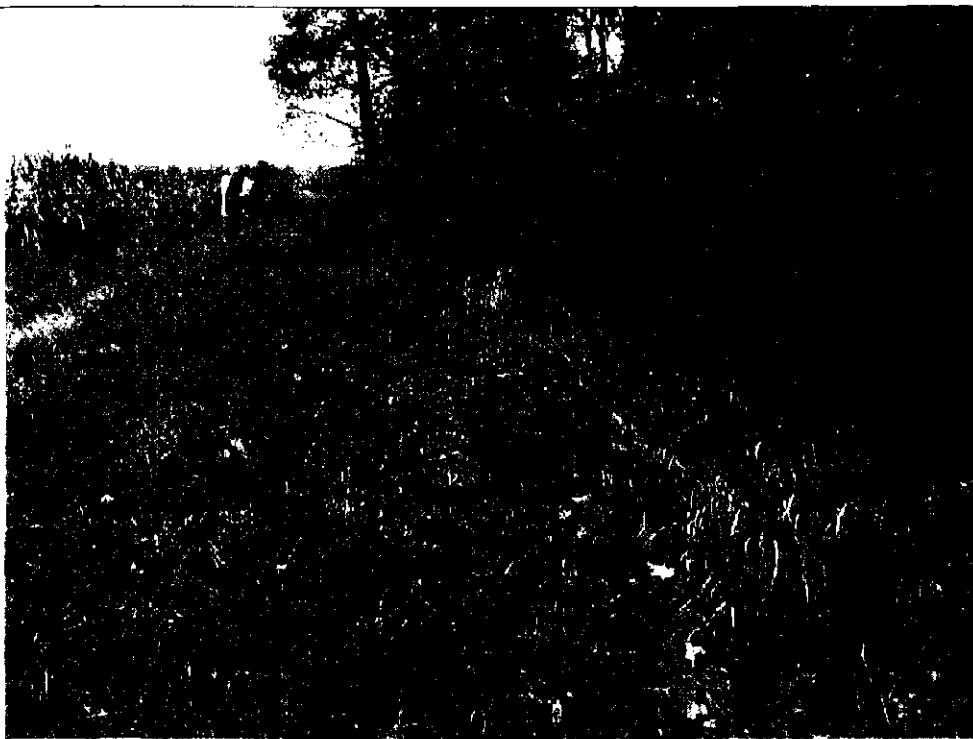
Microtopography Cover Scale

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

13	GRAND TOTAL(max 100 pts)
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Wetland
W039CB



Wetland W039CB

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W039CB	
		ASSOCIATED STREAM ID No: N/A	
DATE: 10/14/2009	CLIENT/PROJECT NAME: Heartland Wind LLC / Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH091014A.cor	QUAD NAME: Convoy
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO No.: 17	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Phalaris arundinacea</i>	Herbaceous	Fac Wet +	20 %
2. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	20 %
3. <i>Carex tribuloides</i>	Herbaceous	Obligate	10 %
4. <i>Cornus amomum</i>	Herbaceous	Fac Wet	10 %
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: drainage ditch			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Drainage Patterns	FAC Neutral Test		
	Water-Stained Leaves		
REMARKS: drainage ditch			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-12+	B	10YR 5/1	7.5YR 4/6
HYDRIC SOIL INDICATORS:			
Gleyed			
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site: W039CB	Rater(s): Matthew Nechvatal	Date: 10/14/09
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1	1
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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)

4	5
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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	13
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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)
- ☐ 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	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

8	21
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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	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

21

subtotal this page

Site:	Rater(s):	Date:
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1

subtotal this page

0	0
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Praires (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)

1	1
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

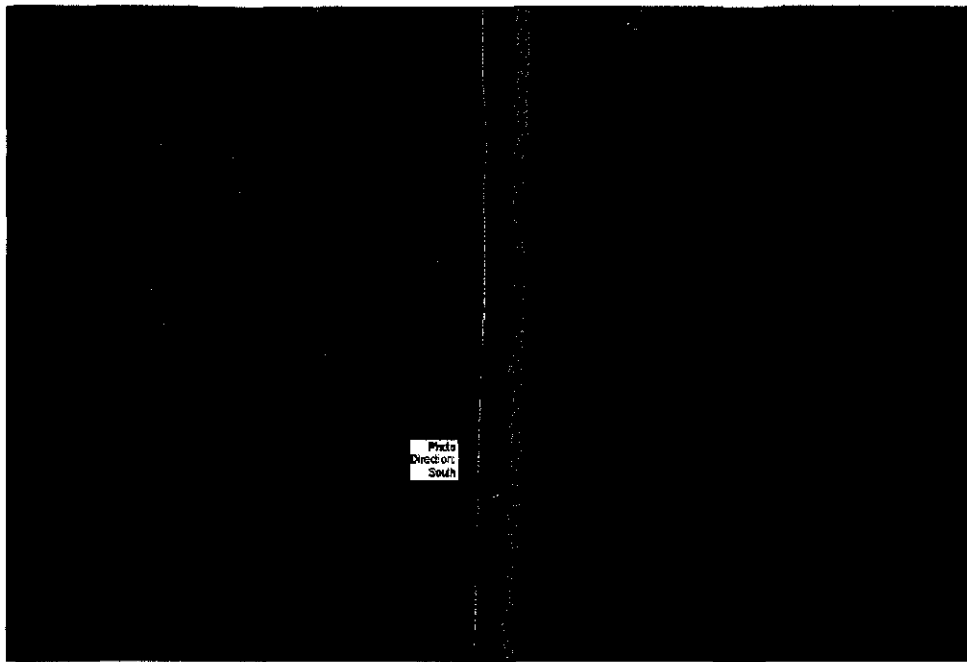
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

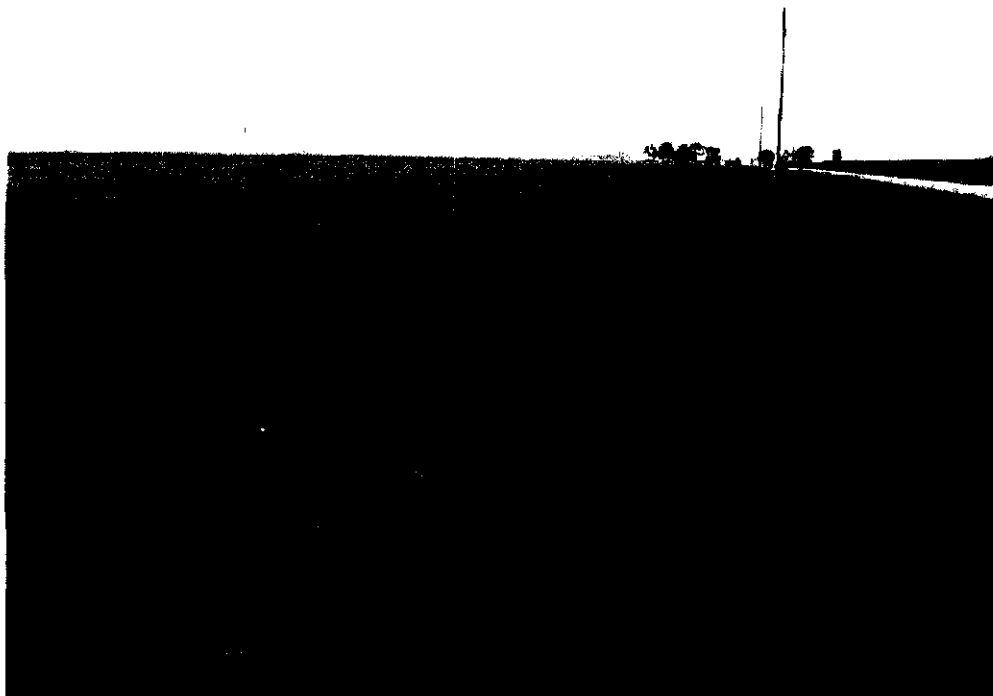
0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

22

GRAND TOTAL(max 100 pts)



Wetland
W042AA



Wetland W042AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W042AA	
		ASSOCIATED STREAM ID No: N/A	
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convooy
HUC 12 CODE: 041000070701	TOWNSHIP: Union	PHOTO No.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	20 %
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	50 %
3. <i>Typha angustifolia</i>	Herbaceous	Obligate	30 %
4.			%
5.			%
6.			%
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: roadside/ag drainage			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Local Soil Survey	
		FAC Neutral Test	
REMARKS: roadside/ag drainage			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-3	A	2.5Y 3/1	
3+	C	10YR 5/1	10YR 4/6 40%
			Texture, Concretions, STRUCTURE, ETC.
HYDRIC SOIL INDICATORS:			
Listed Hydric		Gleyed	
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			

Site:	Rater(s):	Date:
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2	2
max 5 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) (2pts)
 - ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
 - ☐ <0.1 acres (0.04ha) (0 pts)

1	3
max 5 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)

8.5	11.5
max 20 pts.	subtotal

Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply
- ☐ High pH groundwater (5)
 - ☐ Other groundwater (3)
 - ☒ Precipitation (1)
 - ☐ Seasonal/Intermittent surface water (3)
 - ☐ Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- ☐ 100 year floodplain (1)
 - ☐ Between stream/lake and other human use (1)
 - ☐ Part of wetland/upland (e.g. forest), complex (1)
 - ☐ Part of riparian or upland corridor (1)
- 3c. Maximum water depth. 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)
- 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)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- ☐ None or none apparent (12)
 - ☒ Recovered (7)
 - ☒ Recovering (3)
 - ☐ Recent or no recovery (1)

Check all disturbances observed

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

1	20.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
 - ☒ Recovered (3)
 - ☒ Recovering (2)
 - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
 - ☐ Very good (6)
 - ☐ Good (5)
 - ☐ Moderately good (4)
 - ☐ Fair (3)
 - ☒ Poor to fair (2)
 - ☐ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
 - ☒ Recovered (6)
 - ☒ Recovering (3)
 - ☐ Recent or no recovery (1)

Check all disturbances observed

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

20.5
subtotals this page

Site: <u> </u>	Rater(s): <u> </u>	Date: <u> </u>
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subtotal this page

0

0

max 10 pts
subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

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 (0.247 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

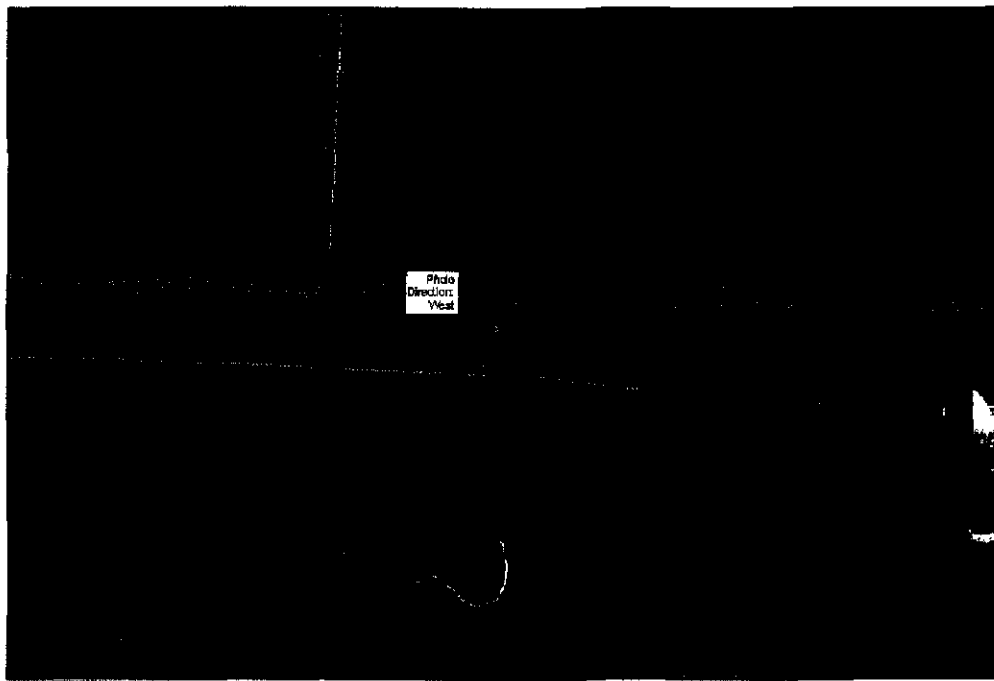
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

21.5 GRAND TOTAL(max 100 pts)

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



Wetland
W043AA



Wetland W043AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID NO.: W043AA	
		ASSOCIATED STREAM ID NO: N/A	
DATE: 09/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090921.cor	QUAD NAME: Convoy
HUC12 CODE: 041000070702	TOWNSHIP: Union	PHOTO NO.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	

PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER
1. <i>Scirpus atrovirens</i>	Herbaceous	Obligate	20 %
2. <i>Leersia oryzoides</i>	Herbaceous	Obligate	80 %
3.			%
4.			%
5.			%
6.			%

PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100

VEGETATION REMARKS: roadside/ag drainage

HYDROLOGY

RECORDED DATA?	DESCRIBE:
DEPTH OF SURFACE WATER: N/A (in)	DEPTH TO SATURATED SOIL: >16 (in)
DEPTH TO FREE WATER IN PIT: None (in)	
PRIMARY WETLAND INDICATORS:	SECONDARY WETLAND INDICATORS:
Water Marks	Local Soil Survey
	FAC Neutral Test

REMARKS: roadside/ag drainage

SOILS

MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)	DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):	FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?

PROFILE DESCRIPTION

DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-4	A	10YR 4/2		Silty Clay Loam
4+	C	10YR 4/1	10YR 4/6 30%	Clay Loam

HYDRIC SOIL INDICATORS:

Listed Hydric	Gleyed	
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REMARKS: Deep excavation into substratum. Dominance by OBL species.

WETLAND DETERMINATION

HYDROPHYTIC VEGETATION PRESENT? Yes	IS THIS SAMPLING POINT WITHIN A WETLAND? Yes
WETLAND HYDROLOGY PRESENT? Yes	IS THIS AN ISOLATED WETLAND? No
HYDRIC SOILS PRESENT? Yes	
NORMAL CIRCUMSTANCES? Yes	SIGNIFICANTLY DISTURBED: No POTENTIAL PROBLEM AREA? No

DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.

MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.

LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.

Site:	Rater(s):	Date:
-------	-----------	-------

2	2
max 6 ms	substituted

Metric 1. Wetland Area (size).

Select one size class and assign score.

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | >50 acres (>20.2ha) (6 pts) |
| <input type="checkbox"/> | 25 to <50 acres (10.1 to <20.2ha) (5 pts) |
| <input type="checkbox"/> | 10 to <25 acres (4 to <10.1ha) (4 pts) |
| <input type="checkbox"/> | 3 to <10 acres (1.2 to <4ha) (3 pts) |
| <input checked="" type="checkbox"/> | 0.3 to <3 acres (0.12 to <1.2ha) (2pts) |
| <input type="checkbox"/> | 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) |
| <input type="checkbox"/> | <0.1 acres (0.04ha) (0 pts) |

1	3
max 1st	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)

25	115
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.

- | | |
|-------------------------------------|----------------------------------|
| <input type="checkbox"/> | >0.7 (27.6in) (3) |
| <input type="checkbox"/> | 0.4 to 0.7m (15.7 to 27.6in) (2) |
| <input checked="" type="checkbox"/> | <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.

- | | |
|--------------------------|---|
| <input type="checkbox"/> | 100 year floodplain (1) |
| <input type="checkbox"/> | Between stream/lake and other human use (1) |
| <input type="checkbox"/> | Part of wetland/upland (e.g. forest), complex (1) |
| <input type="checkbox"/> | 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)

7	209
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.





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

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

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

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

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

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

Check all disturbances observed

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

20.5

Site: <u>W25</u>	Rater(s): <u>...</u>	Date: <u>...</u>
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subtotal first page

0

5

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/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

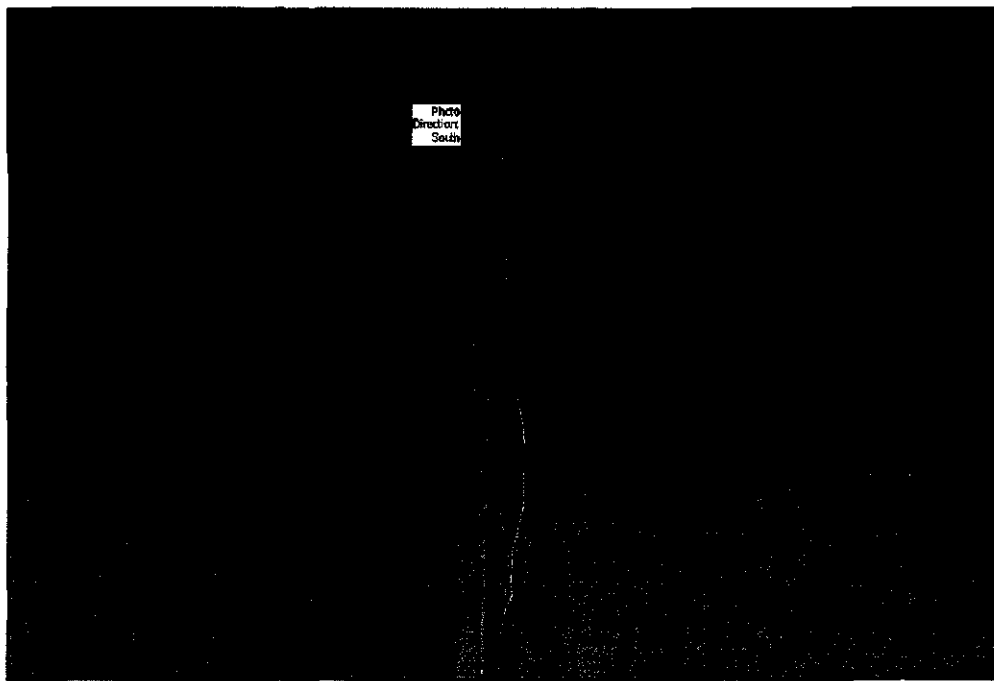
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

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

235

GRAND TOTAL (max 100 pts)



○ Photo Location
 USGS NHD Mapped Streams
 Wetland Boundary
 Additional Features



0 100 200 Feet

Wetland
W050AA



Wetland W050AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W050AA		
		ASSOCIATED STREAM ID No.: N/A		
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm			
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.cor	QUAD NAME: Convoy	
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.:		
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent		
PLANT SPECIES	STRATUM	INDICATOR	PERCENT COVER	
1. Leersia oryzoides	Herbaceous	Obligate	30 %	
2. Scirpus atrovirens	Herbaceous	Obligate	20 %	
3. Alisma subcordatum	Herbaceous	Obligate	10 %	
4.			%	
5.			%	
6.			%	
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100				
VEGETATION REMARKS: roadside drainage				
HYDROLOGY				
RECORDED DATA?		DESCRIBE:		
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)		
DEPTH TO FREE WATER IN PIT: None (in)				
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:		
Water Marks		Local Soil Survey		
Drift Lines		FAC Neutral Test		
REMARKS: roadside drainage				
SOILS				
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained	
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?		
PROFILE DESCRIPTION				
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)	TEXTURE, CONCRETIONS, STRUCTURE, ETC.
0-6	B	10YR 4/1	10yr 4/6 10%	Silt Loam
6+	C	10YR 4/3		Sandy Clay Loam
HYDRIC SOIL INDICATORS:				
Listed Hydric				
REMARKS: Deep excavation into substratum. Dominance by OBL species.				
WETLAND DETERMINATION				
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes		
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No		
HYDRIC SOILS PRESENT? Yes				
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No	
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA				
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area – diverse and mature vegetation types – hydrologic and soil indicators are characteristic of the specific community type – provides suitable habitat for wildlife – high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas – slightly altered natural vegetation, hydrology and/ or soil characteristics – provides suitable habitat for wildlife and vegetation – associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology – hydroperiod alterations, if present, have directly affected plant species – community composition has changed – noticeable stress or death of plant species – soil subsidence may have occurred in areas with decreased hydroperiod – mechanical alteration of plant species or soils – grazing from livestock – channelization of stream courses or ditching – little suitable habitat for wildlife and vegetation – associated perennial or intermittent streams significantly disturbed.</p>				

Site:

Rater(s):

Date:

2

2

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)

3

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)

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

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 (3)
- ☒ 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

Site: W050 # 2

Rater(s): [signature]

Date:



subtract 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) Interspersions.

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/lumps
- ☐ 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 no 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

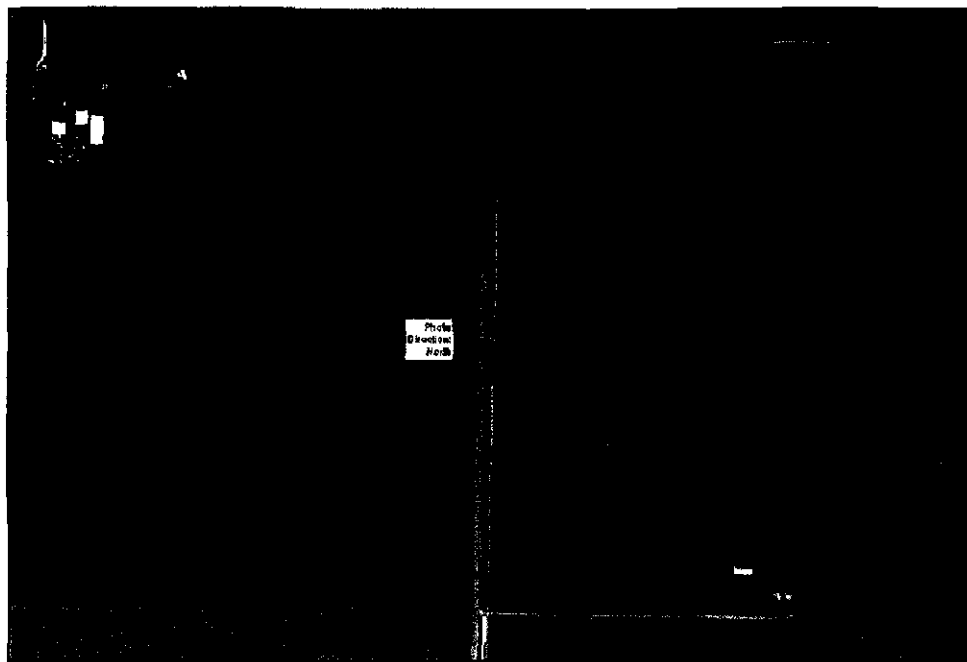
Mudflat and Open Water Class Quality

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

23.5 GRAND TOTAL(max 100 pts)

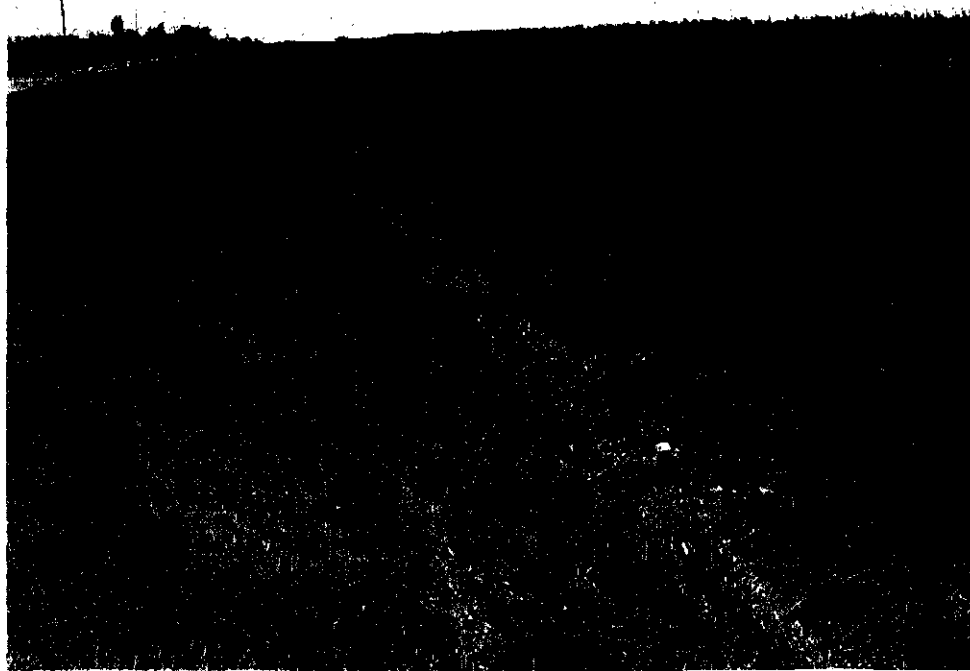


O Photo Location
 USGS 1:10,000 Map Sheet
 Wetland Boundary
 Additional Features



0 50 100 Feet

Wetland
 W053AA



Wetland W053AA

ROUTINE WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

SURVEY TYPE: Blue Creek Wind Farm		WETLAND ID No.: W053AA	
		ASSOCIATED STREAM ID No:	
DATE: 09/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./ Blue Creek Wind Farm		
INVESTIGATORS: Hook	STATE/COUNTY: Ohio/Van Wert	ROVER FILE: RAH090920.corr	QUAD NAME: Convooy
HUC 12 CODE: 041000070703	TOWNSHIP: Union	PHOTO No.:	
WETLAND QUALITY: Low		WETLAND TYPE: Palustrine SUBTYPE: Emergent	
PLANT SPECIES		STRATUM	INDICATOR
1. <i>Scirpus atrovirens</i>		Herbaceous	Obligate
2. <i>Alisma subcordatum</i>		Herbaceous	Obligate
3. <i>Leersia oryzoides</i>		Herbaceous	Obligate
4.			
5.			
6.			
PERCENT OF DOMINANT SPECIES THAT ARE OBL, FACW, FACW+, FACW-, FAC+, OR FAC (EXCLUDING FAC-): 100			
VEGETATION REMARKS: ag drainage			
HYDROLOGY			
RECORDED DATA?		DESCRIBE:	
DEPTH OF SURFACE WATER: N/A (in)		DEPTH TO SATURATED SOIL: >16 (in)	
DEPTH TO FREE WATER IN PIT: None (in)			
PRIMARY WETLAND INDICATORS:		SECONDARY WETLAND INDICATORS:	
Water Marks		Water-Stained Leaves	FAC Neutral Test
Sediment Deposits		Local Soil Survey	
REMARKS: ag drainage			
SOILS			
MAP UNIT NAME (SERIES AND PHASE): Hoytville silty clay, 0 percent slopes (flats)			DRAINAGE CLASS: Very poorly drained
TAXONOMY (SUBGROUP):		FIELD OBSERVATIONS CONFIRM MAPPED TYPE. IF NO, SOIL TYPE ENCOUNTERED?	
PROFILE DESCRIPTION			
DEPTH (INCHES)	HORIZON	MATRIX COLOR (MUNSELL MOIST)	MOTTLE COLOR (MUNSELL MOIST)
0-2	A	2.5Y 4/2	
2-8	A	2.5Y 4/2	10YR 5/6 5%
8-10	B	10YR 5/1	10YR 5/6 45% Rock Refusal after 10"
HYDRIC SOIL INDICATORS:			
Listed Hydric	Gleyed		
REMARKS:			
WETLAND DETERMINATION			
HYDROPHYTIC VEGETATION PRESENT? Yes		IS THIS SAMPLING POINT WITHIN A WETLAND? Yes	
WETLAND HYDROLOGY PRESENT? Yes		IS THIS AN ISOLATED WETLAND? No	
HYDRIC SOILS PRESENT? Yes			
NORMAL CIRCUMSTANCES? Yes		SIGNIFICANTLY DISTURBED: No	POTENTIAL PROBLEM AREA? No
DESCRIPTION OF WETLAND CROSSING TYPES AND WETLAND QUALITY CRITERIA			
<p>HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed.</p> <p>MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology and/ or soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed.</p> <p>LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed.</p>			