Large Filing Separator Sheet

Case Number: 09-1066-EL-BGN

File Date: 12/21/09

Section: 6

Number of Pages: 200

Description of Document: Application

Prairie Creek



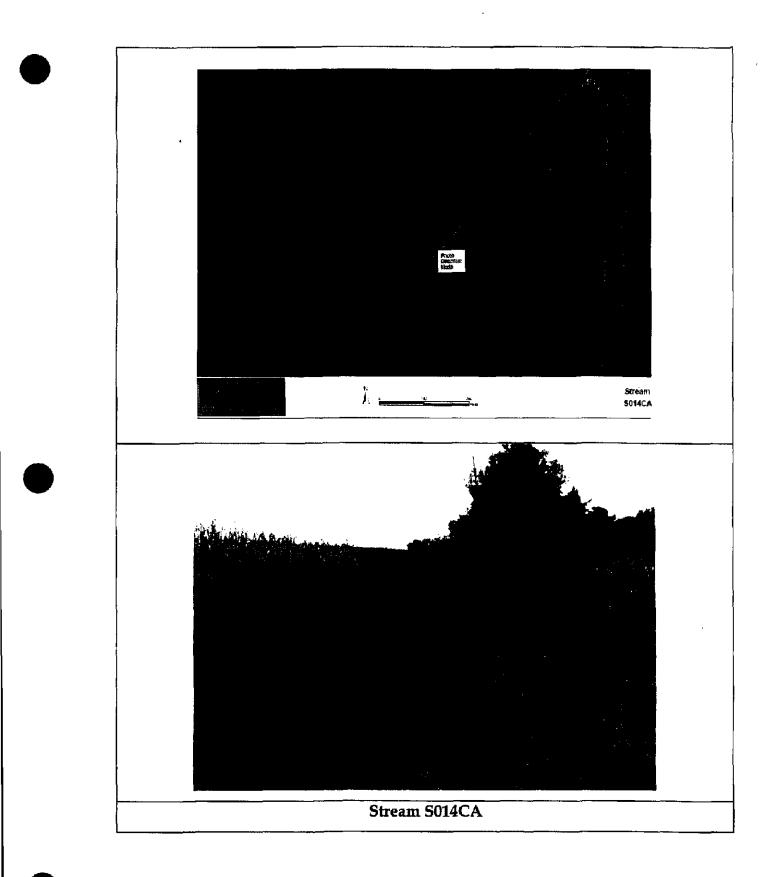
WATERBODY DATA SHEET

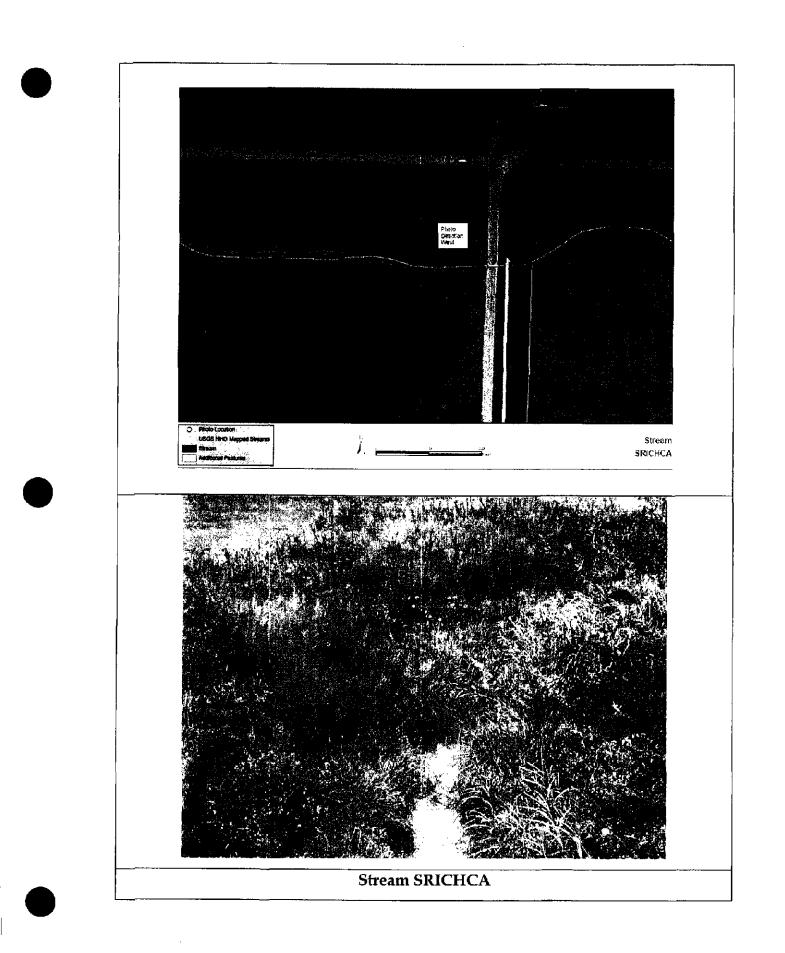
Carter a second of the second			<u></u>	a a second and a second sec		
WATERBODY ID NO: S014CA		WATE	WATERBODY NAME: Prairie Creek			
SITE NAME: Blue Creek						
DATE: 10/15/2009	CLIENT/PROJECT NAME: H	leartland Wind LL	C./Blue Creek Wind I	Farm		
Investigators: AF RH		Rover	FILE:	QUAD NAME: Convoy		
STATE/COUNTY: Ohio/Van Wert		Towns	HIP.: Union			
		Рното	No:			
	WATER	RBODY CHARAC	TERISTICS			
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
Avg. Stream Depth:	4 (in)	4 (in)				
Avg. Stream Width:	6 (ft)	6 (ft) TOP OF BANK: 25 (ft) ORDIN (ft)				
AVG. BANK HEIGHT:	4 (ft)	4 (ft)				
AVG, BANK SLOPE (RATIO):	2:1					
	QUA	LITATIVE ATTR	IBUTES			
AVERAGE WATER APPEARANCE:		·				
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM EDG	E OF ACTIVE CHANNEL O	PUT ONTO FLOOD PLAN: 0 (ft)		
	Type of vegetation present	T: None	· · · · · · · · · · · · · · · · · · ·			
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Not Significant	· ·				
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY N	<i><u>Aeandering</u></i>		
		COMMENTS				
STREAM QUALITY: Low						
access to adequate flood plain; natural vegetati-	ion extends at least one or two active chann	rel widths on each side; banks	s stable and protected by roots th	significant recovery, any dikes/levies are set back to provide at extend to the base-flow elevation; water clear to tea- at no disturbence by livestock or man; indepent		

microinvertebrates present.

Modernate Quality: Market channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of ripartan vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few failen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

Low Quarty: Channel is actively downcutting or widening; np rap and channifization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy, obvious pollutants (algal mats, surface sourm, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.



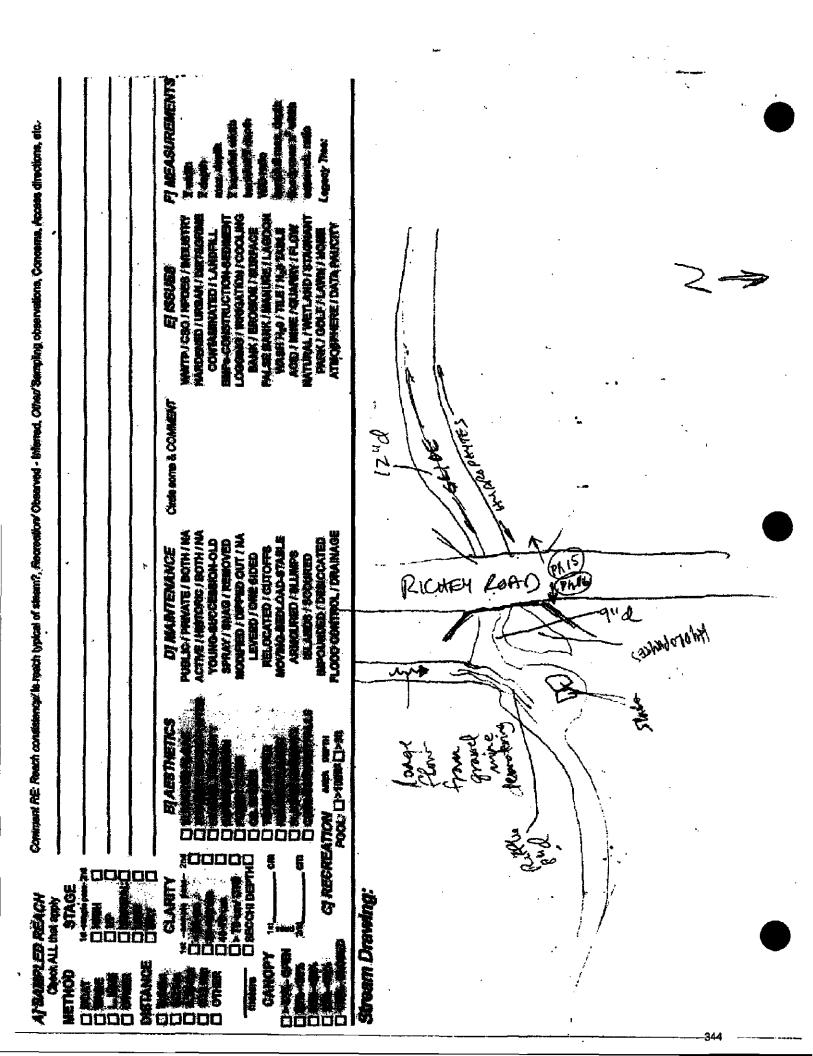


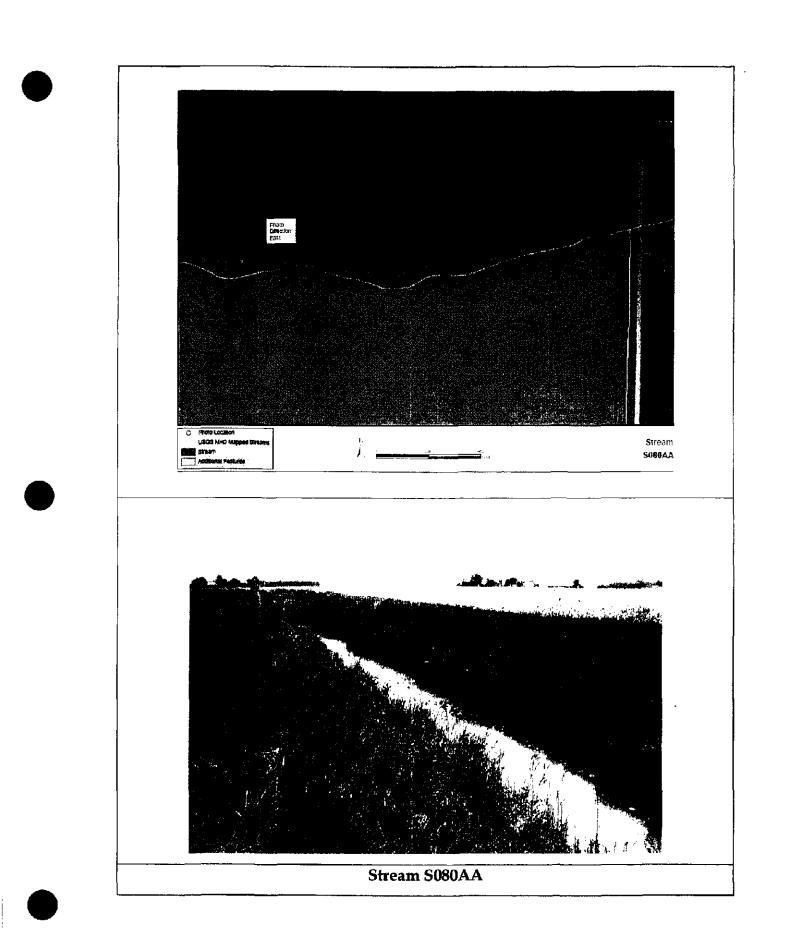
WATERBODY DATA SHEET

WATERBODY ID NO: SR	ICHCA		WATERBODY NAME: Prairie Creek			
SITE NAME: Blue Creek						
DATE: 10/14/2009	CLIENT/PROJECT NAME: He	eartland W	vind LLC./Blue Creek Wind	Farm		
INVESTIGATORS: AF RH	ATORS: AF RH ROVER FILE: QUAD NAME: Convoy					
STATE/COUNTY: Ohio/Van Wert Township:: Union						
			PHOTO NO:			
	WATER	BODY CI	HARACTERISTICS			
WATERBODY TYPE:	Modified ag ditch				<u> </u>	
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	2 (in)	2 (in)				
Avg. Stream Width:	6 (ft)	TOP OF BANK: 40 (ft) ORDIN (ft)			ary High Water Mark Width: 15	
AVG. BANK HEIGHT:	2 (ft)					
AVG. BANK SLOPE (RATIO):	3:1					
	QUA	LITATIV	E ATTRIBUTES			
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE F	ROM EDGE OF ACTIVE CHANNEL	OUT ONTO	DFLOOD PLAN: 0 (ft)	
	Type of vegetation present	r: None				
WETLAND FRINGE (IF PRESENT):	N/A	_ .				
CHANNEL CONDITION:	Not Significant		· · · · · · · · · · · · · · · · · · ·			
CHANNEL TYPE:	Manipulated.		CHANNEL GEOMETRY	MEANDER	RING	
		Сом	MENTS			
STREAM QUALITY: LOW						
HIGH QUALITY: Natural channel (no structures o access to adequate filood plain; natural vegetali colored; no barriers to fish movement (seasona microinvertebrates present.	on extends at least one or two active channe	el widths on eac	h side; banks stable and protected by roots t	inat extend to	ecovery; any dikes/levies are set back to provide the base-flow elevation; water clear to tea- bance by livestock or man; intolerant	

microinvariations present. Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate door, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat, minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; in regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious pollutants (algal mats, surface score, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

Stream & Location:	Ster 19 1 C. Constant		RM: 15,5Date:01 141 07
	Scoren	s Full Name & Affiliation:	
River Code:	STORET #:	Lat./ Long .: 40°. 58'28	184.3815511 Office vertiled location
BEST TYPES POOL I BLDR /SLABS (10) BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6]	Prote every type present CTHER TYPES OTHER TYPES	L RIFFLE ORIGIN	IE (Or 2 & average) QUALITY UHEAVY [-2] SILT NORMAL [0]
I BEDROCK [5] NUMBER OF BEST TYPE: Comments	(Score natural substra 5: 4 or more [2] sludge from poin 2 3 or less [0]	LI COAL FINED [-2]	DEOLE EXTENSIVE [-2] Maximu S NORMAL [0] NONE [1]
qual quality; 3-Highest quality in mode	ate presence 0 to 3: 0-Absent; 1-Ven ity; 2-Moderate amounts, but not of hi rate or greater amounts (e.g., very la eveloped rootwad in deep / fast water POOLS > 70cm [2] FION [1] ROOTWADS [1]	y small amounts or if more common ighest quality or in small amounts of rge boulders in deep or fast water, h , or deep, well-defined, functional pr	Ingnest Check ONE (Or 2 & average) arge Check ONE (Or 2 & average) sols EXTENSIVE >75% [11] 8 [1] MODERATE 25-75% [7] ES [1] SPARSE 5-<25% [3]
B] CHANNEL MORPHOLOG SINUOSITY DEVELOI HIGH [4] EXCELL MODERATE [3] GOOD [LOW [2] EXTAIR [3] NONE [1] POOR [Comments	ENT [7] INONE [6] 5] I RECOVERED [4] I RECOVERING [3]	ON STABILITY HIGH [3] MODERATE [2] LOW [1]	Channel Maximum 20
River right looking downstream REROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE [1] Comments] MODERATE 10-50m [3] □ □ S] NARROW 5-10m [2] □ □ R] VERY NARROW < 5m [1] □ □ B] NONE [0] □ □ □ 0]	FLOOD PLAIN QUALIT OREST, SWAMP [3] HRUB OR OLD FIELD [2] ESIDENTIAL, PARK, NEW FIELD [1	
□ > 1m [6]	CHANNEL WIDTH Check ONE (Or 2 & average) OL WIDTH > RIFFLE WIDTH [2] OL WIDTH = RIFFLE WIDTH [1]	CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] [] SLOW [1] YERY FAST [1] [] INTERSTITI FAST [1] [] INTERSTITI MODERATE [1] [] EDDIES [1] Indicate for reach - pools and riffle	ENT [-2] Pool /
of riffle-obligate speci RIFFLE DEPTH BESTAREAS (10om [2] [] BESTAREAS (10om [1] [] BESTAREAS (50m [metric=0]	RUN DEPTH RIFFLE / MAXIMUM > 50cm [2] STABLE (MAXIMUM < 50cm [1] [] MOD. STA [] UNSTABLI	(Or 2 & average). / RUN SUBSTRATE RIFFI 9.g., Cobble, Boulder) [2]	LE / RUN EMBEDDEDNESS
De Ch	and on grov of the		8





WATERBODY DATA SHEET

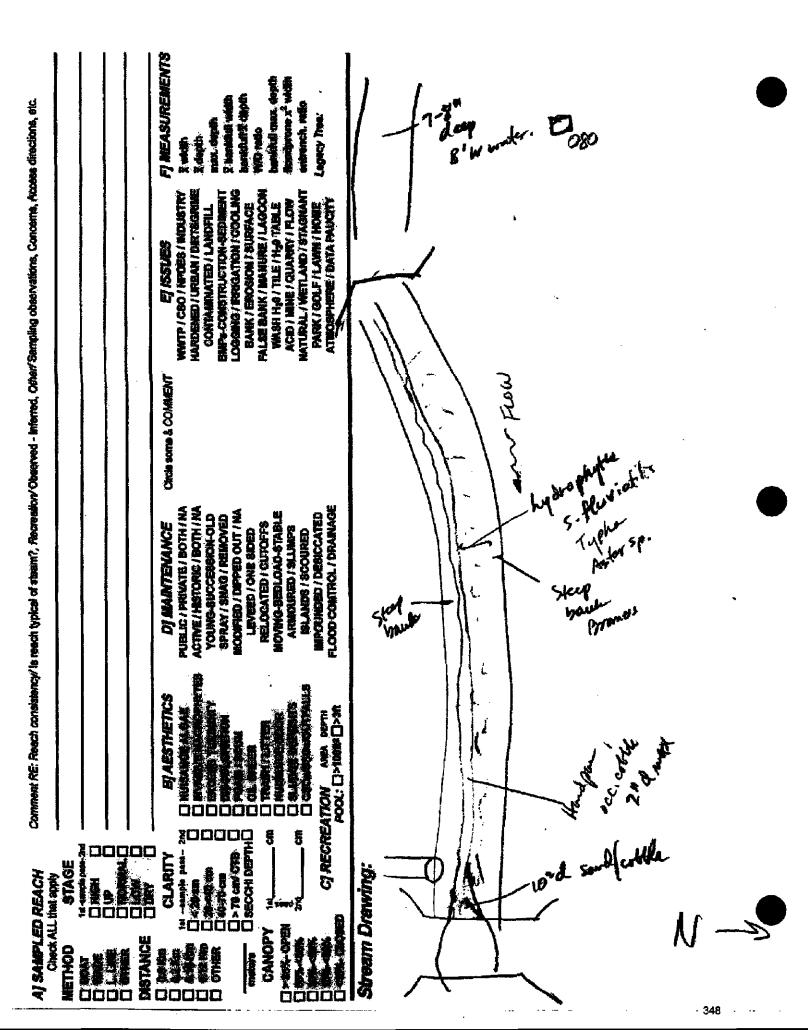
				220, , Maket		
WATERBODY ID NO: \$0	80AA	V	WATERBODY NAME: Prairle Creek			
SITE NAME Blue Creek						
DATE: 9/18/2009	CLIENT/PROJECT NAME: He	eartland Wir	nd LLC./Blue Creek Wind	Farm		
					x	
INVESTIGATORS: AF RH		F	ROVER FILE: RAH091809A.cor		QUAD NAME: CONVOY	
STATE/COUNTY: Ohio/Van Wert TownSHIP.: Union					······	
		P	ното No: S080cA			
	WATER	BODY CH	ARACTERISTICS			
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	2 (in)					
AVG. STREAM WIDTH:	3 (ft)	TOP OF BANK: 40 (ft) ORDINARY HIGH WATER MARK (ft)			iary High Water Mark Width: 15	
AVG. BANK HEIGHT:	8 (ft)	<u></u>				
AVG. BANK SLOPE (RATIO):	2:1					
	QUA	LITATIVE	ATTRIBUTES			
AVERAGE WATER APPEARANCE:	Discolored					
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT	<u> </u>				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE FRO)M EDGE OF ACTIVE CHANNEL	OUTONT	o flood plan: 0 (îi)	
	Type of vegetation present	 I:			ана —	
WETLAND FRINGE (IF PRESENT):	12 ft wide to south					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVE	ELY STRAIGHT	
		Сомм	ENTS			
STREAM QUALITY: Low						
HIGH QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona	tion extends at least one or two active channe	nel widths on each si	side; banks stable and protected by roots i	that extend to	recovery; any dikes/levies are set back to provide to the base-flow elevation; water clear to tea- rbance by livestock or man; intolerant	

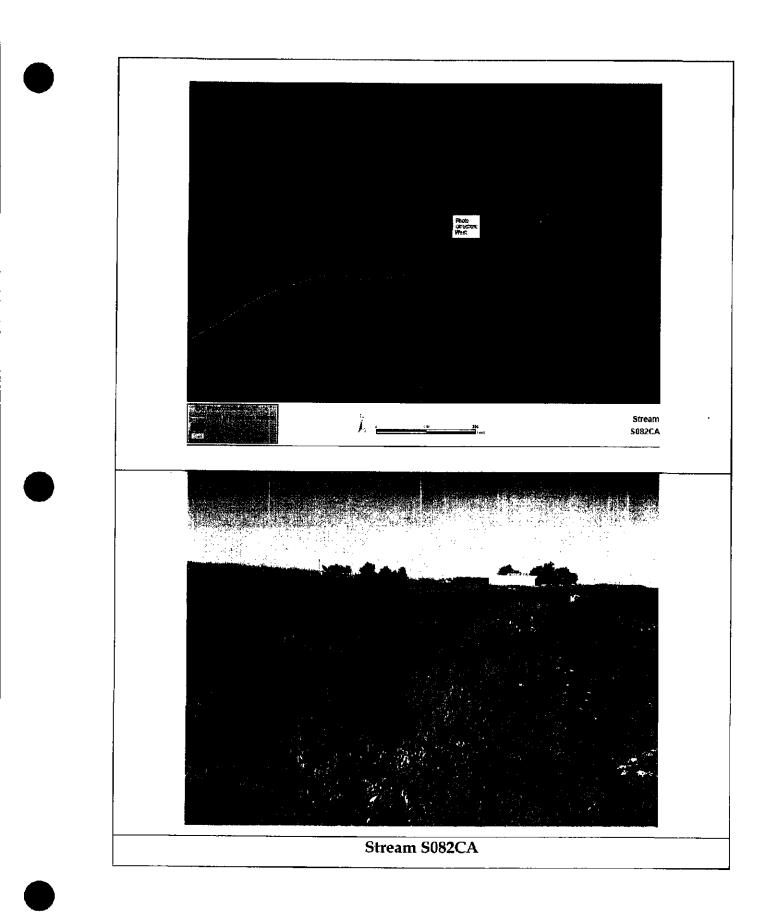
microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by no rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of inparian vegetation only moderately compromised; banks moderately unstable (autistide bands actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate cdor, minor barriers to fish movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QUALITY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface actively with the bar water with plate the third to muddy; obvious pollutants (algal mats, surface actively with the bar water with the bar water the bar the part of the active the present the part of the active to present the part of the active to part to bar the part of the active to part of the active t

surface sheen); heavy coor, green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat, severe disturbance by livestock or man; tolerant or no microinverlabrates present

<u>Gngl</u> FA		tat Evaluation Index sment Field Sheet	QHEI Score: 22
Stream & Location:	SOBOAA (PRAIR	IE CREEK;	RM: _ 14.4 Date: 91 1 1 9
			RHOOK CHIZMHILL
River Code: -	- STORET #: LY Two substrate TYPE BOXES;	Lat./ Long.: 40°. 58'.	911184.37149 Office verifie locatio
estimate %	or note every type present	Check C	ONE (Or 2 & average)
BEST TYPES POOI		OL RIFFLE ORIGIN	
		(2/TILLS [1]	SILT MODERATE [-1] Subs
COBBLE [8] GRAVEL [7]	[] [] MUCK [2]	[] WETLANDS [0]	
SAND [6]			DEO EXTENSIVE [-2]
	(Score natural subsi ES: 4 or more [2] sludge from po	int-sources) LACUSTURINE [0]	DED EXTENSIVE [-2] MAXIM MODERATE [-1] MAXIM NORMAL [0] NONE [1]
Comments	🕑 3 or less [0]	SHALE [-1] COAL FINES [-2]	□ NONE [1]
1001		He church / Internetter	
] INSTREAM COVER Inc	dicate presence 0 to 3: 0-Absent; 1-Ve ality; 2-Moderate amounts, but not of	y small amounts or if more common highest quality or in small amounts	of biobest
quality: 3-Highest quality in mo	derate or greater amounts (e.g., very developed rootwad in deep / fast wat	large boulders in deep or fast water	, large Check ONE (Or 2 & average)
UNDERCUT BANKS [1]	POOLS > 70cm [2] OXBOWS, BACKWATE	RS [1] 🔲 MODERATE 25-75% [7]
OVERHANGING VEGET SHALLOWS (IN SLOW)		AQUATIC MACROPHY LOGS OR WOODY DEI	TES [1] SPARSE 5-<25% [3] SRIS [1] AREARLY ABSENT <5% [1]
ROOTMATS [1]			Cover
Comments	Little apen water		Maximum 20
	OGY Check ONE in each category (Or 2 & everage)	
-	OPMENT CHANNELIZAT		
		HIGH [3]	
☐ MODERATE [3] [] GOOL] LOW [2] [] FAIR	D [5] D RECOVERED [4] [3] E RECOVERING [3]	MODERATE [2] LOW [1]	
		COVERY [1]	Channel Maximum
Comments			20
1] BANK EROSION AND	RIPARIAN ZONE Check ONE in		
River right looking downstream	RIPARIAN WIDTH	FLOOD PLAIN QUALI	
	□ WIDE > 50m [4] □ □ □ MODERATE 10-50m [3] □ □	FOREST, SWAMP [3] SHRUB OR OLD FIELD [2]	CONSERVATION TILLAGE [1]
	NARROW 5-10m [2]	RESIDENTIAL PARK, NEW FIELD	
⊡ HEAV() SEVENE[1] [] [2]	VERY NARROW < 5m [1] □ □ U	FENCED PASTURE [1] OPEN PASTURE, ROWCROP [0]	Indicate predominant land use(s) past 100m riparlan. Riparlan
Comments	•••		Meximum 3
5] POOL / GLIDE AND R			10
MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY!)	Check ONE (Or 2 & average) COOL WIDTH > RIFFLE WIDTH [2]	Check ALL that apply	Primary Contact
🗌 0,7-<1m [4] 🛛 🖾 🖡	POOL WIDTH = RIFFLE WIDTH [1]	J VERY FAST [1] DINTERSTI	Secondary Contact [IAL [-1]] (circle one and comment on back)
□ 0.4~0.7m [2] □ F 0.2~0.4m [1]		GAST [1] SINTERMIT	TENT [-2]
□ < 0.2m [0]	L	Indicate for reach - pools and rit	Pool/ Mes. Current
Comments			Maximum 12
	al riffles; Best areas must be		a population
of riffle-obligate spe RIFFLE DEPTH		: (Or 2 & average). : / RUN SUBSTRATE RIFF	
BESTAREAS > 10cm [2]	MAXIMUM > 50cm [2] [] STABLE	(e.g., Cobble, Boulder) [2]	FLE / RUN EMBEDDEDNESS
BESTAREAS 5-10cm [1]] MAXIMUM < 50cm [1] 🔲 MOD. ST	ABLE (e.g., Large Gravel) [1]	🗆 LOW (1) 👘 👘 📖
BEST AREAS < 5cm [metric=0]	LIUNSTAB	LE (e.g., Fine Gravel, Sand) [0]	MODERATE [0] Riffle / EXTENSIVE [-1] Maximum
Comments			- Maximum 8
O COADIENT C			
<u> </u>	ni) 🔄 VERY LOW - LOW [2-4]	_%POOL:(<i>100%</i>)	%GLIDE:() Gradient
DRAINAGE AREA	MODERATE [6-10]		
DRAINAGE AREA	M) [2] VERT LOW - LOW [2-4] [] MODERATE [6-10] [2] [] HIGH - VERY HIGH [10-6]	%RUN:	





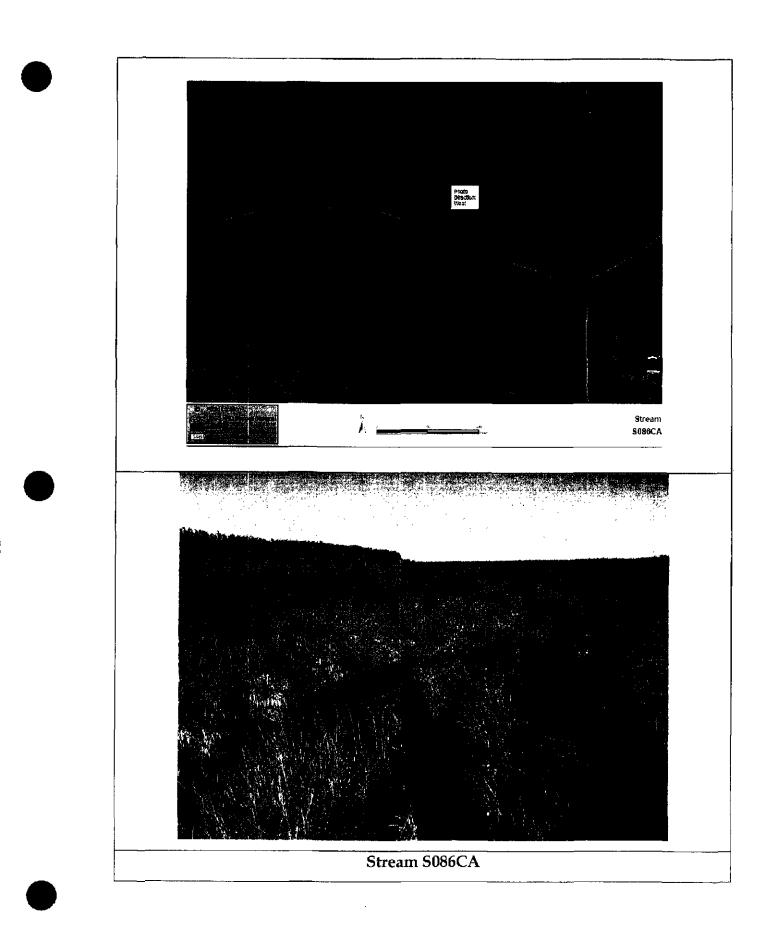
WATERBODY DATA SHEET

			······	=	
WATERBODY ID NO: 50	82CA		WATERBODY NAME: F	Prairie C	reek
SITE NAME: Blue Creek					
Date: 9/18/2009	CLIENT/PROJECT NAME: He	eartland W	Vind LLC./Blue Creek Wind	l Farm	·····
Investigators: AF RH			ROVER FILE: RAH091809A.com	r	QUAD NAME: Convoy
STATE/COUNTY: Ohio/Van Wert	<u></u>		TOWNSHIP.: Union		
			PHOTO NO: S082CA		······
	WATER	BODY CI	HARACTERISTICS		
WATERBODY TYPE:	Modified ag ditch				
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
AVG, STREAM DEPTH:	10 (in)				
AVG. STREAM WIDTH:	6 (ft) TOP OF BANK: 40 (ft)			ORDIN (ft)	ary High Water Mark Width: 12
AVG. BANK HEIGHT:	10 (ft)				
AVG, BANK SLOPE (RATIO):	2:1				
	Qua	LITATIV	E ATTRIBUTES		
Average Water Appearance:	Turbid				
PRIMARY SUBSTRATE:	Sands				
POTENTIAL HABITAT FOR:	Aq/Wild Diversity				
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE F	ROM EDGE OF ACTIVE CHANNEL	OUT ONT	D FLOOD PLAN: 0 (ft)
	Type of vegetation present	Г:			
WETLAND FRINGE (IF PRESENT):	N/A				
CHANNEL CONDITION:	Not Significant				
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVE	ELY STRAIGHT
		Сом	MENTS		
STREAM QUALITY: Low					
HIGH QUALITY: Natural channel (no structures o	or dikes; no evidence of downculting or exce	ssive lateral cut	tling); evidence of past channel alteration w	ith significant r	ecovery; any dikes/levies are set back to provide

access to adequate flood plain; natural vege ation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base -flow elevation; w colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant

microinvertebrates present.

microinvertabrates present. ModeRATE QualitY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain widit; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (oulside bends actively eroding with few fallen trees); considerable water doudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QualitY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; filtering function excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; filtering function; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous faiten trees); water very turbid to muddy; obvious pollutants (algal mats, surface share); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or men; tolerant or no microinvertebrates present. present.



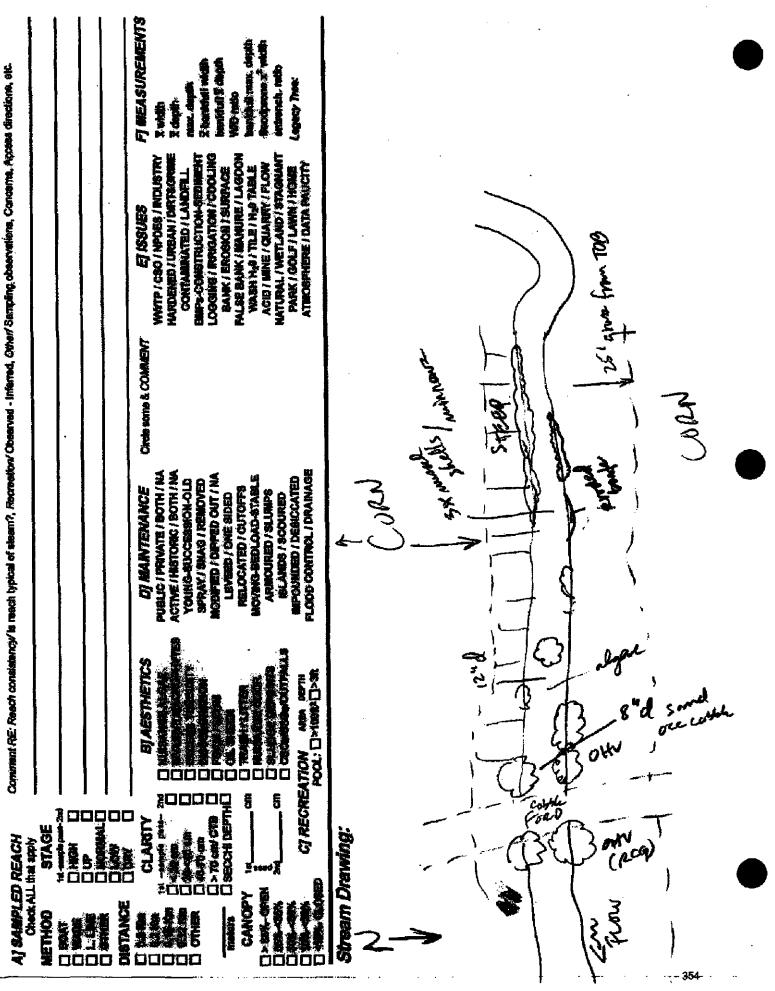
WATERBODY DATA SHEET

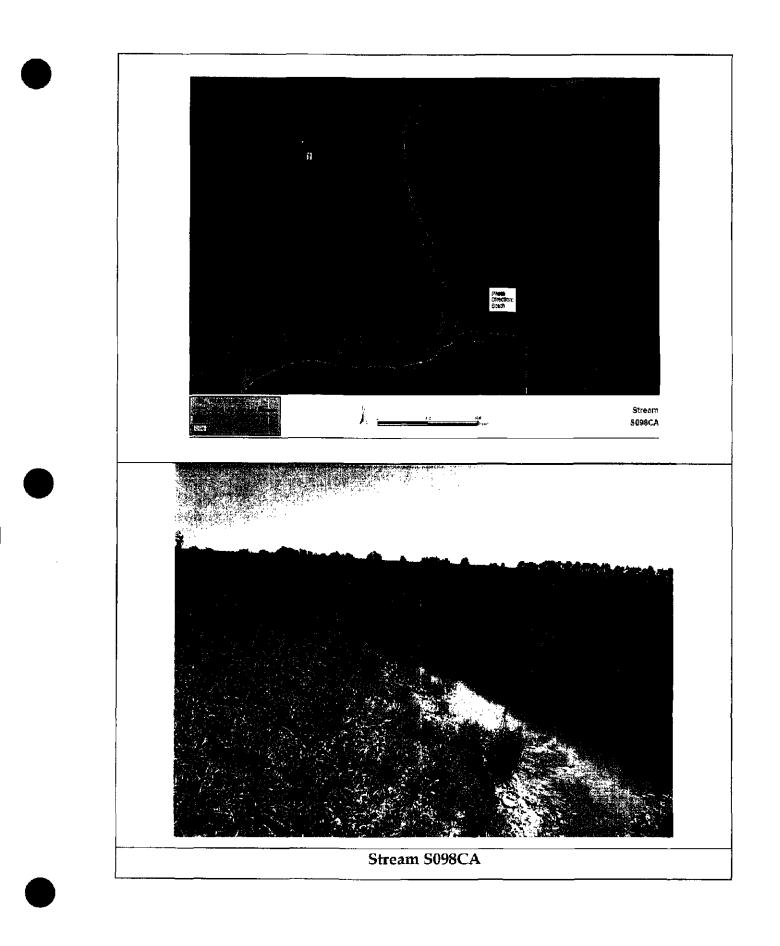
WATERBODY ID NO: S086CA			WATERBODY NAME: Prairie Creek				
SITE NAME: Blue Creek							
DATE: 9/18/2009	CLIENT/PROJECT NAME: He	eartland Wind L	LC./Blue Creek Wind	Farm			
INVESTIGATORS: AF RH		Rove	R FILE: RAH091809A.cor	QUAD NAME: Scott			
STATE/COUNTY: Ohio/Van Wert Township.: Union							
		Рнот	o No; 5086CA				
WATERBODY CHARACTERISTICS							
WATERBODY TYPE:	Modified ag ditch						
FLOW EVENTS/YEAR:							
FLOW TYPE:	Perennial						
AVG. STREAM DEPTH:	12 (in)						
AVG. STREAM WIDTH:	6 (ft)	Top of Bank: 40	(ft)	Ordinary High Water Mark Width: (fi)			
Avg. Bank Height:	8 (ft)	8 (ft)					
AVG. BANK SLOPE (RATIO):	3:1			, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>			
	QUA	LITATIVE AT	RIBUTES				
AVERAGE WATER APPEARANCE:	Turbìd						
PRIMARY SUBSTRATE:	Sands						
POTENTIAL HABITAT FOR:	Aq/Wild Diversity						
DEPINED BED AND BANKS:	PRESENT						
Riparian Zone:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM EL	GE OF ACTIVE CHANNEL (OUT ONTO FLOOD PLAN: 0 (ft)			
	Type of Vegetation Present	r:		,			
WETLAND FRINGE (IF PRESENT):	N/A			<u></u>			
CHANNEL CONDITION:	Not Significant						
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	MEANDERING			
		COMMENT	S				
<u></u>							
STREAM QUALITY: Low							
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral outting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel withs on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinventebrates present. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; clikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few falten trees); considerable water cloudiness, submerged objects covered with green film;							

moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aqualic habitat; minimum disturbance by livestock or man; Facultative microinvertsbrates present. Low Quarry: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; fittering function severely compromised; Banks unstable (inside and outside bends actively anding with numerous failen trees); water very turbid to moddy; obvious pollutants (algal mats, surface science); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no equatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

ChicEPA	Qualitative Habitat Evaluation and Use Assessment Field St	
Stream & Location:	5086CA (PRAIRIE CREEK)	RM:3 Date: 91/7109
		ation: Etook/CHIM to Us
River Code: -	STORET #:Lat./ Long.: 40°, LY Two substrate TYPE BOXES;	58 54" 184 . 36 42" location
estimate 7	or note every type present	Check ONE (Or 2 & average)
BEST TYPES POO	L RIFFLE OTHER TYPES POOL RIFFLE ORIG	
□ □ BOULDER [9] □ □ COBBLE [8](○		S [0] SILT MODERATE [-1] Substra
	(Score patizal substrates: ionore CRIP/RAP (0] 4 1 MODERATE [-1]
NUMBER OF BEST TYP	ES: 4 or more [2] sludge from point-sources) LACUSTU	
Comments		
	Ne at ford dicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more	common of marginal AMOUNT
quality; 3-Highest quality in ma	Iality; 2-Moderate amounts, but not of highest quality or in small a derate or greater amounts (e.g., very large boulders in deep or fa i developed rootwad in deep / fast water, or deep, well-defined, fu POOLS > 70cm [2] OXBOWS, BAC	amounts of highest Check ONE (Or 2 & average) ast water, large Check ONE (Or 2 & average) unctional pools. EXTENSIVE >75% [11] XWATERS [1] MODERATE 25-75% [7]
SHALLOWS (IN SLOW) ROOTMATS [1]	WATER) [1] BOULDERS [1] LOGS OR WOO	DDY DEBRIS [1] [] NEARLY ABSENT <5% [1]
<i>Comments</i>		Cover Maximum
Jegeto		20
	OGY Check ONE in each category (Or 2 & average) OPMENT CHANNELIZATION STABIL	ITY
🗋 HIGH [4] 🛛 EXCE	LLENT [7] 🔲 NONE [6] 🔄 🗍 HIGH [3	1
□ MODERATE [3] □ GOO! □ LÓW [2] □ □ FAIR		
VINONE [1] POOR Comments		Channel Maximum 20
River right looking downstream		QUALITY CONSERVATION TILLAGE [1] CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] WFIELD [1] UNINING / CONSTRUCTION [0] Indicate predominent land use(s)
0.7-<1m [4]	CHANNEL WIDTH CURRENT VEL Check ONE (Or 2 & average) Check ALL that a part of the constraint of t	OW [1] Primary Contact OW [1] Secondary Contact TERSTITIAL [-1] Icercite one and comment on back) DDIES [1] Pool / (Contact)
of riffle-obligate spe RIFFLE DEPTH □ BESTAREAS>10cm(2)	al riffles; Best areas must be large enough to su cles: Check ONE (Or 2 & average). RUN DEPTH RIFFLE / RUN SUBSTRATE MAXIMUM > 50cm [2] I STABLE (e.g., Cobbie, Boulder) [2 MAXIMUM < 50cm [1] MOD. STABLE (e.g., Large Gravel) UNSTABLE (e.g., Fine Gravel, Sanc	
DRAINAGE AREA	mi) [] VERY LOW - LOW [2-4] %POOL: [] MODERATE [8-10] [1 ³) [] HIGH - VERY HIGH [10-6] %RUN:	%GLIDE: 90% Gradient %RIFFLE: 0% Maximum 10
EPA 4520		06/16/06

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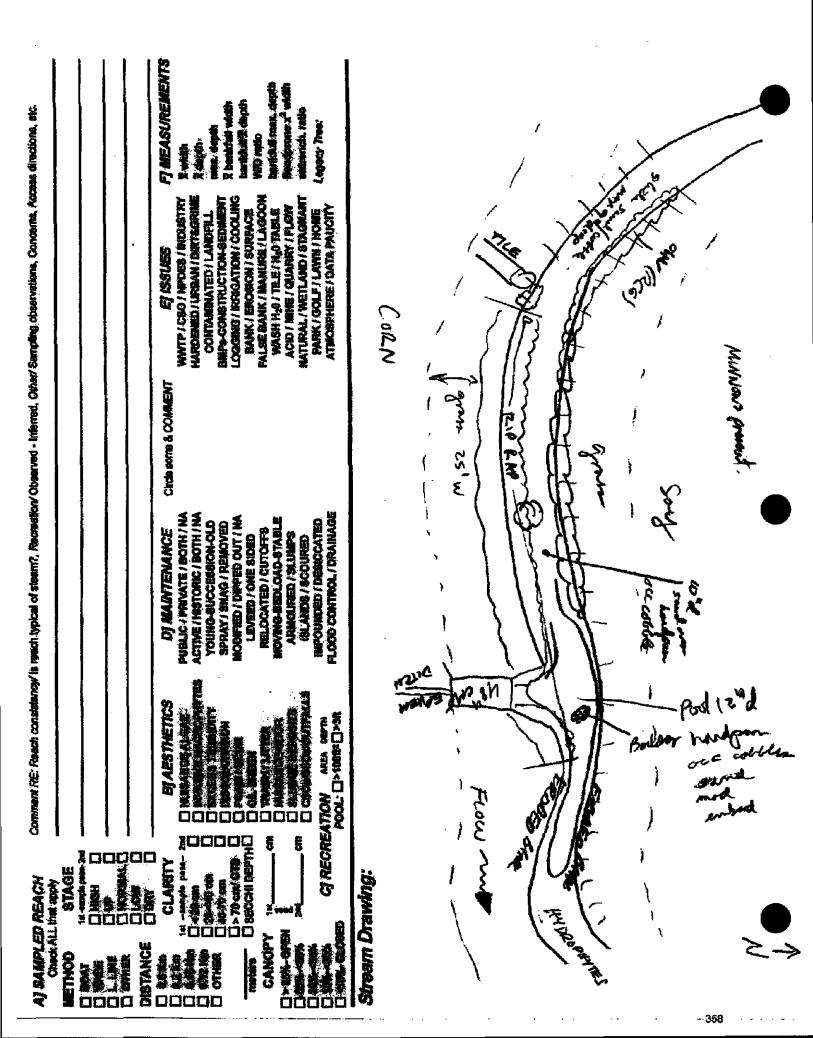


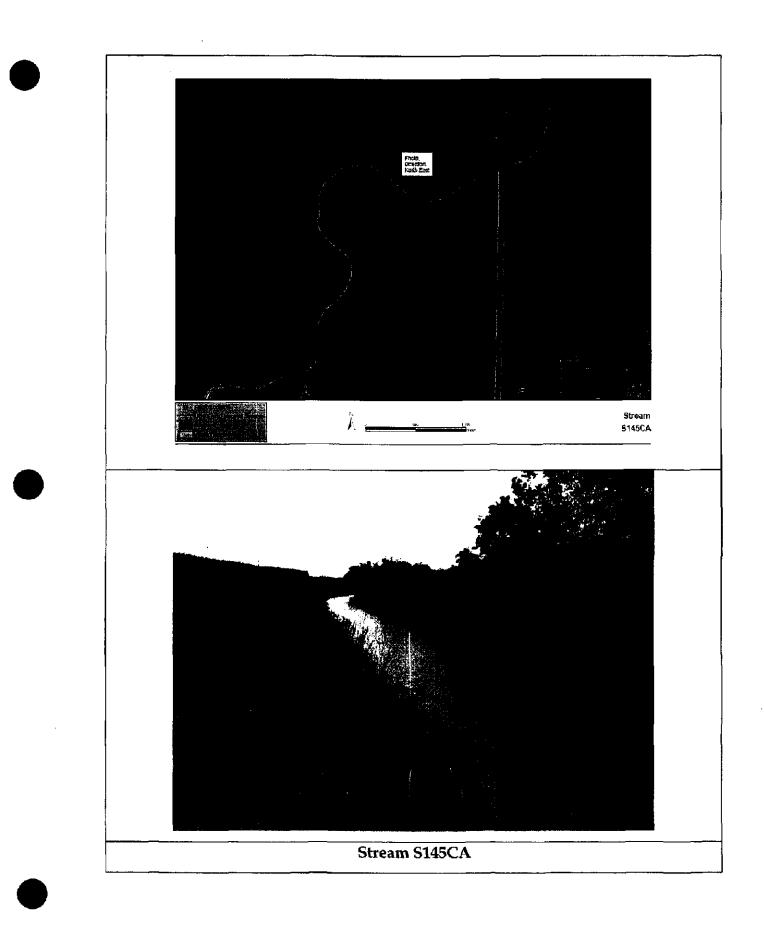
WATERBODY DATA SHEET

WATERBODY ID NO: S098CA			WATERBODY NAME: Prairie Creek			
SITE NAME: Blue Creek						
DATE: 9/17/2009	CLIENT/PROJECT NAME: H	eartland W	ind LLC.,	Blue Creek Wind	Farm	
INVESTIGATORS: Hook	•		Rover Fil	.E: RAH091709A.cor	QUA	D NAME: Scott
STATE/COUNTY: Ohio/Van Wert TOWNSHIP: Union						
Photo No:						
	WATER	BODY CH	IARACT	ERISTICS		· · · · · · · · · · · · · · · · · · ·
WATERBODY TYPE: Stream						
FLOW EVENTS/YEAR:						
Flow type:	Perennial					
AVG. STREAM DEPTH:	9 (in)					
Avg. Stream Width:	8 (ft)	TOP OF BANK: 30 (ft)			Ordinary Hi (ft)	igh Water Mark Width: 12
AVG. BANK HEIGHT:	10 (ft)					
AVG. BANK SLOPE (RATIO):	2:1					<u>,</u>
	Qua	LITATIVE	E ATTRI	BUTES		
AVERAGE WATER APPEABANCE:				· · · · · · · · · · · · · · · · · · ·		
PRIMARY SUBSTRATE:	Sands					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
Defined bed and Banks:						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE FR	ROM EDGE (OF ACTIVE CHANNEL	OUT ONTO FLOO	D PLAN: 5 (ft)
	TYPE OF VEGETATION PRESENT	T: Herbaceou	us			
WETLAND FRINGE (IF PRESENT):	Phalaris arundinacea					
CHANNEL CONDITION:						
CHANNEL TYPE:	Manipulated		C	HANNEL GEOMETRY	Relatively Str	AIGHT
		Сомм	MENTS			
channelized						
STREAM QUALITY: Low						
Hier Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to lea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable equatic habitat; no disturbance by fivestock or man; intolarant microinvertebrates present. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few faten trees); considerable water cloudiness, submerged objects covered with green film; moderate document barriers to fish movement 4.3 Set cover types everific habitat; minimum distributence by filtering resent.						

moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvenebrates present. Low QuALTY: Channel is actively downcuting or widening; rip rap and channilization excessive; flood plain restricted by dike/levees; natural vegetation less than 1/3 of the active channel width on each side; la regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scalm, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

Stream & Location:	598CA 1	<u>ement Field Sheet</u>	RM: 12.6 Date:	7117
		rs Full Name & Affiliation		<u> </u>
River Code:	STORET #:	Lat./ Long.: 40°. 59'	16" 184. 36' 13"	Office
BEST TYPES POOL RI	Image: Symplectic every type present OTHER TYPES Image: Symplectic every type present Imag	Check ORIGIN Check ORIGIN Check ORIGIN Check Ch	ONE (Or 2 & average) QUALI HEAVY [-2 SILT MODERAT NORMAL FREE [1] DE TENSIV MODERAT I NORMAL NONE [1]	/4 TY [] [6]
2) INSTREAM COVER Indica	r; 2-Moderate amounts, but not of i ate or greater amounts (e.g., very i reloped rootwad in deep / fast wate POOLS > 70cm [ON [1] ROOTWADS [1]	nighest quality or in small amounts arge boulders in deep or fast wate er, or deep, well-defined, functiona	cn of marginal AMOU s of highest Check ONE (Or al pools.] EXTENSIVE > ERS [1]] MODERATE 2 (TES [1]] SPARSE 5~2 BRIS [1]] NEARLY ABS	2 & ave 75% (1 15-75% 5% [3]
SINUOSITY DEVELOPI HIGH [4] EXCELLE MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments	NT [7] INONE [6] BECOVERED [4] RECOVERING [3]	☐ HIGH [3] ☐ MODERATE [2] ☐ LOW [1]	-	C hannel Iaximum 20
R EROSION B C C C NONE/LITTLE C C NODERATE C D HEAVY/SEVERE C D	RIPARIAN WIDTH L WIDE > 50m [4] I MODERATE 10-50m [3] I NARROW 5-10m [2] I VERY NARROW < 5m [1]	FLOOD PLAIN QUAL FOREST, SWAMP [3] SHRUB OR OLD FIELD [2] RESIDENTIAL PARK, NEW FIELI	ITY R CONSERVATION URBAN OR IND I URBAN OR IND I URBAN OR IND I URBAN OR IND I URBAN OR IND I I URBAN OR IND I I URBAN OR IND I I URBAN OR IND I I I URBAN OR IND I I I I I I I I I I I I I I I I I I I	ISTRIAL RUCTIO
□ > 1m [6]	CHANNEL WIDTH heck ONE (Or 2 & average) L WIDTH > RIFFLE WIDTH [2] L WIDTH = RIFFLE WIDTH [1] L WIDTH < RIFFLE WIDTH [0]	CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] [] SLOW [1] VERY FAST [1] [] INTERSTI FAST [1] [] INTERMIN MODERATE [1] [] EDDIES [Indicate for reach - pools and re	TTIAL [-1] TTENT [-2] ITIAL [-3] ITIAL [-4] ITIAL [-4] ITIAL [-4] ITIAL [-4]	Contac Conta
Indicate for functional i of riffie-obligate specie	s: Check ONE			
RIFFLE DEPTH	AXIMUM > 50cm [2] [] STABLE (AXIMUM < 60cm [1] [] MOD, ST/	(e.g., Cobble, Boulder) [2] ABLE (e.g., Large Gravel) [1] LE (e.g., Fine Gravel, Sand) [0]	LOW [1] MODERATE [0] EXTENSIVE [-1] _A	Riffie / Run Iaximum





WATERBODY DATA SHEET

WATERBODY ID NO: S145CA-1		WAT	WATERBODY NAME: Prairie Creek			
SITE NAME: Blue Creek						
Date: 9/17/2009	CLIENT/PROJECT NAME: H	eartland Wind LI	.C./Blue Creek Wind	Farm		
INVESTIGATORS: D.West, M. Necl	nvatal	Rover	FILE: R091709ADW.cor		QUAD NAME: Scott	
STATE/COUNTY: Ohio/Paulding		Town	SHIP.: Blue Creek			
		Рното	No: 094C31n & 094C32	2SW		
WATERBODY CHARACTERISTICS					· · · · · · · · · · · · · · · · · · ·	
WATERBODY TYPE:	Fairly wide natural channel, l	ikely some manipu	ation for drainage from a	ag fields o	tirectly adj	
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	12 (in)					
Avg. Stream Width:	13 (ft)			ORDINA (ft)	ary High Water Mark Width: 15	
AVG. BANK HEIGHT:	3 (ft)					
AVG. BANK SLOPE (RATIO):	2:1				······································	
	Qua	LITATIVE ATT	RIBUTES			
AVERAGE WATER APPEARANCE:	Turbid					
PRIMARY SUBSTRATE:	Cobbles					
POTENTIAL HABITAT FOR:	Fish/Spawn Areas	· · ·				
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE FROM ED	GE OF ACTIVE CHANNEL (FLOOD PLAN: 5 (ft)	
	TYPE OF VEGETATION PRESENT	T: Scrub Shrub			······································	
WETLAND FRINGE (IF PRESENT):	N/A	• · · · · · · · · · · · · · · · · · · ·			<u></u>	
CHANNEL CONDITION:	Sloughing Banks					
CHANNEL TYPE:	Natural	. <u> </u>	CHANNEL GEOMETRY	MEANDER	ang	
		COMMENT	S "			
collector line to turbine 094 crosse	s S145CA at this point; stream r	uns between ag fiel	ds			
STREAM QUALITY: Medium						
HIGH QUALITY: Natural channel (no structures o	or dikes; no evidence of downcutting or exce	ssive lateral cutting); evide	nce of past channel alteration with	significant re	ecovery; any dikes/levies are set back to provide	

access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to teacolored; no barriers to fish movement (seesonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of incomparise vegetation only moderately compromised; banks moderately unstable (outside banks actively eroding with few fallen frees); considerable water cloudiness, submerged objects covered with green film, moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertabrates present. Low QualmY: Channel is actively downcutting or widening; rip rap and channification excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates

present.

WATERBODY DATA SHEET

WATERBODY ID NO: \$1	45CA-2		WAT	ERBODY NAME: PI	rai r ie C	reek
SITE NAME: Blue Creek					-	
DATE: 9/17/2009	CLIENT/PROJECT NAME: H	eartland V	Vind LL	.C./Blue Creek Wind	Farm	
INVESTIGATORS: D.West, M. Nech	nvatal		Rover	FILE: R091709ADW.cor		QUAD NAME: Scott
STATE/COUNTY: Ohio/Paulding TOWNSHIP.: Blue Creek						
Photo No: 095C27nE & 095C28SW						
WATERBODY CHARACTERISTICS					<u> </u>	
WATERBODY TYPE:	Fairly wide natural channel, b	ikely some	manipul	ation for drainage from	ag fields	directly adj
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	12 (in)					
Avg. Stream Width:	15 (ft)	TOP OF B	TOP OF BANK: 20 (ft)			ary High Water Mark Width: 15
Avg. Bank Height:	4 (ft)					
AVG. BANK SLOPE (RATIO):	2:1					
	QUA	LITATIV	'E ATT	RIBUTES		
AVERAGE WATER APPEARANCE:	Turbid					
PRIMARY SUBSTRATE:	Cobbles					
POTENTIAL HABITAT FOR:	Fish/Spawn Areas					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE I	FROM EDA	GE OF ACTIVE CHANNEL (OUT ONTO	D FLOOD FLAN: 5 (ft)
	Type of vegetation present	r: Scrub Sh	ırub			
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Highly Erodable					
CHANNEL TYPE:	Natural			CHANNEL GEOMETRY	RELATIVE	ILY STRAIGHT
		Сом	MENTS	3		
collector line to turbine 095 crosse	s S145CA at this point; stream r	runs betwee	en ag fiel	ds		
STREAM QUALITY: Medium						
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel withins on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; iniciderant microinvertabrates present. MODERATE Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquetic habitat; minimum disturbance by livestock or man; Facultative microinvertsbrates present.						

moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quarty: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by diffes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious pollutants (atgal mats, surface soum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

WATERBODY DATA SHEET

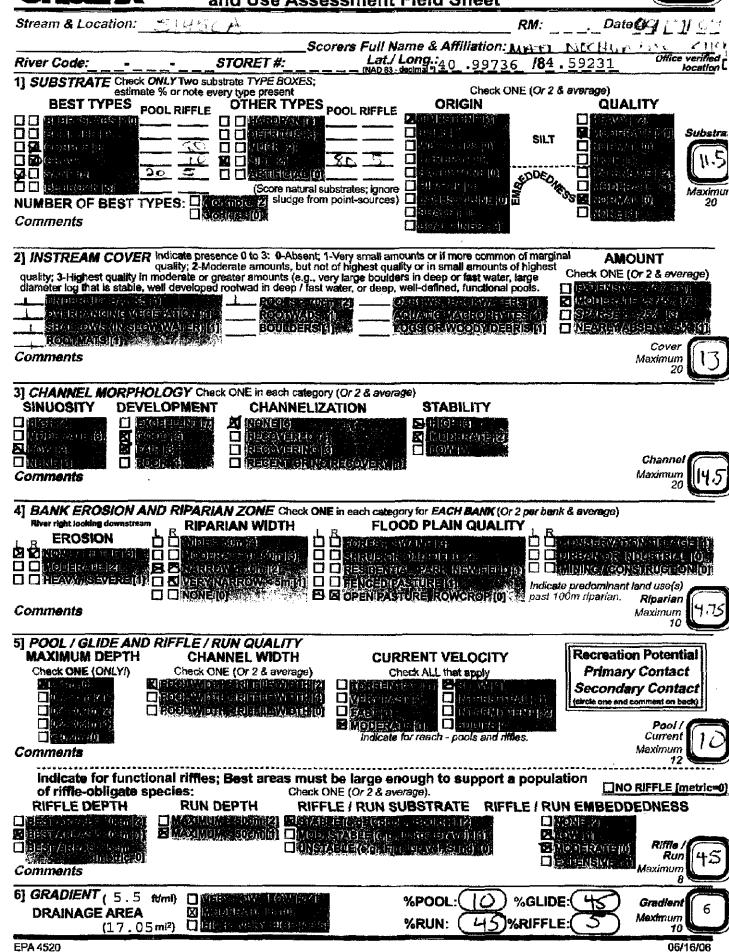
WATERBODY ID NO: S145CA-3			WATERBODY NAME: Prairie Creek				
SITE NAME: Blue Creek							
Date: 9/17/2009	CLIENT/PROJECT NAME: H	eartland Wir	nd LLC./Blu	e Creek Wind	Farm		
INVESTIGATORS: D.West, M. Nechvatal			ROVER FILE: R091709ADW.cor QUAD NAME:			QUAD NAME: Scott	
STATE/COUNTY: Ohio/Paulding			TOWNSHIP.: Blue Creek				
			Рното No: 145С23n & 145С24S				
	WATER	BODY CH	ARACTERIS	STICS			
WATERBODY TYPE:	ikely some ma	anipulation for	r drainage from	ag fields	directly adj		
FLOW EVENTS/YEAR:							
Flow type:	Perennial	Perennial					
AVG. STREAM DEPTH:	12 (in)						
Avg. Stream Width:	15 (ft)	TOP OF BANK: 20 (ft)			ORDIN (ft)	ARY HIGH WATER MARK WIDTH: 15	
Avg. Bank Height:	4 (ft)	-					
AVG. BANK SLOPE (RATIO):	2:1	·····					
	Qua	LITATIVE	ATTRIBUT	ES			
AVERAGE WATER APPEARANCE:	Turbid						
FRIMARY SUBSTRATE:	Cobbles						
FOTENTIAL HABITAT FOR:	Fish/Spawn Areas						
DEFINED BED AND BANKS:	PRESENT						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 5 (ft)						
	Type of vegetation present	T: Scrub Shrul	lb				
WETLAND FRINGE (IF PRESENT):	N/A						
CHANNEL CONDITION:	Highly Erodable						
CHANNEL TYPE:	Natural CHANNEL GEOMETRY RELATIVELY STRAIGHT						
		Сомм	ENTS				
collector line to turbine 145 crosse	s S145CA; stream runs between	ag fields					
STREAM QUALITY: Medium							
access to adequate flood plain; natural vegetat colored; no berniers to fish movement (seasona microinvertebrates present.	ion extends at least one or two active chann al water withdrawals prevent movement); ma 1 by rip rap and/or channelization; dikes/leve	nel widths on each s any fish cover types ses restrict flood plai	side; banks stable an available; diverse a ain width; natural veç	nd protected by roots t and stable aquatic habi getation extends 1/3-1/	hat extend to tat; no distu 12 of the acti	rbance by liveslock or man; intolerant ve channel width on each side; filtering function of	

moderate vegetation only moderately compromised, barks industrately bindable; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertabrates present. Low Quartry: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikee/levees; natural vegetation less than 1/3 of the active channel width on each side; la regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scent, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

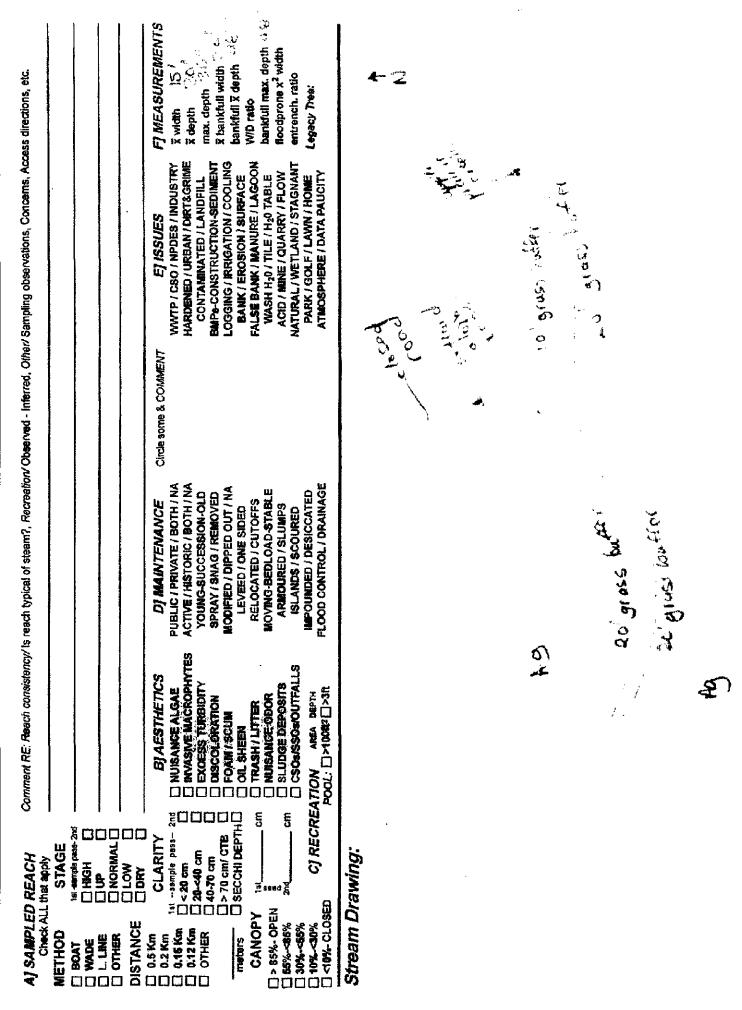


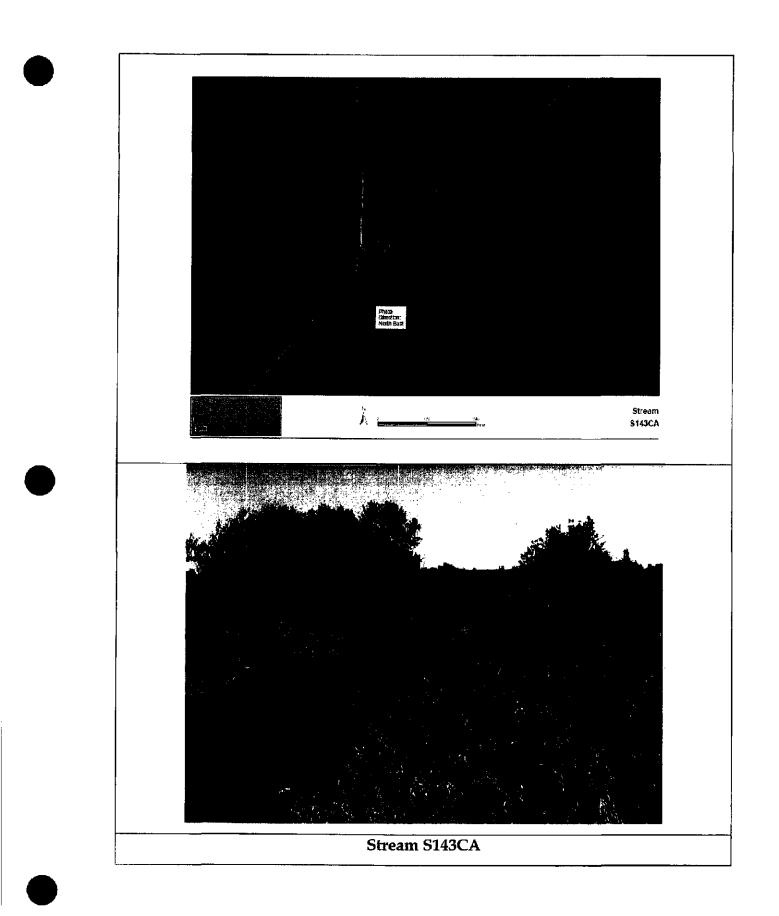
Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHE! Score:



EPA 4520





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WATERBODY DATA SHEET

WATERBODY ID NO: S1	43CA	WA	terbody Name: P	rairie Creek			
SITE NAME: Blue Creek							
DATE: 9/17/2009	CLIENT/PROJECT NAME: H	eartland Wind L	LC./Blue Creek Wind	Farm			
INVESTIGATORS: D.West, M. Nech	ıvatal	Rove	R FILE: R091709ADW.cor	QUAD NAM	E: Latty		
STATE/COUNTY: Ohio/Paulding			TOWNSHIP.: Blue Creek				
		Рнот	Рното No: 143C10nE & 143C11SW				
	WATER	BODY CHARA	CTERISTICS				
WATERBODY TYPE:	Stream, fairly wide natural ch	annel; likely some	manipulation due to ag	ields directly adj			
FLOW EVENTS/YEAR:							
Flow type:	Perennial						
AVG. STREAM DEPTH:	12 (in)						
AVG. STREAM WIDTH:	20 (ft)	TOP OF BANK: 25 (ft) (ft)		ATER MARK WIDTH: 20			
AVG. BANK HEIGHT:	3 (ft)						
Avg. Bank Slope (Ratio):	2:1						
	QUA	LITATIVE AT	RIBUTES				
AVERAGE WATER APPEARANCE:	Slighty Turbid						
PRIMARY SUBSTRATE:	Cobbles						
POTENTIAL HABITAT FOR:	Fish/Spawn Areas	Fish/Spawn Areas					
DEFINED BED AND BANKS:	PRESENT						
Riparian Zone:	IAN ZONE: WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 0 (ft)						
	TYPE OF VEGETATION PRESENT	r: None					
WETLAND FRINGE (IF PRESENT):	N/A						
CHANNEL CONDITION:	Highly Erodable						
CHANNEL TYPE:	Natural		CHANNEL GEOMETRY	RELATIVELY STRAIGHT			
		COMMENT	`S				
collector line from turbine 146 to 1	43 crosses stream; stream runs	between ag fields					
STREAM QUALITY: Medium					- <u></u>		

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to teacolored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by fivestock or man; inkolerant microinvertebrates present.

Monterate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of moderate Quality: Allefeo chained evolutions of your ap another chained guardeness is the consistence of the state of the

surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

		Assessment Fi		QHEI Scor	
Stream & Location:	>143CA	Constant Fault Man			29117169 WC CH2M
River Code:	- STORET #:	Scorers Full Warn Lat./ Lo.	ng.:41 .00782	/84 .58155	Office verifie locatio
estima	CONLY Two substrate TYPE BC ate % or note every type present	XES; t	Check ONE	(Or 2 & average)	
	OTHER T POOL RIFFLE OTHER T POOL RIFFLE POOL RIFFLE POOL RIFFLE POOL RIFFLE <td></td> <td>ORIGIN</td> <td></td> <td></td>		ORIGIN		
" quality: 3-Highest quality i	(ମଳ ମଧ୍ୟ ମଧ୍ୟ ନର୍ମ ନର୍ବ ନିର୍ବତ୍ମ ରାମ୍ୟାମନ ସନ୍ତା (ଶ୍ରୀ BOUU	, but not of highest quality (e.g., very large boulders in p / fast water, or deep, wel sourcemp[2](000 WADS [] [] Act	ts or if more common of or in small amounts of h	ighest Ge Check ONE (Is. Check ONE (
			STABILITY		Channei Maximum 20
River right looking downstree EROSION	ND RIPARIAN ZONE CH RIPARIAN WIDTH RIPARIAN WIDTH CONSTRUCTION RECOVERTION RECOVERTION RECOVERTION NONETO				DUSURIAL (O) STRUCIUON(O)
POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY) Check ONE (Check ONE	D RIFFLE / RUN QUALIT CHANNEL WIDT Check ONE (Or 2 & aver RIADE WEAT RIADEW)	H CURRE age) Check THEIRI CANADA THEIRI CANADA THEIRI CANADA THEIRI CANADA THEIRI CANADA THEIRI CANADA THEIRICAL	ENT VELOCITY ALL that apply ALL that apply	Primer Seconda (decisions and	Pool / Current Maximum
Indicate for funct of riffle-obligate RIFFLE DEPTH		Check ONE (Or 2 & average RIFFLE / RUN SUB	ie). STRATE RIFFLE		12 RIFFLE (metric DEDNESS
less and some include less and some include o comments		IMOD SIVIBLE(Contracts IUNSTABLE(Contracts	et (Grave) 197	₩	Riffle / Run Maximum

06/16/06

אפמותואי איי	F] MEASUREMENTS X with 20 X depth 20 max. depth 46 X bankfull width 26 bankfull max. depth 46 bankfull max. depth 46 thoodprone x ² width entrench. ratio Legacy Tree:	
Comment RE: Reach consistency/ is reach typical of steam?, Recreation/ Observed - Interred, Uther/ Sampang observations, Luiwaws, ruces weaver un-	EJ ISSUES EJ ISSUES WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H ₂ 0 / TILE / H ₂ 0 TABLE ACID / MINE / QUARRY / FLOW MATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	
/Observed - Interred, Utherr	Circle some & COMMENT	
i reach typical of steam?, Recreation	Dj MAJNTENANCE Dj MAJNTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED SPRAY / SNAG / REMOVED SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / OLT PESICCATED ISLANDS / SCOURED ISLANDED / DESICCATED FLOOD CONTROL / DRAIMAGE	Barris A.
Comment RE: Reach consistency/ls	BJAESTHETICS BJAES	
PLED ck ALL		Stream Drawing:

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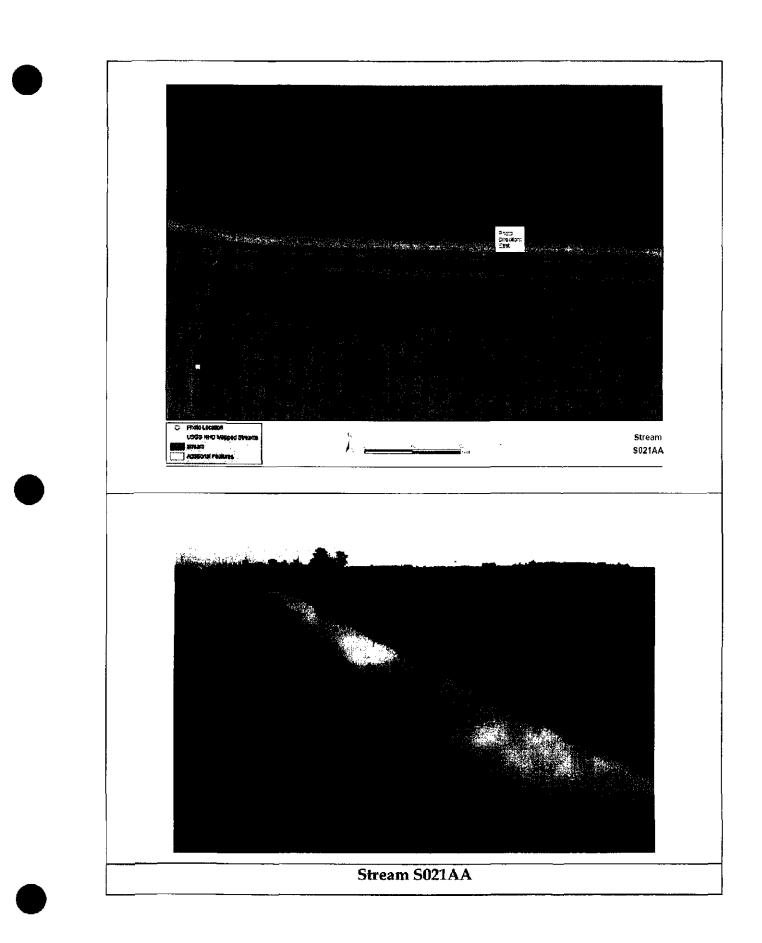
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Tributaries to Prairie Creek



WATERBODY DATA SHEET

WATERBODY ID NO: S021AA		WATERBODY I	WATERBODY NAME: Unnamed Tributary to Prairie Creak			
SITE NAME: Blue Creek						
DATE: 9/21/2009	DATE: 9/21/2009 CLIENT/PROJECT NAME: Heartland					
INVESTIGATORS: Hook		Rover File: RAH0	90921.cor	QUAD NAME: Convoy		
STATE/COUNTY: Ohio/Van Wert	TOWNSHIP.: Unior	TOWNSHIP: Union				
	PHOTO NO: \$021a;	Рното NO: \$021aa1				
	WATER	BODY CHARACTERISTIC	CS			
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Intermittent					
AVG. STREAM DEPTH:	6 (in)					
Avg. Stream Width:	7 (ft) TOP OF BANK: 30 (ft) ORDINARY HIGH WATER MARK W (ft)					
Avg. Bank Height:	7 (ft)		<u></u>			
AVG. BANK SLOPE (RATIO):	3:1					
	Qua	LITATIVE ATTRIBUTES				
AVERAGE WATER APPEARANCE:	R APPEARANCE: Turbid					
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:						
DEFINED BED AND BANKS:	PRESENT					
Riparian Zone:	WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD FLAN: 0 (ft)					
	Type of vegetation present	 Г:	·			
WETLAND FRINGE (IF PRESENT):	Scirpus ludwigia upstream		<u> </u>			
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated	CHANNEL	GEOMETRY RELATIV	/ely Strakiht		
		Comments				
STREAM QUALITY: Low						
HIGH QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetate calend as barries to fish government (compared	ion extends at least one or two active channel	el widths on each side; banks stable and pro	otected by roots that extend			

colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable equatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film;

In paral registration only moterately compromised, banks insolventary instance (cards actively including with two takes) considerates don; minor barriers to fish movement; 4-3 fish cover types available; fair aquatio habitat; minimum disturbance by livestock or man; Facultative microinvertebrates on the during; rip rap and channitization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; in regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scient); heavy odor; green color to water; severe berriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; talerant or no microinvertebrates present

NOTE: Complete A NOTE: Complete A STREAM CHANNEL MODIFICATIONS: SUBSTRATE ((Max of 32). Ad TYPE BLDR SLAP	SITE NUMBER_ REACH (ft) SCORERR	NATURAL CHA	OMMENTS		r Ohio' s PHW H		
ENGTH OF STREAM NOTE: Complete A STREAM CHANNEL MODIFICATIONS: SUBSTRATE ((Max of 32). Ad TYPE BLDR SLAI BOULDER	SITE NUMBER_ REACH (ft) SCORER Il Items On This Fo NONE / N Estimate percent of e	NATURAL CHA	OMMENTS	aluation Manual for	r Ohio' s PHW H		
ATE <u>191509</u> NOTE: Complete A STREAM CHANNEL MODIFICATIONS: SUBSTRATE ((Mex of 32). Ad TYPE BLDR SLAI BOULDER	SCORER <u>R</u> Il Items On This Fo NONE / N Estimate percent of e	NATURAL CHA	OMMENTS	aluation Manual for	r Ohio' s PHW H		
ATE <u>191509</u> NOTE: Complete A STREAM CHANNEL MODIFICATIONS: SUBSTRATE ((Mex of 32). Ad TYPE BLDR SLAI BOULDER	SCORER <u>R</u> Il Items On This Fo NONE / N Estimate percent of e	NATURAL CHA	OMMENTS	aluation Manual for	r Ohio' s PHW H		
NOTE: Complete A TREAM CHANNEL MODIFICATIONS: SUBSTRATE ((Max of 32). Ad TYPE BLDR SLAI BOULDER	Il Items On This Fo	orm - Refer t NATURAL CHA	to "Field Eve	aluation Manual for	r Ohio' s PHWH		
STREAM CHANNEL MODIFICATIONS: SUBSTRATE ((Max of 32). Ad TYPE BLDR SLAI BOULDER	Estimate percent of e	NATURAL CHA				Streams" for Inst	fuctions.
SUBSTRATE ((Max of 32). Ad TYPE BLDR SLAI BOULDER	Estimate percent of e		ANNEL 🔲R				,
SUBSTRATE ((Max of 32). Ad TYPE BLDR SLAI BOULDER	Estimate percent of e				COVERING	RECENT OR NO RE(COVERY
(Max of 32). Ad TYPE BLDR SLAI BOULDER					•		
(Max of 32). Ad TYPE BLDR SLAI BOULDER		verv lyne of t	substrate nre	sent. Check ONLY has	oredominant sut	strate TYPE boxes	ماكر بساكا فتعقد
BLDR SLAI BOULDER			•				I HHE
BOULDER		PERCENT	IYPE			PERCENT	Metr
				SILT [3 pt]		100%	Poin
	(>256 mm) [16 pts]	<u> </u>	거두	LEAF PACK/WOOD	• • •	•	Substr
	55-256 mm) [12 pts]			FINE DETRITUS (3 CLAY or HARDPAN			Max =
		<u> </u>	吕님		[v pi]	<u>`-</u>	
	2-64 mm) [9 pts]		걸	MUCK [0 pts] ARTIFICIAL [3 pts]		<u></u>	17
SAND (<2)			لبدينا لمعنا	ARTICIANE (9 bis)			
	Percentages of		(A)			(8)	A+B
	ulder, Cobble, Bedrock		ore.	TOTAL MUMOR		TE TORCE.]
CORE OF IWU MUS	T PREDOMINATE SUE	DOINALE IT	PES: Q	IUIAL NUMBE	R OF SUBSTRA		
	Depth (Measure the					ch at the time of	Pool De
	nd plunge pools from ro	oad culverts o	r storm water i				Max =
> 30 centimeten			H	> 5 cm - 10 cm [15 < 5 cm (5 pts]	pts]		
22.5 - 30 cm				NO WATER OR M	OIST CHANNEL	(D pts)	10
		<u> </u>		·			17
COMMENTS_		ai	··········	MAXIMUM P	OOL DEPTH (ce	ntimeters): /2	1 7
BANK FULL W	IDTH (Measured as ti	he average o	f 3-4 measure	ments) (Chee	ck ONLY one box	x):	Bankt
-> 4.0 meters (> 1				> 1.0 m - 1.5 m (> 3)	Widt
	(> 9' 7" - 13') [25 pts]			≤ 1.0 m (<=3' 3") [5	pts]		Max=:
<u>E_</u> > €.5 m - 3.0 m	(> 9' 7" - 4' 6") [20 pbs]					Ѓ``L	r
COMMENTS_		 		AVERAGE B	ANKFULL WIDT	H (meters): 7.5	1 20
			,				
ن من من الله من من المن من من المارين من		Tł	nis informatio	n mustalso be comp	lataci	والمحادث فالمتركب والمتكاف فالمتحاد والمتحاد	
RIPARI	AN ZONE AND FLOO			OTE: River Left (L) and		king downstream 2	
RIPAF	RIAN WIDTH	FLOOD	PLAIN QUALI	<u>TY</u>	-		
	Bank)	LR	•	ominant per Bank)	LR		
Wide	a >10m		Matura Fore			Conservation Tillage	
Mod	erate 5-10m		Field	o rest, Sh rub or Old	ر 🗔 🖸	Irban or Industrial	
	•					Open Pasture, Row Cr	'00 '
	ow <5 m			Park. New Field		,	-
Men Non	=		Fenced Pas	ture	L,ILJ №	fining or Construction	
COMM	EN 18	nen säänn 1.0000 augusta paisti netti altais (valustationaan Jan		an de la companya de		al de la martina de la mart	-
FLOW	REGIME (At Time of E	valuation) (C	hack ONLY or	ne box) :			
Stream I					nel, isolated pools	s. no flow (Intermittent	:)
	ace flow with isolated p	ools (Interstitie	81)	Dry channe	l, no water (Ephe	(meral)	
COMM	ENTS_						-
SINUO	SITY (Number of bend	s per 6 1 m (21)0 ft) of channe	el) (Check ONLY one	box):		
2 None	Ľ	1.0	, 	2.0		3.0	
		1.5		1 1 1		>3	
0.5				2.5	لسا	~3	
_	DIENT ESTIMATE			LJ 2.3	السا	~J	

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CHEI PERFORMED? Yes INO CHEI Score	(If Yes, Attach Completed QHEI Form) Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream NATERSHED AREA. CLEARLY MARK THE SITE LOCATION S Soll Map Page
WH Name:	Distance from Evaluated Stream Distance from Evaluated Stream NATERSHED AREA. CLEARLY MARK THE SITE LOCATION
WH Name:	Distance from Evaluated Stream Distance from Evaluated Stream NATERSHED AREA. CLEARLY MARK THE SITE LOCATION
WH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIFIE</u> I S Quadrangie Name:	NATERSHED AREA. CLEARLY MARK THE SITE LOCATION
S Quadrangie Name:	
**************************************	S Soll Map Page: NRCS Soli Map Stream Order
ty: Township / C	
	My:
MISCELLANEOUS	
Flow Conditions? (Y/N): Y Date of last precipitation:	Quantity:
ograph information:	***************************************
Med Turbidity? (Y/N): Canopy (% open):	
samples collected for water chemistry? (Y/N): (Note tab samp	fe no. or id. and attach results) Lab Number.
Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (umhos/cm)
sampling reach representative of the stream (Y/N)	
•	
ional comments/description of pollution impacts:	
	, 5
BIOTIC EVALUATION	(
mpd? (Y/N); // (if Yes, Record all observations, Voucher collec	tions optional. NOTE: all voucher samples must be labeled with the site
	s from the Primary Headwater Habitet Assessment Manual)
Observed? (Y/N) Voucher? (Y/N) Satemanders Observe	Id? (Y/N) Voucher? (Y/N)
A CONTRACT OF A	winvertebrates Observed? (Y/N) Voucher? (Y/N)
ments Reparding Biology:	An an an a state and a state and a state and a state and a state of the state and a state and a state and a state An a state and a
Careford and a second s Second second se	

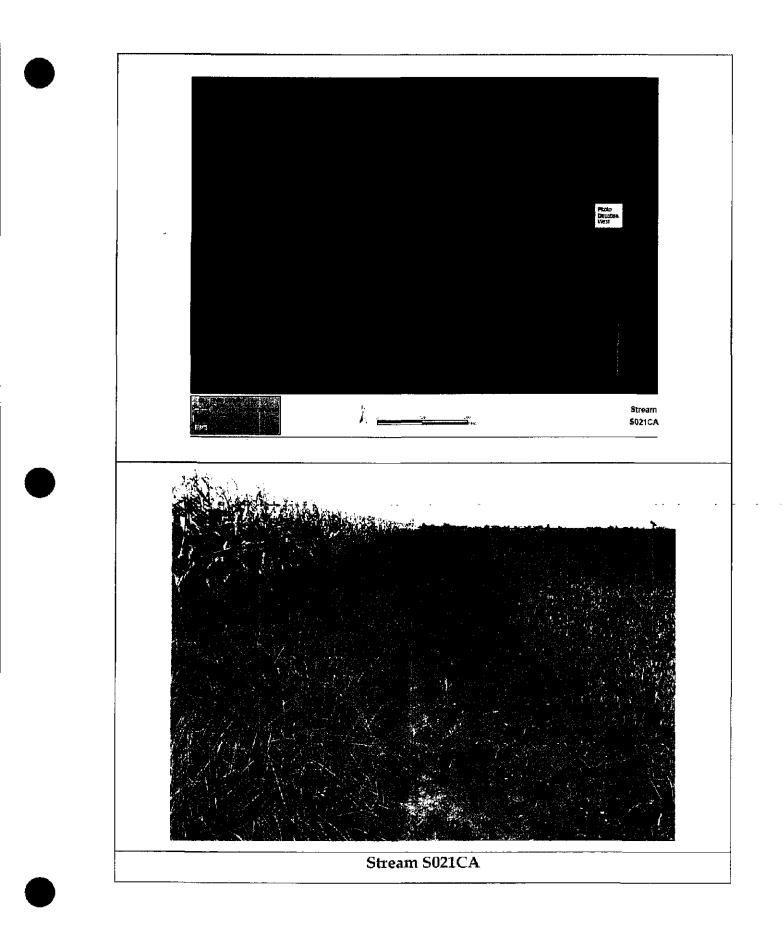
-include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

-, ROAD	
	ng ha na ang ang ang ang ang ang ang ang ang
FLOW	
Beave St Hydrophyte	Beaus
St irrequier hedgers	w/scrib
	1

October 24, 2002 Revision

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PHMH Form Page - 2



WATERBODY DATA SHEET

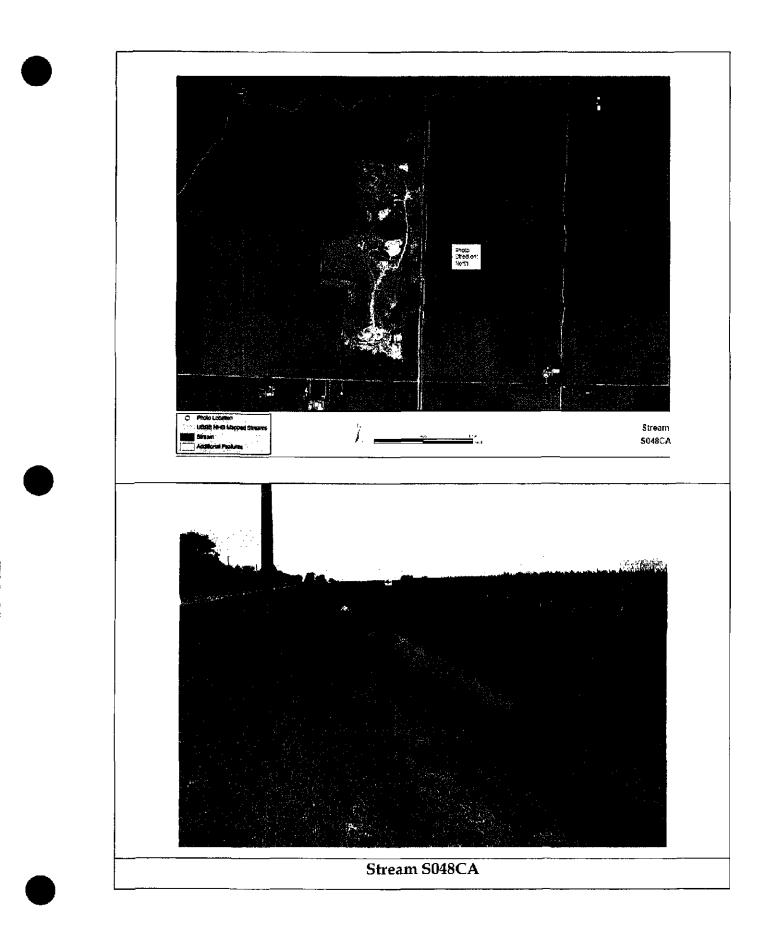
			<u> </u>			
WATERBODY ID NO: S021CA		WATER	BODY NAME: U	nname	d Tributary to Prairie Crark	
SITE NAME: Blue Creek						
DATE: 10/15/2009 CLIENT/PROJECT NAME: Heartland W		Wind LLC.	/Blue Creek Wind	Farm		
Investigators: AF RH			ROVER FI	LE:		QUAD NAME: Convoy
STATE/COUNTY: Ohio/Van Wert			Townshi	P.: Union		
			PHOTO N	io:		
WATERBODY CHARACTERISTICS						
WATERBODY TYPE:	Ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Ephemeral	_				
AVG. STREAM DEPTH:	0 (in)					
Avg. Stream Width:	0 (ft)	Top of B	Bank: 1 (ft)		ORDIN (ft)	ary High Water Mark Width: 0
Avg. Bank Height:	1 (ft)	•				
AVG. BANK SLOPE (RATIO):	3:1					nn na harring an
	QUA	LITATIV	ve Attri	BUTES		
AVERAGE WATER APPEARANCE:		- ·				
PRIMARY SUBSTRATE:	Silts	•	· · · · · · · · · · · · · · · · · · ·			
POTENTIAL HABITAT FOR:	None					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE	FROM EDGE	OF ACTIVE CHANNEL	OUTONT	o flood plan: 0 (ft)
	TYPE OF VEGETATION PRESEN	T: None		······································		
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated			CHANNEL GEOMETRY	Relativi	ely Straight
	• • • • • • • • • • • • • • • • • • •	Сом	IMENTS	· · · · · · · · · · · · · · · · · · ·		
STREAM QUALITY: Low				· · · · · · ·		
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present.	ion extends at least one or two active chann I water withdrawals prevent movement); ma I by rip rap and/or channelization; dikes/leve ed; banks moderately unstable (outside ban rt; 4-3 fish cover types available; fair aquatio	hel widths on ea any fish cover ty ses restrict flood nds actively ero b habitat, minim	ach side; banks a ypes aveilable; d d plain width; nai oding with few fal num disturbance	stable and protected by roots liverse and stable aquatic hak tural vegetation extends 1/3-1 len frees); considerable water by livestock or man; Facultati	that extend t itat; no distu /2 of the acti r cloudiness, ve microinve	bance by fivestock or man; intolerant we channel width on each side; filtering function of submerged objects covered with green film; riebrates present.

Low cuality: chaines is acreary downcuing or widening, ip rap and chaining and chaining in or pain regeneration, filtering function esverally compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scurn, surface scene); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

	CATION					etrics 1, 2, 3) :	
········	SITE NUMBER	50215	A RIVER B		C	DRAINAGE AREA (mi ^r)	0,1
LENGTH OF S		LAT HO	56'32"LO	NG. 84 40 40 RI	VER CODE _		
DATE 1915	109 SCORER TEH	70K 00	MMENTS				
•	plete All Items On This Fo						
					_		
STREAM CH. MODIFICATI		NATURAL CHA			COVERING	RECENT OR NO REC	COVERY
	FRATE (Estimate percent of f 32). Add total number of sign						I HH
TYPE		PERCENT	TYPE	(MEX OF O). I THE LITER		PERCENT	Met
	DR SLABS [16 pts]			SILT [3 pt]		100	Poi
BO 80	ULDER (>256 mm) [16 pts]			LEAF PACK/WOOD	Y DEBRIS (3	pts}	
	DROCK [16 pt]			FINE DETRITUS (3			Subs Max
	BBLE (65-256 mm) [12 pts]			CLAY of HARDPAN	[0 pt]		
	LAVEL (2-64 mm) [9 pts]			MUCK [0 pis]			
	ND (<2 mm) (6 pts)			ARTIFICIAL [3 pts]			
	Total of Percentages of		(A)			(8)	
Bidr Sl	abs, Boulder, Cobble, Bedrock		1 n				A+
SCORE OF TW	IO MOST PREDOMINATE SU	BSTRATE TY	PES: 6	TOTAL NUMBE	er of subst	RATE TYPES:	
hêlini			الــــــــــــــــــــــــــــــــــــ		Tel availantian	······································	
	tion. Avoid plunge pools from r	-	-	•		reach at the time of	Pool I Max
	ntimeters (20 pts)	uso currents un		> 5 cm - 10 cm [15	•		intex :
	- 30 cm [30 pts]			✓ 5 cm [5 pts]	• ,		
> 10 - 2	22.5 cm [25 pts]			NO WATER OR M	OIST CHANN	EL (0 pts)	$\parallel O$
COM	ENTS					(a sublimation)	
COMM	(EN I)			MAXIMUM P	OOL DEPTH	(centimeters):	
3. BANK	FULL WIDTH (Measured as	the average of	f 3-4 measure	(Che	ck ONLY one	box):	Bani
	aters (> 13') [30 pts]		Ľ	> 1.0 m - 1.5 m (> 3		j pts]	Wid
	- 4 0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 9' 7" - 4' 8") [20 pts]			s 1.0 m (<=3' 3") (5	pts]		Max
	-3.0 m (28 / - 4 5 / [20 pm]					1 1	
COMM	ENTS				ANKFULL W	IDTH (meters):	1 10
							/-
		Tt	us informatic	n must also be comp	leteri		
	RIPARIAN ZONE AND FLOO					looking downstream λ	
	RIPARIAN WIDTH	FLOOD	PLAIN QUALI	<u>TY</u>			
LR	(Per Bank)		(Most Prede	minant per Bank)	LR		
L.L.	Wide >10m		Mature For			Conservation Tillage	
	Moderate 5-10m		Field	prest, Shrub or Old		Urban or Industrial	
	1	,	-			Open Pasture. Row C	
	Narrow <5m	أساليا	Residential.	Park. New Field			~
	None		Fenced Pas	ture		Mining or Construction	•
						اله الله الله الله الله الله الله الله	-
	COMMENTS	Syaluation (C	heck ON! Y~	ne hov):			
	COMMENTS FLOW REGIME (At Time of E	Evaluation) (C	heck ONLY of		nel, isolatad o	ools, no fiow (Intermitten)	n
	COMMENTS			Moist Chan	nel, isolated p I, no iwater (E	ools, no flow (Intermitten iphemeral)	t)
	COMMENTS FLOW REGIME (At Time of E Stream Flowing			Moist Chan			t) -
8	COMMENTS FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated) COMMENTS_	pools (interstitie	el)	Moist Chan Dry channe	l, no water (E		t) -
B	COMMENTS FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated) COMMENTS	pools (Interstitle Is per 61 m (20	el)	Moist Chan Dry channe al)_(Check ONLY one	l, no water (E	iphemeral)	t) -
	COMMENTS FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated) COMMENTS_	pools (interstitie	el)	Moist Channe Dry channe el) (Check ONLY one 2.0	l, no water (E		t) -
B	COMMENTS FLOW REGIME (At Time of & Stream Flowing Subsurface flow with isolated) COMMENTS	pools (Interstitu Is per 61 m (20 1.0	el)	Moist Chan Dry channe al)_(Check ONLY one	l, no water (E	3.0	k) -

DITIONAL STRE	AN INFORMATION (This Information Must Also be Completed);
QHEI PEI	RFORMED? - Yes Mo QHEI Score (If Yes, Altach Completed QHEI Form)
	REAN DESIGNATED USE(S)
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
	ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
GS Quadrangle i	
ntv: -	Township / City:
MIRCEL	
e Flow Condition	
tograph informs	
veted Turbidity?	
-	cted for water chemistry? (Y/N): (Note tab sample no. or id. and sitach results) Leb Number:
-	Personal Per
	Temp (°C) Dissolved Oxygen (mgf) pH (S.U.) Conductivity (umhos/cm)
e sampling reac	ch representative of the stream (YN)
litional comment	ta/description of pollution impacts:
formed? (Y/N): _	EVALUATION (If Yee, Record All observations. Youcher collections optional. NOTE: all voucher samples must be labeled with the site to number. include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
h Observed? (Y/l gs or Tadpoles (N) Voucher? (Y/N) Salemanders Observed? (Y/N) Voucher? (Y/N) Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
nments Regardi	
انىرى بو بېرىكىنىڭ ئارىيىتىر مۇرىرىي بالىي	
<u> </u>	
DRAV	WING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
	stant insidentits and other features of interest for site evaluation and a neurative description of the stream's location
	BEANS
	. 26 3
	5
ow 🔿	Trregular Drug channel, accominal hydroghyter 3 3
×π ₹ .	

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present.

WATERBODY DATA SHEET

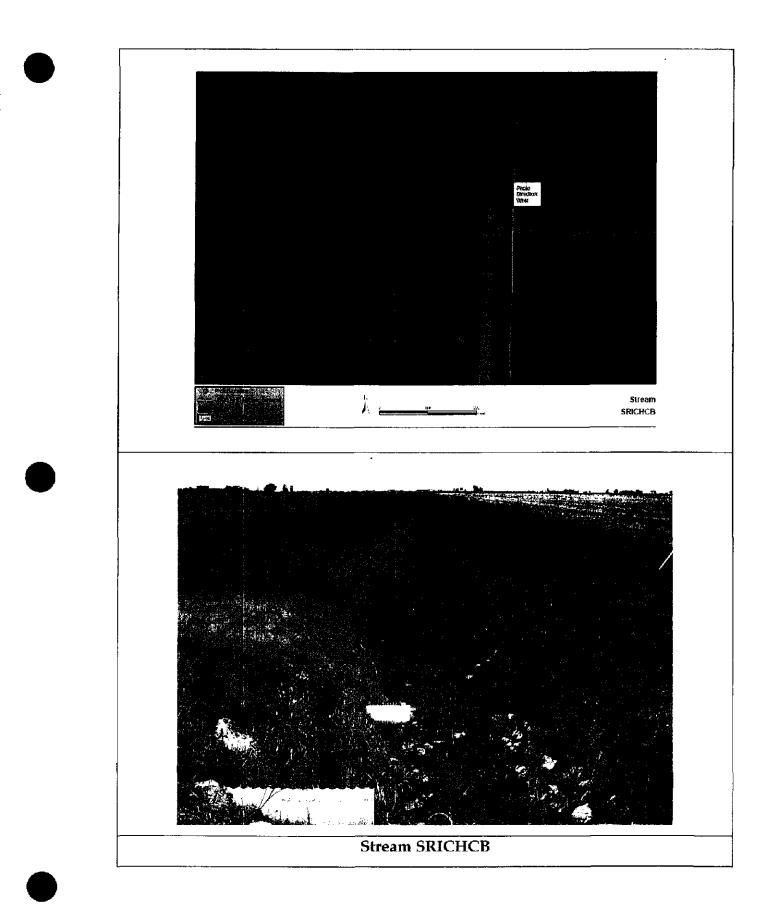
WATERBODY ID NO: SO	48CA	WATI	ERBODY NAME: Unna	med Tributary to Prairie Crock	
SITE NAME: Blue Creek	n a				
DATE: 9/20/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm				
Investigators: Hook			ROVER FILE: RAH090920.cor QUAD NAME: Convoy		
STATE/COUNTY: Ohio/Van Wert			HIP: Union		
		Рното) NO: 5048aa1		
	WATER	RBODY CHARAC	TERISTICS		
WATERBODY TYPE:	Ag drainage				
FLOW EVENTS/YEAR:					
Flow type:	Intermittent				
AVG. STREAM DEPTH:	18 (in)				
Avg. Stream Width:	8 (ft)	TOP OF BANK: 25 ((ft) OR (ft)	DINARY HIGH WATER MARK WIDTH: 10	
Avg. Bank Height:	6 (ft)				
AVG. BANK SLOPE (RATIO):	3:1				
	QUA	ALITATIVE ATTI	RIBUTES		
AVERAGE WATER APPEARANCE:					
PRIMARY SUBSTRATE:	Silts				
POTENTIAL HABITAT FOR:					
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	FION ZONE FROM ED(GE OF ACTIVE CHANNEL OUT C	UNTO FLOOD PLAN: 5 (ft)	
	Type of vegetation present	T: Herbaceous			
WETLAND FRINGE (IF PRESENT):			· · · · · · · · · · · · · · · · · · ·		
CHANNEL CONDITION:	Not Significant				
Channel Type:	Manipulated		CHANNEL GEOMETRY RELA	TIVELY STRAIGHT	
		COMMENTS	3		
high flow from gravel pit					
STREAM QUALITY: Low					
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present. MoDERATE QUALTY: Attered channel evidenced nparian vegetation only moderately compromisi moderate odor; minor barriers to fish movement Low QuaLTY: Channel is actively downcutting o regeneration; filtering function severely comprov	ion extends at least one or two active chann al water withdrawals prevent movement); ma d by rip rap and/or channelization; dikes/leve sed; banks moderately unstable (outside ben at; 4-3 fish cover types available; fair aquatic or widening; rip rap and channilization excee priised; Banks unstable (inside and outside b	nel widths on each side; ban any fish cover types available ees restrict flood plain width; nds actively eroding with few c habitat; minimum disturban sssive; flood plain restricted b bends actively eroding with r	iks stable and protected by roots that exit e; diverse and stable aquatic habitat; no ; natural vegetation extends 1/3-1/2 of thr r fallen trees); considerable water cloudin nce by livestock or man; Facultative micro by dikes/levees; natural vegetation less th numerous fallen trees); water very turbid	e active channel width on each side; littering function of tess, submerged objects covered with green film;	

ChieEPA Primary H	adwater Habitat Evaluati HHEI Score (sun	on Form of metrics 1, 2, 3) : 59
SITE NAME/LOCATION		
SITE NUMBER_SC LENGTH OF STREAM REACH (ft)	48AP RIVER BASIN	DRAINAGE AREA (m²) 0, 5
LENGTH OF STREAM REACH (ft)	AT. 40° 57 58 LONG. 84° 38' 55 RIVER (
DATE 9 20 09 SCORER P. Cost-		
NOTE: Complete All items On This Form	Refer to "Field Evaluation Manual for Ohio	o's PHWH Streams" for Instructions
STREAM CHANNEL		
	type of substrate present. Check ONLY two pred substrate types found (Max of 8). Final metric sco	
• • •	CENT TYPE	PERCENT Metr
BLDR SLABS (16 pts)	SiLT (3 pt)	Poin
BOULDER (>256 mm) [16 pts]	LEAF PACK/WOODY DE	BRIS [3 pts] Substra
COBBLE (65-256 mm) (12 pts)	CAL CLAY OF HARDPAN 10 pt	Max =
GRAVEL (2-64 mm) [9 pts]	MUCK [0 pts]	
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]	
Total of Percentages of	- 31 (A)	(8) A+B
Bidr Slabs, Boulder, Cobble, Bedrock		
SCORE OF TWO MOST PREDOMINATE SUBST	ATE TYPES:	SUBSTRATE TYPES: 2
	mum pool depth within the 61 meter (200 ft) ev	
evaluation. Avoid plunge pools from road of > 30 centimeters [20 pts]	ulverts or storm water pipes) (Check OWLY one	box): Max \simeq :
> 22.5 - 30 cm [30 pis]	< 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST	
COMMENTS GRAVEL Bit flows	- or the state MAXIMUM POOL	DEPTH (centimeters): 45
3. BANK FULL WIDTH (Measured as the a	erage of 3-4 measurements) (Check OA	/L Y one box): Bankh
4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4	4' 8') [15 pts] Width
> 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts) > 1.5 m - 3.0 m (> 9' 7" - 4' 8") (20 pts)	≤ 1.0 m (≪=3' 3') [5 pts]	Max#3
COMMENTS	AVERAGE BANK	FULL WIDTH (meters):
RIPARIAN ZONE AND FLOODPL	This information <u>must</u> also be completed NN QUALITY TOTE: River Left (L) and Right	
RIPARIAN WIDTH	FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) Mature Forest, Wetland	L R Conservation Tillage
Moderate 5-10m	Immature Forest, Shrub or Old	Urban or Industrial
	Field	Cana Bastura Bow Cana
Narrow <5m	Residential, Park, New Field	Den Pasture, Row Crop
None	Fenced Pasture	Mining or Construction
FLOW REGIME (At Time of Evelu Stream Flowing Subsurface flow with isolated pools COMMENTS	Moist Channel, it	colated pools, no flow (Intermittent) water (Ephemeral)
U	61 m (200 ft) of channel) _(Check ONLY one box):	-
	1.0 Check OnL / Die box):	3.0
0.5	1.5 🔲 2.5	□ >3
STREAM GRADIENT ESTIMATE	_	
Flat (0.5 p/100 t) Flat to Moderate	Moderate (2 n/160 ft) Moderate to Se	vere Severe (10 h/100 h)

.

PHWH Form Page - 1

	SIGNATED USE(S)			
	SIGNATED USE(3)		_ Distance from Evalua	ited Stream
	·	·	• -	ted Stream
EWH Name:	···· · · · · · · · · · · · · · · · · ·		Distance from Evalua	ted Stream
MAPPING: ATTACI	COPIES OF MAPS, INC	LUDING THE ENTIRE WATERSHE	DAREA. CLEARLY MAR	K THE SITE LOCATION
SGS Quadrangle Name:	ور بر می اور بر می اور بر می اور بر می اور	NRCS Soil Map I	Page: NRCS Sc	Map Stream Order
ounty:		Township / City:	·····	
MISCELLANEOUS				
ase Flow Conditions? (Y/N);	Date of last pr	recipitation:	_ Quantity:	
hotograph Information:			an de lances e y se cat data de anne anne pe segue de la la co rrer an	
levated Turbidity? (Y/N):	Canopy (%	{		
vere samples collected for w	ater chemistry? (Y/N):	(Note lab sample no. or id.	and attach results) Lab I	lumber:
ield Measures: Temp (°C) Dissolved Oxy	ygen (mg/l) pH (S.U.)	Conductivity (p	nhos/cm)
the sampling reach represe	ntative of the stream (Y/	N) If not, please explain:		
	· · · · · · · · · · · · · · · · · · ·		n an	ung entesta por a la sua de la s
;			and the state of the	
dditional comments/descript	ion of pollution impacts:			
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BIOTIC EVALUAT	ION (If Yes, Record all obser			-
BIOTIC EVALUAT enformed? (Y/N):	ION (If Yes. Record all obser ID number. Include app Voucher? (Y/N)	rvations. Voucher collections options ropriate field data sheets from the Pr Salamanders Observed? (Y/N)	imary Headwater Habitat /	-
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present.

WATERBODY DATA SHEET

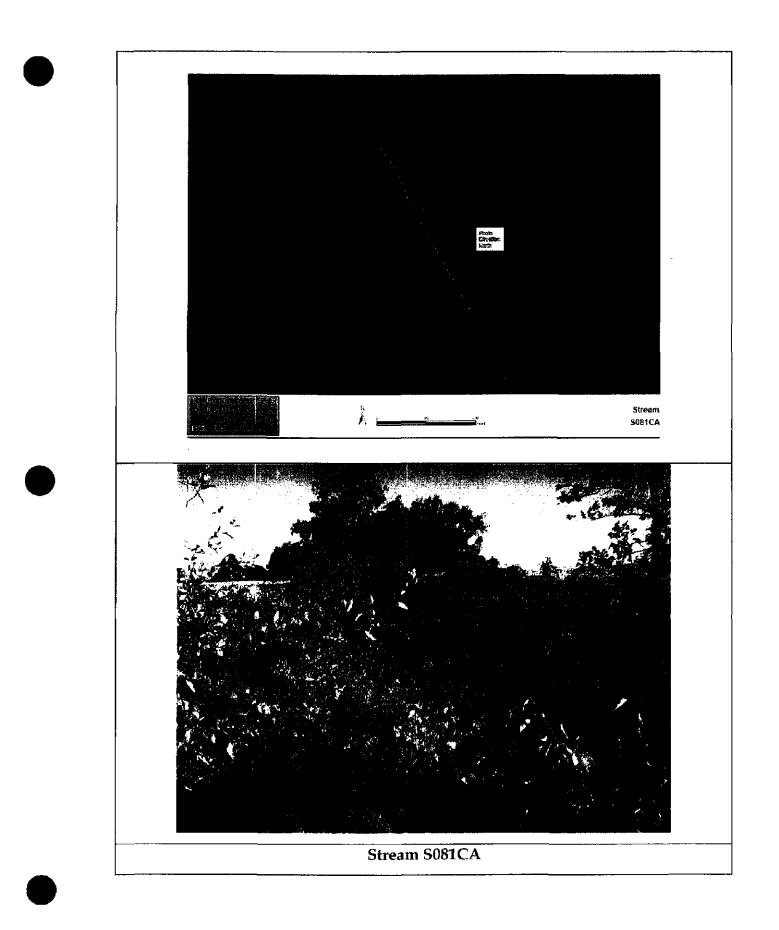
WATERBODY ID NO: SRICHCB		WA	WATERBODY NAME: Unnamed Tributary to Prairie Creek			
SITE NAME: Blue Creek						
DATE: 10/14/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm					
INVESTIGATORS: AF RH	INVESTIGATORS: AF RH				QUAD NAME: Convoy	
STATE/COUNTY: Ohio/Van Wert		Tow	NSHIP.: Union			
		Рнот	'O NO:			
WATERBODY CHARACTERISTICS						
WATERBODY TYPE:	Ag ditch					
FLOW EVENTS/YEAR:						
Flow type:	Ephemeral					
AVG. STREAM DEPTH:	0 (in)					
Avg. Stream Width:	0 (ft)	TOP OF BANK: 1	(ft)	ORDIN (ft)	ary High Water Mark Width: 0	
Avg. Bank Height:	1 (ft)					
AVG. BANK SLOPE (RATIO):	2:1			· · · · · · · · · · · · · · · · · · ·	······································	
	Qua	LITATIVE AT	TRIBUTES			
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts		,,		a	
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT		· · · · · · · · · · · · · · · · · · ·			
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM E	DGE OF ACTIVE CHANNEL	OUT ONT	d flood plan: 0 (ft)	
	TYPE OF VEGETATION PRESEN	r: None				
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	Relativi	ELY STRAIGHT	
		COMMEN	ſS			
	· · · · · · · · · · · · · · · · · · ·	<u> </u>				
STREAM QUALITY: Low						
High Quarty: Natural channel (no structures or dikes; no evidence of downoutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no berriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. Moorenare Quarty: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quarty: Channel is actively downoutting or water; grap and channel width and channel width and excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scen, surface sheen); heavy odor; green color to water; severe berriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates						

ChieFPA	Primary Headwater Habitat Evaluation Form	
	HHEI Score (sum of metrics 1, 2, 3) :	

SITE NAME/LOCATION	E Parahe E				· · · · · · · · · · · · · · · · · · ·
LENGTH OF STREAM REACH		RIVER BASIN	ORAIN	AGE AREA (mr)	5.4
LENGTH OF STREAM REACH	+ (ft) LAT.	57 11 LONG. 87 30 34			0
DATE 101100 SCO	RER CO	MMENTS			
NOTE: Complete All Iten	ns On This Form - Refer to	Field Evaluation Manua	l for Ohio's PHWH S	itreams" for Instr	uctions
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL CHA	NNEL RECOVERED		ECENT OR NO REC	OVERY
	ate percent of every type of s				
(Max of 32). Add total TYPE	number of significant substrate PERCENT	Types found (Max of 8). Final 1	netric score is sum of D	DX83 A & B. PERCENT	HHEI Metric
BLDR SLABS [16	pts]			-70	Points
BOULDER (>256	a second a second se		DODY DEBRIS [3 pis]	Sector Se	Substrate
BEDROCK [16 ;			- · ·		Max = 40
GRAVEL (2-64 m	Lines were a start	MUCK [0 pts]	er ver gan groß		
SAND (<2 mm) [6	pts]	ARTIFICIAL (3)	xs)	Sector Andrew Street	ł.
Total of Percer	tages of	(A)		(8)	A+B
Bidr Siabs, Bouider, C	Cobble, Bedrock	ES. 75 TOTAL NU	MBER OF SUBSTRATI		
	h (Measure the maximum po ge pools from road culverts or			at the time of	Pool Dept Max = 30
> 30 centimeters [20 p		> 5 cm - 10 cm			max - Ju
> 22.5 - 30 cm [30 pts > 10 - 22.5 cm [25 pts]	<5 cm (5 pts)	R MOIST CHANNEL []	nie)	
			<u></u>	·····	
COMMENTS		MAXIMU	IM POOL DEPTH (cont	imeters);	
	(Measured as the average of				Bankfull
> 4.0 meters (> 13') (30		> 1.0 m - 1,5 m ≤ 1.0 m (<=3' 3	n (> 3' 3" - 4' 8") [15 pis]		Width Max=30
> 1.5 m - 3.0 m (> 9'7'	- 4° 8*) (20 ofsi		,) (a ka)		
COMMENTS				Imatara) - 7	20
					L.C
		is information <u>must</u> also be c	ompletad		
) and Right (R) as looking	ig downstreamstr	
L R (Per Bank)		LAIN QUALITY (Most Predominant per Bank)	LR		
Wide >10m		Mature Forest, Wetland	∽ □ □	nservation Tillage	
Moderate 5	i-10m	Immature Forest, Shrub or Oli Field	d 🗖 🗖 Ura	an or Industrial	
Narrow <5		Residential, Park, New Field		en Pasture, Row Cro	р Q
EE None		Fenced Pasture		ing or Construction	
COMMENTS	····				
FLOW REGIN	IE (At Time of Evaluation) (Cl	eck ONLY one box):			
Stream Flowin	g	Moist C	hannel, isolated pools,)
COMMENTS	w with isolated pools (Interstitia		annel, no water (Epherr		_
/ enninerry a	humber of heads are \$1 m /30) #1 of channels /Charle OAH 4	ose boyle		-
None	Number of bends per 61 m (20)	Uπ) or channel) (Cheok U/VL) 2.0		3.0	
0.5	1.5	2.5		>3	
				-	
Flat (0.5 fv 190 g)	lat to Moderate Mode		cale in Causes	1 10	
		rate (2 m/100 m) Mode	rate to Severe	Severe (10 m/10	x0 m)

PHWH Form Page - 1

he sampling reach representative of the stream (Y/N) If not, please explain: dilional comments/description of pollution impacts: BIOTIC EVALUATION formed? (Y/N): ////////////////////////////////////	DDITIONAL STREAM INFORMATION (This Information Must Als	so be Completed):
WWH Name:		(If Yes, Atlach Completed QHE) Form)
CWH Name: Oblance from Evplusted Stream EWH Name: Distance from Evplusted Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION GS Quadrangie Name: NRCS Soil Map Page MRCS Soil Map Stream Order NRCS Soil Map Stream Order Inny: Township / City: MiSCELLANEOUS Quantity: See Flow Conditions? (VIN)		· · · · · · · · · · · · · · · · · · ·
EWH Name:		-
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY WARK THE SITE LOCATION GS Quedrangle Name		
GS Quadrangle Name: NRCS Soll Map Page: NRCS Soll Map Stream Order unty: Township / City: MISCELLANEOUS be Flow Conditions? (/IN): Date of last pracipitation: Quantity: valed Turbidity? (Y/N):		
Introductions? Township / City:	and the second	
NISCELLANEOUS be Flow Conditions? (Y/N):	SGS Quadrangle Name:	NRCS Soli Map Page NRCS Soil Map Stream Order
be Flow Conditions? (Y/N):	sunty: Tow	wnship / City:
stograph Information:	MISCELLANEOUS	
stograph Information:		Quantitie
valed Turbidity? (Y/N): Canopy (% open): ire samples collected for water chemistry? (Y/N): (Note tab sample no. or id. and attach results) Lab Number: id Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhoe/om) id Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhoe/om) id Measures: Temp (*C) Dissolved Oxygen (mg/l) if not, please explain: cilional comments/description of pollution impacts:		ома, с. удаа, т
In the samples collected for water chemistry? (Y/N);		
Ideasures: Temp ("C)	evated Turbidity? (Y/N): Canopy (% open):	
the sampling reach representative of the stream (Y/N) If not, please explain: dilional commente/description of pollution impacts: BIOTIC EVALUATION formad? (Y/N): ////////////////////////////////////	ere samples collected for water chemistry? (Y/N); (Note I	lab sample no. or id. and attach results) Lab Number:
the sampling reach representative of the stream (Y/N) If not, please explain: dilional commente/description of pollution impacts: BIOTIC EVALUATION formad? (Y/N): ////////////////////////////////////	eld Measures; Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (umhos/cm)
dilional comments/description of pollution impacts: BIOTIC EVALUATION fformed? (Y/N) Millional observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s		
BIOTIC EVALUATION formed? (Y/N): /// (If Yes, Record all observations. Voucher collections optional. NOTE: all woucher samples must be labeled with the s iD number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) h Observed? (Y/N) Voucher? (Y/N) gs or Tatipoles Observed? (Y/N) Voucher? (Y/N) Y(N): Voucher? (Y/N) Youcher? (Y/N): Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N): Voucher? (Y/N): woucher? (Y/N): Voucher? (Y/N): Aquatic Macroinvertebrates Observed? (Y/N): Voucher? (Y/N): mments Regarding Biology:		ior, prease explain:
BIOTIC EVALUATION formed? (Y/N): /// (If Yes, Record all observations. Voucher collections optional. NOTE: all woucher samples must be labeled with the s iD number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) h Observed? (Y/N) Voucher? (Y/N) gs or Tatipoles Observed? (Y/N) Voucher? (Y/N) Y(N): Voucher? (Y/N) Youcher? (Y/N): Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N): Voucher? (Y/N): mments Regarding Biology:	<u>المحمد المحمد المحمد المحمد في المحمد ا محمد المحمد الم</u>	an a
formed? (Y/N):	ddilional comments/description of pollution impacts:	
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ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) h Observed? (Y/N) Voucher? (Y/N) ygs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Youcher? (Y/N) Voucher? (Y/N) Woucher? (Y/N) Voucher? (Y/N) Prove the stress of the	BIOTIC EVALUATION	
h Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) you cher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) mments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interset for site evaluation and a narrative description of the stream's location REACS CHARMINE L/Madandwarks		
Include important landmarka and other features of interest for site evaluation and a narrative description of the stream's location BREAKS "SELICIED"	· · · · · · · · · · · · · · · · · · ·	
mments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location REAMS "SEICHCB" WH CHANNEL/Medvedence		
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location REARS SELCHCB" POPT CHANNEL/Jurgenstages	omments Regarding Biology:	
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location $\begin{array}{c} \mathbb{P} \mathcal{R} \mathcal{A} \mathcal{P} \mathcal{S} \\ \mathbb{P} \mathcal{R} \mathcal{A} \mathcal{P} \mathcal{S} \end{array}$		
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location $\begin{array}{c} \mathbb{P} \mathcal{R} \neq \mathbb{P} \\ \mathbb{P}$		
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location $\begin{array}{c} \mathbb{P} \mathcal{R} \neq \mathbb{P} \\ \mathbb{P}$		
PREATING THE THE THE THE	DRAWING AND NARRATIVE DESCRIPTIO	IN OF STREAM REACH (This must be completed):
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ow - Trong The T	"SEICHCB"	green
ow -	TO REAL CHANS	INEL/Hydrofuel
	LOW 🕈	
	ن مرد و ^{ری} ۱	
	· .	
BEANS	BEANS	



WATERBODY DATA SHEET

WATERBODY ID NO: S081CA		WAT	WATERBODY NAME: Unnamed Tributary to Prairie Crask			
SITE NAME: Blue Creek						
DATE: 9/18/2009	CLIENT/PROJECT NAME: He	eartland Wind L	LC./Blue Creek Wind	Farm		
INVESTIGATORS: AF RH		Rove	R File: RAH091809A.cor	QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert Township:: Union						
		Рнот	o No: S082CA			
WATERBODY CHARACTERISTICS						
WATERBODY TYPE:	Modified ag ditch					
Flow Events/Year:						
FLOW TYPE:	Ephemeral					
AVG. STREAM DEPTH:	0 (in)	0 (in)				
Avg. Stream Width:	(ft)	TOP OF BANK: 30	ORDINARY HIGH WATER MARK WIDTH: 10 (ft)			
Avg. Bank Height:	8 (ft)	8 (ft)				
Avg. Bank Slope (Ratio):	2:1					
	QUA	LITATIVE AT	FRIBUTES			
Average Water Appearance:	Turbid					
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM E	DGE OF ACTIVE CHANNEL	OUT ONTO FLOOD FLAN: 15 (ft)		
	Type of vegetation present	T: Scrub Shrub				
WETLAND FRINGE (IF PRESENT):	Ag in open reaches					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	Relatively Straight		
		COMMENT	rs			
STREAM QUALITY: Low			<u> </u>			
HIGH QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetati colorad, no barriers to fish movement (see one	ion extends at least one or two active chann	el widths on each side; b	anks stable and protected by roots (h significant recovery; any dikes/levies are set back to provide that extend to the base-flow elevation; water clear to lea- tist; co. distributions by light for an are included.		

microinvertebrates present.

Moderate Quality: Altared channel evidenced by the rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; fillering function of

ripartan vegetation only moderately compromised; banks moderately unstable (outside bands actively eroding with few fallen brees); considerable water cloudiness, submerged objects covered with green film; moderate oder; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habilati, minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QuALITY: Channel is actively downcutting or widening; rip rap and channitization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algel mats, surface scene); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habilat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

	5081CA	; ,		1-0-120-0425-00-200-00-00-00-00-00-00-00-00-00-00-00			
LENGTH OF STREAM RE	SITE NUMBER			SIN	D	RAINAGE AREA (mr)	0.9
LENGTH OF STREAM RE	ACH (ft)	LAT. 40'		NG. 84 37 17" R		RIVER MILE	
DATE 911804 S	CORER HUGK		MENTS				
NOTE: Complete All I							
STREAM CHANNEL MODIFICATIONS:				••••••••••••••••••••••••••••••••••••••	~	RECENT OR NO RE	COVER
	limate percent of ever stal number of significa					substrate TYPE boxes of boxes A & B.	I HH
TYPE		RCENT	TYPE			PERCENT	Me
BLDR SLABS			DĽ	SILT (3 pt)		100	Poi
Second Second	56 mm) (16 pts)		HH	LEAF PACKWOOD		XS/ HENRED SHOW STOP	Subs
				FINE DETRITUS			Max
GRAVEL (2-64	2. 2.		ΠH	MUCK [0 pts]	e (a kel	CONTEN	
SAND (<2 mm		<u> </u>		ARTIFICIAL [3 pts]		demonstrative or start and starting	11 /
			·••				
Bidr Slabs, Bouide	centages of ar, Cobble, Bedrock	0	(A)			(8)	A+
SCORE OF TWO MOST P	REDOMINATE SUBST	RATE TYP	ES: 6	TOTAL NUMB	er of subst	RATE TYPES:	
2. Maximum Pool D	epth (Measure the ma	nyimum noo	ol depth with	in the 61 meter (200	f) evaluation r	each at the time of	Pool
	slunge pools from road						Max
> 30 centimeters [2				> 5 cm - 10 cm (15	pts]		
> 22.5 - 30 cm [30 > 10 - 22.5 cm [25				< 5 cm [5 pts] NO WATER OR M	OIST CHANNE	i lûndel	11 5
	5						
	CARLESS INC. I						
COMMENTS	TH (Measured as the ;			MAXIMUM F	POOL DEPTH	centimeters):	Ban
COMMENTS 3. BANK FULL WID > 4.0 maters (> 13")	TH (Measured as the ; [30 pts]			ments) (Che > 1.0 m - 1.5 m (> :	POOL DEPTH ck <i>ONLY</i> one (3' 3" - 4' 8") [15	centimeters):	Wic
COMMENTS 3. BANK FULL WID > 4.0 meters (> 13") > 3.0 m - 4.0 m (> 5	TH (Measured as the ; [30 pts] r 7" - 13') [25 pts]			MAXIMUM F	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15	centimeters):	Wic
COMMENTS 3. BANK FULL WID > 4.0 meters (> 13") > 3.0 m - 4.0 m (> 5 > 1.5 m - 3.0 m (> 5	TH (Measured as the ; [30 pts] 1' 7" - 13') (25 pts] 1' 7" - 4' 8") [20 pts]	average of:	3-4 measure	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> ≤ 1.0 m (<=3' 3") [5	POOL DEPTH ck <i>ONL</i> Y one 1 3' 3" - 4' 8") [15 5 pts]	(centimeters):	Wie
COMMENTS BANK FULL WID > 4.0 meters (> 13") > 3.0 m - 4.0 m (> 5	TH (Measured as the ; [30 pts] 1' 7" - 13') (25 pts] 1' 7" - 4' 8") [20 pts]	average of:	3-4 measure	ments) (Che > 1.0 m - 1.5 m (> :	POOL DEPTH ck <i>ONL</i> Y one 1 3' 3" - 4' 8") [15 5 pts]	(centimeters):	Wic
COMMENTS BANK FULL WID > 4.0 meters (> 13") > 3.0 m - 4.0 m (> 5 > 1.5 m - 3.0 m (> 5	TH (Measured as the ; [30 pts] 1' 7" - 13') (25 pts] 1' 7" - 4' 8") [20 pts]	average of :	3-4 measure	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> ≤ 1.0 m (<=3° 3°) [5 	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15 ; pts] BANKFULL W	(centimeters):	Wic
COMMENTS BANK FULL WID > 4.0 meters (> 13") > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 5 COMMENTS	TH (Measured as the ; [30 pts] 1' 7" - 13') (25 pts] 1' 7" - 4' 8") [20 pts]	average of : 	3-4 measure	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> : ≤ 1.0 m (<=3* 3*) [5 	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15 ; pts] BANKFULL Wi plated	(centimeters):	Wie
COMMENTS BANK FULL WID > 4.0 meters (> 13") > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS RIPARIAN <u>RIPARIAN</u>	TH (Measured as the ; [30 pts] 1 7" - 13") [25 pts] 1 7" - 4' 8") [20 pts] 2 ONE AND FLOODP N WIDTH	thi LAIN QUAL FLOOP	s informatio	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (<=3* 3*) [5 AVERAGE t AVERAGE t n <u>must</u> also be comp DTE: River Left (L) an	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15 ; pts] BANKFULL Wi plated	(centimeters):	Wic
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COMMENTS 3. BANK FULL WID > 4.0 meters (> 13') > 3.0 m - 4.0 m (> 5 > 1.5 m - 3.0 m (> 5 COMMENTS RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN	TH (Measured as the ; [30 pts] 77* - 13') [25 pts] 77* - 4' 8') [20 pts] ZONE AND FLOODP(N WIDTH nk) 10m te 5-10m	thi LAIN QUAL FLOOP	s informatio TY :XN(LAIN QUALIT (Most Predo Mature Fore Immature Fore Field	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (<=3* 3*) [5 AVERAGE t AVERAGE t n <u>must</u> also be comp DTE: River Left (L) an [Y] minant per Bank) st, Wetland	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15 ; pts] BANKFULL Wi plated	(centimeters):	Wid Max 2
COMMENTS 3. BANK FULL WID > 4.0 meters (> 13') > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS COMMENTS RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN RIPARIAN	TH (Measured as the ; [30 pts] 77* - 13') [25 pts] 77* - 4' 8') [20 pts] ZONE AND FLOODP(N WIDTH nk) 10m te 5-10m	thi LAIN QUAL FLOOP	s informatio TY :XN(LAIN QUALIT (Most Predo Mature Fore Immature Fore Field	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f n must also be comp DTE: River Left (L) an [Y] minant per Bank) st, Wetland prest, Shrub or Old Park, New Field	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15 ; pts] BANKFULL Wi plated	(centimeters):	Wic Max 2
COMMENTS BANK FULL WID > 4.0 meters (> 13') > 3.0 m - 4.0 m (> 5 > 1.5 m - 3.0 m (> 5 COMMENTS COMMENTS RIPARIAN	TH (Measured as the ; [30 pts] 1 7* - 13') [25 pts] 1 7* - 4' 8*) [20 pts] 2 ZONE AND FLOODP N WIDTH nk) 10m te 5-10m <5m	thi LAIN QUAL FLOOP	s information TY :XNO LAIN QUALIT (Most Predo Mature Fore: Immature Fore: Field Residential,	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f n must also be comp DTE: River Left (L) an [Y] minant per Bank) st, Wetland prest, Shrub or Old Park, New Field	POOL DEPTH ck <i>ONL</i> Y one (3' 3" - 4' 8") [15 ; pts] BANKFULL Wi plated	(centimeters):	Wid Max 2
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COMMENTS BANK FULL WID > 4.0 meters (> 13') > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS COMMENTS RIPARIAN	TH (Measured as the ; [30 pts] 1 7" - 13") [25 pts] 2 7" - 4" 8") [20 pts] 2 ONE AND FLOODP(N WIDTH nk) 10m 10m 10m 10m 10m 15 5 GIME (At Time of Evalu	This LAIN QUALL FLOODP	s informatio TY XNO LAIN QUALIT (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pasi	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (>: ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f AVERAGE f n must also be com OTE: River Left (L) an DTE: River Left (L) an Minant per Bank) st, Wetland arest, Shrub or Old Park, New Field ture	COOL DEPTH ck ONLY one (3' 3" - 4' 8") [15 pts] BANKFULL WI pleted d Right (R) as (L R L R L C L C	(centimeters):	rop
COMMENTS BANK FULL WID > 4.0 myters (> 13') > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS COMMENTS RIPARIAN	TH (Measured as the ; [30 pts] (7* - 13') (25 pts] (7* - 4' 8*) [20 pts] 20 NE AND FLOODP(N WIDTH nk) IOm te 5-10m <5m	This LAIN QUALL FLOODP L R C C C C C C C C C C C C C C C C C C C	3-4 measure s informatio ITY 3:NO LAIN QUALIT (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pasi eck ONLY on	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> : ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f AVERAGE f Number Comport (L) an () DTE: River Left (L) an () TE: River Left (L) an () TE: River Left (L) an () TE: River Left (L) an () TE: River Left (L) an () Park, New Field fure () Moist Char	COOL DEPTH ck ONLY one (3' 3" - 4' 8") [15 pts] BANKFULL WI pleted d Right (R) as (L R L R L C L C	(centimeters):	Wid Max 2
COMMENTS BANK FULL WID > 4.0 myters (> 13') > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS COMMENTS RIPARIAN RIP	TH (Measured as the ; [30 pts] (7* - 13') (25 pts] (7* - 4' 8*) [20 pts] 20 NE AND FLOODP(N WIDTH nk) IOm te 5-10m <5m	This LAIN QUALL FLOODP L R C C C C C C C C C C C C C C C C C C C	3-4 measure s informatio ITY 3:NO LAIN QUALIT (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pasi eck ONLY on	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (> : ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f AVERAGE f Number Comport (L) an () DTE: River Left (L) an () TE: River Left (L) an () TE: River Left (L) an () TE: River Left (L) an () TE: River Left (L) an () Park, New Field fure () Moist Char	POOL DEPTH ck ONLY one (3' 3" - 4' 8") [15 i pts] BANKFULL WI pleted d Right (R) as (L R L R L C L C L C L C L C L C L C L C	(centimeters):	Wid Max 2
COMMENTS BANK FULL WID > 4.0 meters (> 13') > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS COMMENTS RIPARIAN	TH (Measured as the ; [30 pts] (7* - 13') (25 pts] (7* - 4' 8*) [20 pts] 20 NE AND FLOODP(N WIDTH nk) IOm te 5-10m <5m	This LAIN QUALL FLOODP L R C C C C C C C C C C C C C C C C C C C	3-4 measure s informatio ITY 3:NO LAIN QUALIT (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pasi eck ONLY on	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (>: ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f n must also be comp OTE: River Left (L) an Minant per Bank) st, Wetland park, New Field ure be box): Moist Char Dry channel	POOL DEPTH ck ONLY one (s' 3" - 4' 8") [15 pis] BANKFULL WI pieted d Right (R) as (L R L R C C C C C C C C C C C C C C C	(centimeters):	Wid Max 2
COMMENTS 3. BANK FULL WID > 4.0 meters (> 13') > 3.0 m - 4.0 m (> 2 > 1.5 m - 3.0 m (> 2 > 1.5 m - 3.0 m (> 2 COMMENTS COMMENTS RIPARIAN	TH (Measured as the ; [30 pts] 17" - 13") [25 pts] 27" - 4" 8") [20 pts] 20NE AND FLOODP N WIDTH nk) 10m te 5-10m <5m TS GIME (At Time of Evalu- wing flow with isolated pool TS_	This LAIN QUALL FLOODP L R C C C C C C C C C C C C C C C C C C C	3-4 measure s informatio ITY 3:NO LAIN QUALIT (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pasi eck ONLY on	MAXIMUM F ments) (Che > 1.0 m - 1.5 m (>: ≤ 1.0 m (<=3' 3") [5 AVERAGE f AVERAGE f n must also be comp OTE: River Left (L) an Minant per Bank) st, Wetland park, New Field ure be box): Moist Char Dry channel	POOL DEPTH ck ONLY one (s' 3" - 4' 8") [15 pis] BANKFULL WI pieted d Right (R) as (L R L R C C C C C C C C C C C C C C C	(centimeters):	rop

October 24, 2002 Revision

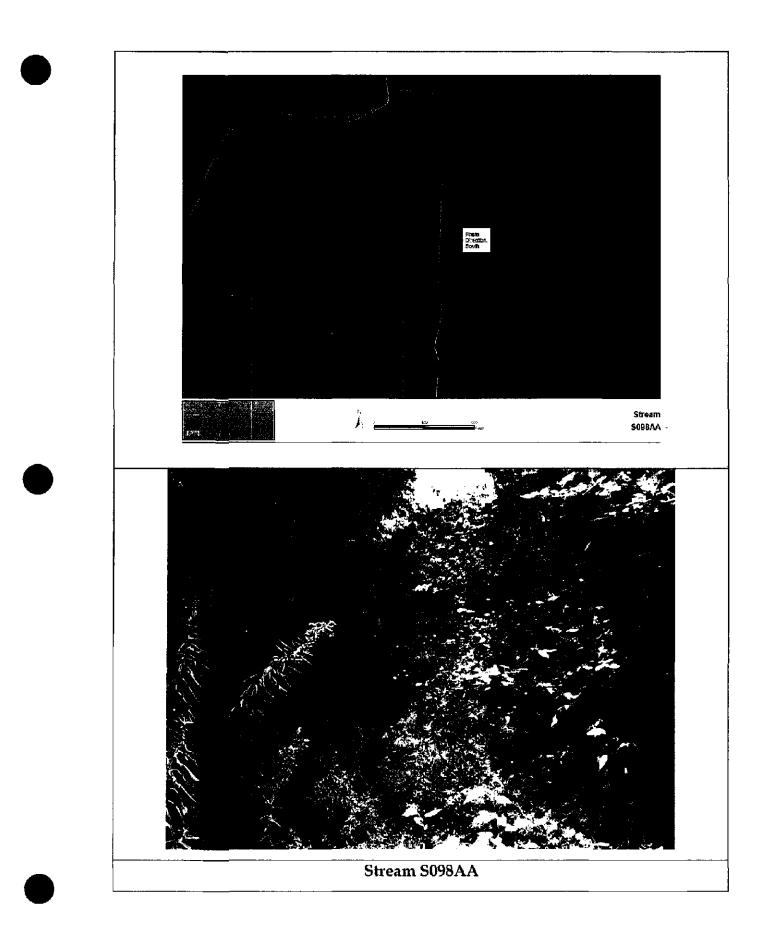
PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information N	<u>Aust Aiso be Completed):</u>
	ore (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	j Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	G THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):	ition:
Photograph Information:	
Elevated Turbidity? (Y/N):	15%
	(Note lab sample not or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (n	ng/i)pH (S.U.)Conductivity (umhos/cm)
Is the sampling reach representative of the stream $(Y/N)_{1,,1}^{2}$	If not, please explain:
	ு பில் பிடையைப்பட்ட பிலியில் பின்னையும் பழத்துக் பிடத்தல் பிருந்ததுக்கு ம
Additional comments/description of pollution impacts:	
and a second	
BIOTIC EVALUATION	
A	
	5. Voucher collections optional. NOTE: all voucher samples must be labeled with the site e field data sheets from the Primary Handwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salam	handers Observed? (Y/N) Voucher? (Y/N)
Frags or Tadpoles Observed? (Y/N) Voucher? (Y/N)	Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	· · · · · · · · · · · · · · · · · · ·
• •	1

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

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





WATERBODY DATA SHEET

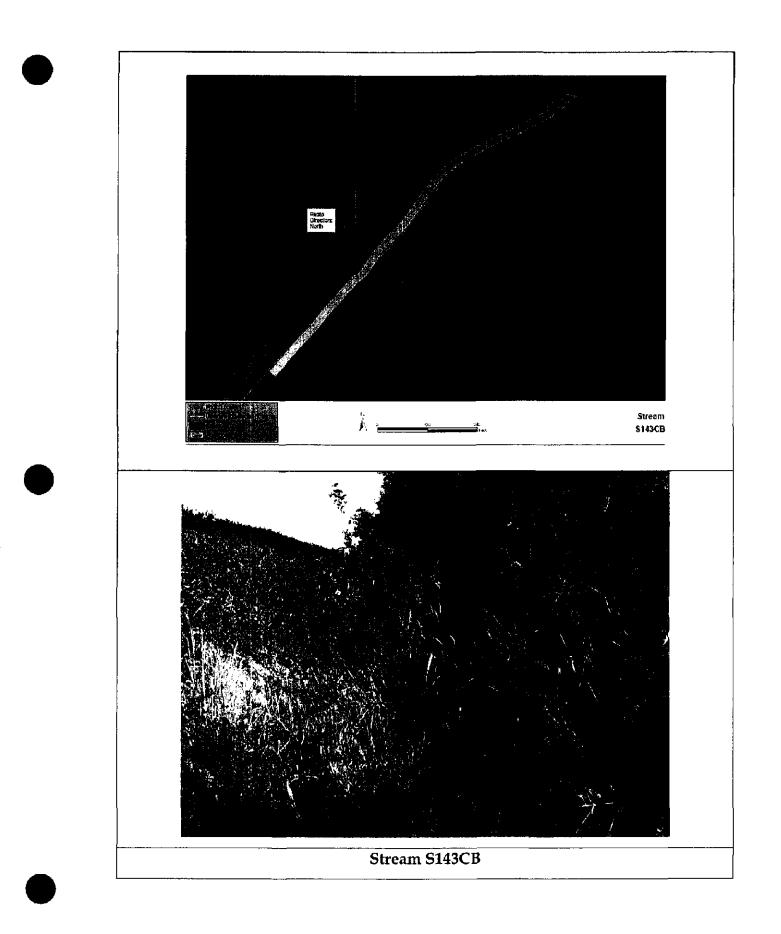
WATERBODY ID NO: S098AA			WATERBODY NAME: Unnamed Tributary to Prairie Creak			
SITE NAME: Blue Creek						
Date: 9/17/2009	CLIENT/PROJECT NAME: H	eartland Wind L	LC./Blue Creek Wind I	Farm		
INVESTIGATORS: Hook	I	Rove	R FILE: RAH091709A.cor		QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert		Town	SHIP.: Union			
	D NO:					
	WATER	BODY CHARA	CTERISTICS			
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Ephemeral					
AVG. STREAM DEPTH:	0 (in)					
AVG. STREAM WIDTH:	0 (ft)	TOP OF BANK: 15	(ft)	ORDIN (ft)	ary High Water Mark Width: 6	
Avg. Bank Height:	5 (ft)					
AVG. BANK SLOPE (RATIO): 2:1						
QUALITATIVE ATTRIBUTES						
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE FROM E	OGE OF ACTIVE CHANNEL O	DUT ONT	d flood plan: 5 (ft)	
	TYPE OF VEGETATION PRESEN	T: Scrub Shrub				
WETLAND FRINGE (IF PRESENT):						
CHANNEL CONDITION:						
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY]	RELATIVI	SLY STRAIGHT	
		COMMENT	`S			
linear ditch						
STREAM QUALITY: Low						
access to adequate flood plain; natural vegetall colored; no barriers to fish movement (seasona microinvertebrates present. MODERATE QUALITY: Attered channel evidenced ripartan vegetation only moderately compromis moderate odor; minor barriers to fish movemen Low QuaLITY: Channel is actively downcutting of	Ion extends at least one or two active chann I water withdrawals prevent movement); ma ed; banks moderately unstable (outside ben t; 4-3 fish cover types available; fair aquatic or widening; rip rap and channilization exces mised; Banks unstable (inside and outside t	el widths on each side; ba my fish cover types availa es restrict flood plain wid ds actively eroding with fr habitat; minimum disturb save; flood plain restricter save; actively eroding wit	inks stable and protected by roots the ole; diverse and stable aquatic habit h; natural vegetation extands 1/3-1/3 w fallen trees); considerable water to ance by livestock or man; Facultativu by dikes/leves; natural vegetation h urmerous failen trees); water very	nat extend in tat; no distur 2 of the acti- cloudiness, e microinver less than 1. r turbid to mi	Abance by livestock or man; intolerant we channel width on each side; filtering function of submerged objects covered with green film; rebrates present. /3 of the active channel width on each side; addy; obvious pollutants (algal mats, surface scuth,	

ChieEPA Primary I	Headwater H	abitat Evalu HHEI Score (
	· · · · · · · · · · · · · · · · · · ·				1-4 · · · · ·
SITE NAME/LOCATION					
SITE NAME/LOCATIONSITE NUMBERSITE NUMBER	RIVER	BASIN.	DRAIN	AGE AREA (mi [*])	1.0
LENGTH OF STREAM REACH (R)		NG. <u>27 - 36 / -</u> RN	ER CODE		<u></u>
DATE TITAL SCORER	COMMENTS _				
NOTE: Complete All Items On This For	m - Refer to "Field E	raluation Manual for	Ohio's PHWH S	treams" for Instr	uctions
STREAM CHANNEL INONE / NA MODIFICATIONS:	TURAL CHANNEL		OVERING RE	CENT OR NO REC	OVERY
1. SUBSTRATE (Estimate percent of ev					HHE
(Max of 32). Add total number of signific TYPE F	Cant Substrate types four PERCENT TYPE	u (Maxoro), ⊫na#imetrio	; score is sum or de	PERCENT	Metr
BLOR SLABS (16 pts)		SILT (3 pt)		100	Poin
BOULDER (>256 mm) [16 pts]		LEAF PACK/WOODY	+ - +	Louis and the fail and the fail	Ottobarto
BEDROCK [16 pt]		FINE DETRITUS [3]	• •		Substra Max =
COBBLE (65-256 mm) [12 pts]		CLAY or HARDPAN	[0 pt]		
		MUCK [0 pts]			17
SAND (<2 mm) [6 pts]		ARTIFICIAL (3 pts)			i
Total of Percentages of	A W			(B)	A+B
Bidr Slabs, Boukler, Cobble, Bedrock					
SCORE OF TWO MOST PREDOMINATE SUB	STRATE TYPES:	TOTAL NUMBE	R OF SUBSTRATE		
2. Maximum Pool Depth (Measure the n				at the time of	Pool De
evaluation. Avoid plunge pools from roa	ad culverts or storm wate	pipes) (Check ONLY	one box):		Max =
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]		> 5 cm - 10 cm [15) < 5 cm (5 pts]	pts]	-*	
> 10 - 22.5 cm [25 pts]		NO WATER OR MO	ST CHANNEL [0	pts]	10
COMMENTS CHANNEL	ALL ALLE		DOL DEPTH (cent	imeters):	
3. BANK FULL WIDTH (Measured as the	e average of 3-4 measu	ements) (Chec	k ONLY one box):		Bankf
> 4.0 meters (> 13') [30 pts]		> 1.0 m - 1.5 m (> 3			Width
> 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts) > 1.5 m - 3.0 m (> 9' 7" - 4' 8") (20 pts)	٤	≤ 1.0 m (<=3' 3") (5 j	pis]		Max=3
				<u> </u>	
COMMENTS	issentesies as a successive and a supervised	AVERAGE B	ANKFULL WIDTH	(meters): Z	20
				L <u>+</u>	
	This informat	on must also be comp	leted		
RIPARIAN ZONE AND FLOOD	PLAIN QUALITY 👘 🛠	NOTE: River Left (L) and	Right (R) as lockir	iğ downstream 🖈	
RIPARIAN WIDTH	FLOODPLAIN QUAI				
L R (Per Bank) Wide >10m	i i i i i i i i i i i i i i i i i i i	Iominant per Bank)		servation Tillage	
		est, Wetland Forest, Shrub or Old	land (see)	•	
Moderate 5-10m	Field	•••••		an or Industrial	
Narrow <5m	Residentia	l, Park, New Field	Pro op	en Pasture, Row Cro	AD AD
	Fenced Pa		Mir	ing or Construction	
COMMENTS		31010	·····		-
		6 - X			
FLOW REGIME (At Time of Ev.	ewation) (Check ONLY		el, isolated nools	no flow (Intermittent)	1
Subsurface flow with isolated po	ols (Interstitial)		no water (Ephem	• • • • • •	,
COMMENTS_	······································			-	
	nor 64 m 1000 bi at at an	nal) (Charle All Vara	havi		
SINUOSITY (Number of bends	per of m (200 ft) of chan 1.0			0.0	
0.5	1.5	2.5		-3	
STREAM GRADIENT ESTIMATE	Moderate (2 #/100	Moderate I	lo Severe	Severe (10 ers)	10 ft)
I THE PART OF THE	THE REPORT OF THE PARTY OF THE	- Willipson and a second se			

October 24, 2002 Revision

PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This Info	rmation Must Also be Complete	<u>d):</u>	
	QHEI Score (If Yes,	Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)			
WWH Name:	· · · · · · · · · · · · · · · · · · ·	Distance from Evaluated Str	
CWH Name:		Distance from Evaluated Stre	
EWH Name:	ույցը անգործութը, են հետեղ չու նու ու հանուս է է է հանդեսեցիս դարքեն դրվա	Distance from Evaluated Stre	em
MAPPING: ATTACH COPIES OF MAPS,	INCLUDING THE <u>ENTIRE</u> WATERS	SHED AREA. CLEARLY MARK THE	SITE LOCATION
SGS Quadrangle Name:	NRCS Soil M	ap Page: NRCS Soil Map	Stream Order
DUMY: VAN WERT			
MISCELLANEOUS			
ase Flow Conditions? (Y/N): Dete of las	t precipitation:	_ Quantity:	
notograph Information:	· · · · · · · · · · · · · · · · · · ·		
evated Turbidity? (Y/N): Canopy			
ere samples collected for water chemistry? (Y/N)	: Note lab sample no. or	rid, and attach results) Lab Number	··· · · · · · · · · · · · · · · · · ·
eld Measures: Temp (*C) Dissolved	Oxygen (mg/l) pH (S.U	I.) Conductivity (µmhos/c	m) <u>.</u>
the sampling reach representative of the stream	(Y/N) / If not, please explain	t	
		՝Գուսաստացին հանձաները։ ․․․․․․	
ditional comments/description of pollution impac	ts:		
ID number. Include ish Observed? (Y/N) Voucher? (Y/N)_ rogs or Tadpoles Observed? (Y/N) Voucher comments Regarding Biology: DRAWING AND NARRATIVE	appropriate field data sheets from th Salamanders Observed? (Y/N ?? (Y/N) Aquatic Macroinverb DESCRIPTION OF STREA	MREACH (This <u>must</u> be co	nent Manuat) cher? (Y/N) mpleted):
Include important landmarks and other fee	tures of interest for site evaluatio	n and a harrative description of th	e stream's location
C	spars	, ster	
	·· /	bet	
- (_ · · · · · · · · · · · · · · · · · ·	EES	the contract of the second	- A
	en ander an en ander ander an en ander ander an en ander ander ander ander ander ander ander ander ander ander Ander ander and Ander ander ander and	Managan a Matania Sango , ayan generatan seberata da kara panéna karabanya na panén karabanya sebah kara sebah Matana karaban sebah s	nen ang mang nang tang nang tang nang tang nang n
	S. E. S.	NHE C	
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	1997 - Harrison Marine, 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19		a - and a second second second
	Col	2 N	



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WATERBODY DATA SHEET

WATERBODY ID NO: S143CB		WAT	WATERBODY NAME: Unnamed Tributary to Prairie Cr			
STTE NAME: Blue Creek						
Date: 9/17/2009	CLIENT/PROJECT NAME: He	eartland Wind Ll	.C./Blue Creek Wind	arm		
INVESTIGATORS: D.West, M. Nech	nvatal	Rover	FILE: R091709ADW.cor	QUAD NAME	: Latty	
STATE/COUNTY: Ohio/Paulding		Town	SHIP.: Blue Creek			
Рното No: 143С12n & 143С13S						
	WATER	BODY CHARA	CTERISTICS			
WATERBODY TYPE: Manipulated channel for drainage from ag fields directly adj to W & E						
FLOW EVENTS/YEAR:						
FLOW TYPE:	Intermittent					
Avg. Stream Depth:	0 (in)	-				
AVG. STREAM WIDTH:	0 (ft)	TOP OF BANK: 9 (Top of Bank: 9 (ft)		ter Mark Width: 5	
AVG. BANK HEIGHT:	3 (ft)	3				
AVG. BANK SLOPE (RATIO):	2:1					
QUALITATIVE ATTRIBUTES						
AVERAGE WATER APPEARANCE;						
PRIMARY SUBSTRATE:	Vegetation					
POTENTIAL HABITAT FOR:	None					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM ED	GE OF ACTIVE CHANNEL (UT ONTO FLOOD PLAN:	10 (ft)	
	Type of vegetation present	T: Forested				
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Highly Erodable					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY I	ELATIVELY STRAIGHT		
		COMMENT	S			
······································					····	
STREAM QUALITY: Low						
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; fatering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bands actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation extends to a covered with on each side;						

regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scun, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

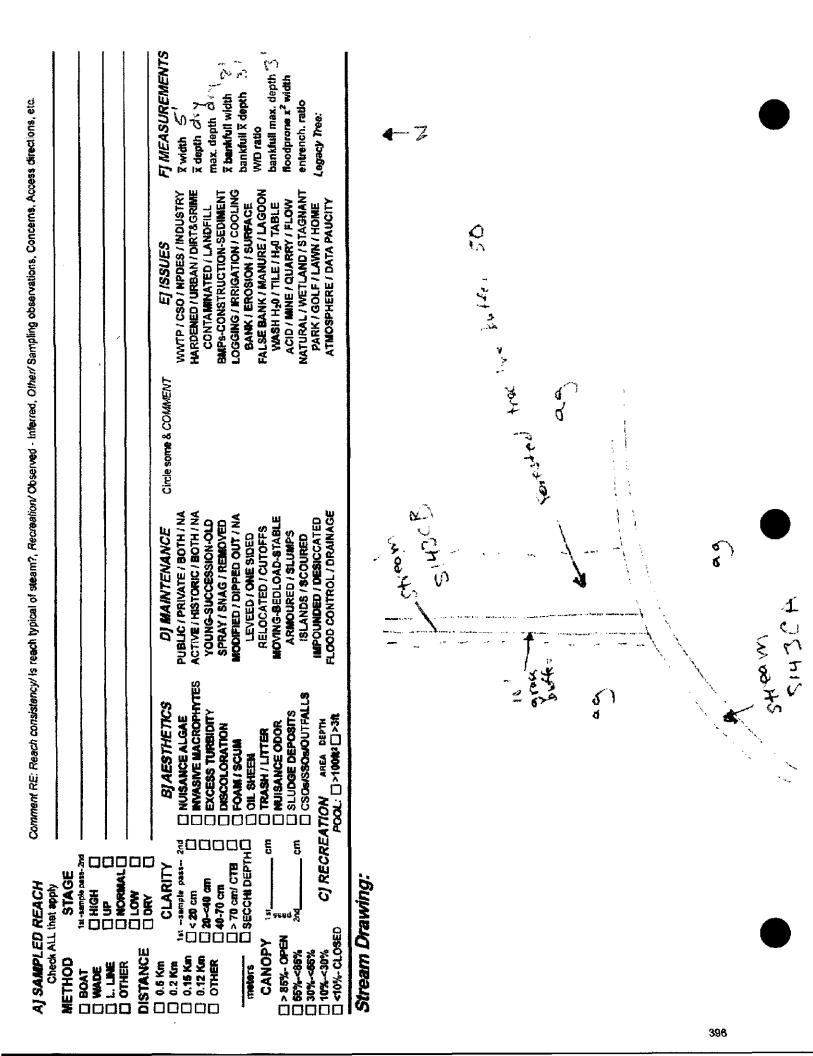


Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

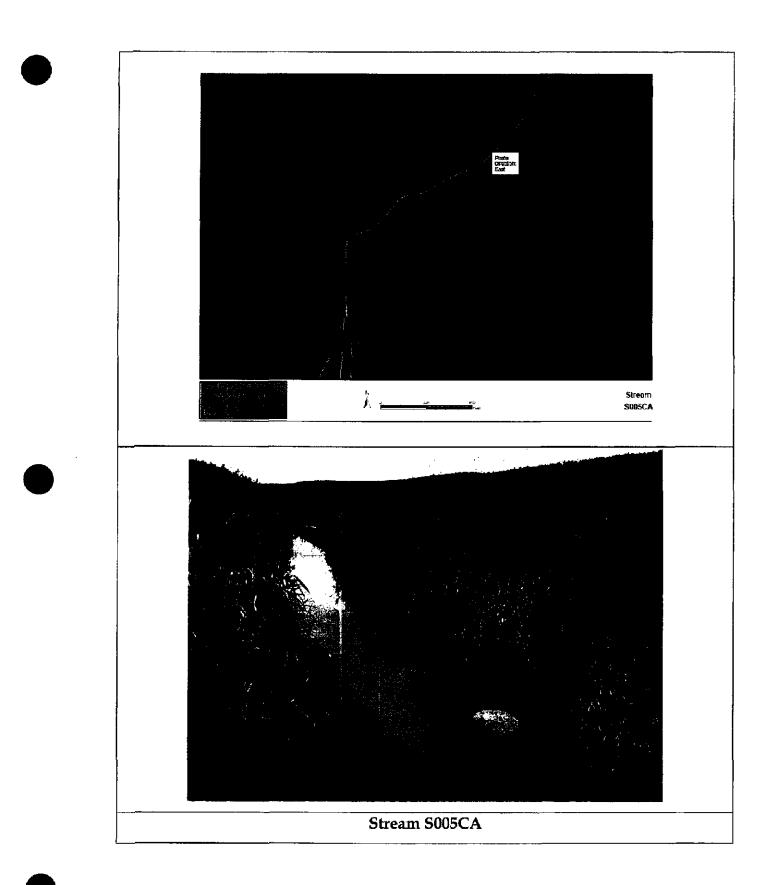
Stream & Location: 🔮 🖂 🔅			RM:	Date(3)[]	109
		ers Full Name & Affiliation.			E Fort Jul :
River Code:	_STORET #:	Lat./Long.: 41 . 0074	<u>8</u> /8 <u>4</u> .5	8236 k	cation D
estimate % or note	every type present	Check O	NE (Or 2 & a		
		OLRIFFLE ORIGIN			
			SILT		Substrate
					$\left(2\right)]$
	(Score natural subs		& DEOM		Ý
NUMBER OF BEST TYPES:	4 on more [2] sludge from po	bint-sources)	2 ^V 3	DESCENSIVE 21 DESCENSIVE 21 MODERATE 211 NORMALIONA DINONE (1)	Maximum 20
comments free	3 or less [0]				
No ritius or F. 2) INSTREAM COVER Indicate pr	200/5 Esence 0 to 3: 0-Absent: 1-V/	en small amounts or if more commo	o of maroinal		
2] INSTREAM COVER induction in quality; 2-Highest quality in moderate o	Moderate amounts, but not of	highest cuality or in small amounts (of highest	AMOUNT neck ONE (Or 2 & aven	age)
diameter log that is stable, well develop	ed roofwad in deep / fast wai	ter, or deep, well-defined, functional	pools.	EXTERSIVE ARAKIN NODERATE 2016 MET	
2 OVERHANGING VEGETATION	1) ROOTWADS [1]	AQUATIC MAGROPHY	ESITI 🗋	SPARSES-2-24 100	
SHALLOWS (IN SLOW WATER)	[1] BOULDERS [1]	LOGS OR WOODY DEB	RIS [1]	NEARLY ABSENT 45%	
Comments				Cover Maximum	10
				20	
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPMEN					
		E-LOWIN			_
El Nonetine Comments	RECENTIOR NOR	EGOVERWIT		Channel Maximum	9
	.			20	
4] BANK EROSION AND RIPAI River right looking downstream RIP	RIAN ZONE Check ONE in ARIAN WIDTH	e each calegory for EACH BANK (Or FLOOD PLAIN QUALIT		avonago)	
		FORESTRAMAND BURNES	LR	NBERVATIONITILDAG	er)
	DERATE (10,50m (3) C	SHRUEKOR TOLD FEEDD MIL		BANIORINDUSTRIAL	
- HEAVY/SEVERE (1) - VER	Y NARROW < 5m [1] 🔲 💭	FENCED PASTURE [1]	Indicate p	redominant land use(s)	
Comments		OPEN PASTURE, ROWCROP [0]	past 100n	n riparian. Riparian Maximum	\leq
	•			10	
5] POOL / GLIDE AND RIFFLE ; MAXIMUM DEPTH CH	<i>/ RUN QUALITY</i> IANNEL WIDTH	CURRENT VELOCITY	Γ	Recreation Potentia	al
Check ONE (ONLY!) Check	ONE (Or 2 & average)	Check ALL that apply		Primary Contact	
	DITRERRIFEESWIDTHIN [Secondary Contai sincle one and comment on bac	
	DTH RIFFLE WIDTH [0]	I FASTINITERATE		Pool / I	
B < 0/2 (11 [0]	۰. ۱	Indicate for reach - pools and rifl		Current Maximum	()
Comments				12	
Indicate for functional riffle of riffle-obligate species:		e large enough to support a E (Or 2 & average).	a popul at ic	n MNO RIFFLE (m	etric=0]
RIFFLE DEPTH RUN	I DEPTH RIFFLE	/ RUN SUBSTRATE RIFF		EMBEDDEDNESS	
	UM COUCH (2) C STABLE UM COUCH (1) MODIST	(egaconcentrollin) h21er Able (concentrol(covel) al			
		LE (e.g., Fillen Gravel Send)[0]	ນຄ	RATERING KITTIG /	\bigcirc
Comments				ASIVE Maximum 8	
	LING WARDEN STRATE	%POOL:	%GLIDE:(Gradient	
DRAINAGE AREA			6RIFFLE:	Maximum	4
(1.49 mP) 1				06/1	6/06

EPA 4520

QHEI Score: 30



Upper Prairie Creek



WATERBODY DATA SHEET

WATERBODY ID NO: SO	05CA-1		WATERBODY NAME: Upper Prairie Creek			
SITE NAME: Blue Creek						
DATE: 9/20/2009	CLIENT/PROJECT NAME: H	eartland V	Wind LLC./Blue Creek Wind	Farm	<u> </u>	
INVESTIGATORS: Hook			ROVER FILE: RAH090920.cor		QUAD NAME: Convoy	
STATE/COUNTY: Ohio/Van Wert			TOWNSHIF .: Union			
Рното No: a005			Рното No: a005aa5 a005aa6			
	WATER	BODY C	HARACTERISTICS			
WATERBODY TYPE:	Ag drainage					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
Avg. Stream Depth:	8 (in)	8 (in)				
Avg. Stream Width:	6 (ft)	TOP OF BANK: 45 (ft) ORD (ft)			hary High Water Mark Width: 12	
AVG. BANK HEIGHT:	15 (ft)	15 (ft)				
AVG. BANK SLOPE (RATIO):	3:1					
	QUA	LITATIV	e Attributes			
Average Water Appearance:						
PRIMARY SUBSTRATE:	Cobbles	<u> </u>				
POTENTIAL HABITAT FOR:			· · · · · · · · · · · · · · · · · · ·			
DEFINED BED AND BANKS:	PRESENT		<u> </u>			
Riparian Zone:	WIDTH OF NATURAL VEGETAT	ION ZONE I	FROM EDGE OF ACTIVE CHANNEL	OUT ONT	O FLOOD PLAN: 5 (ft)	
	TYPE OF VEGETATION PRESENT	f: Herbace	ous			
WETLAND FRINGE (IF PRESENT):		<u></u>				
CHANNEL CONDITION;	Sloughing Banks					
CHANNEL TYPE;	Manipulated		CHANNEL GEOMETRY	RELATIV	ely Straight	
		Сом	MENTS			
upper prairie creek						
STREAM QUALITY: Medium						
High QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasonal microinvertebrates present.	ion extends at least one or two active channel	el widths on ear	ch side; banks stable and protected by roots t	that extend to	recovery; any dikes/levies are set back to provide o the base-flow elevation; water clear to tea- rbance by livestock or man; intolerant	

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate clor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severally compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scorf), surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; foerant or no microinvertebrates present.

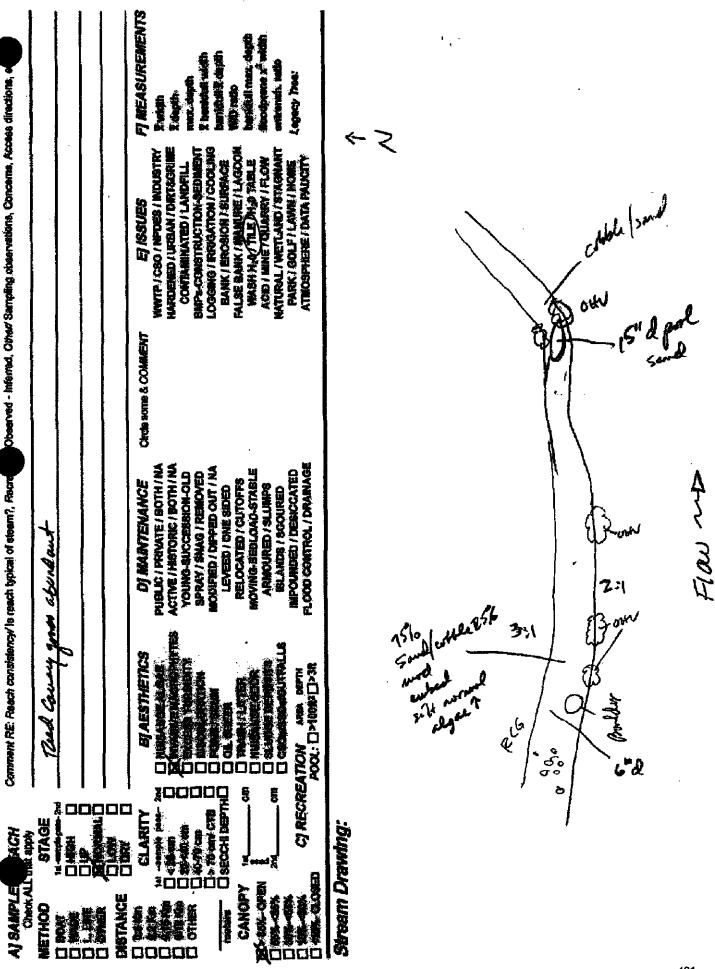
WATERBODY DATA SHEET

WATERBODY ID NO: SO		WAI	WATERBODY NAME: Upper Prairie Creek			
SITE NAME: Blue Creek						
DATE: 9/20/2009	CLIENT/PROJECT NAME: H	leartland Wind Li	.C./Blue Creek Wind	Farm		
INVESTIGATORS: Hook	·L	Rove	R FILE: RAH090920.cor	QUAD NAME: Convoy		
STATE/COUNTY: Ohio/Van Wert			TOWNSHIP: Union			
		Рноте	0 No: a005aa1 a005aa2			
	WATER	RBODY CHARA	CTERISTICS	·····		
WATERBODY TYPE:	Ag drainage			······································		
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	18 (in)					
Avg. Stream Width:	8 (ft)	TOP OF BANK: 40	ORDINARY HIGH WATER MARK WIDTH: 15 (ft)			
Avg. Bank Height:	15 (ft)					
AVG. BANK SLOPE (RATIO):	3:1					
	QUA	ALITATIVE ATT	RIBUTES			
Average Water Appearance:						
PRIMARY SUBSTRATE:	Cobbles					
POTENTIAL HABITAT FOR:						
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM ED	GE OF ACTIVE CHANNEL (OUT ONTO FLOOD PLAN: 5 (ft)		
	Type of VEGETATION PRESENT	T: Herbaceous				
WETLAND FRINGE (IF PRESENT):						
CHANNEL CONDITION:	Highly Erodable					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT		
		COMMENT	S			
upper prairie creek						
STREAM QUALITY: Medium						
access to adequate flood plain; natural vegetation	tion extends at least one or two active chann	nel widths on each side; ba	nks stable and protected by roots ti	n significant recovery; any dikes/levies are set back to provide that extend to the base-flow elevation; water clear to tea- tiat; no disturbance by livestock or man; intolerant		

Micromyatevices present. Moderate Quality: Aftered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; fittering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few faiten trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very furbid to muddy; obvious pollutate (algal matts, surface scurm, the provided matter by banks moderate (algal matts, surface scurm); the provided matter by the pro

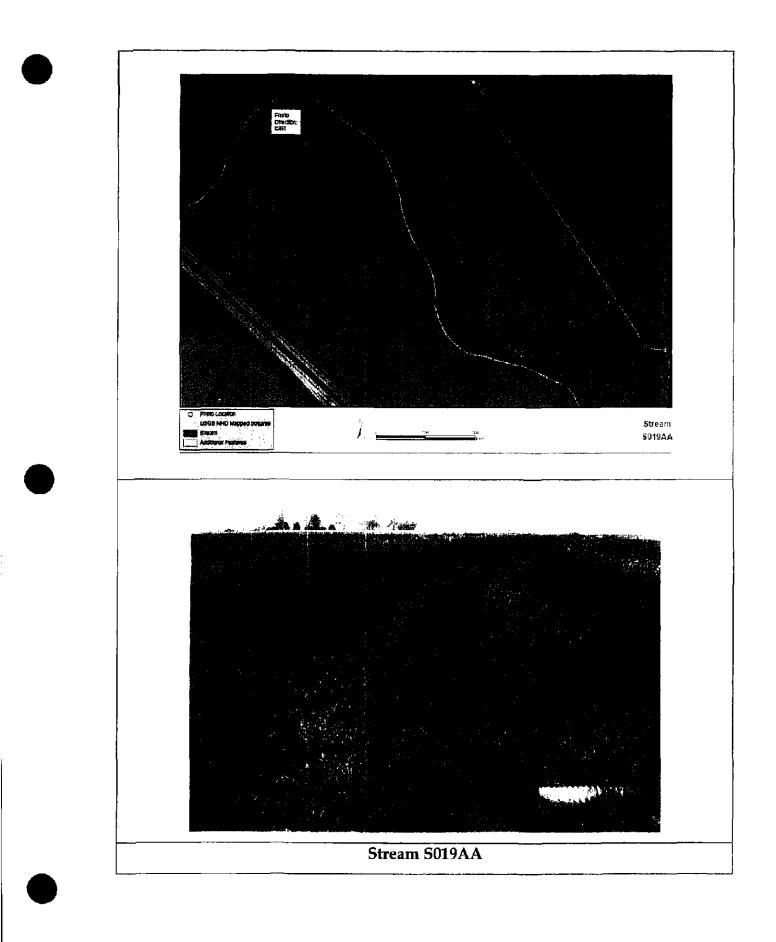
surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquafic habital; severe disturbance by livestock or man; tolerant or no microinvertebrates present

SCORET #: Substrate TYPE BOXES; every type present E OTHER TYPES PO DETRITUS [3] DETRITUS [3] DETRITUS [3] DETRITUS [3] SILT [2] SILT [2]	OL RIFFLE ORIGIN OL RIFFLE ORIGIN ORI	0n: 7 1 1 1 1 1 1 0] SILT 0 0 [0] SILT 0 0 [2] SILT 0 0 [4] SILT 0 0 [2] SILT 0 0 [2] SILT 0 0 [2] <th>40 42 QUALITY HEAVY [-2] MODERATE [-1] MODERATE [1] FREE [1] DETENSIVE [-2] MODERATE [-1] MODERATE [-1] S NORMAL [0] NONE [1]</th>	40 42 QUALITY HEAVY [-2] MODERATE [-1] MODERATE [1] FREE [1] DETENSIVE [-2] MODERATE [-1] MODERATE [-1] S NORMAL [0] NONE [1]
STORET #: substrate TYPE BOXES; every type present E OTHER TYPES PO HARDPAN [4] DETRITUS [3] MUCK [2] SILT [2] ARTIFICIAL [0] (Score natural subst 4 or more [2] sludge from po 3 or less [0] 4 / resence 0 to 3: 0-Absent; 1-Ve Woderate amounts, but not of regreater amounts, but not of regreater amounts, but not of regreater amounts (e.g., very bed rootwad in dee / fast wat 	Lat./ Long.: y (NAD 83-decimiting y	1 1 1 ack ONE (Or 2 & 1 1] SILT 0] D [0] D [1] D [2] D mmon of margin unts of highest vater, large onal pools. [4] [4] [4] D [4] D [4] D [6] D [6] D [6] D [6] D [7] D [8] D [9] D [1] D D D [1] D [1] D	• 40 42.11 Office • 40 42.11 Office • 40 42.11 Office • QUALITY • HEAVY [-2] • MODERATE [-1] • MODERATE [1] • FREE [1] • FREE [1] • MODERATE [-1] • STENSIVE [-2] • MODERATE [-1] • MODERATE [-1] • NORMAL [0] • NORMAL [0] • NONE [1] • NONE [1] • MODERATE 25.75% [1] • MODERATE 25.75% • MODERATE 25.425% [3] • NEARLY ABSENT <5 • Cover • Cover
every type present E OTHER TYPES POL DETRITUS [3] DETRITUS [3] DETRI	Che ORIGIN ORIGIN UMESTONE [IIIILS [1] WETLANDS [I ARDPAN [0] ARDPAN [ck ONE (Or 2 & 1] SILT [0] DEC E (0) U E (0	QUALITY QUALITY HEAVY [-2] MODERATE [-1] HEAVY [-2] GENORMAL [0] FREE [1] GENORMAL [0] NORMAL [0] NONE [1] MONE [1] HAMOUNT Check ONE (Or 2 & ave EXTENSIVE >75% [1] MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
E OTHER TYPES POI HARDPAN [4] DETRITUS [3] OETRITUS [3] C DETRITUS [4] C	OL RIFFLE ORIGIN OL RIFFLE ORIGIN OL RIFFLE UMESTONE [IPTILLS [1] INTERLANDS [I]	1] SILT [0] Derive [2] Derive [-2] mmon of margin unts of highest water, large onal pools. [ATERS [1] HYTES [1] PHYTES [1] DEBRIS [1]	QUALITY QUALITY HEAVY [-2] MODERATE [-1] HEAVY [-2] GENORMAL [0] FREE [1] GENORMAL [0] NORMAL [0] NONE [1] MONE [1] HAMOUNT Check ONE (Or 2 & ave EXTENSIVE >75% [1] MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
Image: Constraint of the sector of the se		SILT [0] SILT [0] DEC E [0] M [-2] mmon of margin unts of highest vater, large onal pools. [ATERS [1] PHYTES [1] DEBRIS [1]	MODERATE [-1] MODERATE [-1] FREE [1] FREE [1] FREE [1] FREE [1] MODERATE [-1] MODERATE [-1] NONE [1] NONE [1] MONE [1] MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
ONE in each category (ONE in NONE [6]	Image: Construction of the second stress	(V) E (0) J [-2] mmon of margin unts of highest vater, large onal pools. (ATERS [1] PHYTES [1] DEBRIS [1]	IPRORMAL [0] FREE [1]
Image: Sill T [2] Image: Sill T [2] <t< td=""><td>SANDSTONE SANDSTONE STABILITY</td><td>[0] J E [0] J [-2] J mmon of margin unts of highest vater, large onal pools. J (ATERS [1] J PHYTES [1] J DEBRIS [1] J</td><td>FREE [1] FREE [1] FREE</td></t<>	SANDSTONE STABILITY	[0] J E [0] J [-2] J mmon of margin unts of highest vater, large onal pools. J (ATERS [1] J PHYTES [1] J DEBRIS [1] J	FREE [1] FREE
(Score natural subst 4 or more [2] studge from po 3 or less [0] 4 (resence 0 to 3: 0-Absent; 1-Ve Moderate amounts, but not of r greater amounts (e.g., very bed rootwad in deep / fast wat POOLS > 70em [1] POOLS > 70em [1] ROOTWADS [1] [1] BOULDERS [1] [1] BOULDERS [1] [1] BOULDERS [1] [1] NONE [6]	Image: State of the second	[-4] mmon of margin unts of highest vater, large onal pools. [ATERS [1] [ATERS [1] [PHYTES [1] [DEBRIS [1]	AMOUNT Check ONE (Or 2 & ave EXTENSIVE >75% [1 MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
4 or more [2] sludge from po 3 or less [0] 4 (resence 0 to 3: 0-Absent; 1-Ve Moderate amounts, but not of r greater amounts (e.g., very bed rootwad in deep / fast wat POOLS > 70em [1] POOLS > 70em [1] ROOTWADS [1] [1] BOULDERS [1] [1] BOULDERS [1] [1] BOULDERS [1] [1] NONE [6]	Or 2 & average)	[-4] mmon of margin unts of highest vater, large onal pools. [ATERS [1] [ATERS [1] [PHYTES [1] [DEBRIS [1]	AMOUNT Check ONE (Or 2 & ave EXTENSIVE >75% [1 MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
i resence 0 to 3: 0-Absent; 1-Ve Moderate amounts, but not of r greater amounts (e.g., very i bed rootwad in deep / fast wat	COAL FINES ery small amounts or if more con highest quality or in small amo large boulders in deep or fast w ter, or deep, well-defined, functi [2] OXBOWS, BACKW AQUATIC MACROU LOGS OR WOODY Or 2 & everage) FION STABILITY	[-4] mmon of margin unts of highest vater, large onal pools. [ATERS [1] [ATERS [1] [PHYTES [1] [DEBRIS [1]	AMOUNT Check ONE (Or 2 & ave EXTENSIVE >75% [1 MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
Pesence 0 to 3: 0-Absent; 1-Ve Moderate amounts, but not of r greater amounts (e.g., very i bed rootwad in deep / fast wat POOLS > 70cm [[1]ROOTWADS [1] [1]BOULDERS [1] heck ONE in each category (control of the content	Inignest quality or in small amoliarge boulders in deep or fast with the second structure in th	unts of nignest vater, large onal pools. (ATERS [1] PHYTES [1] DEBRIS [1]	Check ONE (Or 2 & ave EXTENSIVE >75% [1 ODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
Anderate amounts, our not or r greater amounts (e.g., very bed rootwad in deep / fast wat POOLS > 70em [[1] ROOTWADS [1] [1] BOULDERS [1]	Inignest quality or in small amoliarge boulders in deep or fast with the second structure in th	unts of nignest vater, large onal pools. (ATERS [1] PHYTES [1] DEBRIS [1]	Check ONE (Or 2 & ave EXTENSIVE >75% [1 ODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
bed rootwad in deep / fast wat POOLS > 70cm [[1] ROOTWADS [1] [1] BOULDERS [1] heck ONE in each category (NT CHANNELIZAT [7] NONE [6]	iter, or deep, well-defined, function [2] OXBOWS, BACKW AQUATIC MACRO LOGS OR WOODY Or 2 & everage) [ION STABILITY	onal pools. (ATERS [1] PHYTES [1] DEBRIS [1]	EXTENSIVE >75% [1 MODERATE 25-75% SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
(1)	AQUATIC MACRO LOGS OR WOODY	PHYTES [1] DEBRIS [1]	SPARSE 5-<25% [3] NEARLY ABSENT <5 Cover
(1) BOULDERS [1] heck ONE in each calegory (NT CHANNELIZAT [7] INONE [6]	Or 2 & average)	DEBRIS [1]	NEARLY ABSENT <5
NT CHANNELIZAT [7] 🗌 NONE [6]	TION STABILITY	1	
NT CHANNELIZAT [7] 🗌 NONE [6]	TION STABILITY	1	20
NT CHANNELIZAT [7] 🗌 NONE [6]	TION STABILITY	1	
7] 🔲 NONE [6]		r	
		E (2)	
			Channe
			Maximum 20
PIAN ZONE Charle ONE		×10-0	
PARIAN WINTH	FLOOD PLAIN OU		k & average)
E > 50m [4]	FOREST, SWAMP [3]	<u> </u>	CONSERVATION TILLA
ROW 5-10m [2]	SPIRUB OK OLD FIELD [Z] RESIDENTIAL PARK NEW FI		URBAN OR INDUSTRIA
Y NARROW < 5m [1] 📋 🖉	62NCED PASTURE [1]	Indicat	e predominant land use(s)
HE [0] 변경 전환	OPEN PASTURE, ROWCROF	* [0] past 10	00m riparian. Riparlar Maximum
			10
		1737	Recreation Poten
			Primary Contac
	TORRENTIAL [-1] DISLOW	Á19	Secondary Conta
IDTH < RIFFLE WIDTH [0] [JFAST [1] 🛛 🗌 INTER	MITTENT [-2]	(circle one and comment on b
Σ	MODERATE (1) EDDIE Indicate for reach - pools al	15 [1] nd riffies.	Pool / Current
			Maximum 12
es: Best areas must be	e large enough to supp	ort a popula	tion _/
Check ONE	E (Or 2 & average).	-	MNO RIFFLE
			N EMBEDDEDNES
/UM < 50cm [1] 🛄 MOD, ST	ABLE (e.g., Large Gravel) [1]	D ï.	.ow [1]
UNSTAB	LE (e.g., Fine Gravel, Sand) [0		NODERATE [0] Riffie EXTENSIVE [-1] Maximum
·			Maximun
	%POOL: (70	%) %GLIDI	E:
	RIAN ZONE Check ONE # PARIAN WIDTH E > 50m [4] DERATE 10-50m [3] Participation VIDE 100 [2] IDTH > RIFFLE WIDTH [3] IDTH < RIFFLE WIDTH [4]	BECOVERED [4] MODERATE PRECOVERING [3] LOW [1] RECENT OR NO RECOVERY [1] PARIAN WIDTH E > 50m [4] B FOREST, SWAMP [3] DERATE 10-50m [3] DERATE 10-50m [3] B SHRUB OR OLD FIELD [2] RROW 5-10m [2] DERATE 10-50m [3] B RESIDENTIAL, PARK, NEW F RY NARROW < 5m [1]	BECOVERED [4] MODERATE [2] MECOVERING [3] LOW [1] RECENT OR NO RECOVERY [1] RIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank PARIAN WIDTH FLOOD PLAIN QUALITY E> 50m [4] FOREST, SWAMP [3] B DERATE 10-50m [3] B FOREST, SWAMP [3] B DERATE 10-50m [3] B FOREST, SWAMP [3] B ROW 5-10m [2] RESIDENTIAL, PARK, NEW FIELD [1] Indicat ROW 5-10m [2] RESIDENTIAL, PARK, NEW FIELD [1] Indicat W NARROW < 5m [1]



Hagerman Creek

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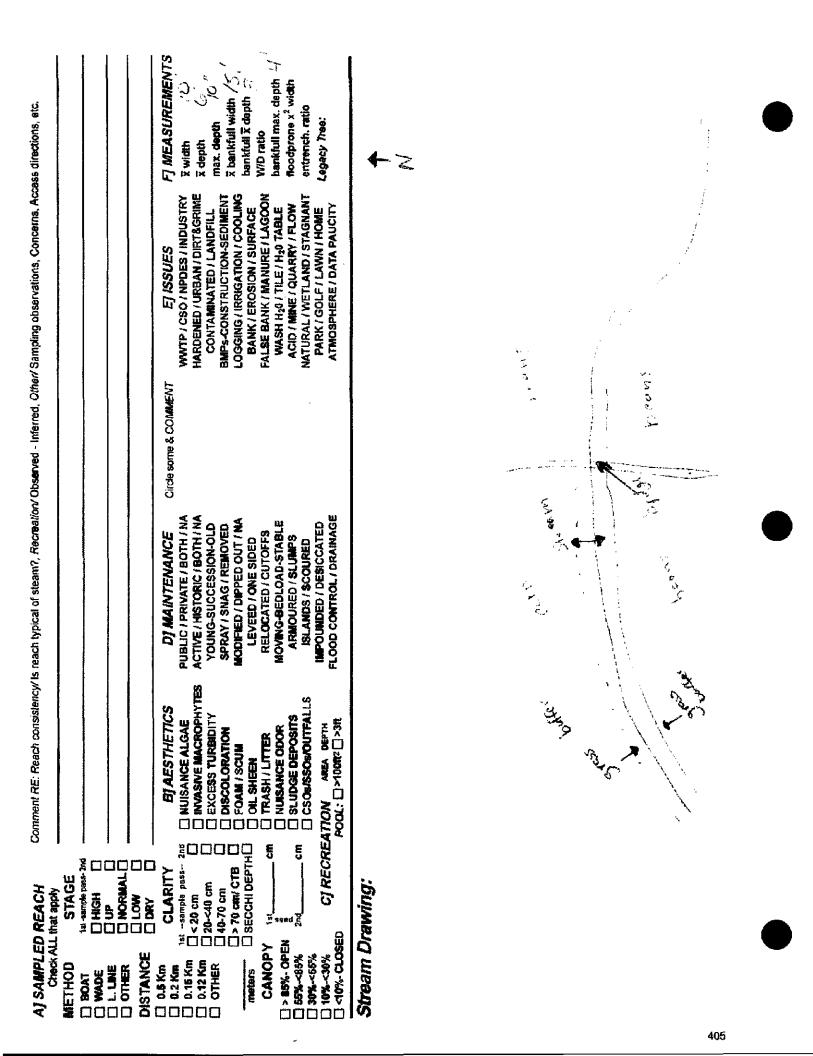
WATERBODY DATA SHEET

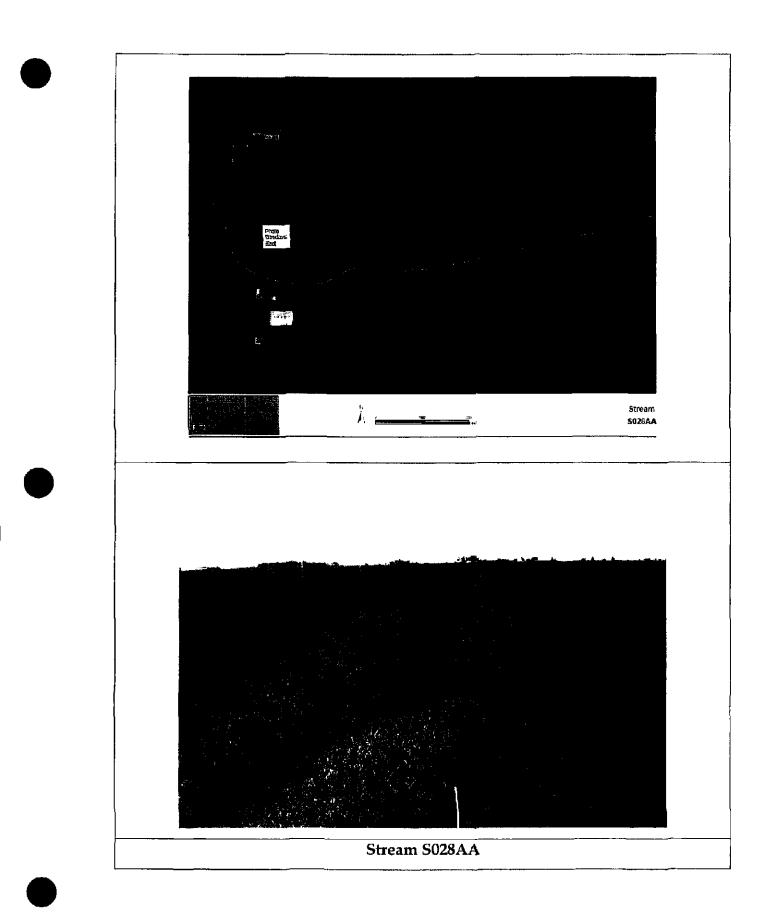
			·····			
WATERBODY ID NO: \$019AA			WATERBODY NAME: Hagerman Creek			
SITE NAME: Blue Creek						
Date: 9/21/2009	CLIENT/PROJECT NAME: He	eartland Wind	d LLC./Blue Creek Wind	Farm	الي من من المسيرية بين من المسيرية ب المسيرية المسيرية الم	
INVESTIGATORS: Hook		RC	OVER FILE: RAH090921.cor		QUAD NAME: Convoy	
STATE/COUNTY: Ohio/Van Wert Township.: Tully						
Рното No: а019аа						
WATERBODY CHARACTERISTICS						
WATERBODY TYPE;	Stream					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
Avg. Stream Depth:	10 (in)					
AVG. STREAM WIDTH:	9 (ft)	TOP OF BANK: 20 (ft)			ary High Water Mark Width: 15	
Avg. Bank Height:	8 (ft)					
Avg. Bank Slope (Ratio):	2:1					
	Qua	LITATIVE A	TTRIBUTES			
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:						
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM	A EDGE OF ACTIVE CHANNEL	OUT ONT	o flood plan: 0 (ft)	
	TYPE OF VEGETATION PRESENT	 T:	······································			
WETLAND FRINGE (IF PRESENT):	Phalaris arundinacea, Saggita	ria sp., Leersia	oryzoides	_		
CHANNEL CONDITION:	Sloughing Banks					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	Relativi	ELY STRAIGHT	
		Сомме	NTS			
				_	· · · · · · · · · · · · · · · · · · ·	
STREAM QUALITY: LOW						
HIGH QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present.	on extends at least one or two active chann	iel widths on each sid	e; banks stable and protected by roots t	that extend to		

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain widit; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by fivestock or man; Facultative microinvertebrates present. Low QuALITY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; for regeneration; filtering function asversely compromised; Banks unstable (inside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface storm); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; filter to no aquatic habitat; severe disturbance by livestock or man; toerant or no microinvertebrates present.

present.

ChieEPA		tat Evaluation Index sment Field Sheet	QHEI Score: 39
Stream & Location: 20	<u>9114</u>		RM: Date:07121109
River Code:	Score STORET #:	rs Full Name & Affiliation: <u>P</u> Lat./Long.:40 .93158	
1] SUBSTRATE Check ONLYTw estimate % or n	ote every type present	Check ON	E (Or 2 & average)
	FLE OTHER TYPES POR		
			Sole Distance 14
NUMBER OF BEST TYPES	(Score natural subsli for more [2] sludge from poi	rates; ignore CEUP/CAS(0) 446 4 int-sources) CASUSTUR NE(0) C	
Comments	図 3 or less [0]		
2] INSTREAM COVER Indicate quality;	presence 0 to 3: 0-Absent; 1-Ve 2-Moderate amounts, but not of	ry small amounts or if more common highest quality or in small amounts of	bighest
quality; 3-Highest quality in moderat diameter log that is stable, well deve	e or greater amounts (e.g., very la loped rootwad in deep / fast wate	arge boulders in deep or fast water, la er, or deep, well-defined, functional po	bols. ECTENSIVE (072 & average)
UNDERGUNDANKSI(1) OVERHANGINGVEGETATIO SHALEOWSI(INSLOW WATE	N [1] ROOTWADS [1]	AQUATIO MAGROPHYTE	B[1] SPARSES-25% [3]
ROOTMATS[1] Comments		LOGG UN 19000 P DEDR	Cover
		<u> </u>	Maximum 20
3] CHANNEL MORPHOLOGY SINUOSITY DEVELOPM			
HIGHIGIA	RECOVERED [4]	MODERATE [2]	
EL LOVIELAR NONE(1) PCOR(1)			Channel
Comments			Maximum 20
4] BANK EROSION AND RIP River right looking downetream	ARIAN ZONE Check ONE in	each category for EACH BANK (Or 2 FLOOD PLAIN QUALITY	Y
	1DEI360m [4]	FORESTI SWAMP ST	
	ARROW 5-10m [2]	RESIDENTIAL PARKINEW FIELD (1 FENCED PASTURE (1)	MINING / CONSTRUCTION [0]
Comments		OPEN PASTURE, ROWCROP [0]	past 100m riparian. Riparian 4.5 Maximum 4.5
5) POOL / GLIDE AND RIFFL			10
MAXIMUM DEPTH	CHANNEL WIDTH ack ONE (Or 2 & average)		Recreation Potential Primary Contact
	WIGTH & RIFFLEWIDTH [2]	Check ALL that apply	Secondary Contact
	WIDTH < RIFFLE WIDTH [0]		(circle one and comment on back)
Comments	~	Indicate for reach - pools and riffle	s. Current 24 Maximum 4
		large enough to support a	population
	UN DEPTH RIFFLE		E / RUN EMBEDDEDNESS
	(MUN < 50cm [2]	ABLE (FOR BATTE Gravely (1)	
Comments	UNSTABL	E (e.g. / Environment Ciravel, Sanch (or	
	J MERCHEROMIZED		
DRAINAGE AREA			んGLIDE:(45) Gredient RIFFLE:(の) Maximum 10
(2.29 mr) EPA 4520			06/16/06



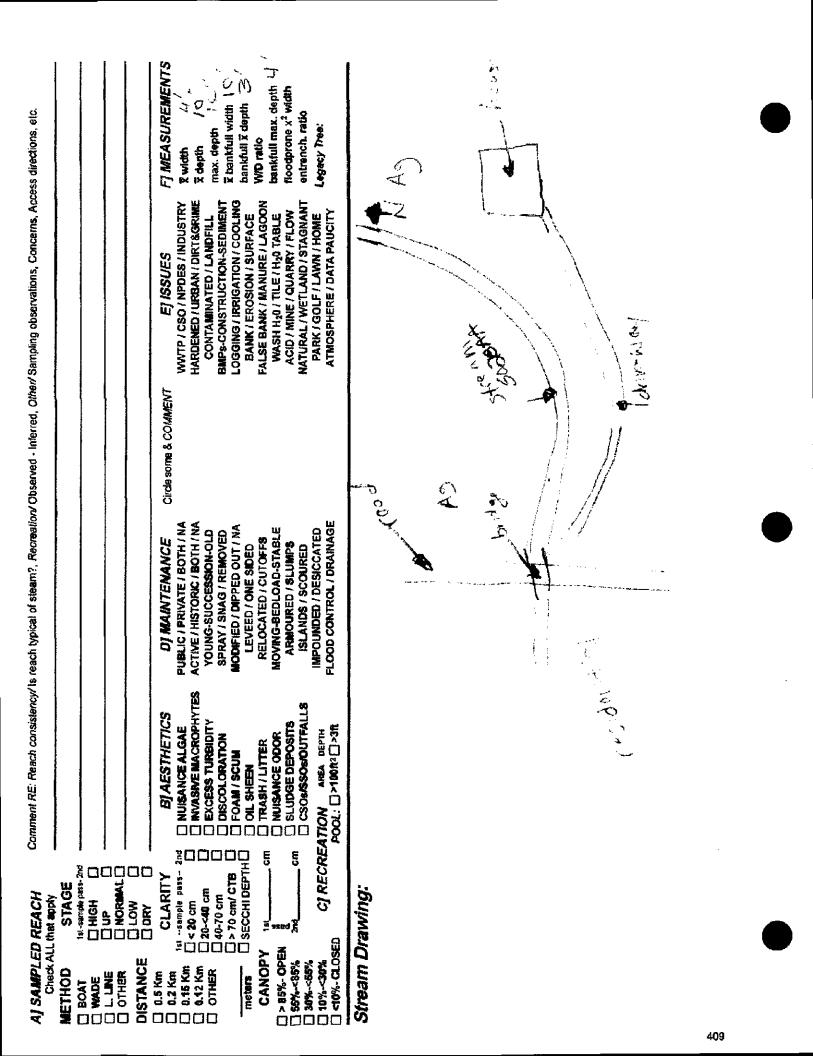


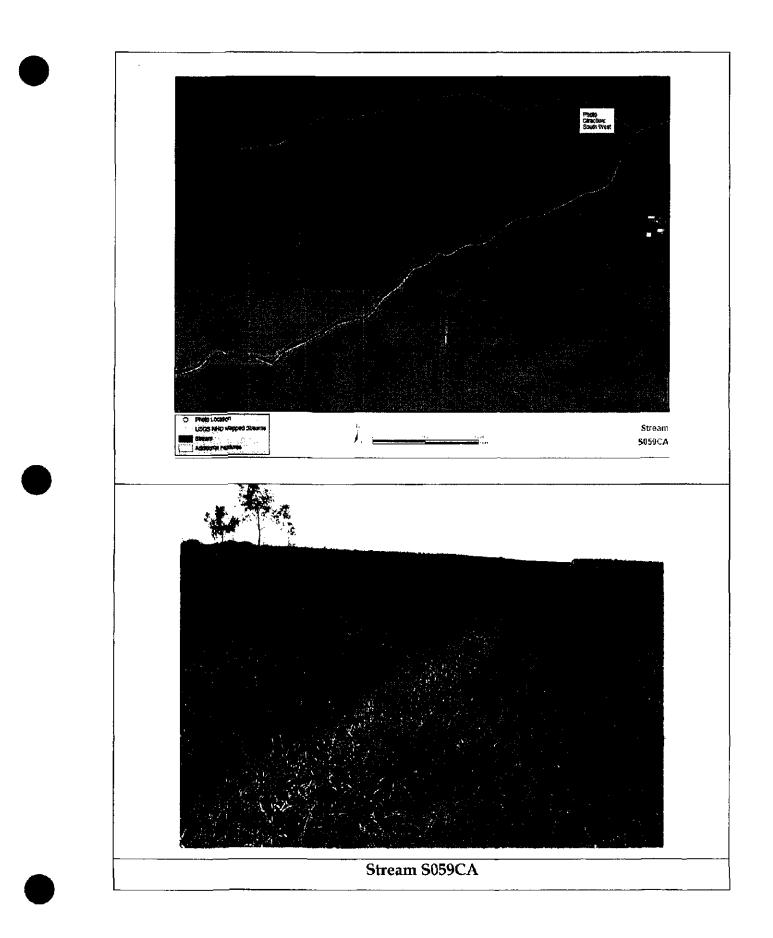
WATERBODY DATA SHEET

WATERBODY ID NO: SO	28AA		WATERBODY NAME: Hagerman Creek			
SITE NAME: Blue Creek		ļ				
DATE: 9/21/2009	CLIENT/PROJECT NAME: H	eartland W	vind LL	C./Blue Creek Wind	Farm	
INVESTIGATORS: Hook			Rover	FILE RAH090921.cor		QUAD NAME: Convoy
STATE/COUNTY: Ohio/Van Wert			Towns	HIP.: Union		
			Рното	NO: W024aa2		
WATERBODY			HARAC	TERISTICS		
WATERBODY TYPE:	Stream					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	12 (in)					
AVG. STREAM WIDTH:	8 (ft)	TOP OF BA	ank: 20 (ft)	ORDIN. (ft)	ARY HIGH WATER MARK WIDTH: 12
AVG. BANK HEIGHT:	8 (ft)					
AVG. BANK SLOPE (RATIO):	3:1			, , , , , , , , , , , , , , ,		
	Qua	LITATIV	e Atti	RIBUTES		
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:						
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE F	ROM EDO	GE OF ACTIVE CHANNEL (DUT ONTO	D FLOOD PLAN: 9 (ft)
	Type of vegetation present	T:				
WETLAND FRINGE (IF PRESENT):	Phalaris arundinacea					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated			CHANNEL GEOMETRY	RELATIVE	LY STRAIGHT
		Сом	MENTS	G		
STREAM QUALITY: Low						
access to adequate fload plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present.	on extends at least one or two active channi I water withdrawals prevent movement); mai by rip rap and/or channelization; dikes/lever	el widths on eac any fish cover typ es restrict flood	ch side; bani pes availabli plain width;	ks stable and protected by roots t e; diverse and stable aquatic habi natural vegetation extends 1/3-1/	het extend to itat; no distur 2 of the activ	bance by livestock or man; intolerant re channel width on each side; filtering function of

moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QUALITY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very burbit to muddy; obvious pollutants (algel mats, surface science); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; loterator or microinvertebrates present.

OhioEPA	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet	QHEI Score: 37.5
Stream & Location:	JO2EAA	RM: Date()91.21_109_
River Code:	Scorers Full Name & Affiliation: // - STORET #: Lat./ Long.:40 ,92583	
" estima	ONLY Two substrate TYPE BOXES; te % or pote every type present Chack ON	E (Or 2 & average)
Image: Supersymptotic state s	OOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN ODERTITUS [3]; OUL SUPPORT OUL SUPPORT Source natural substrates; ignore OUL SUPPORT OUL SUPPORT YPES: 4 or more [2] sludge from point-sources OUL SUPPORT OUL SUPPORT OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] YPES: OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] YPES: OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] OPERTITUS [0] YPES: OPERTITUS [0]	QUALITY SILT NODERATE 1 Substitution NODERATE 1 Substitution PEREPTING PEREPTING NODERATE 1 MAXIM NODERATE 1 MAXIM 20
2] INSTREAM COVER	Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common	of marginal AMOUNT
quality; 3-Highest quality in diameter lug that is stable, UNDERCUTERANKS 2 OVERHANGING VE SHALLOWS((NSLC ROOTMATS [1] Comments	GETATION[1] ROOTWADS [1] AQUATIC MACROPHYTE	
3] CHANNEL MORPH	OL.OGY Check ONE in each category (Or 2 & average)	20
	ELOPMENT CHANNELIZATION STABILITY (GENDENE[7] -NONE[6] XI HIGH[9] XI HIGH[9] XI HIGH[9] XI MODERATE [2] XI HIGH[9] XI MODERATE [2] XI HIGH[9] XI MODERATE [2] XI RECOVERING [3] XI MODERATE [2]	Channel Maximum 20
4] BANK EROSION A River right looking downstrear	ND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2	
EROSION		
5] <i>POOL / GLIDE ANE</i> MAXIMUM DEPTH	CHANNEL WIDTH CURRENT VELOCITY	Recreation Potential
Check ONE (OWLYI)	Check ONE (Or 2 & everage) Check ALL that apply Che	(circle one and comment on back)
□ 04<07m120 ▷ 0/2x004m10] □ < 0/2m[0] Comments	POOL WIDTH < RIFFLE WIDTH [0] FAB (1) PMODERATE(1) DEDDES (1) Indicate for reach - pools and riffle	Pool
Indicate for functi of riffle-obligate s	ional riffles; Best areas must be large enough to support a pecies; Check ONE (Or 2 & average).	
RIFFLE DEPTH BESTALLARE (067/2) BESTALLARE (067/2) BESTALLARE (067/2) BESTALLARE (077/2) BESTALLARE (077/2)		E / RUN EMBEDDEDNESS
6] GRADIENT (3.8 DRAINAGE AREA (2.90		%GLIDE: 45 Gradient 4 RIFFLE: 10
EPA 4520		06/16/06





WATERBODY DATA SHEET

	<u></u>				
WATERBODY ID NO: SO)59CA-1		WATERBODY NAM	IE: Hagerm	an Creek
SITE NAME: Blue Creek					
DATE: 9/19/2009	CLIENT/PROJECT NAME: H	eartland V	Vind LLC./Blue Creek	Wind Farm	
INVESTIGATORS: Hook	1	T	Rover File: RAH090919	B.cor	QUAD NAME: Convoy
STATE/COUNTY: Ohio/Van Wert			TOWNSHIP.: Union		
			Рното No: s59ca3		
	WATER	BODY CI	HARACTERISTICS		and the second sec
WATERBODY TYPE:	Ag drainage				
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
AVG. STREAM DEPTH:	9 (in)	9 (in)			
AVG. STREAM WIDTH:	6 (ft)	TOP OF BA	Top of Bank: 40 (ft)		NARY HIGH WATER MARK WIDTH: 12
Avg. Bank Height:	8 (ft)	L			
AVG. BANK SLOPE (RATIO):	2:1				
	QUA	LITATIV	E ATTRIBUTES		
Average Water Appearance:					
PRIMARY SUBSTRATE:	Other				
POTENTIAL HABITAT FOR:	Aq/Wild Diversity				
DEFINED BED AND BANKS:	PRESENT	<u> </u>			
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE F	ROM EDGE OF ACTIVE CHA	NNEL OUT ON I	o flood plan: 0 (ft)
	Type of vegetation present	T:			
WETLAND FRINGE (IF PRESENT):	Phalaris arundinacea				
CHANNEL CONDITION:	Not Significant				
CHANNEL TYPE:	Manipulated		CHANNEL GEOM	IETRY RELATIV	ELY STRAIGHT
		Сом	MENTS		
STREAM QUALITY: Low					
HIGH QUALITY: Natural channel (no structures of access to adequate flood plain; natural vegetati	or dikes; no evidence of downculting or exce ion extends at least one or two active chann	ssive lateral cuti al widths on eac	tting); evidence of past channel altera ch side; banks stable and protected t	ation with significant by roots that extend I	recovery; any dikes/levies are set back to provide to the base-flow elevation; water clear to tea-

colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intelerant microinvertebrates present.

meconiverialization; filtering function of the active channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (oulside bends actively eroding with faw fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor baniers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quarry: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quarry: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; fair aquatic habitat; fair aquatic habitat; beavy coor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates actively available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates

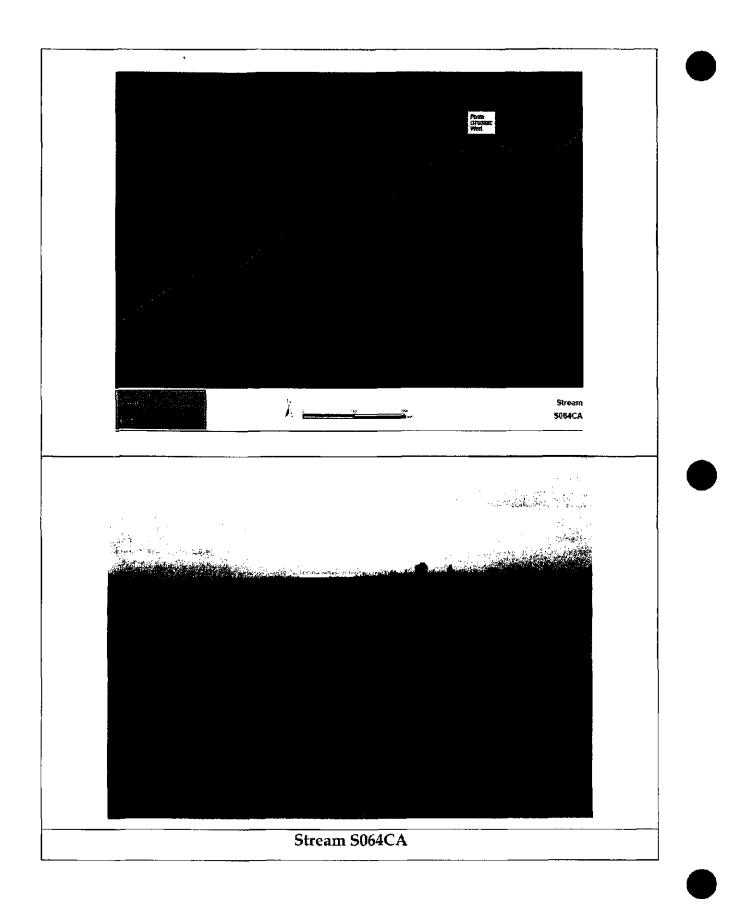
present.

WATERBODY DATA SHEET

WATERBODY ID NO: SO)59CA-2		WATERBODY NAME: Hagerman Creek			
SITE NAME: Blue Creek						
DATE: 9/19/2009	CLIENT/PROJECT NAME: H	leartland V	Wind LLC./Blue Creek Wind	Farm		
INVESTIGATORS: Hook			ROVER FILE: RAH090919B.cor	QUAD NAME: Conv	70ÿ	
STATE/COUNTY: Ohio/Van Wert TOWNSHIP.: Union			• • • • • • • •			
PHOTO NO: s59ca						
WATERBODY CHA			HARACTERISTICS			
WATERBODY TYPE: Ag drainage						
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	12 (in)					
Avg. Stream Width:	8 (ft)	TOP OF B.	ank: 40 (ft)	ORDINARY HIGH WATER MA (ft)	RK WIDTH: 12	
Avg. Bank Height:	8 (ft)	8 (ft)				
AVG. BANK SLOPE (RATIO):	2:1					
	QuA	LITATIV	'E ATTRIBUTES		······	
Average Water Appearance:	Clear					
PRIMARY SUBSTRATE:	Sands					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	FION ZONE I	FROM EDGE OF ACTIVE CHANNEL	OUT ONTO FLOOD PLAN: 0 (ft)		
	TYPE OF VEGETATION PRESEN	T:				
WEFLAND FRINGE (IF PRESENT):	Phalaris arundinacea					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT		
		Сом	MENTS			
STREAM QUALITY: Low			· · · · · · · · · · · · · · · · · · ·			
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seesonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. MODERATE Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (unside bends actively ending with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate cdor; minor barriers to fish movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.						

regeneration; fittering function severely compromised; Banks unstable (Inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollulants (algal mats, surface sourn, surface sourn); testenen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

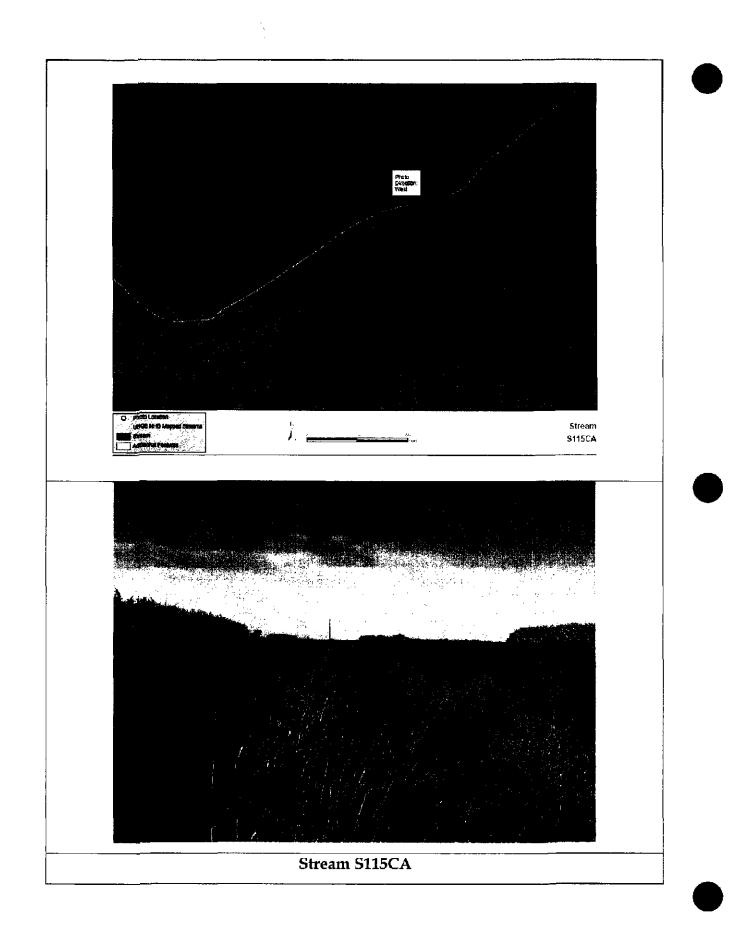
OhioEPA	Qualitative Habitat and Use Assessme		QHEI Score:	
Stream & Location: Hager	wonly (SOSTER.	R	1: Date: 9 [9]	29
River Code:			184: 38143 " Office V	e.
11 SUBSTRATE Check ONLY Two	substrate TYPE BOXES;		Or 2 & average)	cation LI
BEST TYPES POOL RIFFL	E OTHER TYPES POOL RI	FFLE ORIGIN	QUALITY	
BLDR /SLABS [10] BOULDER [9]	☐ ☐ HARDPAN [4]		HEAVY [-2]	iubstrate
	MUCK [2]	U WETLANDS [0]	LINORMAL [0]	
GRAVEL [7]	SILT [2] ARTIFICIAL [0]	SANDSTONE [0]		8
	(Score natural substrates; 4.or more (2) studge from point-so			Aaximum 20
Comments	3 or less [0]	SHALE [-1]	NONE [1]	20
2] INSTREAM COVER Indicate or quality; 3-Highest quality in moderate of diameter log that is stable, well develop UNDERCUT BANKS [1] 3 OVERHANGING VEGETATION (SHALLOWS (IN SLOW WATER) ROOTMATS [1] Comments	Moderate amounts, but not of higher r greater amounts (e.g., very large i bed rootwad in deep / fast water, or POOL\$ > 70cm [2] [1] ROOTWADS [1]	st quality of in small amounts of hig boulders in deep of fast water, larg	Inest Check ONE (Or 2 & everal B EXTENSIVE >75% [11] I MODERATE 25-75% [7] II SPARSE 5-425% [3]]
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPMEN HIGH [4] EXCELLENT [MODERATE [3] GOOD [5] [2] LOW [2] IFAIR [3] NONE [1] POOR [1] Comments	NT CHANNELIZATION	STABILITY [2] HIGH [3] [] MODERATE [2] [] LOW [1]	Channel Meximum 20	
	PARIAN WIDTH E > 50m [4] □ □ FORE DERATE 10-50m [3] □ □ SHRU IROW 5-10m [2] □ □ RESI Y NARROW < 5m [1] □ □ FENC	FLOOD PLAIN QUALITY EST, SWAMP [3] JB OR OLD FIELD [2] DENTIAL, PARK, NEW FIELD [1] CED PASTURE [1]		101
Check ONE (ONLY) Check > 1m [6] POOL W 0.7-<1m [4] POOL W	IANNEL WIDTH ONE (Or 2 & average) IDTH > RIFFLE WIDTH [2]	CURRENT VELOCITY Check ALL that apply RENTIAL [-1] USLOW [1] RY FAST [1] INTERSTITIAL IT [1] INTERMITTENT DERATE [1] IEDDIES [1] dicate for reach - pools and riffles.		:t
of riffle-obligate species: RIFFLE DEPTH RUI	NUM > 50cm [2] 🔲 STABLE (e.g., NUM < 50cm [1] 🛄 MOD. STABLE	2 & average). JN SUBSTRATE RIFFLE Cobbie, Boulder) [2]	Pulation	etric=0]
	VERY LOW - LOW [2-4]	%POOL:() %G	LIDE: (100) Gradient	
	MODERATE (6-10) HIGH - VERY HIGH [10-6]		FFLE: Maximum	4
EPA 4520			06/16	6/06



WATERBODY DATA SHEET

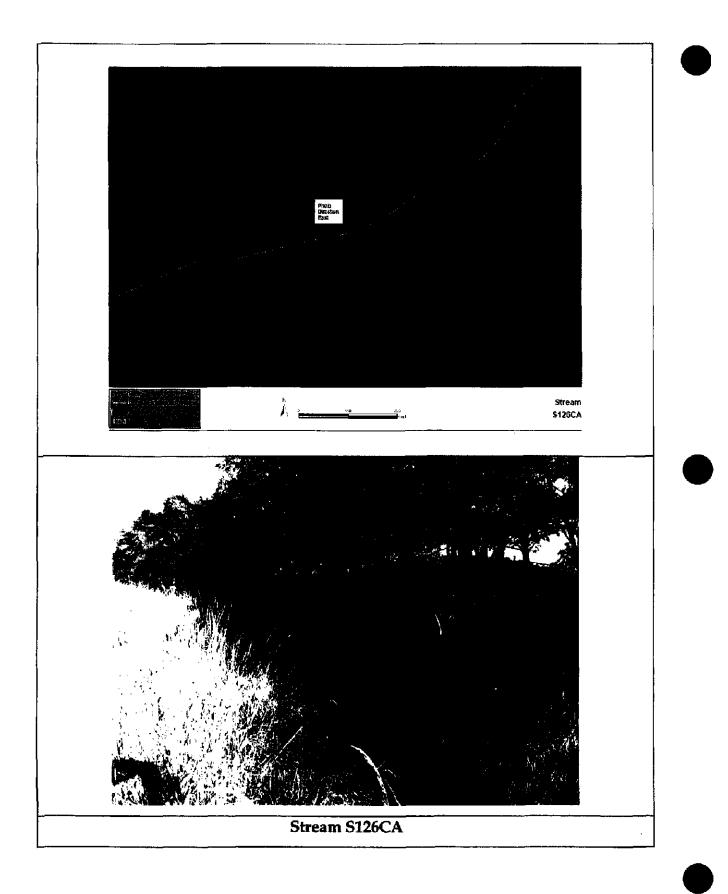
WATERBODY ID NO: \$0	 64CA	WA	TERBODY NAME: H	agerma	an Creek
SITE NAME: Blue Creek					
DATE: 9/19/2009	CLIENT/PROJECT NAME: H	eartland Wind I	LC./Blue Creek Wind	Farm	
Investigators: Hook		Rov	ER FILE: RAH090919B.cor		QUAD NAME: Scott
STATE/COUNTY: Ohio/Van Wert		Tow	NSHIP.: Union		
Рното NO: 564са					
	WATER	BODY CHAR	ACTERISTICS		· · · · · · · · · · · · · · · · · · ·
WATERBODY TYPE:	Ag drainage				
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
AVG. STREAM DEPTH:	12 (in)				
Avg. Stream Width:	8 (ft)	Top of Bank: 35 (ft)		ORDIN (ft)	ary High Water Mark Width: 15
Avg. Bank Height:	8 (ft)	\$ (ft)			
AVG. BANK SLOPE (RATIO):	2:1				-
	Qua	LITATIVE AT	TRIBUTES		
Average Water Appearance:	Clear				
PRIMARY SUBSTRATE:	Cobbles				
POTENTIAL HABITAT FOR;	Aq/Wild Diversity				
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM F	DGE OF ACTIVE CHANNEL	OUT ONTO	o flood plan: 0 (ft)
	TYPE OF VEGETATION PRESENT	T:		÷	
WETLAND FRINGE (IF PRESENT):	Phalaris arundinacea	<u> </u>		.	
CHANNEL CONDITION:	Not Significant				
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVE	ay Straight
		COMMEN	rs		
STREAM QUALITY: Medium					
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present, MODERATE QUALITY; Alfered channel evidenced	ion extends at least one or two active channel I water withdrawals prevent movement); mai by rip rap and/or channelization; dikes/lever	el widths on each side; t my fish cover types avail es restrict flood plain wid	panks stable and protected by roots t able; diverse and stable aquatic hab hth; natural vegetation extends 1/3-1/	that extend to itat; no distur /2 of the activ	recovery; any dikes/levies are set back to provide o the base-flow elevation; water clear to tea- rbance by livestock or man; Intolerant ve channel width on each side; filtering function of

riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quarty: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; tack of regeneration; fillering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no equatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.



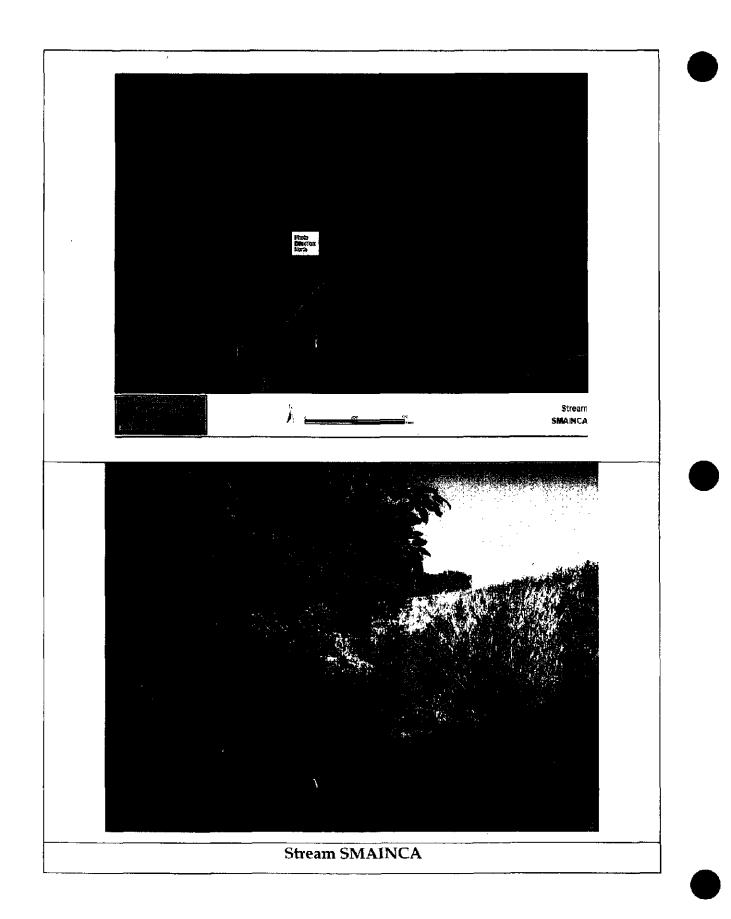
present.

WATERBODY ID NO: S1	15CA	WAT	ERBODY NAME: H	agerman Creek
SITE NAME: Blue Creek				
DATE: 9/19/2009	Client/Project Name: H	Feartland Wind LL	.C./Blue Creek Wind	Farm
INVESTIGATORS: Hook		Rover	FILE: RAH090919B.cor	QUAD NAME: Scott
STATE/COUNTY: Ohio/Van Wert		Town	HIP.: Union	
		Рнотс	NO: s115ca	
	WATE	RBODY CHARAG	CTERISTICS	
WATERBODY TYPE:	Ag drainage		,	
FLOW EVENTS/YEAR:				
Flow type:	Perennial			
AVG. STREAM DEPTH:	6 (in)			
AVG. STREAM WIDTH:	7 (ft)	Top of Bank: 35 (ft)		Ordinary High Water Mark Width: 12 (ft)
Avg. Bank Height:	10 (ft)			
AVG. BANK SLOPE (RATIO):	2:1			
	Qu/	ALITATIVE ATT	RIBUTES	
AVERAGE WATER APPEARANCE:	Clear			
PRIMARY SUBSTRATE:	Sands			
POTENTIAL HABITAT FOR:	Aq/Wild Diversity			
DEFINED BED AND BANKS:	PRESENT			
Riparian Zone:	WIDTH OF NATURAL VEGETA	TION ZONE FROM ED	GE OF ACTIVE CHANNEL C	DUT ONTO FLOOD FLAN: 0 (ff)
	TYPE OF VEGETATION PRESEN	4T:		
WETLAND FRINGE (IF PRESENT):	Phalaris arundinace and Scir	pus validus		
CHANNEL CONDITION:	Not Significant			
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT
		COMMENT	6	
STREAM QUALITY: Low				
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvartebrates present. Moocrare QuaLmy: Altered channel evidenced riparian vegetation only moderately compromis moderate odor; minor barriers to fish movement Low QuaLmy: Channel is actively downcutting i regeneration; fillering function severely compro	ion extends at least one or two active cham al water withdrawals prevent movement); m d by rip rep and/or channelization; dikes/lev ed; banks moderately unstable (outside be et; ta3 fish cover types available; fair aquatik or widening; rip rep and channilization exce prised; Banks unstable (inside and outside	nel widths on each side; bar any fish cover types availabl rees restrict flood plain width; nds actively eroding with few c habitat; minimum disturbar sseive; flood plain restricted i bends actively eroding with	ks stable and protected by roots the; diverse and stable aquatic habit natural vegetation extends 1/3-1/ fallen trees); considerable water ce by ilvestock or man; Facultativ y dikes/fevees; natural vegetation numerous fallen trees); water very	significant recovery, any dikas/levies are set back to provide hat extend to the base-flow elevation; water clear to tea- tat; no disturbance by livestock or man; intolerant 2 of the active channel width on each side; filtering function of cloudiness, submerged objects covered with green film; re microinvertebrates present. I less then 1/3 of the active channel width on each side; lack of y turbid to muddy; obvious pollutants (algal mats, surface scum, huthance by livestock or man; loterant or no microinvertebrates



present

		······				
WATERBODY ID NO: S	126CA	WAT	WATERBODY NAME: Hagerman Creek			
SITE NAME: Blue Creek						
Date: 9/18/2009	CLIENT/PROJECT NAME: H	eartland Wind LI	.C./Blue Creek Wind	Farm		
Investigators: RH	-1	Rover	FILE: RAH091809A.cor	QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert		Town	SHIP.: Union			
		Рното	NO: s126ca			
	WATER	BODY CHARA	TERISTICS			
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial	Perennial				
AVG. STREAM DEPTH:	9 (in)					
Avg. Stream Width:	8 (ft)	TOP OF BANK: 25 (ft)		Ordinary High Water Mark Widt (ft)	' н: 12	
Avg. Bank Height:	8 (ft)					
AVG. BANK SLOPE (RATIO):	2:1					
	Qua	LITATIVE A TT	RIBUTES			
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE;	Sands					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	FION ZONE FROM ED	GE OF ACTIVE CHANNEL (DUT ONTO FLOOD PLAN: 25 (ft)		
	TYPE OF VEGETATION PRESEN	T: Forested				
WETLAND FRINGE (IF PRESENT):						
CHANNEL CONDITION:	Not Significant	<u></u>				
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT		
		COMMENT	5			
STREAM QUALITY: Low	· · · · · · · · · · · · · · · · · · ·					
access to adequate flood plain; natural vegetal colored; no barriers to fish movement (seasona microinvertebrates present. MODERATE QUALITY: Altered channel evidences riparian vegetation only moderately compromis moderate odor; minor barriers to fish movement LOW QUALITY: Channel is actively downcutting regeneration; filtering function severely compro-	tion extends at least one or two active chann al water withdrawals prevent movement); ma d by rip rap and/or channelization; dikes/leve sed; banks moderately unstable (outside ben nt; 4-3 fish cover types available; fair aquatic or widening; rip rap and channilization excer omised; Banks unstable (inside and outside t	nei widths on each side; bar any fish cover types availab ees restrict flood plain width ds actively eroding with fer abitat; minimum disturbar ssive; flood plain restricted bends actively eroding with	ks stable and protected by roots the e; diverse and stable equatic habin natural vegetation extends 1/3-1/ r fallen trees); considerable water noe by livestock or man; Facultativ by dikes/levees; natural vegetation pummerous fallen trees); water very	significant recovery; any dikes/levies are set back to pr hat extend to the base-flow elevation; water clear to tea- tat; no disturbance by livestock or man; intolerant 2 of the active channel width on each side; filtering funct cloudiness, submerged objects covered with green film; e microinvertebrates present. I less than 1/3 of the active channel width on each side; runbid to muddy; obvious pollutants (algal mats, surface vehance by livestock or man; tolerant or on prionique	tian of ; leck of e scum,	

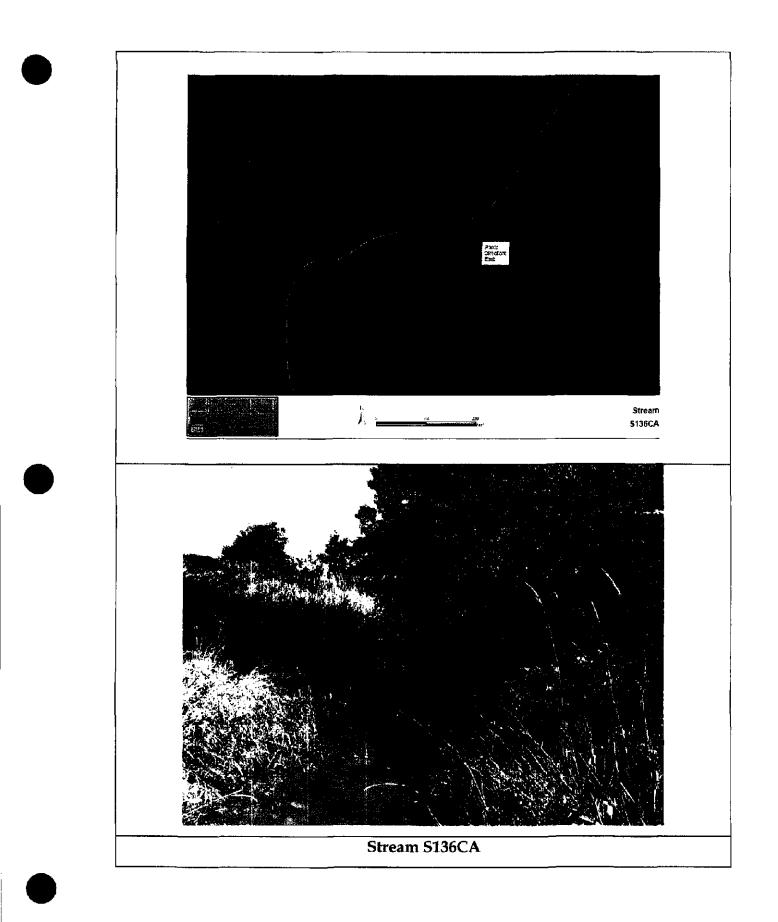


WATERBODY DATA SHEET

WATERBODY ID NO: SM	AINCA-1	WA	WATERBODY NAME: Hagerman Creek		
STTE NAME: Blue Creek					
DATE: 9/18/2009	CLIENT/PROJECT NAME: H	leartland Wind L	LC./Blue Creek Wind	Farm	
INVESTIGATORS: AF RH	I	Rove	R FILE: RAH091809A.cor	QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert		Town	ISHIP.: Union		
			O NO: smainca2		
	WATER	RBODY CHARA	CTERISTICS		
WATERBODY TYPE:	Modified ag ditch		·····		
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
AVG. STREAM DEPTH:	10 (in)				
Avg. Stream Width:	10 (ft)	TOP OF BANK: 40 (ft) ORDINA (ft)		ORDINARY HIGH WATER MARK WIDTH: 20 (ft)	
AVG, BANK HEIGHT:	10 (ft)	ul · · <u></u>	,	<u> </u>	
AVG. BANK SLOPE (RATIO):	2:1				
	QUA	LITATIVE AT	TRIBUTES	· · · · · · · · · · · · · · · · · · ·	
AVERAGE WATER APPEARANCE:	Clear			· · · · ·	
PRIMARY SUBSTRATE:	Sands				
POTENTIAL HABITAT FOR:	Aq/Wild Diversity				
Defined bed and Banks:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM E	OGE OF ACTIVE CHANNEL	OUT ONTO FLOOD PLAN: 75 (ft)	
	TYPE OF VEGETATION PRESEN	r: Forested			
WETLAND FRINGE (IF PRESENT):					
CHANNEL CONDITION:	Not Significant	_			
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	Relatively Straight	
		COMMENT	'S		
·					
STREAM QUALITY: LOW					
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present. MODERATE QUALITY: Altered channel evidenced ingarian vegetation only moderately compromis:	Here Quality: Natural channel (no structures or dikes; no evidence of downculting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel withs on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant				

Low QUALITY: Channel is actively downcutting or widening; no rap and channitization excessive; flood plain restricted by disesfevees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severally compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface sourn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by liveslock or man; tolerant or no microinverte brates present.

WATERBODY ID NO: SN	AINCA-2	WAT	WATERBODY NAME: Hagerman Creek			
SITE NAME: Blue Creek						
Date: 9/18/2009	CLIENT/PROJECT NAME: He	eartland Wind Ll	.C./Blue Creek Wind F	arm		
INVESTIGATORS: AF RH		Rover	FILE: RAH091809A.cor	QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert		Town	SHIP.: Union			
		Рното	o No: 133c2			
	WATER	BODY CHARA	CTERISTICS	· · · · · · · · · · · · · · · · · · ·		
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	6 (in)	6 (in)				
AVG. STREAM WIDTH:	6 (ft)	TOP OF BANK: 40 (ft) (ft) ORDINARY HIGH WATER MAR (ft)				
AVG. BANK HEIGHT:	10 (ft)	10 (ft)				
AVG. BANK SLOPE (RATIO): 2:1						
QUALITATIVE ATTRIBUTES						
AVERAGE WATER APPEARANCE:	Clear					
PRIMARY SUBSTRATE:	Sands					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM ED	GE OF ACTIVE CHANNEL OU	UT ONTO FLOOD PLAN: 0 (ft)		
	TYPE OF VEGETATION PRESENT	r.				
WETLAND FRINGE (IF PRESENT):		<u> </u>				
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated	····	CHANNEL GEOMETRY R	ELATIVELY STRAIGHT		
		COMMENT	S			
STREAM QUALITY: LOW						
High QUALTY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutling); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protacted by roots that extend to the base-flow elevation; water cloar to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. MODERATE QUALTY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtraing function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate color; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Qualty: Channel is actively downoutling or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; fair regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface score, jurges sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.						

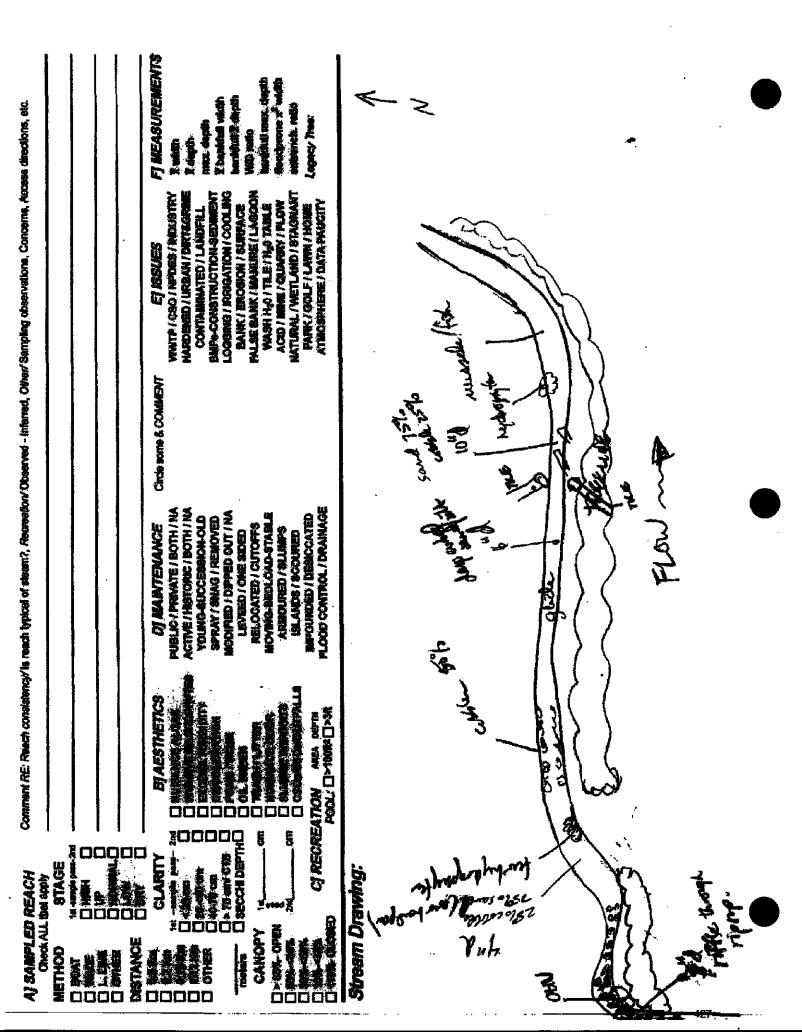


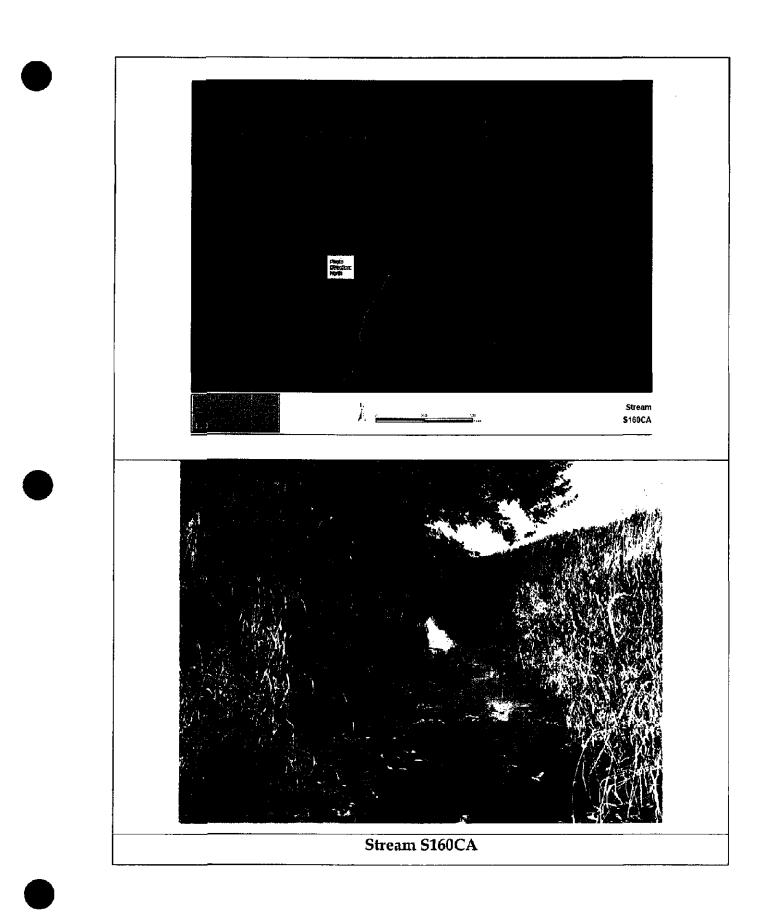
WATERBODY DATA SHEET

WATERBODY ID NO: S136CA		WAT	WATERBODY NAME: Hagerman Creek		
SITE NAME: Blue Creek					
DATE: 9/18/2009	CLIENT/PROJECT NAME: H	eartland Wind LL	C./Blue Creek Wind I	arm	
Investigators: AF RH	<u></u>	Rover	File: RAH091809A.cor	QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert			HIP.: Union		
Рното No: s136са			NO: s136ca		
	WATER	BODY CHARAG	CTERISTICS		
WATERBODY TYPE:	Modified ag ditch				
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
Avg. Stream Depth:	10 (in)				
Avg. Stream Width:	8 (ft)			ORDINARY HIGH WATER MARK V (ft)	VIDTH: 15
Avg. Bank Height:	8 (ft)	I			
AVG. BANK SLOPE (RATIO):	2:1				
· · ·	QUA	LITATIVE ATT	RIBUTES		
AVERAGE WATER APPEARANCE:	Clear				
PRIMARY SUBSTRATE:	Sands				
POTENTIAL HABITAT FOR:	Aq/Wild Diversity				- //
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM ED	GE OF ACTIVE CHANNEL O	UT ONTO FLOOD PLAN: 0 (ft)	
	TYPE OF VEGETATION PRESENT	T:			
WETLAND FRINGE (IF PRESENT):			· · · · · · · · · · · · · · · · · · ·		
CHANNEL CONDITION:	Not Significant				
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY I	ELATIVELY STRAIGHT	
		COMMENTS	5		
STREAM QUALITY: LOW			· · · · · · · · · · · · · · ·		··
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasona microinvertebrates present. Moderare Quality: Altered channel evidenced riparian vegetation only moderately compromis:	Not QUALITY: Natural channel (no structures or dikes; no evidence of downculting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide cocess to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant				

Low QUALITY: Channel is aclively downcutting or widening; to rep and channilization excessive; flood plain restricted by dives/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function Severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scurn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

ChioEPA	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet	QHEI Score: (44.5)
Stream & Location:	SIBLECA (HAGERMAN CREED)	RM:/Date: 71 181 07
	Scorers Full Name & Affiliation: - STORET #: Lat./ Long.: 40 ⁰ , 58 ' x	
River Code: -		" 184. 34 30" Office verified location
estimate	% or note avary type present Caleck OF	NE (Or 2 & average) QUALITY
BEST TFES PO BLDR/SLABS [10]		HEAVY [-2]
		SILT SILT Substr
M □ SAND [6] □ □ BEDROCK [5]	Image: Source of the second	ADEO LI EXTENSIVE [-2] COMODERATE [-1] SI NORMAL [0] 20 LI NONE [1]
NUMBER OF BEST TY	PES: U/4 or more [2] sludge from point-sources) LACUSTURINE [0] 3 or less [0] SHALE [-1]	
Comments		en movier [1]
auality: 3-Highest quality in n	ETATION [1] ROOTWADS [1] AQUATIC MACROPHYTI	Thignes: Check ONE (Or 2 & average) arge Check ONE (Or 2 & average) ools. EXTENSIVE >75% [11] S[1] MODERATE 25-75% [7] ES [1] SPARSE 5-25% [3]
SINUOSITY DEVE	R [3] [] RECOVERING [3] [] LOW [1]	Channel Maximum 20
River right looking downstream	ID RIPARIAN ZONE Check ONE in each category for EACH BANK (Or: RIPARIAN WIDTH FLOOD PLAIN QUALIT WIDE > 50m [4] FOREST, SWAMP [3] MODERATE 10-50m [3] SHRUB OR OLD FIELD [2] NARROW 5-10m [2] RESIDENTIAL, PARK, NEW FIELD [2] VERY NARROW < 5m [1]	Y CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0]
MAXIMUM DEPTH Check ONE (ONLY!) > tm [6] 0.7~<1m [4]	RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) Check ONE (Or 2 & average) Check ALL that apply POOL WIDTH > RIFFLE WIDTH [2] POOL WIDTH = RIFFLE WIDTH [1] POOL WIDTH < RIFFLE WIDTH [1]	ENT [-2] Pool /
Indicate for function of riffle-obligate sp RIFFLE DEPTH BEST AREAS > 10cm [2] BEST AREAS 5-10cm [1] BEST AREAS < 5cm [metric=0] Comments		
6] GRADIENT (2.5)	t/mi) UVERY LOW - LOW [2-4] %POOL:	%GLIDE: 90% Gradient
DRAINAGE AREA	MODERATE (6-10)	RIFFLE: (09) Maximum
EPA 4520		06/16/06





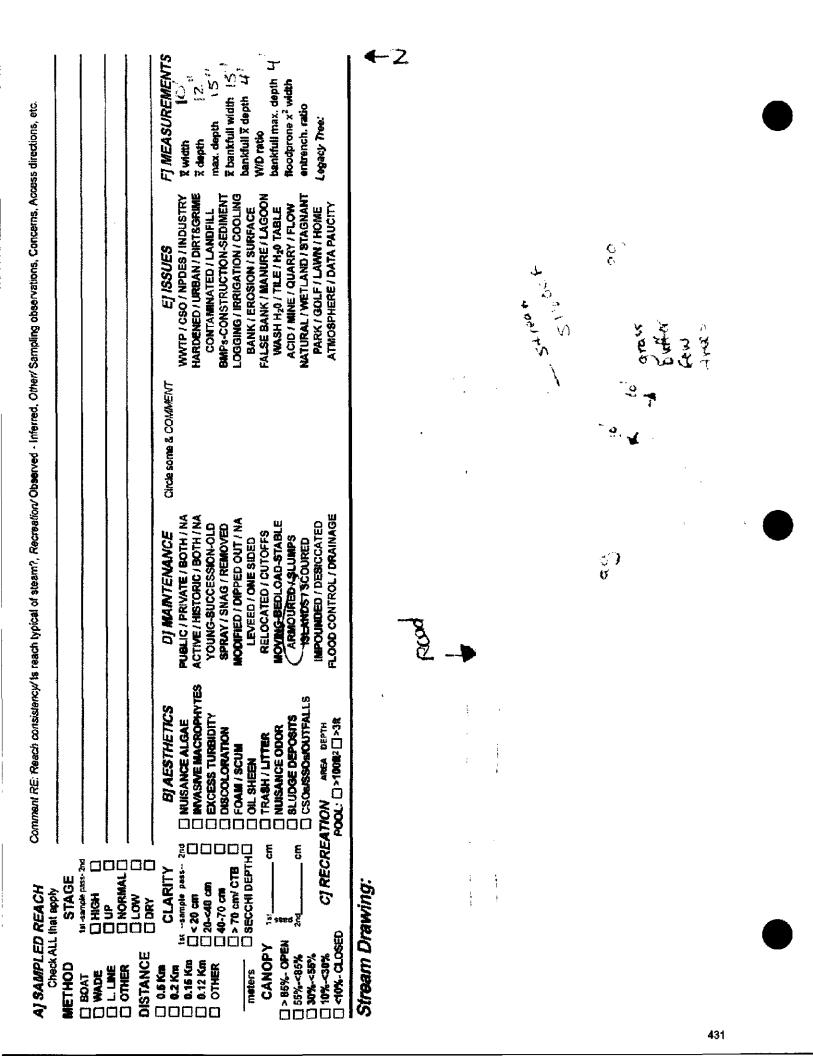
WATERBODY DATA SHEET

				<u></u>			
WATERBODY ID NO: S1	60CA	WAT	WATERBODY NAME: Hagerman Creek				
SITE NAME: Blue Creek							
Date: 9/16/2009	CLIENT/PROJECT NAME: He	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm					
INVESTIGATORS: D.West, M. Nech	IGATORS: D.West, M. Nechvatal			ROVER FILE: R091609ADW.cor QUAD NAME: L			
STATE/COUNTY: Ohio/Paulding		Town	ISHIP.: Latty				
		Рноте	0 NO: 160CA29S & 160C	'A30n			
	WATER	BODY CHARA	CTERISTICS				
WATERBODY TYPE:	Deep channel, banks may hav	e been widened u	inaturally (farmers)				
FLOW EVENTS/YEAR:							
FLOW TYPE:	Perennial						
AVG. STREAM DEPTH:	12 (in)				- <u>,, ,,,, -</u> ,		
Avg. Stream Width:	12 (ft)	TOP OF BANK: 15	(ft)	ORDIN (ft)	ary High Water Mark Width: 10		
Avg. Bank Height:	4 (ft)						
Avg, Bank Slope (Ratio):	Vertical (<= 1:1)			•			
	Qua	LITATIVE AT	RIBUTES				
AVERAGE WATER APPEARANCE:	Clear						
PRIMARY SUBSTRATE:	Cobbles						
POTENTIAL HABITAT FOR:	Fish/Spawn Areas						
DEFINED BED AND BANKS:	PRESENT						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM EL	GE OF ACTIVE CHANNEL (OUT ONTO	d flood plan: 10 (ft)		
	TYPE OF VEGETATION PRESENT	r: Forested			· · · · · · · · · · · · · · · · · · ·		
WETLAND FRINGE (IF PRESENT):	S of existing road, W of stream	n, where stream cr	osses beneath				
CHANNEL CONDITION:	Highly Erodable						
CHANNEL TYPE:	Natural CHANNEL GEOMETRY RELATIVELY STRAIGHT				ely Straight		
	h	Comment	S				
	<u>-</u>						
STREAM QUALITY: Medium							
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel withs on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertabrates present. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of							

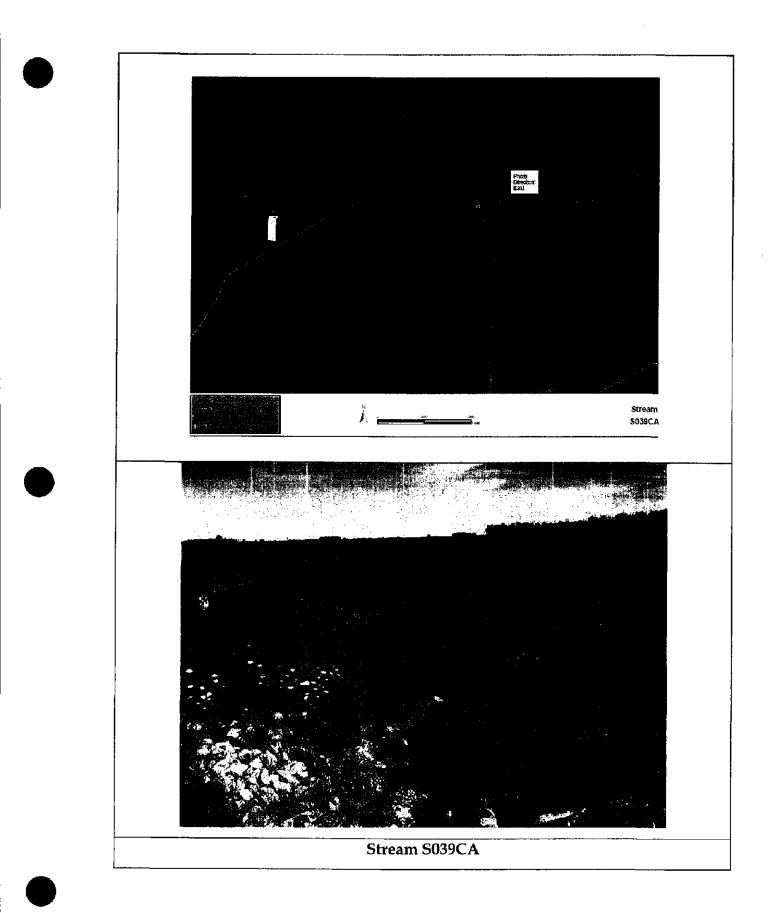
riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

Low Quality: Channel is actively downcutting or widening; hp rap and channifization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; h regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scorn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

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	iameter log that is stable, well de	eveloped rootwad in deep / fast w	ater, or deep, well-defined, function	nal pools. 🔲 🏽	XTENSIVE 275% 1	
	UNDERCUTIBANKSHAP			iters (1) 🔲 1 Hytes (1) Z.S		
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omments		AXIMUM < 50cm [1] 12 MOD. 8	STABLE (egglarande Gravel) [1]		RATE OF RIFIE	
83	HEST/AREAD SHOCH(I) MM	I I IINXIA				عداله
GRADIENT (3.3 t/mi) (1) VIEWINWEWOW(2741) %POOL: (0) %GLIDE: (0) Gradient	HESTAREAS STORM (1) DO M BESTAREAS SAM [Metric=0]		eneres (a. R.). isti ilkois inatikoisiinii. PhT		NSIVE [:1] Maximum	, T



Tributaries to Hagerman Creek



present.

WATERBODY DATA SHEET

WATERBODY ID NO: 50	39CA		WATERBODY NAME: Unnamed Tributary to Hagerman				
SITE NAME: Blue Creek							
Date: 9/19/2009	CLIENT/PROJECT NAME: H	eartland Wind	LLC./Blue Creek Wind	Farm			
INVESTIGATORS: Hook		Roy	ER FILE: RAH090919B.cor		QUAD NAME: Convoy		
STATE/COUNTY: Ohio/Van Wert	Точ	NSHIP.: Union					
		Рно	to No: s59ca1				
	WATER	BODY CHAR	ACTERISTICS				
WATERBODY TYPE:	Ag drainage						
FLOW EVENTS/YEAR:							
FLOW TYPE:	Intermittent						
AVG. STREAM DEPTH:	0 (in)						
AVG. STREAM WIDTH:	0 (ft)	TOP OF BANK: 3	0 (ft)	ORDINARY HIGH WATER MARK WIDTH (ft)			
AVG. BANK HEIGHT:	8 (ft)						
AVG. BANK SLOPE (RATIO):	2:1	······································	······································				
	QUA	LITATIVE AT	TRIBUTES				
AVERAGE WATER APPEARANCE:							
PRIMARY SUBSTRATE:	Silts	···					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity						
DEFINED BED AND BANKS:	PRESENT						
Riparian Zone:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM	DGE OF ACTIVE CHANNEL C	- סעד סאדל	D FLOOD PLAN: 0 (ft)		
	TYPE OF VEGETATION PRESENT	Γ:					
WETLAND FRINGE (IF PRESENT):	Leersia oryzoides						
CHANNEL CONDITION:	Not Significant						
CHANNEL TYPE:	Manipulated CHANNEL GEOMETRY RELATIVELY STRAIGHT						
COMMENTS							
STREAM QUALITY: LOW	STREAM QUALITY: LOW						
High QuALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to baa- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. Moservarte QuaLity: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering functionant.							

ripertan vegetation only moderately compromised; banks moderately unstable (outside banks actively eroding with few fallen trees); considerable water clouciness, submerged objects covered with green film moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scurm, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates and the stress of the sective channel width on each side; lack of

ChieEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :	7.1
SITE NAME/LOCATION	2.50
LENGTH OF STREAM REACH (II) LAT. 40 36 21 LONG. 84 38 32 RIVER CODE RIVER MILE	
DATE 9 19 SCORER COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	uctions
MODIFICATIONS:	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS (16 pts)	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts]	
SAND (<2 mm) [6 pts]	
Total of Percentages of (A) (B) Bidr Slabs, Bouldar, Cobble, Bedrock	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 1/2 TOTAL NUMBER OF SUBSTRATE TYPES; /	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] - 5 cm (5 pts]	و
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	
COMMENTSMAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8'') [15 pts]	Bankfull
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts]	Width Max=30
► 1,5 m - 3.0 m (> 8' 7" - 4' 8') [20 pts]	
COMMENTSAVERAGE BANKFULL WIDTH (meters): 3	70
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY SNOTE: River Left (L) and Right (R) as looking downstream t	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest. Wetland Conservation Tillage	
Field Field	_
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	þ
COMMENTS	
	•
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	
/ SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1.0 2.0 3.0	
STREAM GRADIENT ESTIMATE	Ю П)

October 24, 2002 Revision

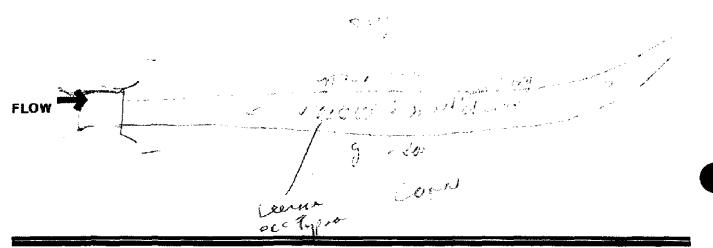
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PHWH	Form	Page	-	1	
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ADDITIONAL STREAM INFORMATION (This Inform	nation Must Also be Completed):
	HEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, IN	CLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: _ Van Wert	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last p	Quantity:
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (%	
Were samples collected for water chemistry? (Y/N): _	Note lab sample no. or id. and attach results) Lab Number;
Field Measures' Temp (°C) Dissolved Ov	ygen (mg/l)pH (S.U.)i Conductivity (umhos/cm)
is the sampling reach representative of the stream (Y	/N) If not, please explain:
Additional comments/description of pollution impacts	
BIOTIC EVALUATION	
	ervations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
its number. Include ap	propriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) 💙 Voucher?	Salamanders Observed? (Y/N) Voucher? (Y/N) (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Commants Regarding Biology:	
	2 mgs I within the
ι	an na presidente en la companya en l

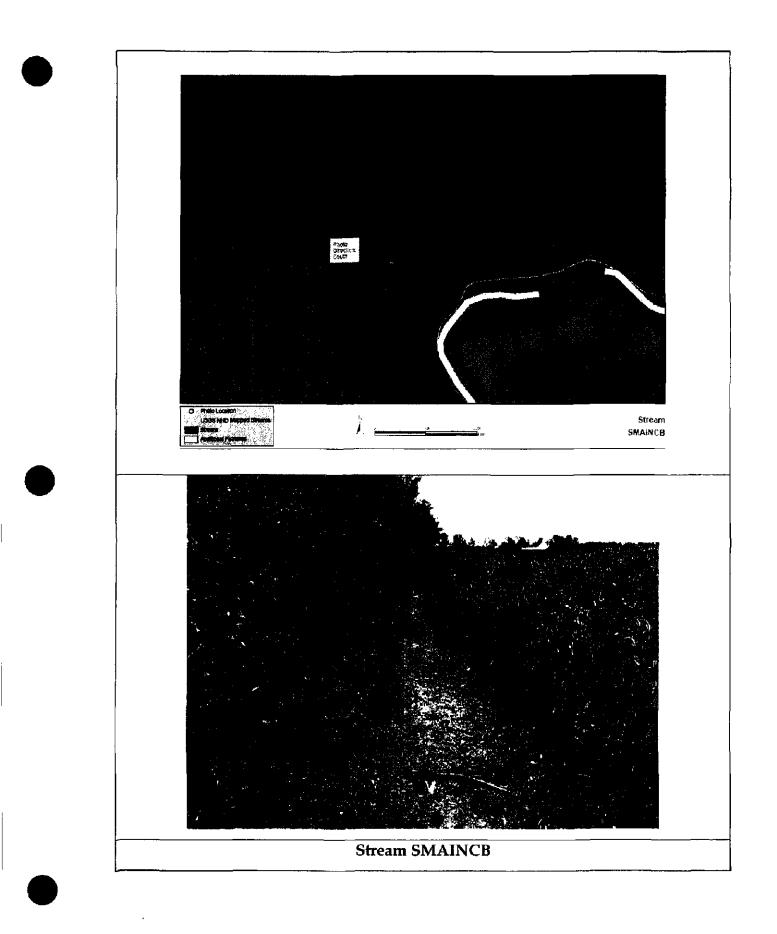
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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



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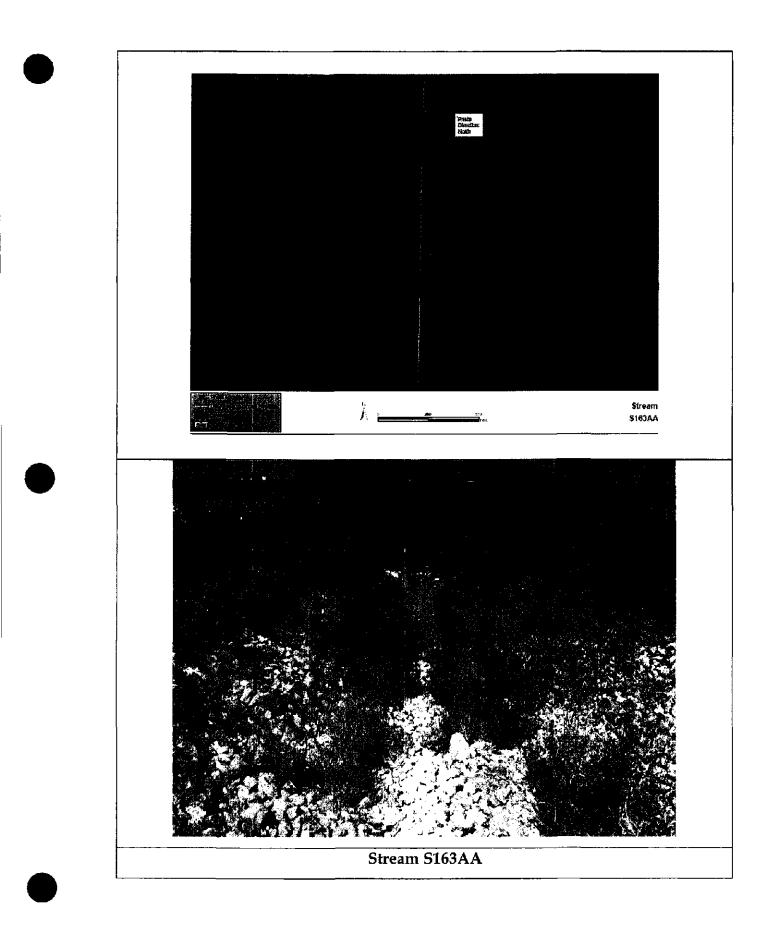


present.

WATERBODY ID NO: SN	/AINCB		WATERBODY NAME: Unnamed Tributary to Hagerman				
SITE NAME: Blue Creek							
DATE: 9/18/2009	CLIENT/PROJECT NAME: He	eartland Wind L	LC./Blue Creek Wind I	Farm			
Investigators: AF RH		Rove	R FILE: RAH091809A.cor	QUAD NAME: Scott			
STATE/COUNTY: Ohio/Van Wert		Town	vship.: Union				
· · · · · · · · · · · · · · · · · · ·		Рнот	o No: smaincb1				
	WATER	BODY CHARA	CTERISTICS				
WATERBODY TYPE:	Modified ag ditch						
FLOW EVENTS/YEAR:							
FLOW TYPE:	Ephemeral						
AVG. STREAM DEPTH:	(in)	<u>, , , , , , , , , , , , , , , , , , , </u>					
Avg. Stream Width:	(ft)	TOP OF BANK: 8	(ft)	ORDINARY HIGH WATER MARK WIDTH: 4 (ft)			
AVG. BANK HEIGHT:	10 (ft)	·	<u></u>				
AVG. BANK SLOPE (RATIO):	2:1						
	QUA	LITATIVE AT	TRIBUTES				
AVERAGE WATER APPEARANCE:							
PRIMARY SUBSTRATE:	Sands						
POTENTIAL HABITAT FOR:	Aq/Wild Diversity						
DEFINED BED AND BANKS:	PRESENT						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE FROM E	JGE OF ACTIVE CHANNEL C	DUT ONTO FLOOD PLAN: 0 (ft)			
	TYPE OF VEGETATION PRESENT	Γ:					
WETLAND FRINGE (IF PRESENT):		· · · · · · · · · · · · · · · · · · ·					
CHANNEL CONDITION:	Not Significant						
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	Relatively Straight			
	·····	COMMENT	rs				
STREAM QUALITY: LOW							
access to adequate flood plain; natural vegetatil colored; no barriers to fish movement (seasonal microinvertebrates present, MODERATE QUALITY: Altered channel evidenced ripartan vegetation only moderately compromiss moderate odor; minor barriers to fish movement Low QUALITY: Channel is actively downcuting of regeneration; filtering function severely compro	ion extends at least one or two active chann al water withdrawais prevent movement); ma d by rip rap and/or channelization; dikes/leve ed; banks moderately unstable (outside ben ht; 4-3 fish cover types available; fair aquatic or widening; rip rap and channilization exces mised; Banks unstable (inside and outside b	nel widths on each side; bu any fish cover types availa ees restrict flood plain widt as actively eroding with for a habitat; minimum disturb ssive; flood plain restricter bends actively eroding with	anks stable and protected by roots ti tole; diverse and stable aquatic habi- th; natural vegetation extends 1/3-1/ sw fallen trees); considerable water ance by livestock or man; Facultativ d by dikes/levees; natural vegetation h numerous fallen trees); water very	n significant recovery; any dikes/levies are set back to provide that extend to the base-flow elevation; water clear to tea- lithat; no disturbance by livestock or man; intolerant /2 of the active channel width on each side; filtering function of cloudiness, submerged objects covered with green film; we microinvertebrates present. In less than 1/3 of the active channel width on each side; lack of y turbit to muddy; obvious pollutants (algal mats, surface scum, turbance by livestock or man; tolerant or no microinvertebrates			

		Habitat Evalu HHEI Score			2.7
				· · · · · · · · · · · · · · · · · · ·	
			DRAI	NAGE AREA (m ^{it})	0.
ENGTH OF STREAM REACH (ft)					
DATE 9/18/09 SCORER 12.400.					
NOTE: Complete All Items On This Forr					uctions
			~		
SUBSTRATE (Estimate percent of eve	• • •				
(Max of 32). Add total number of signific			ic score is sum of t		HHE Metri
	ERCENT TYPE	SILT (3 pt)		PERCENT	Point
BOULDER (>256 mm) [16 pts]		LEAF PACK/WOOD	Y DEBRIS [3 pts]		
BEDROCK (16 pt)		FINE DETRITUS [3	pts]		Substrat
COBBLE (65-256 mm) [12 pts]		CLAY of HARDPAN	[0 pt]		Max = 4
GRAVEL (2-64 mm) [9 pts]		MUCK [0 pts]			1 -
SAND (<2 mm) [6 pts]	00	ARTIFICIAL [3 pts]			/
Total of Percentages of	(A)			(8)	
Bidr Slabs, Boulder, Cobble, Bedrock	<u> </u>	· •		· · · · · · · · · · · · · · · · · · ·	A + B
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 6	TOTAL NUMBE	ER OF SUBSTRAT		
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS		S 5 cm (5 pts)	OIST CHANNEL (C		0
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	average of 3-4 meas	urements) (Cheo > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (<=3' 3") (5			Bankfu Width Max=30
COMMENTS		AVERAGE E	IANKFULL WIDTH	1 (meters): /. 5	20
RIPARIAN ZONE AND FLOODF RIPARIAN WIDTH L. R. (Per Bank)	PLAIN QUALITY FLOODPLAIN QUALITY	edominant per Bank)		ing downstream 🖈	
Wide > 10m @ old RR-		orest, Wetland		onservation Tillage	
Moderate 5-10m	Field	e Forest, Shrub or Old	Ur Ur	ban or industrial	
Narrow <5m	Resident	ial, Park, New Field		en Pasture, Row Cro	
None UPPER LEACH	Fenced I			ning or Construction	per d
FLOW REGIME (At Time of Eva Stream Flowing Subsurface flow with isolated poor COMMENTS_	·	Moist Chan	nel, isolated pools. I, no-water (Epher	. no flow (Intermitte nt) ner al)	•
SINUOSITY (Number of bends of None 0.5	ber 61 m (200 ft) of cha 1 0 1.5	nnel) (Check ONLY one 2.0 2.5	box):	3.0 >3	
STREAM GRADIENT ESTIMATE	Moderate (2 min				

ADDITIONAL STRE	AN INFORMATI	<u>ON (This Information</u>	n Must Also	be Completedi:					
QNEI PER	FORMED? -		6core	(If Yes, Alb	ach Comple	ed QHEI Fom	n)		
	REAM DESIGN	TEO UBE(S)			7		r		1 A
CWH Name:					T	from Evolusio from Evolusio	T		╡╹
EWH Name:				·····	1	from Evolucia	T	·····	
MAPPING	: ATTACH COPE	s of NAPS, NCLUD	ing the su	IRE WATERSHE	D AREA. ČL	EARLY MARK	THE SITE L	OCATION	
USGS Quadrangle N	ama:			NIRCS Soil Map F		NRCS Soll	Map Stream	t Order	
County:			Townsh						
MBCELL/	NECLIS								_
Base Flow Condition	T CYANE	_ Dets of test precipi	italian:	· 、 1	Quant		ר		
Photograph Informat					والمراجع والمراجع والمحاوية والمحاوية والمحاو				
Elevated Turbidity? (Canopy (% open	n: []					
Were samples collec			1	semple no. or id.	and altach r	esults) Lab Mu	mber:		
	Temp (*C)	Dissolved Oxygen		pH (6.U.)		nductivity (µm)			1
	• • • • •	of the stream (Y/N)		iense solain:					ilas.
	an a far the far and the far and the far a			in alter a state of the state o		()	مى تىرى بەكىرىم چەت ئەتراپىرىغان ب		1
Additional community	density of a	all the base of a	<u></u>			فيتحدين والكافية بوغ والبارية والمر		•	<u> </u>
	waarubnou or h								
Performed? (Y/N):		i, Record all observation wher. Include appropria							e șițe
Fish Observed? (Y/				served? (Y/N)		2 (Y/N)			
Frogs or Tedpoles O Comments Regardin	. 1	Voucher? (Y/N)	Aquetic	: Macroinvertebra	tes Observe	xd7 (Y/N)	Voucher? ((Y/N) <u> </u> !	
	Y COLOGY:		i i de la company de la com						
		RRATIVE DESC					•	-	
		und other features of	interest for	elle eveluation at	MENIER & SA	ve description	of the stree	m's location	
	$\cdot N$				THE				
	<u> </u>					German	CRE	ĒK	
•		o pp	EMBAN	WALLACT-		*	<u>_</u>		
FLOW					-) -	~ ~	- <u>·</u>	~	•
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		CROPL.	AND				. *		



WATERBODY DATA SHEET

					an ta an in the second s	
WATERBODY ID NO: \$163AA			WATERBODY NAME: Unnamed Tributary to Hagerman Crk (to the N)			
SITE NAME: Blue Creek		`				
DATE: 9/16/2009	CLIENT/PROJECT NAME: H	eartland Wind LI	.C./Blue Creek Wind	Farm	- <u> </u>	
INVESTIGATORS: D.West, M. Nechvatal			FILE: R091609ADW.cor		QUAD NAME: Latty	
STATE/COUNTY: Ohio/Paulding			TOWNSHIP.: Latty			
		Рното	NO: 163C13n & 163C14	IS		
	WATER	BODY CHARA	TERISTICS			
WATERBODY TYPE:	Modified ag drainage, rip-rap	along small portion	n of the E bank; manmad	e, cobble	s and veg in bed	
FLOW EVENTS/YEAR:						
FLOW TYPE;	Intermittent					
AVG. STREAM DEPTH:	0 (in)					
AVG. STREAM WIDTH:	0 (ft)	Top of Bank: 20 (ft)			ary High Water Mark Width: 8	
Avg. Bank Height:	6 (ft)					
Avg. Bank Slope (Ratio):	2:1					
	QUA	LITATIVE ATT	RIBUTES			
Average Water Appearance:						
PRIMARY SUBSTRATE:	Vegetation					
POTENTIAL HABITAT FOR:	None					
DEFINED BED AND BANKS:	PRESENT					
Rifarian Zone:	WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD FLAN: () (ft)					
	TYPE OF VEGETATION PRESENT: Other (Specify)					
WETLAND FRINGE (IF PRESENT):	none					
CHANNEL CONDITION:	Other					
CHANNEL TYPE:	Manipulated CHANNEL GEOMETRY RELATIVELY STRAIGHT					
		COMMENT	<u> </u>			
STREAM QUALITY: Low						
High QUALITY: Natural channel (no structures o access to adequate flood plaim; natural vegetati colored; no barriers to fish movement (seasona	on extends at least one or two active chann	el widths on each side; bar	iks stable and protected by roots th	natiextend to	ecovery; any dikes/levies are set back to provide) the base-flow elevation; water clear to tea- bance by livestock or man; intolerant	

microinvertebrates present.

microinvertebrates present. ModERATE QualitY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of partial vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QualitY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; toerant or no microinvertebrates present.

ChieEPA Primary Headwater Habitat Evaluation Form

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

SITE NUMBER S163AA RIVER BASIN DRAINAGE AREA (m²)	D.19
LENGTH OF STREAM REACH (ft) LAT. 41.00680 LONG84.53430 RIVER CODE RIVER MILE _	
DATE 09/16/09 SCORER Nechvatal COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate lypes found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS (16 pts) 0% SILT (3 pt) 70%	Points
BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrate
BEDROCK [16 pt] 0% III FINE DETRITUS [3 pts] 0% COBBLE (65-256 mm) [12 pts] 30% III CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pis] 0% 0% 0%	16
SAND (<2 mm) [6 pts] 0% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 30.00% (A) 106% (B)	A+B
Bidr Slabs, Boulder, Cobble, Bedrock]
karana	
 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm (15 pts)	
22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS MAXIMUM POOL DEPTH (centimeters): 2	
	{
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13") [30 pts]	Bankfull Width Max=30
	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width
 > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0 m (<=3' 3") [5 pts] 2 00 	Width Max=30
	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 3.0 m (> 9' 7' - 4' 8'') [20 pts] ✓ > 1.5 m - 3.0 m (> 9' 7' - 4' 8'') [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\$ NOTE: River Left (L) and Right (R) as looking downstream\$	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7' - 4' 8'') [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY STANCE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH L R (Per Bank) L R (Per Bank) Moderate 5-10m Moderate 5-10m	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.6 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$2NOTE: River Left (L) and Right (R) as looking downstream\$\$\$\$ RIPARIAN ZONE AND FLOODPLAIN QUALITY \$2NOTE: River Left (L) and Right (R) as looking downstream\$\$\$\$\$\$ I River Left (L) and Right (R) as looking downstream\$\$\$\$\$ Nide >10 m I R (Most Predominant per Bank) I R Conservation Tillage Moderate 5-10 m I R Mature Forest, Shrub or Old I Z Urban or Industrial I R Narrow <5m	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [25 pts] > 1.0 m (<=3' 3") [5 pts]	Width Max=30 20
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (< 3' 3" - 4' 8") [15 pts]	Width Max=30 20
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 6") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts]	Width Max=30 20
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.0 m (<=3' 3') [5 pts]	Width Max=30 20
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 6") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts]	Vidth Max=30 20

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ADDITIONAL STREAM INFORMATION (This Information N	lust Also be Completed):
	ore 28.0 (If Yes, Attach Completed QHEI Form)
WWH Name:	_ Distance from Evaluated Stream
CWH Name: _	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	G THE <u>Entire</u> watershed area. Clearly mark the site location
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Paulding	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipita	tion: Quantity:0.00
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):	100%
Were samples collected for water chemistry? (Y/N):	(Note lab sample no. or id. and attach results) Lab Number:
	ng/l) pH (S.U.) Conductivity (µmhos/cm)
is the sampling reach representative of the stream (Y/N)	if not, please explain:
Additional comments/description of pollution impacts:	
1D number. Include appropriate	s. Voucher collections optional. NOTE: all voucher samples must be labeled with the site a field data sheets from the Primary Headwater Habitat Assessment Manual) handers Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
<u>.</u>	
DRAWING AND NARRATIVE DESCR	IPTION OF STREAM REACH (This <u>must</u> be completed):
include important landmarks and other features of in	terest for site evaluation and a narrative description of the stream's location
ag	NA
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FLOW	
Unt to Hag	arman Creek A
- Road A	
ILOO IN	ay

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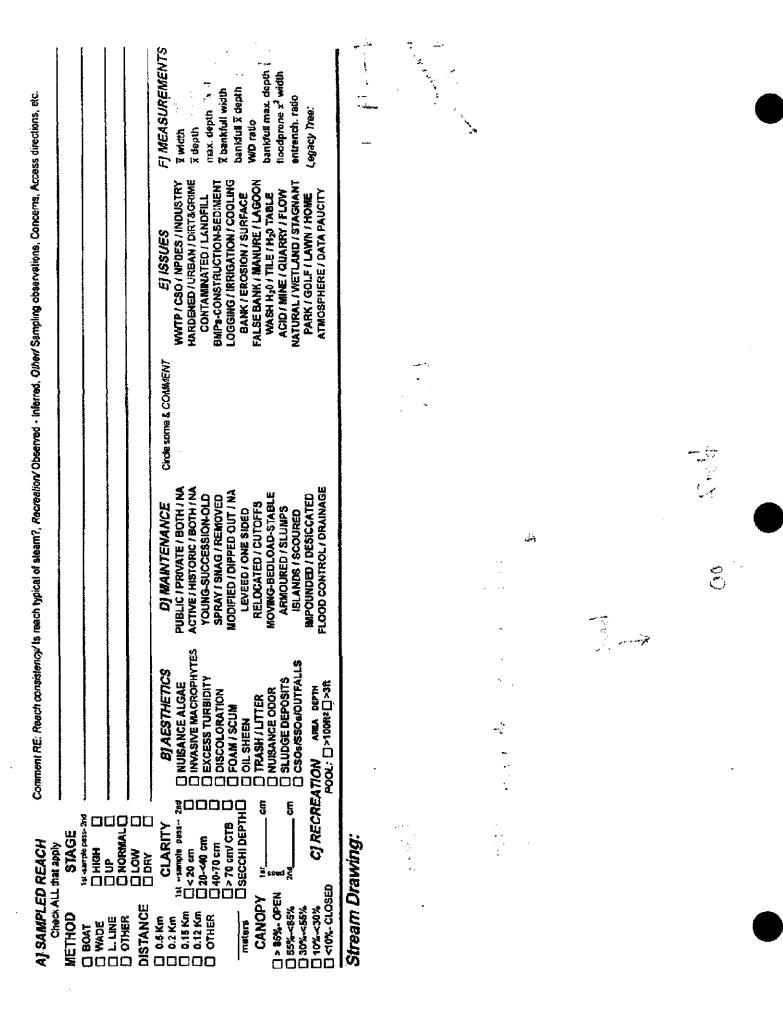
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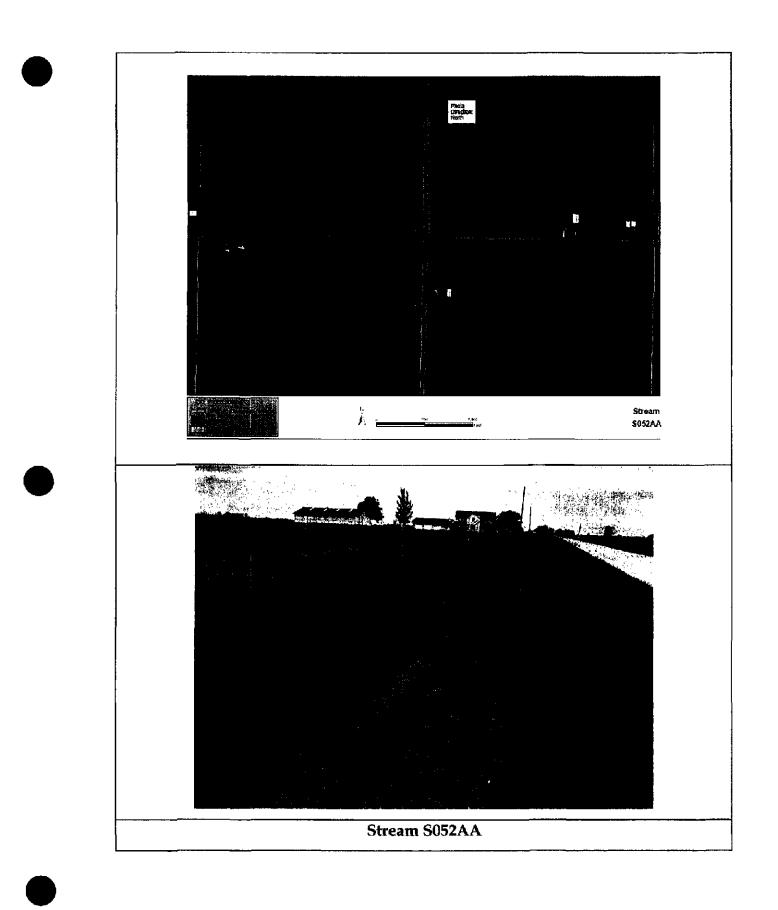


Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

OHEI Score:

Date: Stream & Location: RM: Scorers Full Name & Affiliation: P Office verified Lat./Long.: MAD 83 - decimal? River Code: STORET #: /8 location D 11 SUBSTRATE Check ONLY Two substrate TYPE BOXES; Check ONE (Or 2 & average) estimate % or note every type present OTHER TYPES POOL RIFFLE BEST TYPES POOL RIFFLE ORIGIN QUALITY **[] LIMESTONE** [1] BLOR /SLABS [10] HARDPAN [4] HEAVY 1-21 O D BOULDER (9) TILLS [1] MODERATE [-1] Substrate SILT I NORMAL [0] WETLANDS [0] □ □ MUCK [2] EXTENSIVE [-2] HARDPAN [0] ORAVEL [7] MODERAL [0] SANDSTONE [0] SAND [6] ARTIFICIAL (0) (Score natural substrates; ignore C RIP/RAP [0] MODERATE (-1] BEDROCK [5] Maximum NUMBER OF BEST TYPES: 4 or more [2] sludge from point-sources) 1 LACUSTURINE [0] 20SHALE [-1] 🗹 3 or less [0] Comments COAL FINES [-2] 50 ~ L < 2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest AMOUNT quality: 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools. Check ONE (Or 2 & average) EXTENSIVE >75% [11] UNDERCUT BANKS [1] POOLS > 70cm [2] _ ["] MODERATE 25-75% [7] . OXBOWS, BACKWATERS [1] OVERHANGING VEGETATION [1] ROOTWADS [1] SPARSE 5-<25% [3] AQUATIC MACROPHYTES [1] SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] NEARLY ABSENT <5% [1] LOGS OR WOODY DEBRIS [1] ROOTMATS [1] Cover Comments Maximum 20 3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average) DEVELOPMENT STABILITY SINUOSITY CHANNELIZATION EXCELLENT [7] 🗌 HIGH [4] HIGH [3] MODERATE [3] GOOD [5] RECOVERED [4] MODERATE [2] FAIR [3] RECOVERING [3] 🖸 LOW [2] **LOW** [1] Channel T POOR [1] NONE 11 RECENT OR NO RECOVERY 111 Maximum Comments 4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) RIPARIAN WIDTH River right looking downstream FLOOD PLAIN QUALITY R FOREST, SWAMP [3] EROSION 🗋 🗋 WIDE > 50m [4] CONSERVATION TILLAGE [1] D NONE / LITTLE [3] MODERATE 10-50m [3] URBAN OR INDUSTRIAL [0] C SHRUB OR OLD FIELD [Z] I MODERATE [2] NARROW 5-10m [2] C RESIDENTIAL, PARK, NEW FIELD (1) C MINING / CONSTRUCTION [0] HEAVY/SEVERE [1] C VERY NARROW < 5m [1] C FENCED PASTURE [1] Indicate predominant land use(s) D ONE [0] D OPEN PASTURE, ROWCROP [0] past 100m riponian. Riparian Comments Maximum 10 5] POOL / GLIDE AND RIFFLE / RUN QUALITY **Recreation Potential** MAXIMUM DEPTH CHANNEL WIDTH CURRENT VELOCITY Check ONE (Or 2 & average) Check ONE (ONLY!) Check ALL that apply Primary Contact 🗍 > 1m [6] POOL WIDTH > RIFFLE WIDTH (21 TORRENTIAL [-1] SLOW [1] Secondary Contact 🗍 VERY FAST [1] 🗍 0.7~1m [4] POOL WIDTH = RIFFLE WIDTH [1] INTERSTITIAL [-1] (circle one and commant on back) 🗍 0.4~0.7m [2] POOL WIDTH < RIFFLE WIDTH IDI</p> G FAST [1] INTERMITTENT [-2] 0.2-<0.4m [1] MODERATE [1] EDDIES [1] Pool indicate for reach - pools and riffles. Current 🖅 < 0.2m [0] Maximum Comments 12 *********** Indicate for functional riffles; Best areas must be large enough to support a population NO RIFFLE [metric=0] of riffle-obligate species: Check ONE (Or 2 & average). RUN DEPTH **RIFFLE DEPTH** RIFFLE / RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS MAXIMUM > 50cm [2] [] STABLE (e.g., Cobble, Boulder) [2] BEST AREAS > 10cm [2] **NONE** [2] BESTAREAS 5-10cm [1] MAXIMUM < 50cm (1) MOD. STABLE (e.g., Large Gravel) (1) LOW [1] Riffle UNSTABLE (e.g., Fine Gravel, Sand) [0] BEST AREAS < 5cm [metric=0] MODERATE [0] Comments 6] GRADIENT ft/mi) T VERY LOW - LOW [2-4] %POOL: %GLIDE: Gradient DRAINAGE AREA MODERATE [6-10] Mayimum HIGH - VERY HIGH (10-6) %RUN: %RIFFLE: ٠... mi^2 10 06/16/06





WATERBODY DATA SHEET

			WATERBODY NAME: Unnamed Tributary to Hagerman			
SITE NAME: Blue Creek						
Date: 9/20/2009	CLIENT/PROJECT NAME: He	eartland W	Vind LL	C./Blue Creek Wind I	Farm	
INVESTIGATORS: Hook				ROVER FILE: RAH090920.cor QUAD NAME: Convoy		
STATE/COUNTY: Ohio/Van Wert			Towns	SHIP.: Union		
			Рното	NO: 5052aa1		
WATERBODY CHARACTERISTICS						
WATERBODY TYPE:	Ag drainage					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Intermittent					
AVG. STREAM DEPTH:	0 (in)					
Avg. Stream Width:	0 (ft)	TOP OF BANK: 20 (ft) ORDINARY H			ary High Water Mark Width: 5	
AVG. BANK HEIGHT:	6 (ft)					
AVG. BANK SLOPE (RATIO):	2:1					
	Qua	LITATIV	E ATT	RIBUTES		
Average Water Appearance:						
PRIMARY SUBSTRATE:	Silts					
Potential Habitat For:						
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE F	ROM ED	GE OF ACTIVE CHANNEL C	OUT ONTO	o flood plan: 5 (ft)
	TYPE OF VEGETATION PRESENT	r: Herbace	ous			
WETLAND FRINGE (IF PRESENT):	· · · · · · · · · · · · · · · · · · ·			·		
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated CHANNEL GEOMETRY RELATIVELY STRAIGHT					
		Сом	MENTS	5		
STREAM QUALITY: Low	y					
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to lea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; fillering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bands actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate dore, mixer barriers to fast movement de the prevent movement biology in the value trees.						

moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QuaLity: Channel is actively downouting or widening; rip rap and channelization excessive; food plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; fillering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no equatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

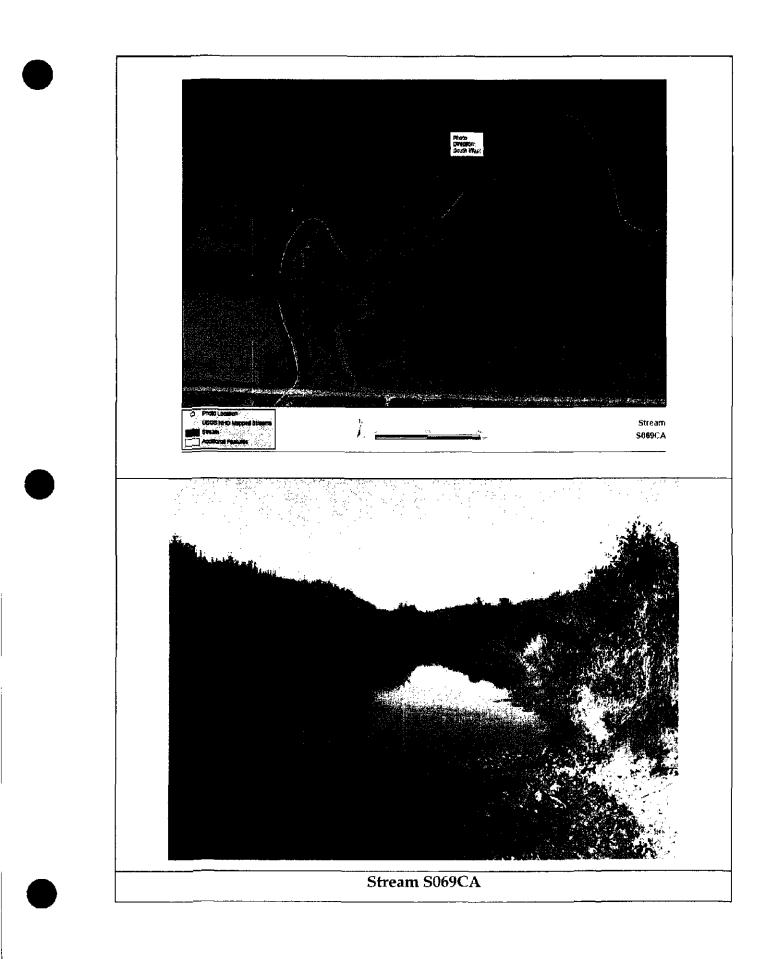
ChieEPA Primary Headwater Habitat Evaluation Form	29
HHEI Score (sum of metrics 1, 2, 3) :	£ and + at

	0-6-
SITE NUMBER SOSTAA RIVER BASIN DRAINAGE AREA (mi [*]) DRAINAGE AREA (mi [*]) LAT. <u>48°57</u> 57 LONG. <u>84°37 48</u> RIVER CODE RIVER MILE	<u> </u>
DATE 99/20/29 SCORER COMMENTS	······································
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	OVÉRY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE
TYPE PERCENT TYPE PERCENT	Metric Points
BLDR SLABS [16 pts] SILT [3 pt] BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts]	Points
	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] <u>59e</u> GRAVEL (2-64 mm) [9 pts] <u>MUCK [0 pts]</u>	
GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] SAND (<2 mm) [6 pts]	2
Total of Percentages of (A) (B)	A+B
Bidr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:	
2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] > 10 - 22.5 cm [25 pts]	
	0
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13") (30 pls) > 1.0 m - 1.6 m (> 3' 3" - 4' 8") [15 pls]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
∠ > 1.5 m - 3.0 m (> 8' 7" - 4' 8") [20 pls] COMMENTS	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ************************************	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Lichan or industrial	
Field Field Narrow <5m	φ
Me Fenced Pasture Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS_	•
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): 3.0 None 1.0 2.0 3.0 0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE	0 fg

PHWH Form Page - 1

		t Also be Completed):	
QHEI PERFORM		(If Yes, Attach Completed QHEI For	n)
DOWNSTREAM	ESIGNATED USE(S)		
WWH Name: 🛓			
		Distance from Evaluat	
EWH Name:	ана алиттик кар к. Колардан – «Пак Кайланску С. Марди», им тупк най их дицинна тит кити». – Сладин Проги Ко	Distance from Evaluat	d Stream
MAPPING: ATTA	CH COPIES OF MAPS, INCLUDING TH	HE ENTIRE WATERSHED AREA. CLEARLY MAR	THE SITE LOCATION
GS Quadrangle Name:		NRCS Soil Map Page: NRCS So	Map Stream Order
MISCELLANEOU			
	The second second		
se Flow Conditions? (Y/N	I): Y Date of last precipitation:	Quantity:	. <u></u>
otograph Information:	аратурадана у		3
evated Turbidity? (Y/N): _	Canopy (% open):	<u>i</u>	
ere samples collected for	water chemistry? (Y/N):	ote lab sample no. or id, and attach results) Lab N	umber:
d Measures: Temp (C) Dissolved Oxvaen (mail))	hos/cm)
		if nol, please explain:	د
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ditional comments/descri	ption of pollution impacts:		
		N	
		94	
BIOTIC EVALUA		ана ан	
	(If Yes, Record all observations. Vo	oucher collections optional. NOTE: all voucher samp	
informed? (Y/N):	(If Yes, Record all observations. Vo iD number. Include appropriate fiel	d data sheets from the Primary Headwater Habitat A	
rformed? (Y/N): <u>, , , , , , , , , , , , , , , , , , ,</u>	(If Yes, Record all observations. Vo ID number. Include appropriate fiel Voucher? (Y/N) Salamand	Id data sheets from the Primary Headwater Habitat A lers Observed? (Y/N) Voucher? (Y/N)	
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Blue Creek

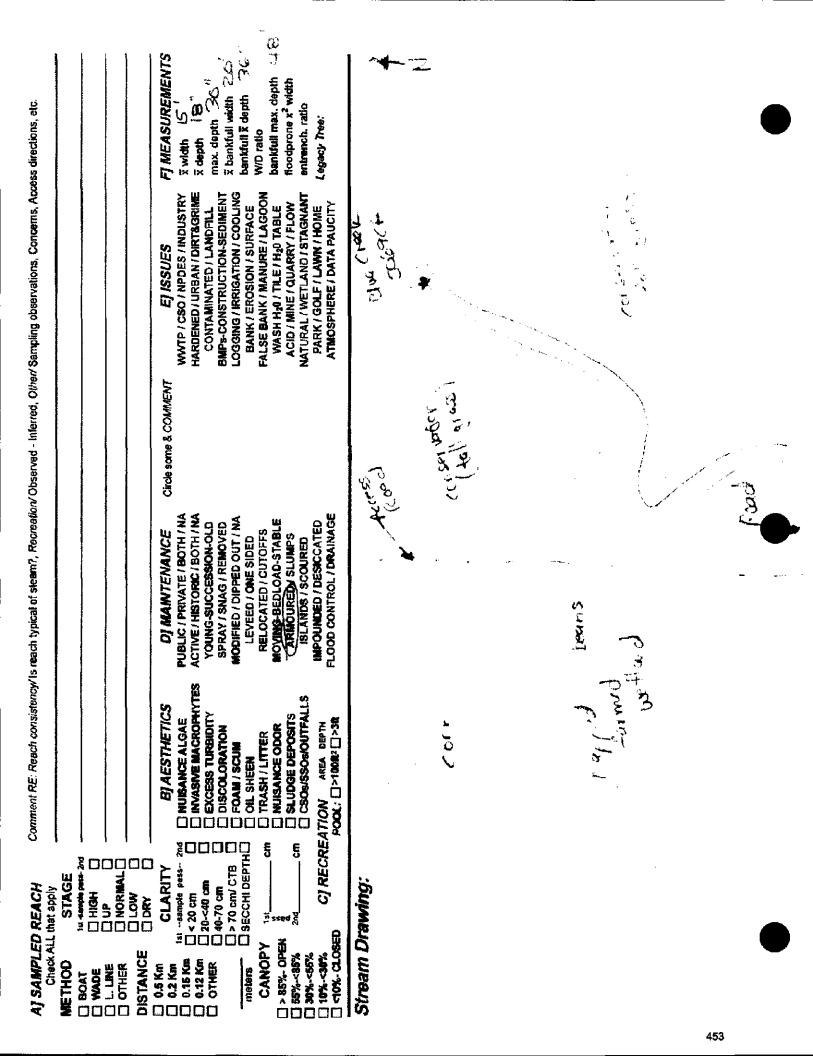


WATERBODY DATA SHEET

WATERBODY ID NO: S069CA			WATERBODY NAME: Blue Creek					
SITE NAME: Blue Creek								
DATE: 9/18/2009	CLIENT/PROJECT NAME: He	eartland W	/ind LL	C./Blue Creek Wind	Farm			
INVESTIGATORS: D.West, M.Nechvatal				FILE: R091809ADW.cor		QUAD NAME: Payne		
STATE/COUNTY: Ohio/Paulding			Towns	HIP.: Blue Creek				
				NO: 069C5nE & 069C6	SW			
WATERBODY CHARACTERISTICS								
WATERBODY TYPE:	Wide, deep natural channel, li	ikely manip	nulated/o	cut out due to adj ag fiel	ds			
FLOW EVENTS/YEAR:								
FLOW TYPE:	Perennial					<u></u>		
AVG. STREAM DEPTH:	6 (in)	······						
AVG. STREAM WIDTH;	15 (ft)	TOP OF BA	ank: 20 (i	ft)	ORDIN (ft)	ary High Water Mark Width: 15		
Avg. Bank Height:	2 (ft)							
AVG. BANK SLOPE (RATIO):	2:1							
	Qua	LITATIV	е Атті	RIBUTES				
AVERAGE WATER APPEARANCE:	Clear	Clear						
PRIMARY SUBSTRATE:	Silts							
POTENTIAL HABITAT FOR:	Fish/Spawn Areas							
DEFINED BED AND BANKS:	PRESENT				· · _ · _ · · · · · · · · · · · ·			
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE F	ROM EDO	GE OF ACTIVE CHANNEL (DUT ONTO	d flood plan: 100 (ft)		
	TYPE OF VEGETATION PRESENT	r: Herbaced	DUS					
WETLAND FRINGE (IF PRESENT):	N/A							
CHANNEL CONDITION:	Sloughing Banks	· <u>····</u> ·						
CHANNEL TYPE:	Natural CHANNEL GEOMETRY MEANDERING							
		Сом	MENTS	6				
collector line from 070 to 069T cro	sses stream diagonally at this p	oint, 069T ta	o NW					
STREAM QUALITY: Medium								
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by liveslock or man; intelerant microinvertebrates present. Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian yecitation; wonderstable compromised; banks moderately unstable; during bends actively emdino with few fallien trees); considerable water cloudiness, submerged objects covered with green film;								

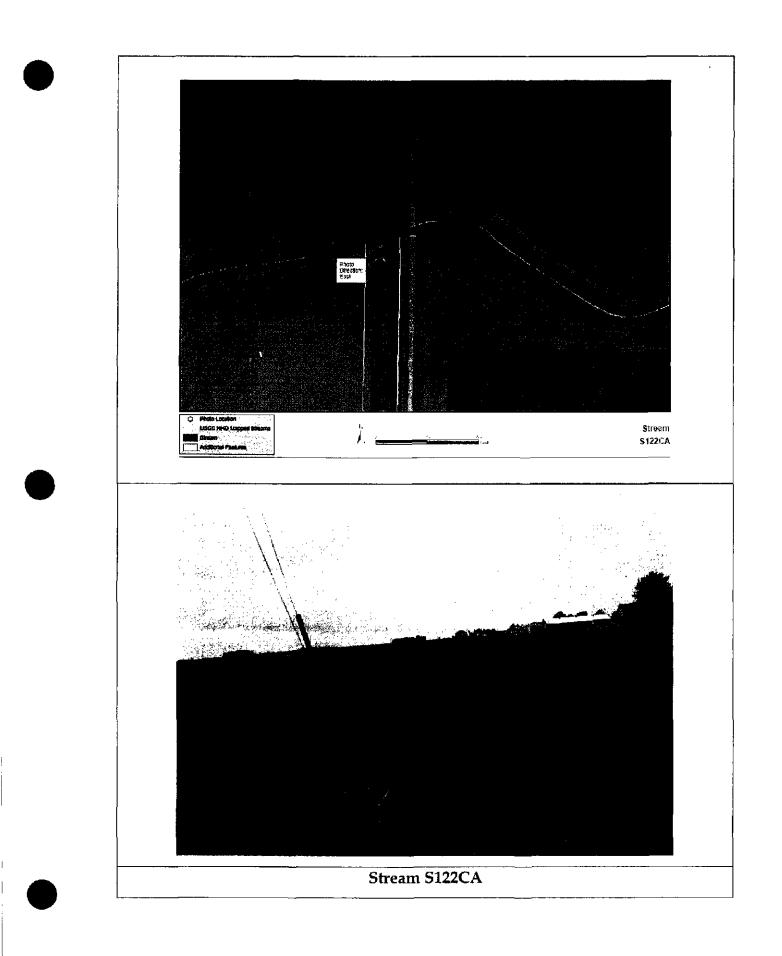
ripanan vegetation only moderately compromised; banks moderately unstable (quiside bands actively eroding with few fallen frees); considerable water cloudness, submerged objects overed with green nim; moderate door, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QUALITY: Channel is actively downcutting or widening; no rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (Inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scurn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

		sment Field Sheet	QHEI Score: 57.25
Stream & Location: <u>5</u> .	OLACA		RM: Date: 09 1810-00
River Code:	STORET #:Scor	ers Full Name & Affiliation: [Lat./ Long.:41 .0052	8 184.65797 Office verified location
1] SUBSTRATE Check ONLY estimate % c	r note every type present	Check O	NE (Or 2 & average)
BEST TYPES POOL			
BEDROCK 5	(Score natural subs S; 4 or more [2] sludge from p	strates; Ignore CRE/RANIOL	A 2 MODERATE [1] Maximi
Comments	2 3 or less [0]		NONE [1]
21 INSTREAM COVER India	ate presence 0 to 3: 0-Absent: 1-V	ery small amounts or if more common	of marginal AMOUNT
quality; 3-Highest quality in mode	ity; 2-Moderate amounts, but not o rate or greater amounts (e.g., very	f highest quality or in small amounts o large boulders in deep or fast water, ter, or deep, well-defined, functional (of highest large Check ONE (Or 2 & average)
	POOLS>70cm	[2] OXBOWS BACKWATER	(S)[1] D MODERATE/25-75%(7):
A SHALLOWS (IN SLOW W/			A COLOR AND AND A COLOR AND A
Comments			Cover Meximum 20
3] CHANNEL MORPHOLO	GY Check ONE in each category	(Or 2 & average)	
NODERATE(3) & GOOD(LOW)21		S MODERATE [2]	
☐ NONE[1]7		ECOVERY [1]	Channel Maximum 15,5
	NDADIAN ZONE Charle ONE	n each category for EACH BANK (Or	
River right looking downstream	RIPARIAN WIDTH	FLOOD PLAIN QUALIT	Υ, _
	MODERATE 10:50m [3] 🗌 🗌	FOREST, SWAMP STR	
🛛 🚺 HEAVY/SEVERE [1] 📋 🗖	VERY NARROW < 5m [1] 🔲 🗖	FENCED PASTURE [1]	1] Mining/ Construction [0] Indicate predominant land use(s)
Comments		OPEN PASTURE, ROWCROP [0]	past 100m rip aria n. Riparian Maximum 6.25
5 POOL / GLIDE AND RIF			10
MAXIMUM DEPTH	CHANNEL WIDTH Check ONE (Or 2 & average)	CURRENT VELOCITY	Recreation Potential
	PLWIDTH ~ RIFFLAWIDTH [2]	Check ALL that apply	
☐ (drafesQ) 7(m [2] ☐ PO ☐ (d 2) 4 (d 1 m [2]) ☐ PO	OL WIDTH < RIFFLE WIDTH [0]	UVERY FASTINIC DINTERSTIT D FAST (1) DINTERMITT DMODERATE (1) DEDDIES (1)	ENT [2]
□ <0 .2 <i>m</i> ,[0]	•	Indicate for reach - pools and rifl	es. Pool / Maximum
Comments	rifles. Rest state must h	e large enough to support a	12
of riffle-obligate specie RIFFLE DEPTH	es: Check ON	E (Or 2 & average).	LE / RUN EMBEDDEDNESS
BESTAREAS (000)[2]	AXIMUM > 50cm [2] 🔲 STABLE	(e.g., CODBINE HOLIGER) [2].	
DESTARIAS & Orm () D. BESTARIAS & Sem (metric=0)	IXXIMUM < 50cm [1] I MOD, ST UNSTAB	ABLE (erg) Large Grave) [1] LE (e.g. Fine Grave) Sand) [0]	
Comments			
3] GRADIENT (1.7 fl/mi) DRAINAGE AREA		%POOL:(_/5_)	%GLIDE: 35 Gradient 4



Pottawatomie Creek.

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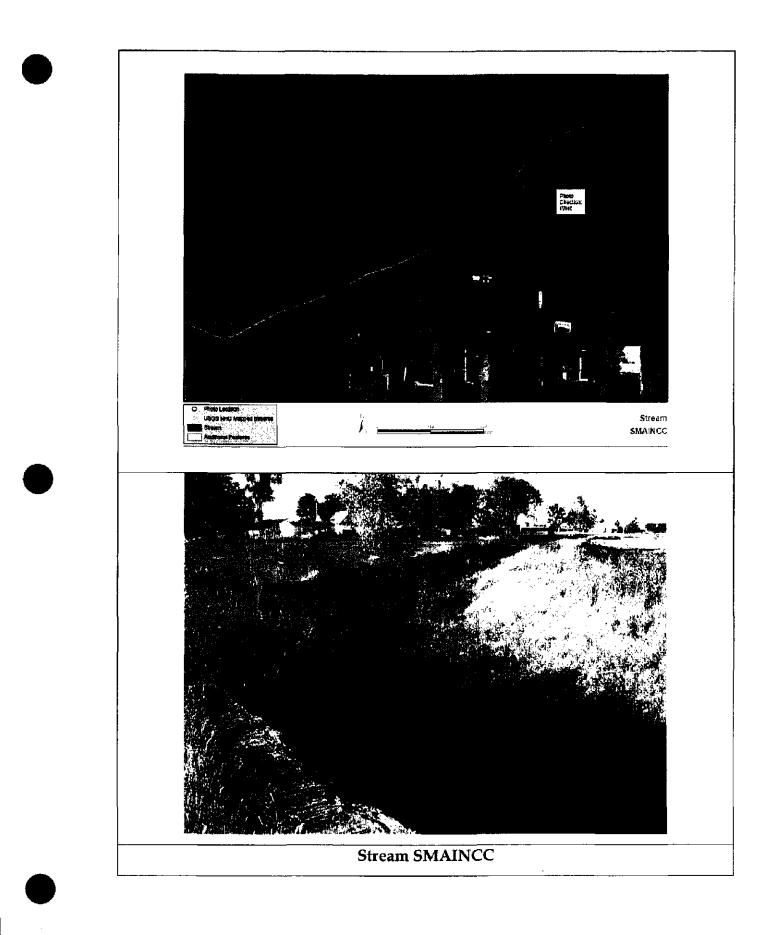


WATERBODY DATA SHEET

	·····						
WATERBODY ID NO: S1	22CA	W	ATERBODY NAME: PO	ottawate	omie Creek		
SITE NAME: Blue Creek							
Date: 10/14/2009	CLIENT/PROJECT NAME: He	eartland Wind	LLC./Blue Creek Wind	Farm			
Investigators: AF RH		Roy	ver File:		QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert		Tov	VNSHIP.: Union				
		Рно	DTO NO:				
	WATER	BODY CHAR	ACTERISTICS				
WATERBODY TYPE:	Modified ag ditch						
FLOW EVENTS/YEAR:							
FLOW TYPE:	Perennial						
AVG. STREAM DEPTH:	2 (in)						
Avg. Stream Width:	4 (ft)	TOP OF BANK: 25 (ft) OF (ft)			ARY HIGH WATER MARK WIDTH: 15		
AVG. BANK HEIGHT:	3 (ft)						
AVG. BANK SLOPE (RATIO):	3.1	3.1					
	QUA	LITATIVE A1	TRIBUTES				
AVERAGE WATER APPEARANCE:							
PRIMARY SUBSTRATE:	Silts						
Potential Habitat For:	Aq/Wild Diversity						
DEFINED BED AND BANKS:	PRESENT						
Riparian Zone:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM	EDGE OF ACTIVE CHANNEL (OUTONTO	FLOOD PLAN: 0 (ft)		
	Type of vegetation present	r: None					
WETLAND FRINGE (IF PRESENT):	N/A						
CHANNEL CONDITION:	Not Significant	ци <u>—</u> —					
CHANNEL TYPE:	Manipulated CHANNEL GEOMETRY MEANDERING						
		Commen	TS				
STREAM QUALITY: Low							
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral outting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel withins on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microliwertebrates present. MODERATE QUALITY: Allered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of							

riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrales present. Low QUALITY: Channel is actively downoutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtening function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbit to muddy; oblutants (algal mats, surface SCIIIII, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no equetic habitat; severe disturbance by livestock or man; toerant or no microinvertebrates

present.



WATERBODY DATA SHEET

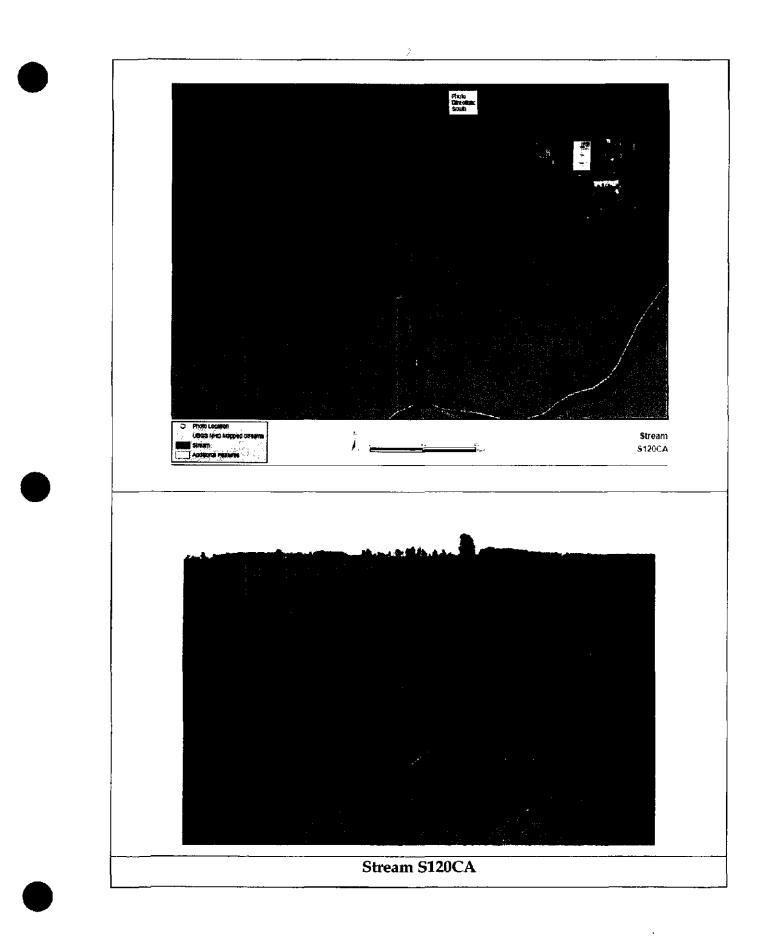
WATERBODY ID NO: SMAINCC			WATERBODY NAME: Pottawatomie Creek			
SITE NAME: Blue Creek						
Date: 9/19/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm					
INVESTIGATORS: Hook			ROVER FILE: RAH090919.cor	QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert			TOWNSHIP.: Union			
			PHOTO NO: smaince1			
	WATER	BODY C	HARACTERISTICS			
WATERBODY TYPE:	Ag drainage					
FLOW EVENTS/YEAR:						
Flow type:	Perennial					
AVG. STREAM DEPTH:	8 (in)					
Avg. Stream Width:	8 (ft)	Top of Bank: 40 (ft)			Y HIGH WATER MARK WIDTH: 15	
AVG. BANK HEIGHT:	8 (ft)					
AVG. BANK SLOPE (RATIO):	3:1					
	QUA	LITATIV	E ATTRIBUTES			
AVERAGE WATER APPEARANCE:	Turbiđ		· · · · · · · · · · · · · · · · · · ·			
PRIMARY SUBSTRATE:	Other					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE I	FROM EDGE OF ACTIVE CHANNEL	OUT ONTO F	lood plan: 0 (ft)	
	TYPE OF VEGETATION PRESEN	Г:				
WETLAND FRINGE (IF PRESENT):						
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated CHANNEL GEOMETRY RELATIVELY STRAKENT					
		Сом	MENTS			
STREAM QUALITY: Low						
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequale flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover lypes available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film;						

moderate color; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quarry: Channel is actively downcuting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious polikitants (algal mats, surface score, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

ChioEPA	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet QHEI Score: 295
Stream & Location:	SMAINCE (POTTAWATOMIE CREEK) RM: <u>0.9</u> Date: 91 19109
River Code: -	Scorers Full Name & Affiliation: STORET #: Lat./ Long.: 40°. 56' 52"/84? 34' 55" Office verified
11 SUBSTRATE Check OF	VLY Two substrate TYPE BOXES:
estimate BEST TYPES POI BLDR /SLABS [10]	% or note every type present Check ONE (0F2 & average) w [1/m] DL RIFFLE OTHER TYPES OOL RIFFLE ORIGIN QUALITY Image: Detribution of the every type present Image: Detribution of the every type present ORIGIN QUALITY Image: Detribution of the every type present Image: Detribution of the every type present ORIGIN QUALITY Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Substrates Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every type present Substrates Image: Detribution of the every type present Image: Detribution of the every type present Image: Detribution of the every
2] INSTREAM COVER	
River right looking downstream EROSION DENOSE / LITTLE [3] DENODERATE [2] DENEVY / SEVERE [1]	D RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) RIPARIAN WIDTH B RIPARIAN WIDTH B ODERATE 10-50m [3] B NODERATE 10-50m [3] B SHRUB OR OLD FIELD [2] B NODERATE 10-50m [3] B SHRUB OR OLD FIELD [2] B NODERATE 10-50m [3] B SHRUB OR OLD FIELD [2] B RESIDENTIAL, PARK, NEW FIELD [1] B VERY NARROW < 5m [1]
MAXIMUM DEPTH Check ONE (ONLY!) > 1m [6] 0.7-<1m [4]	RIFFLE / RUN QUALITY CHANNEL WIDTH CHANNEL WIDTH CURRENT VELOCITY Check ONE (Or 2 & average) Recreation Potential Primary Contact BOOL WIDTH > RIFFLE WIDTH [2] TORRENTIAL [-1] INSLOW [1] POOL WIDTH = RIFFLE WIDTH [1] VERY FAST [1] INTERSTITIAL [-1] POOL WIDTH < RIFFLE WIDTH [0]
of riffle-obligate sp RIFFLE DEPTH BEST AREAS > 10cm [2]	nal riffles; Best areas must be large enough to support a population
DRAINAGE AREA	Imile VERY LOW - LOW [2-4] %POOL: %GLIDE: Ø Gradient Imile MODERATE [6-10] %RUN: %RIFFLE: Maximum 10 mile Imile %RUN: %RIFFLE: 06/16/06

0 (1) 0 (1) 0 (1)	AI SAMPLED REACH OnectALL that appy METHOD STAGE 1 Math D Hank D 1 Math D Hank D	Comment RE. Reach consistency le read	is search typical of eteam?, Recreetio	n/Observed - Interred, Other	h system of essem?, Recreetion/Observed - Interned, Other/Sampling observations, Concerns, Access directions, elc	es directions, etc.
LAWN (31) 200 200 200 200 200 200 200 20			DJ MAGNTENANCE DJ MAGNTENANCE PUBLIC / PHYATE / BOTH / NA ACTIVE / HISTORAC / BOTH / NA LIAVEED / DHPELD OUT / NA LIAVEED / DAPED OUT / NA LIAVEED / SLIMPS ACTIVED / SLIMPS ALOOD CONTINOL / DAAWAGE		EZ (SSUES WATP / CBO / HPDES / INDUSTRY HARDENED / UPBAN / DIRTSJORNE CONTANINATED / LANDISATRY HARDENED / UPBAN / DIRTSJORNE CONTANINATED / LANDISATRY LOGGING / INNAATION / COOLING BANK / EROSION / SUNMART LOGGING / INNE / ALAGE FALLE BANK / EROSION / SUNMART VASH / VASH / INANUPE / LAGOON VASH / VASH / INANUPE / LAGOON VASH / VASH / JACK / NANUPE / LAGOON VASH / VASH / LAND / STACHANT PAGK / GOL F / LAGNART PAGK / GOL F / LAGNART	F] MEASURENENTS Twitten Twitten Thursday Thursday Thursday Thursday Thursday Thursday Thursday Thursday Thursday Thursday
N 31 231 311 311 311 311 311 311 3			LAW			
2:1 SOY 2000 20		Flow my	N -311			
ر ح	· ·	i sud (de	3:1 1 S		1 FST F	Ň
	- 459	June PNV June PNV ALGARE	504	hydrophy ter	for the st.	

Tributaries to Pottawatomie Creek



WATERBODY DATA SHEET

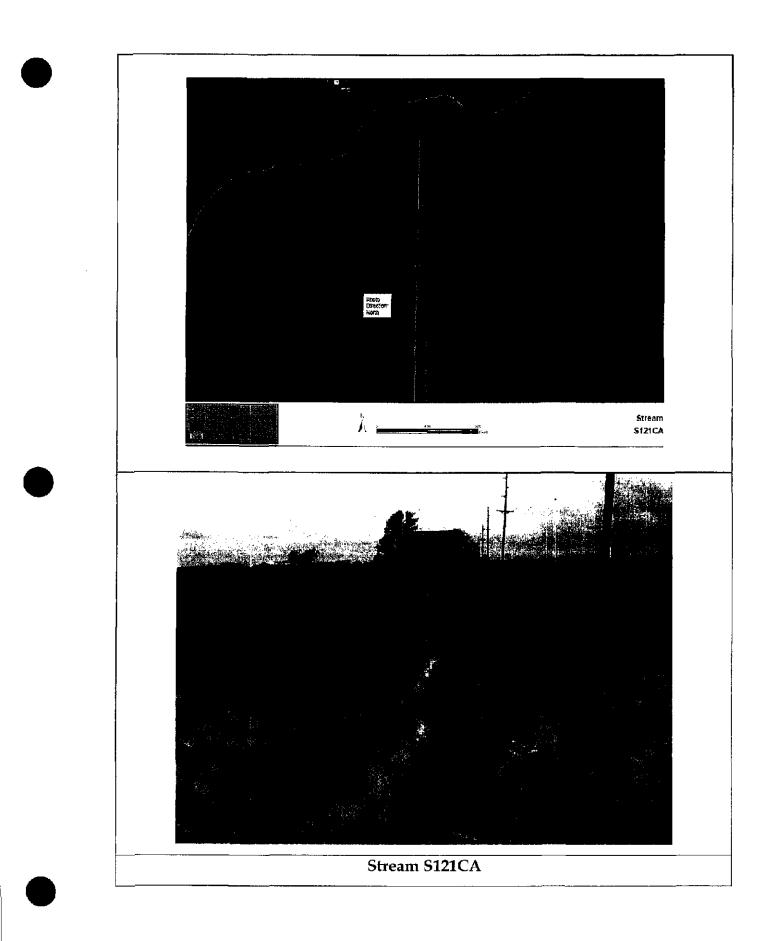
WATERBODY ID NO: S120CA			WATERBODY NAME: Unnamed Tributary to			
SITE NAME: Blue Creek	<u></u>					
DATE: 10/14/2009	Client/Project Name: He	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm				
Investigators: AF RH	•	Rover	· File:	QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert		Town	SHIP.: Union			
		Рното) No:			
	WATER	BODY CHARA	CTERISTICS			
WATERBODY TYPE: Ag ditch						
FLOW EVENTS/YEAR:						
FLOW TYPE:	Intermittent					
AVG. STREAM DEPTH:	2 (in)					
AVG. STREAM WIDTH:	1 (ft) TOP OF BANK: 10 (ft) ORDINARY HIGH WATER MARK 1 (ft)					
Avg. Bank Heicht:	4 (ft)					
AVG. BANK SLOPE (RATIO):	AVG. BANK SLOPE (RATIO): 3:1					
	Qua	LITATIVE ATT	RIBUTES			
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE FROM ED	GE OF ACTIVE CHANNEL C	DUT ONTO FLOOD PLAN: () (ft)		
	TYPE OF VEGETATION PRESENT	r: None				
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT		
		COMMENT	S			
			-			
STREAM QUALITY: LOW		# <u>***</u>				
STREAM QUALITY: Low Hew Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intelerant microinvertebrates present. NooeArte Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function inparian vegetation only moderately compromised; banks moderately unstable (outside bends actively ending with few failen trees); considerable water cloudiness, submerged objects covered with green filter moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; fitte to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.						

ChieEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :

TE NAME/LOCATION!				2IN	 	AINAGE AREA (mi²)_<1	mi2
ENGTH OF STREAM REA							
ATE _ 09/19/09 SC							
NOTE: Complete All It							
NOTE. Complete An In							
TREAM CHANNEL		JRAL CHA	INNEL 🗍 RE		overing [RECENT OR NO RECO	OVERY
				ent. Check ONLY <u>two</u> Max of 8). Final metric			НН
TYPE BLDR SLABS (RCENT	TYPE	on - 10 - 41		PERCENT	Meti Poir
	56 mm) [16 pts]			SILT [3 pt] LEAF PACK/WOODY	DEBRIS (3 pt	80 . s]	
BEDROCK [10				FINE DETRITUS [3			Substr Max ≠
	· · · •			CLAY or HARDPAN	[0 pt]		
GRAVEL (2-64		20	00 00	MUCK [0 pts]		(11
SAND (<2 mm)	[o pts]	20		ARTIFICIAL [3 pts]			
Total of Perce Bidr Slabs, Boulder	entages of , Cobble, Bedrock	0	(A) 9			^(B) 2	A + E
ORE OF TWO MOST PR	· · · · · · · · · · · · · · · · · · ·	RATE TYP		TOTAL NUMBER	R OF SUBSTR	ATE TYPES:	
> 30 centimeters [20] > 22.5 - 30 cm [30] > 10 - 22.5 cm [25] COMMENTS	ots]			> 5 cm - 10 cm [15 ; < 5 cm [5 pts] NO WATER OR MO MAXIMUM PC	IST CHANNE	10	15
BANK FULL WIDT > 4.0 meters (> 13') [3	•	verage or		nents) (Chec) > 1.0 m - 1.5 m (> 3'		•	Banki Widt
> 3.0 m - 4.0 m (> 9" > 1.5 m - 3.0 m (> 9"				≤ 1.0 m (≤ 3'3") <mark>[5 p</mark>	ts]		Max=
						2	20
COMMENTS				AVERAGE BA	NKFULL WI)TH (meters)	
	······································	This	information m	ust also be complete	d		
	ZONE AND FLOODPL	AIN QUAL	LITY 🕁 NO	TE: River Left (L) and		oking downstream න්	
<u>RIPARIAN</u> L R (Per Ban		LR	PLAIN QUALIT (Most Predor	<u>Y</u> ninant per Bank)	LR		
□ □ Wide >10	•		Mature Fores	st, Wetland	ŌŌ	Conservation Tillage	
D D Moderate	e 5-10m		Immature Fo Field	rest, Shrub or Old		Urban or Industrial	
Narrow <	5m	00		Park, New Field		Open Pasture, Row	
			Fenced Past			Crop Mining or Construction	
COMMENT	s						
Stream Flow	low with isolated pools			📕 🔲 Moist Chann	el, isolated po no water (Ep	ols, no flow (Intermittent) hemeral)	
SINUOSITY	(Number of bends ne	r 61 m /20	() ft) of channel) (Check ONLY one I			
None	Ū	1.0	-	2.0		3.0	
None 0.5		-		2.0 2.5		3.0 >3	

QHEI PERF		ormation Must Also be Completed):	
	ORMED? - 🗍 Yes 📕 No	QHEI Score (If Yes, Atta	ach Completed QHEI Form)
	EAM DESIGNATED USE(S)		Distance from Evaluated Stream
			Distance from Evaluated Stream
			Distance from Evaluated Stream
MAPPING:	ATTACH COPIES OF MAPS, I	INCLUDING THE <u>ENTIRE</u> WATERSHEE	DAREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Na	me:	NRCS Soil Map	Page: NRCS Soil Map Stream Order
County: Van Wert		Township / City: Unior)
MISCELLA	NEOUS		
Base Flow Conditions	? (Y/N): Date of las	st precipitation:	Quantity:
hotograph Informatio	n:	· · · · · · · · · · · · · · · · · · ·	
Elevated Turbidity? (Y)	/N): Canopy	(% open):	
Nere samples collecte	xd for water chemistry? (Y/N)): (Note iab sample no. or id.	and attach results) Lab Number:
Field Measures: To	emp (°C) Dissolved	Oxygen (mg/l) pH (S.U.) _	Conductivity (µmhos/cm)
s the sampling reach	representative of the stream	(Y/N) If not, please explain:	<u>.</u>
Additional comments/c	lescription of pollution impac	xts:	
<u>BIOTIC EV</u> Performed? (Y/N):	N (if Yes, Record all o		al. NOTE: all voucher samples must be labeled with the site
	ID number. Include	appropriate field data sheets from the P	rimary Headwater Habitet Assessment Manual)
Frogs or Tadpoles Obs	served? (Y/N) Voucher	Salamanders Observed? (Y/N) r? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) ates Observed? (Y/N) Voucher? (Y/N)
rogs or Tadpoles Ob Comments Regarding DRAWI	served? (Y/N) Voucher Biology: ING AND NARRATIVE	r? (Y/N) Aquatic Macroinvertebra	REACH (This must be completed):
Frogs or Tadpoles Obs Comments Regarding DRAWI	served? (Y/N) Voucher Biology: ING AND NARRATIVE	r? (Y/N) Aquatic Macroinvertebra	REACH (This must be completed): and a narrative description of the stream's location

PHWH Form Page - 2



WATERBODY DATA SHEET

WATERBODY ID NO: S121CA			WATERBODY NAME: Unnamed Tributary to Pottawatomie Creek				
SITE NAME: Blue Creek							
Date: 9/19/2009	CLIENT/PROJECT NAME: He	eartland V	Vind LLC./Blue Creek Wind	Farm			
INVESTIGATORS: Hook	<u>I</u>		ROVER FILE: RAH090919B.cor		QUAD NAME: Scott		
STATE/COUNTY: Ohio/Van Wert			TOWNSHIP.: Union				
		PHOTO NO: s121aa1 a121aa2					
			HARACTERISTICS				
WATERBODY TYPE:		BODIC	HARACTERISTICS				
	Ag drainage						
	FLOW EVENTS/YEAR:						
FLOW TYPE:	Intermittent						
AVG. STREAM DEPTH:	0 (in)						
Avg. Stream Width:	0 (ft) TOP OF BANK: 30 (ft)			ORDIN (ft)	ARY HIGH WATER MARK WIDTH: 5		
AVG. BANK HEIGHT:	6 (ft)						
AVG. BANK SLOPE (RATIO):	2:1						
	QUA	LITATIV	E ATTRIBUTES				
AVERAGE WATER APPEARANCE:							
PRIMARY SUBSTRATE:	Silts				· · · · · · · · · · · · · · · · · · ·		
POTENTIAL HABITAT FOR:	Aq/Wild Diversity						
DEFINED BED AND BANKS:	PRESENT						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	ION ZONE I	FROM EDGE OF ACTIVE CHANNEL O	DUT ONTO	D FLOOD PLAN: 0 (ft)		
	TYPE OF VEGETATION PRESENT	r:					
WETLAND FRINGE (IF PRESENT):	Typha latifolia 30%		······································				
CHANNEL CONDITION:	Not Significant						
CHANNEL TYPE:	Manipulated	<u>,</u>	CHANNEL GEOMETRY	RELATIVE	LY STRAIGHT		
		Сом	MENTS				
STREAM QUALITY: Low	<u> </u>						
High Quality: Natural channel (no structures of access to adequate fixed plain: natural vegetati	or dikes; no evidence of downculting or exce	ssive lateral cu el widths on es	iting); evidence of past channel alteration with to side: hanks stable and wonterted by content	i significant i hat extend iz	ecovery; any dikes/levies are set back to provide the base-flow elevation; water clear to tea-		

access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to teacolored; no barriers to fish movement (seasonal water withdrawals prevent movement); many lish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering functional ripertan vegetation only moderately compromised; banks moderately unstable (outside bende actively erorting with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.

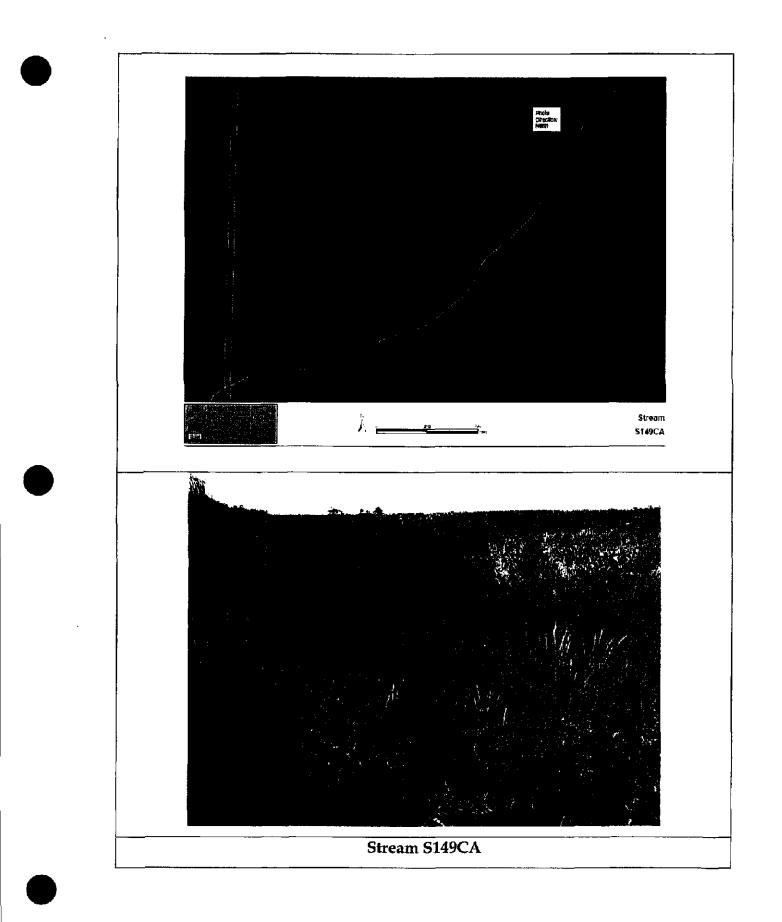
Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

A DIAN STREET	OCATION		HHEI Score (
		- 5121AA		DRAINAGE AREA (mi`)	7 7
		1 40° 4	6 27 ONO 84 25 53 DU	'ER CODE RIVER MILE	
	SIREAM REACTION		<u>- 21</u> LONG. <u>01 22 - 2</u> RIV		
NOTE: Col	mplete All Items On This	Form - Refer to "	Field Evaluation Manual for	Ohio's PHWH Streams" for Instru	uction
STREAM C MODIFICA		INATURAL CHANN			OVERY
			strate present. Check ONLY two pes found (Max of 8) Final metric	predominant substrate TYPE boxes	нн
TYPE		PERCENT		PERCENT	Met
	ILDR SLABS [16 pts]		SILT [3 pt]	100	Poi
	SOULDER (>256 mm) [16 pts]	·			Subs
	EDROCK [16 pt]	·		-	Max
	088LE (65-256 mm) [12 pts]			[0 pt]	
==	GRAVEL (2-64 mm) (9 pts)			[7
	AND (<2 mm) [6 pts]		ARTIFICIAL (3 pts)		
	Total of Percentages of		A)	(B)	A +
Bidr:	Slabs, Boulder, Cobble, Bedro WO MOST PREDOMINATE S				
SCORE OF I	WO MUST PREDOMINATE O	UBSIKATE TIPES		R OF SUBSTRATE TYPES:	
> 30 (centimeters [20 pts] 5 - 30 cm [30 pts] - 22.5 cm [25 pts]		orm water pipes) (Check ONLY > 5 cm - 10 cm [15 ; < 5 cm [5 pts]		Max
			MAXIMUM PC		0
> 4.0	K FULL WIDTH (Measured at meters (> 13') (30 pts) m - 4.0 m (> 9' 7" - 13') (26 pts) m - 3.0 m (> 9' 7" - 4' 6") (20 pts)	-	4 measurements) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (<=3' 3") [6 p		Bani Wid Nax:
COM	IMENTS		AVERAGE BA	ANKFULL WIDTH (meters): 2	20
			information must also be compl		
	RIPARIAN ZONE AND FLO RIPARIAN WIDTH	-	Y TANO FE: River Left (L) end	Right (R) as looking downstream 2	
, ,	R (Per Bank)		Most Predominant per Bank)	LR	
	Wide >10m		lature Forest. Wetland	Conservation Tillage	
Č	-		nmature Forest. Shrub or Old	Urban or Industrial	
	Moderate 5-10m		ield		
	Moderate 5-10m	بر بر بر بر المراجع ال مستخدم المراجع ا		Construction Construction Desire Const	
	Narrow <5m	يسنع وحدتو	esidential, Park, New Field	Open Pasture, Row Cro	þ
	Nerrow <5m			Mining or Construction	P
	Nerrow <5m None	Evaluation) (Chec	tesidential, Park, New Field enced Pasture & ONLY one box):		Ð
	Narrow <5m None COMMENTS FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS_	Evaluation) (Check pools (Interstitial)	tesidential, Park, New Field enced Pasture & ONLY one box):	Mining or Construction el, isolated pools, no flow (Intermittent) no water (Ephemeral)	b
	Narrow <5m None COMMENTS FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS_ SINUOSITY (Number of ber	Evaluation) (Chec pools (Interstitial)	tesidential, Park, New Field enced Pasture & ONLY one box): Moist Channel Dry channel, (Check ONLY one to	Mining or Construction el, isolated pools, no flow (Intermittent) no water (Ephemeral)	o

DITIONAL STREAM	NFORMATION (This Information Must Also be Completed):
OHE PERFOR	
DOWNSTREAL	I DESIGNATED USE(\$)
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATT	TACH COPES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
GS Quedrangle Name	NRCS Soil Map Page NRCS Soil Map Stream Order
inty:	Township / City:
MISCELLANEX	
e Flow Conditions? (Y	(N): Y Date of last precipitation:
•	
otograph information: _	
valadi Turbidity? (Y/N)	: Canopy (% open);
re samples collected i	ior water chemistry? (Y/N): (Note leb sample no. or id, and attach results) Leb Number:
d Measures: Temp	Dissolved Oxygen (mp/l) pH (S.U.) Conductivity (umhos/cm)
e sampling reach rep	resentative of the stream (Y/N)
	cription of pollution impects:
h Observed? (Y/N) gs or Tadpoles Obser mments Regarding Bio	
	3 AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): isodouarks and other features of interest for site evaluation and a neurative description of the stream's location C.O.C.N
	grom slope
ow 🔫	Day addine with 50% ly dighter
	gran slope RoAD
	Roto
	PINH Form Page - 2

Dry Creek.

.



WATERBODY DATA SHEET

WATERBODY ID NO: SM	IAINCA-1	WAT	TERBODY NAME: H	agerma	an Creek	
SITE NAME: Blue Creek						
DATE: 9/18/2009	CLIENT/PROJECT NAME: He	eartland Wind L	LC./Blue Creek Wind	Farm		
Investigators: AF RH		Rove	R FILE: RAH091809A.cor		QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert		Town	ISHIP.: Union			
		Рнот	0 NO: smainca2			
,	WATER	RBODY CHARA	CTERISTICS			
WATERBODY TYPE:	WATERBODY TYPE: Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	10 (in)					
Avg. Stream Width:	10 (ft) TOP OF BANK: 40 (ft) ORDINARY HIGH WATER MATChevel (ft)				vary High Water Mark Width: 20	
Avg. Bank Height;	10 (ft)					
AVG. BANK SLOPE (RATIO):	2:1		<u></u>		<u> </u>	
	QUA	ALITATIVE AT	RIBUTES			
AVERAGE WATER APPEARANCE:	Clear					
PRIMARY SUBSTRATE:	Sands					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	110N ZONE FROM ET	IGE OF ACTIVE CHANNEL (DUTONT	o flood plan: 75 (ft)	
	TYPE OF VEGETATION PRESENT	T: Forested				
WETLAND FRINGE (IF PRESENT):		<u>_</u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>		
CHANNEL CONDITION:	Not Significant					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVE	ELY STRAIGHT	
		COMMENT	S			
STREAM QUALITY: Low						
HIGH QUALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain, natural vegetation extends at least one or two active channel withts on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertabrates prevent. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of						

riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QUALITY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; is regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollulants (algal mats, surface scenn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

present.

WATERBODY DATA SHEET

WATERBODY ID NO: SM	MAINCA-2	WAT	WATERBODY NAME: Hagerman Creek				
SITE NAME: Blue Creek							
Date: 9/18/2009	CLIENT/PROJECT NAME: H	eartland Wind LL	C./Blue Creek Wind	Farm			
INVESTIGATORS: AF RH		Rover	FILE: RAH091809A.cor	QUAD NAME: Scott			
STATE/COUNTY: Ohio/Van Wert		Town	ship: Union				
		Рнотс	NO: 133c2				
	WATER	BODY CHARA	TERISTICS				
WATERBODY TYPE:	Modified ag ditch						
FLOW EVENTS/YEAR:							
Flow type:	OW TYPE: Perennial						
AVG. STREAM DEPTH:	6 (in)						
Avg. Stream Width:	6 (ft) TOP OF BANK: 40 (ft) ORDINARY HIGH WATER MAR (ft)			ORDINARY HIGH WATER MARK WIDTH: 12 (ft)			
Avg. Bank Height:	10 (ft)						
AVG. BANK SLOPE (RATIO): 2:1							
	Qua	LITATIVE ATT	RIBUTES				
AVERAGE WATER APPEARANCE:	Clear						
PRIMARY SUBSTRATE:	Sands						
POTENTIAL HABITAT FOR:	Aq/Wild Diversity						
DEFINED BED AND BANKS:	PRESENT						
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TON ZONE FROM ED	GE OF ACTIVE CHANNEL (DUT ONTO FLOOD PLAN: 0 (ft)			
	TYPE OF VEGETATION PRESENT	Г.					
WETLAND FRINGE (IF PRESENT):							
CHANNEL CONDITION:	Not Significant						
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT			
COMMENTS							
STREAM QUALITY: Low							
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral outling); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable equatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riperian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.							
regeneration; filtering function severely compro	Low Quality: Channel is actively downcutting or widening; rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; fillering function severely compromised; Barks unstable (inside and outside bends actively eroding with numerous faten trees); water very turbit to muddy; obvious pollutants (algel mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no equatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates						

WATERBODY DATA SHEET

WATERBODY ID NO: S1	49CA-1	V	VATERBODY NAME: D	ry Creek		
SITE NAME: Blue Creek						
DATE: 9/16/2009	CLIENT/PROJECT NAME: H	eartland Wir	nd LLC./Blue Creek Wind	Farm		
INVESTIGATORS: AF RH	L	R	lover File:		QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert		Т	'OWNSHIP.: Latty			
		P	HOTO NO:			
	WATER	BODY CHA	ARACTERISTICS			
WATERBODY TYPE:	Modified ag ditch					
FLOW EVENTS/YEAR:						
FLOW TYPE:	Perennial					
AVG. STREAM DEPTH:	2 (in)					
Avg. Stream Width:	2 (ft)	TOP OF BAND	K: 10 (ft)	ORDINAL (ft)	ry High Water Mark Width: 6	
AVG. BANK HEIGHT:	2 (ft)					
AVG. BANK SLOPE (RATIO):	2:1					
	Qua	LITATIVE	ATTRIBUTES			
AVERAGE WATER APPEARANCE:						
PRIMARY SUBSTRATE:	Silts					
POTENTIAL HABITAT FOR:	Aq/Wild Diversity					
DEFINED BED AND BANKS:	PRESENT					
Riparian Zone:	WIDTH OF NATURAL VEGETAT	FION ZONE FRO	DM EDGE OF ACTIVE CHANNEL	OUT ONTO I	FLOOD PLAN: 0 (ft)	
-	TYPE OF VEGETATION PRESEN	T: None				
WETLAND FRINGE (IF PRESENT):	N/A					
CHANNEL CONDITION:	Not Significant	_				
CHANNEL TYPE;	Manipulated		CHANNEL GEOMETRY	Meanderii	NG	
	COMMENTS					
		_				
STREAM QUALITY: Low						
STREAM QUALITY: Low Here Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel atteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present. MODERARE Quality: Altered channel evidenced by rip rep and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; file Low Quality: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel wi						

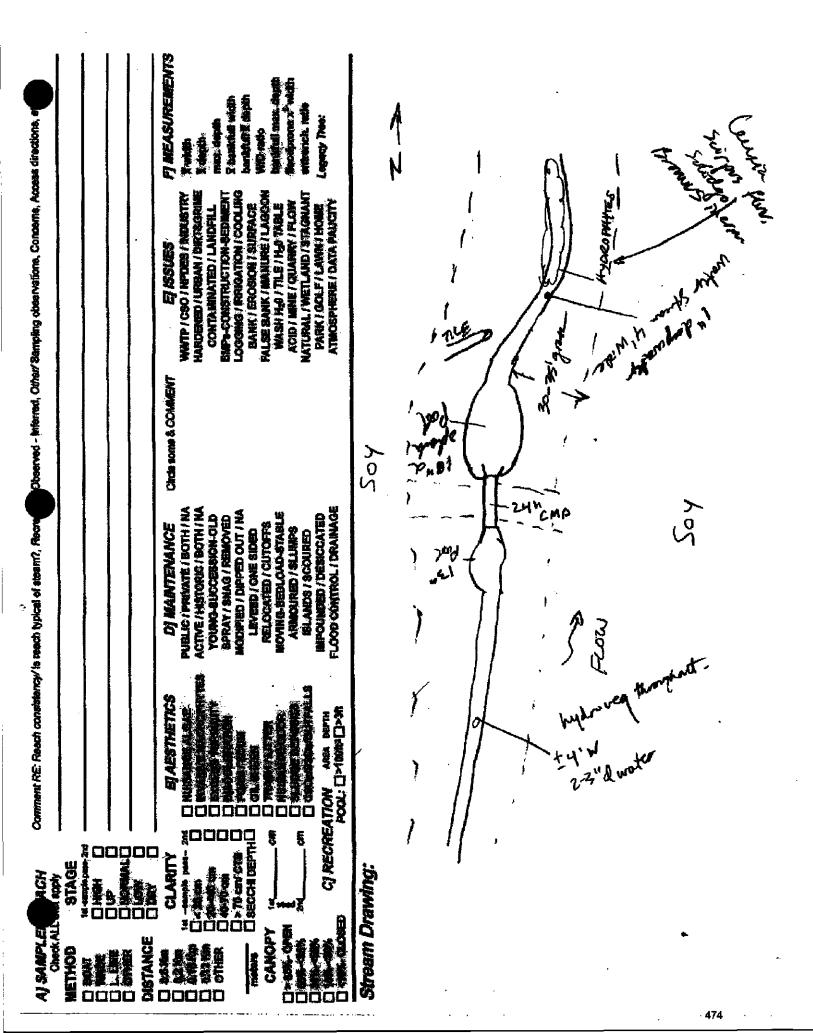
regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous failen trees); water very turbid to muddy; obvious pollutants (algal mats, surface soum, surface sheen); heavy odor; green color to water, severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

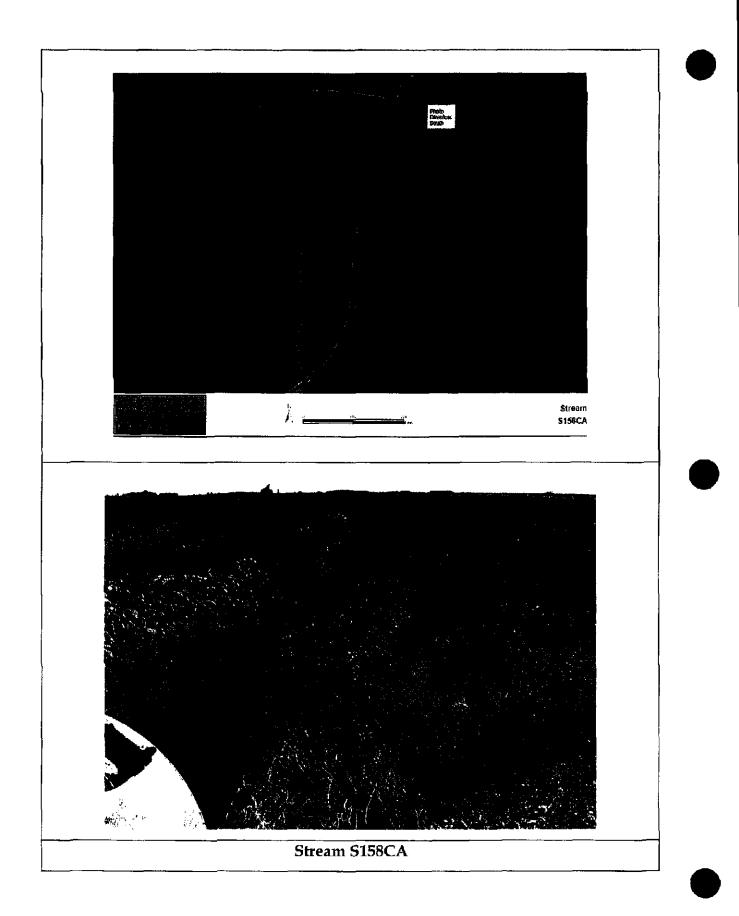
WATERBODY DATA SHEET

WATERBODY ID NO: S1	149CA-2	WATE	RBODY NAME: D	Pry Creek
SITE NAME: Blue Creek				
DATE: 9/16/2009	CLIENT/PROJECT NAME: F	leartland Wind LL	L/Blue Creek Wind	l Farm .
INVESTIGATORS: AF RH	_L _{u,,}	Rover	FILE:	QUAD NAME: Scott
STATE/COUNTY: Ohio/Van Wert		Towns	HIP.: Latty	
		Рното	No:	
	WATE	RBODY CHARAC	TERISTICS	
WATERBODY TYPE:	Modified ag ditch			
FLOW EVENTS/YEAR:			. <u> </u>	
FLOW TYPE:	Perennial			
Avg. Stream Depth:	6 (in)	••••••••••••••••••••••••••••••••••••••		
AVG. STREAM WIDTH:	4 (ft)	TOP OF BANK: 10 (ft)		ORDINARY HIGH WATER MARK WIDTH: 8 (ft)
Avg. Bank Height:	5 (ft)	f		
Avg. Bank Slope (Ratio):	2:1			
	Qu	ALITATIVE ATTR	IBUTES	
Average Water Appearance:				
PRIMARY SUBSTRATE:	Silts			
POTENTIAL HABITAT FOR;	Aq/Wild Diversity			
DEFINED BED AND BANKS:	PRESENT			
Riparian Zone:	WIDTH OF NATURAL VEGETA	TION ZONE FROM EDG	E OF ACTIVE CHANNEL	OUT ONTO FLOOD PLAN: 0 (ft)
	TYPE OF VEGETATION PRESEN	IT: None		
WETLAND FRINGE (IF PRESENT):	N/A			
CHANNEL CONDITION:	Not Significant			
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY	MEANDERING
		COMMENTS		
STREAM QUALITY: Low		······		
access to adequate flood plain; natural vegeta: colored; no barriers to fish movement (seasone microinvertebrates present. MoDERATE QUALTY: Altered channel evidenced riparian vegetation only moderately compromis moderate odor; minor barriers to fish movemer Low QUALTY: Channel is actively downcutting	tion extends at least one or two active chann al water withdrawals prevent movement); m d by rip rap and/or channelization; dikes/few sed; benks moderately unstable (outside be rit; 4-3 fish cover types available; fair aquatio my widening; rip rap and channilization exce	nel widths on each side; bank any fish cover types available ees restrict flood plain width; r nds actively eroding with few f c habitat; minimum disturbanc assive; flood plain restricted by	I stable and protected by roots diverse and stable equatic half atural vegetation extends 1/3-1 allen trees); considerable wates by livestock or man; Facultati dikes/levees; natural vegetatic	h significant recovery; any dikes/levies are set back to provide that extend to the base-flow elevation; water clear to tea- pitat; no disturbance by livestock or man; intolerant //2 of the active channel width on each side; filtering function of r cloudiness, submarged objects covered with green film; ve microinvertebrates present. It less than 1/3 of the active channel width on each side; lack of ny turbid to muddy; obvious pollutants (algal mats, surface scum,

regeneration; filtering function severely compromised; Barks unstable (inside and outside bends actively eroding with numerous fallen frees); weter very turbid to muddy; obvious pollutants (algal mats, surface sourn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

<u>ChisEPA</u>		at Evaluation Index ment Field Sheet	QHEI Score: []]
Stream & Location:	S149CA (DRY CA	· · · · · · ·	
River Code: -	Scorer - STORET #:	s Full Name & Affiliation: 12 Lat./ Long.: 40° 59' 45"	IO : 12 . I . II Office ver
11 SUBSTRATE Check ONL	Y Two substrate TYPE BOXES;	ant (12712 Sol - 972-jii)jill - I yaka mara sana sana maka yaya -	<u>189 . 39 / / locatio</u> n □
BEST TYPES POOL BLDR/SLABS [10]	Image: Constraint of the second sec	L RIFFLE ORIGIN UMESTONE [1] UMESTONE [1] UMETLANDS [0] UHARDPAN [0] USANDSTONE [0] USHALE [-1] UCOAL FINES [-2]	QUALITY E HEAVY [-2] SILT NORMAL [0] FREE [1] DEON DEXTENSIVE [-2] MAXIMUM 20 NONE [1]
21 INSTREAM COVER IN	Charting Deep, Hape licete presence 0 to 3: 0 Absent 1-Ven	y small amounts or if more common of	marginal AMOUNT
quality; 3-Highest quality in mod		rge boulders in deep or fast water, larg , or deep, well-defined, functional pool	a Check ONE (072 & average) s. D EXTENSIVE >75% [11] 1] D MODERATE 25-75% [7] [1] SPARSE 5-<25% [3]
SINUOSITY DEVELO	LLENT [7] NONE [8] [5] RECOVERED [4] 3] BECOVERING [3]	ON STABILITY [2] HIGH [3] MODERATE [2] LOW [1]	Channel Maximum 20
River right looking downstream EROSION	MODERATE 10-50m (3) D S NARROW 5-10m [2] D R VERY NARROW < 5m (1) D F	FLOOD PLAIN QUALITY OREST, SWAMP [3] [HRUB OR OLD FIELD [2] [ESIDENTIAL, PARK, NEW FIELD [1] [ENCED PASTURE [1]	CONSERVATION TILLAGE [1]
🗌 0.7-<1m [4] 🛛 🛛 P	CHANNEL WIDTH Check ONE (Or 2 & average) OOL WIDTH > RIFFLE WIDTH [2] OOL WIDTH = RIFFLE WIDTH [1] OOL WIDTH < RIFFLE WIDTH [0]	CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] SLOW [1] VERY FAST [1] INTERSTITIAL FAST [1] INTERMITTEN MODERATE [1] EDDIES [1] Indicate for reach - pools and riffies.	
of riffle-obligate spec RIFFLE DEPTH	RUN DEPTH RIFFLE MAXIMUM > 50cm [2] STABLE (6) MAXIMUM < 50cm [1]	Or 2 & evenage). VRUN SUBSTRATE RIFFLE I.g., Cobble, Bouider) [2]	
6] GRADIENT (4 ftm DRAINAGE AREA (1.5 mi EPA 4520	ni) 🗹 VERY LOW - LOW [2-4] 🗆 MODERATE [8-10] 12) 🔲 HIGH - VERY HIGH [10-6]		FFLE: Gradient 4 6 6 6 6 6 6 6 6 6 6 6 6 6





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WATERBODY DATA SHEET

		·····		······································	
WATERBODY ID NO: S 1	158CA		WATERBODY NAM	E: Main ch	annel of Dry Creek
SITE NAME: Blue Creek					
DATE: 9/16/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm				
INVESTIGATORS: D.West, M. Necl	hvatal		ROVER FILE: R091609ADW	l.cor	QUAD NAME: Latty
STATE/COUNTY: Ohio/Paulding			TOWNSHIP.: Latty		
			РНОТО NO: 158CA35S		
<u></u>	WAT	ERBODY C	HARACTERISTICS	*****	
WATERBODY TYPE:	Ag Drainage, channel, dee	p, well cut, w	ith ag fields adj on all sides		
FLOW EVENTS/YEAR:					
Flow type:	Intermittent				
Avg. Stream Depth:	5 (in)				
Avg. Stream Width:	6 (ft)	TOP OF B	TOP OF BANK: 10 (ft)		iary High Water Mark Width: 4
Avg, Bank Height:	4 (ft)			I	
AVG. BANK SLOPE (RATIO):	2:1				
	Qt	JALITATIV	E ATTRIBUTES		
Average Water Appearance:	Turbid				
PRIMARY SUBSTRATE:	Vegetation		·····		
POTENTIAL HABITAT FOR:	Fish/Spawn Areas				
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGET	ATION ZONE	FROM EDGE OF ACTIVE CHAN	NEL OUT ONT	o flood plan: 0 (ft)
2	TYPE OF VEGETATION PRES	ENT: None	······································		
WETLAND FRINGE (IF PRESENT):	N/A		······································		
CHANNEL CONDITION:					_
CHANNEL TYPE:	Natural		CHANNEL GEOME	TRY RELATIVI	ELY STRAIGHT
		Сом	IMENTS		
STREAM QUALITY: Low					
access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasone microinvertebrates present. Moderate QUALITY: Altered channel evidenced inpanian vegetation only moderately compromis inderate odor; minor barriers to fish movemen	ion extends at least one or two active ch Il water withdrawals prevent movement); I by rip rap and/or channelization; dikes/ ed; banks moderately unstable (outside Ic 4-3 fish cover types available; fair aqui	annel widths on ea many fish cover ty levees restrict flood bends actively ero atic habitat; minim	ich side; banks stable and protected by ypes available; diverse and stable aquat d plain width; natural vegetation extends ding with few fallen trees); considerable um disturbance by livestock or man; Fac	roots that extend to tic habitat; no distu ; 1/3-1/2 of the acti water cloudiness, cultative microinver	rbance by livestock or man; intolerant ve channel width on each side; filtaring function of submerged objects covered with green film;

regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively ending with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no incrinivertebrates present.



Qualitative Habitat Evaluation Index QHEI Score: 30.5 - -

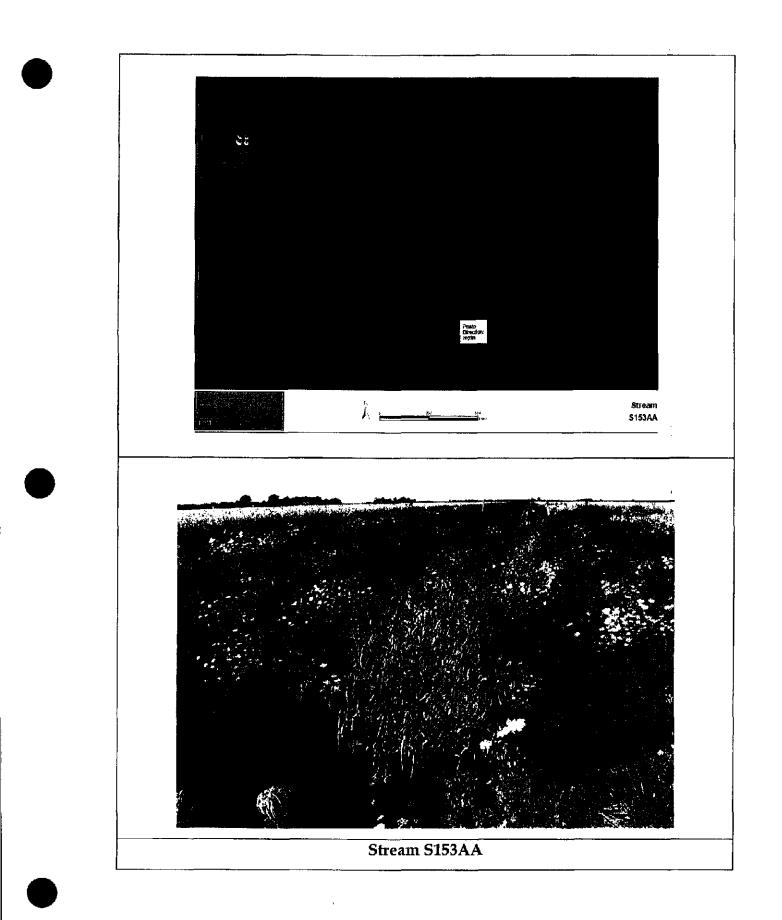
	and Use Asse	<u>ssment Field She</u>	et	
Stream & Location:	· · · ·		RM:	Date:091_161
·····	Sco	prers Full Name & Affiliat		
River Code:		Lat./Long.:41_0	1060 /8 4.5	5304 Office
BEST TYPES POOL RIF IIII BURNERS (SS 100) IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	ote every type present FLE OTHER TYPES DUBUELOUS (Score natural su		SILT	
2] INSTREAM COVER Indicate quality; quality; 3-Highest quality in moderat diameter log that is stable, well deve i HIM REPORTS IN STATE 2. OPTICATION CONTRACTOR STATE OWN (IN STATE) STATE OWN (IN STATE) Comments	2-Moderate amounts, but not te or greater amounts (e.g., ve eloped rootwad in deep / fast v Root(sector) Root(sector) Root(sector) Root(sector) Root(sector) Root(sector)	of highest quality or in small emi- ity large boulders in deep or fast water, or deep, well-defined, func (1) (2) (0) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	ounts of highest water, large C tional pools.	AMOUNT heck ONE (Or 2 & average) Desi SIV 2019 (Constant) SIV 2019 (Constant) NEARWARSENT SPECIAL Cover Maximum 20
3] CHANNEL MORPHOLOG) SINUOSITY DEVELOPM	IENT CHANNELIZ	ATION STABILIT		Chennel Maximum 20
		E in each category for EACH BAN FLOOD PLAIN QU CONTRACTOR OF CONTRACT CONTRACTOR OF CONTRACTOR CONTRACTOR OF CONTRACTOR C		ĸĸĸĸĸĸĸĸĸĸĸ ĸĸĸĸĸĸĸĸĸĸĸĸ ŧĸĸĸĸĸĸĸĸĸĸĸĸ
Check ONE (ONLY) Ch	E / RUN QUALITY CHANNEL WIDTH eck ONE (Or 2 & average) MINING RULE (UP) (MINING RULE) (MINING RULE) (MINING RULE) (MINING RULE)		y septrice in Right collection Right participation	Recreation Potential Primary Contact Secondary Contact etrcle one and comment on back) Pool / Current Maximum 12
of riffle-obligate species RIFFLE DEPTH R DESCRIPTION (2017) DESCRIPTION (2017) DESCRIPTION (2017) DESCRIPTION (2017) Comments		be large enough to supp NE (Or 2 & everage). LE / RUN SUBSTRATE IF (CR), Cobset Routine), 24 SI/ (Due (CD), COD STAVED (AFRE (CR), MARKED, VC, SPACE)		
DRAINAGE AREA	X 94955 DVC Perfigee) □ House Andre Strain □ House Andre Strain) %GLIDE:(5)%RIFFLE:(Gradient Maximum 10 06/16/DB

	FI MEASUREMENTS X width 2 X depth 2 max. depth 3 bankfull width 5 bankfull X depth 4 W/D ratio bankfull max. depth 3 floodprone x ² width entrench. ratio Lagacy Tree:	4 −2
melion/Observed - Inferred, Other/ Sampling observations, concerns, rucess unsur	EJ ISSUES WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRTAGRIME Z d CONTAMINATED / LANDFILL MA BANK / EROSION / SURFACE BANK / EROSION / SURFACE BANK / MANURE / LAGOON WASH H ₂ 0 / TILE / H ₂ 0 TABLE ACID / MINE / QUARRY / FLOW MATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY LOG	
Observed - Inferred, Other/ S	Circle some & COMMENT	
pical of steam?, R	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA LEVIEED / ONE SIDED MOUNIGE BEDL OAD-STABLE ATRIOURED / SCOURED INPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	
Commant RE: Reach consistency/ Is reach ty	BJ AES THE TICS ISANCE ALGAE ASIVE MAGROPHYTES ASIVE MAGROPHYTES CESS TURBIDITY COLORATION AM / SCUM AM /	The second secon
	DISTANCE DISY 0.65 Km CLARITY 0.25 Km CLARITY 0.26 Km CLARITY 0.27 KECREATION 0.26 Km CLARITY 0.26 Km CLARITY 0.27 KECREATION 0.26 Km CLARITY 0.26 Km CLARITY 0.26 Km CLARITY 0.27 Km	Stream Drawing:

:

Tributaries to Dry Creek.

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WATERBODY DATA SHEET

WATERBODY ID NO: S 1		WA	ferbody Name: Ur	named	Tributary to Dry Cree
SITE NAME: Blue Creek					
DATE: 9/16/2009	CLIENT/PROJECT NAME: H	leartland Wind L	LC./Blue Creek Wind I	Farm	
INVESTIGATORS: D.West, M. Nect	avatal	Rove	B File: R091609ADW.cor		QUAD NAME: Latty
STATE/COUNTY: Ohio/Paulding		Town	NSHIP.: Latty		
		Рнот	0 No: 153AA42n		
	WATEF	RBODY CHARA	CTERISTICS		
WATERBODY TYPE:	Drainage ditch for adj ag field	ds (soybeans), very	linear		
FLOW EVENTS/YEAR:					
FLOW TYPE:	Intermittent				
AVG. STREAM DEPTH:	0 (in)				
Avg. Stream Width:	0 (ft)	TOP OF BANK: 10 (ft)		ORDINA (ft)	RY HIGH WATER MARK WIDTH: 4
Ayg. Bank Height:	5 (ft)		······		
AVG. BANK SLOPE (RATIO):	Vertical (<= 1:1)				
	Qu≯	ALITATIVE AT	FRIBUTES		
AVERAGE WATER APPEARANCE;					
PRIMARY SUBSTRATE:	Vegetation				
POTENTIAL HABITAT FOR:	None				
DEFINED BED AND BANKS:	PRESENT				
RIFARIAN ZONE:	WIDTH OF NATURAL VEGETAT	FION ZONE FROM ET	JGE OF ACTIVE CHANNEL O	UT ONTO	FLOOD PLAN: 0 (ft)
	TYPE OF VEGETATION PRESEN	rr: None	· · · · · · · · · · · · · · · ·		// // // // // // // // // // // // //
WETLAND FRINGE (IF PRESENT):	N/A				
CHANNEL CONDITION:					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY R	RELATIVEL	Y STRAIGHT
		COMMENT	`S		
STREAM QUALITY: Low					
High QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetati colored; no barriers to fish movement (seasonal microinvartebrates present. MODERATE QUALITY: Allered channel evidenced riperian vegetation only moderately compromise moderate odor; minor barriers to fish movement	ion extends at least one or two active chann a water withdrawals prevent movement); ma d by fip rap and/or channelization; dikes/leve ad; banks moderately unstable (outside ben	nel widths on each side; ba any fish cover types availa ees restrict flood plain widt nda actively ercoling with fe	anks stable and protected by noots th ble; diverse and stable aquatic habit h; natural vegetation extends 1/3-1/2 aw fallen trees); considerable water c	natiextend to ti lat; no disturba 2 of the active cloudiness, sui	the base-flow elevation; water clear to tea- ance by livestock or man; intolerant channel width on each side; filtering function of ibmerged objects covered with green film;

Low QUALITY: Channel is actively downcutting or widening; rep rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; le regeneration; filtering function severely compromised; Banks unstable (inside and outside bands actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scuttin, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquetic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present. OhigEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION		
SITE NUMBER S153AA	RIVER BASIN DRAINAGE AREA (mi²)).09
LENGTH OF STREAM REACH (ft) LAT. 4	0.00990 LONG84.56780 RIVER CODE RIVER MILE_	
DATE 09/16/09 SCORER Nechvatal	COMMENTS	
NOTE: Complete All Items On This Form - Refe	r to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL INONE / NATURAL C		OVERY
	of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant subst <u>TYPE</u> PERCENT	rate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT	HHEI Metric
BLOR SLABS [16 pts]	SILT [3 pt] 100%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]0%		Substrate
BEDROCK [16 pt]	FINE DETRITUS [3 pts] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 0%	MUCK [0 pts]	7
SAND (<2 mm) [6 pts] 0%	ARTIFICIAL [3 pts]0%	
Total of Percentages of 0.00% Bitr Slaba, Boulder, Cobble, Bedrock	(A) (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE 1	TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum	pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts 30 centimeters [20 pts]	s or storm water pipes) (Check ONLY one box):	Max = 30
> 22.5 - 30 cm [30 pts]	< 5 cm (5 pts)	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 8	
	+ • • • • • • • • • • • • • • • • • • •	1
3. BANK FULL WIDTH (Measured as the average		Banktull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
		Width
 > 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4" 8") [20 pts] 	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
 > 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4" 8") [20 pts] COMMENTS 	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.20	Width Max=30
 > 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4" 8") [20 pts] COMMENTS 	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.20 This information <u>must</u> also be completed	Width Max=30
 > 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QUE RIPARIAN WIDTH L R (Per Bank) L Wide > 10m Moderate 5-10m	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH ELQO L R (Per Bank) L R (Per Bank) Wide > 10m Moderate 5-10m Vide > 10m Narrow <5m	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QUE RIPARIAN WIDTH L R (Per Bank) L Wide > 10m Moderate 5-10m	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH L R (Per Bank) L Wide > 10m Moderate 5-10m Image: Second	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QUE RIPARIAN WIDTH FLOO L R (Per Bank) L Wide > 10m Image: Commentation of the second	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QUE RIPARIAN WIDTH FLOO L R (Per Bank) L Wide > 10m Image: Commentation of the second	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed JALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ DPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or industrial Field Open Pasture, Row Ci Residential, Park, New Field ✓ (Check QNLY one box): Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral) (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 moters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLAIN QUE RIPARIAN WIDTH FLOO L R (Per Bank) L Wide > 10m Image: COMMENTS Moderate 5-10m Image: COMMENTS FLOW REGIME (At Time of Evaluation) Stream Flowing Stream Flowing Subsurface flow with isolated pools (Inters COMMENTS_ SINUOSITY (Number of bends per 61 m j.0	AVERAGE BANKFULL WIDTH (meters): 1.20 AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed 1.20 IALITY \$ANOTE: River Left (L) and Right (R) as looking downstream \$2000 LAIN QUALITY 1.20 (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or industrial Field Open Pasture, Row Ci Residential, Park, New Field Open Pasture, Row Ci (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral) (200 R) of chennel) (Check ONLY one box): 3.0	Width Max=30
> 4.0 motors (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.20 AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed 1.20 IALITY \$ANOTE: River Left (L) and Right (R) as looking downstream\$ DPLAIN QUALITY (Most Predominant per Bank) L Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or industrial Field Open Pasture, Row Ci Residential, Park, New Field Open Pasture, Row Ci (Check QNLY one box): Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral) (200 R) of channel) (Check ONLY one box): 3.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.20 AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed 1.20 IALITY \$ANOTE: River Left (L) and Right (R) as looking downstream \$2000 LAIN QUALITY 1.20 (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or industrial Field Open Pasture, Row Ci Residential, Park, New Field Open Pasture, Row Ci (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral) (200 R) of chennel) (Check ONLY one box): 3.0	width Max=30

October 24, 2002 Revision

PHWH Form Page - 1

ADDITIONAL STREAM INFOR	MATION (This Information Must A	lso be Completed):		
QHEI PERFORMED	? - Yes No QHEI Score 24	4.5 (If Yes, Atlach Comp	teled QHEI Form)	
DOWNSTREAM DES	SIGNATED USE(S)			
WWH Name:	,,	_ Distan	ice from Evaluated Stream	
CWH Name: _		Distan	ca from Evaluated Stream	
EWH Name:		Distan	ce from Evaluated Stream _	
MAPPING: ATTACH	COPIES OF MAPS, INCLUDING THE	E <u>ENTIRE</u> WATERSHED AREA.	CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name:		NRCS Soil Map Page:	NRCS Soil Map Stream Order	
County: Paulding	_ To	wnship / City:		-
MISCELLANEOUS				
Base Flow Conditions? (Y/N):_	Y _ Date of last precipitation:	Qua	antity: 0.00	
Photograph Information: _				
Elevated Turbidity? (Y/N):	Сапору (% орея):2	25%		
Were samples collected for war	ter chemistry? (Y/N): (Note	lab sample no. or id. and attac	h results) Lab Number:	
Field Measures: Temp (°C)	Dissolved Oxygen (mp/l)	pH (S.U.)	Conductivity (µmhos/cm)	
is the sampling reach represen	tative of the stream (Y/N) If r	not, please explain:		_ *-
Additional comments/descriptic	on of pollution impacts:		······································	
BIOTIC EVALUATIO	<u>N</u>			
Performed? (Y/N):	(If Yes, Record all observations. You ID number. Include appropriate field of		all voucher samples must be labeled with the Idwater Habitat Assessment Manual)	site
Fish Observed? (Y/N)_N Frogs or Tadpoles Observed? (Voucher? (Y/N) ^N Salamander (Y/N) N Voucher? (Y/N) N Ac	s Observed? (Y/N) Vou quatic Mecroinvertebrates Obse	cher? (Y/N) <mark>N</mark> rved? (Y/N) N Voucher? (Y/N) N	
				_
			·····	-
				_

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

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

	~ <u>~</u> 3	$N \gg$
FLOW ->	tile tobuging stream	Unt Des Creek
October 24, 3002 Revision	PHWH Form Page - 2	contained a second



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

Stream & Location:	RM:	Dates of the Lat
Scorers Full Name & Affiliation:	je	<u></u>
River Code:STORET #; Lat./Long.;		Office verified
1] SUBSTRATE Check ONLY Two substrate TYPE BOXES: estimate % or note every type present Check O	NE (Or 2 & average	1
BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN	•	, UALITY
LI LI SLOK/SCABS HOI LI HAKOPAN [4] LI LINES I ONE [1]		AVY: [-2]
		DERATE [-1] Substrate
	2005 UEX	
Score natural substrates; ignore CREP(RAPIO)	NO NO	DERATE [-1] Meximum
Comments		NE[1]
2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common	n of marcinal	
 quality; 2-Moderate amounts, but not of highest quality or in small amounts (of highest	AMOUNT NE (Or 2 & average)
quality, 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, diameter tog that is stable, well developed rootwad in deep / test water, or deep, well-defined, functional (pools [] EXTE	18IVE >75% [11]
UNDERCUT BANKS [1] POOLS > 70cm [2] OXBOWS7BACKWATE	RS (1) [] MODE	RATE 25,75% [7] ***
OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYT SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEB		9E5-<25% (3)#0/2 LYABSENT<5% [1]
ROOTMATS [1]		Cover
Comments		Maximum
		20
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)		
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY		
		Channel Con
Comments		Maximum
		20
4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or River right looking downstream RIPARIAN WIDTH FLOOD PLAIN ONAL 17		e)
	LK	alamana ain a aireithean
		VATION TILLAGE [1]
MODERATE [2] INARROW 5-10m [2] IRESIDENTIAL PARKINEW FIELD		CONSTRUCTION [0]
HEAVY/SEVERE [1] VERY NARROW < 5m [1] FENCED PASTURE [1] NONE [0] OPEN PASTURE ROWCROP [0]	Indicate predomi past 100m ripari	
	арын толт прат	an. Riparian Maximum
		10
5] POOL / GLIDE AND RIFFLE / RUN QUALITY		
MAXIMUM DEPTH CHANNEL WIDTH CURRENT VELOCITY Check ONE (ONLY7) Check ONE (Or 2 & average) Check ALL that apply		ation Potential
Check ONE (ONLY) Check ONE (Or 2 & average) Check ALL that apply	s better sa fina 🚺	nary Contact
0.7-tin (4) POOL WIDTH = RIFFLE WIDTH [1] VERY FAST (1) ONDERSTIT	AL [-1]	and comment on back
02-02-02-02-02-02-02-02-02-02-02-02-02-0		Pool /
E = (0.2m [0] Indicate for reach - pools and rifle	es.	Current
Comments		Maximum
Indicate for functional riffles; Best areas must be large enough to support a	population	
of riffle-obligate species: Check ONE (Or 2 & average).	<u>c</u>	NO RIFFLE [metric=0]
	LE/RUN EMBE	
BESTAREAS Imaximum > 50cm [2] STABLE (e.g., Cobble; Boulder) [2] BESTAREAS Imaximum < 50cm [1]		
BESTAREAS 5cm	C MODERAT	Elfoli Riffie /
Comments	C EXTENSIV	E[-1] Run Meximum
a an ancur 7 Z		°
6] GRADIENT (3.3 t/mi) ELVERY LOW - LOW [2-4] %POOL:	%GLIDE:) Grødient
DRAINAGE AREA IMODERATE (6-10) % (10-6) % RUN: (5'-)	GRIFFLE:	
EPA 4520	· · · · · · · · · · · · · · · · · · ·	06/16/06

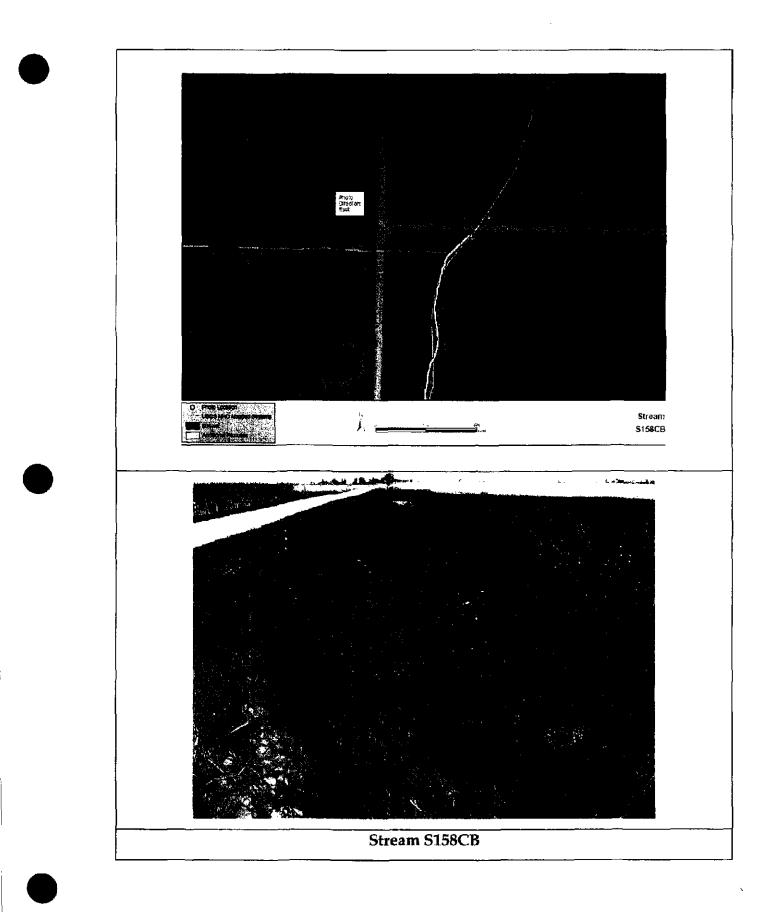
QHEI Score: 245

Dj Madivitenance Citcle some & contrant Dj Madivitenance Citcle some & contrant Public / Prevate / Both / Na Wwitp / CSO / NPDES / INDUSTRY Actime / Historiec / Both / Na Wwitp / CSO / NPDES / INDUSTRY Actime / Historiec / Both / Na Mwitp / CSO / NPDES / INDUSTRY Actime / Historiec / Both / Na Mwitp / CSO / NPDES / INDUSTRY Actime / Historiec / Both / Na Mwitp / CSO / NPDES / INDUSTRY Actime / Historiec / Both / Na Mwitp / CSO / NPDES / INDUSTRY Actime / Historiec / Both / Na Mathematical / Industry Youngesuccession-old Bitme-construction.genimevit Procession-old Bitme/construction.genimevit Mobified / Ibpred out / Na Bitmevit Mobified / Ibpred out / Ibpred		1.	
RIMAL W ARITY ARITY BJAESTHETICS ARITY BJAESTHETICS ARITY BJAESTHETICS ARITY BJAESTHETICS			,

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WATERBODY DATA SHEET

WATERBODY ID NO: S 1		WAT	ERBODY NAME: Uni	named Tributary to Dry Creek	
SITE NAME: Blue Creek			· · · · · · · · · · · · · · · · · · ·		
Date: 9/16/2009	CLIENT/PROJECT NAME: H	eartland Wind LL	C./Blue Creek Wind Fa	arm	
INVESTIGATORS: D.West, M. Nech	L	Rover	FILE: R091609ADW.cor	QUAD NAME: Latty	
STATE/COUNTY: Ohio/Paulding		Towns	SHIP:: Latty		
		Рното	No: 158CB34E		
	WATER	BODY CHARAG	TERISTICS		
WATERBODY TYPE: Drainage ditch for adj ag fields					
FLOW EVENTS/YEAR:					
FLOW TYPE:	Intermittent				
AVG. STREAM DEPTH:	0 (in)				
Avg. Stream Width:	0 (ft) TOP OF BANK: 7 (ft) ORDINARY HIGH WATER MARK V (ft)			ORDINARY HIGH WATER MARK WIDTH: 4 (ft)	
AVG. BANK HEIGHT:	3 (ft)				
AVG. BANK SLOPE (RATIO):	2.1				
	QUALITATIVE ATTRIBUTES				
Average Water Appearance:					
PRIMARY SUBSTRATE:	Vegetation				
POTENTIAL HABITAT FOR:	None				
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM ED	GE OF ACTIVE CHANNEL OU	it onto flood plan: 0 (ff)	
	TYPE OF VEGETATION PRESENT	T: None			
WETLAND FRINGE (IF PRESENT):	N/A				
CHANNEL CONDITION:					
CHANNEL TYPE:	Manipulated		CHANNEL GEOMETRY RE	elatively Straight	
		COMMENTS	5		
STREAM QUALITY: Low					
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikesflevies are set back to provide access to adequate flood plain; natural vegelation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic hebitat; no disturbance by livestock or man; Intolerant microinvertebrates present. MODERATE QUALITY: Altered channel evidenced by /tp rap and/or channelization; dikes/levaes restrict flood plain width; natural vegelation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (cutside bends actively ending with few fallen trees); considerable water cloudiness, submerged objects covered with green film;					

Inclusion regeneration; more barriers to fish movement; 4-3 fish cover types available; fair aqualic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quurry: Channel is actively downcutting or widening; no rap and channitization excessive; flood plain restricted by divestock or man; Facultative microinvertebrates present. Low Quurry: Channel is actively downcutting or widening; no rap and channitization excessive; flood plain restricted by divestock or man; Facultative microinvertebrates present. Low Quurry: Channel is actively downcutting or widening; no rap and channitization excessive; flood plain restricted by divestores; natural vegetation less than 1/3 of the active channel width on each side; it regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively ending with numerous failen trees); water very turbid to muddy; obvious pollutants (algal mats, surface sourn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; liftle to no aquatic habitat; severe disturbance by livestock or man; tolerant or noircoinvertebrates present. **ChieEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :

NITE NAME/LOCATION			
	158CB RIVER BASIN	DRAINAGE AREA (mi²) 0.	.57
ENGTH OF STREAM REACH (II)	LAT. 41.01170 LONG84.5532	20 RIVER CODE RIVER MILE	
DATE 09/16/09 SCORER Nechvar			<u> </u>
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Man	ual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL	TURAL CHANNEL 🔲 RECOVERED		OVERY
	ery type of substrate present. Check OA cant substrate types found (Max of 8). Fin	VLY two predominant substrate TYPE boxes a) metric score is sum of boxes A & B	HHE
TYPE F	ERCENT TYPE	PERCENT	Metri
BLOR SLABS [16 pts] BOULDER (>256 mm) [16 pts]		WOODY DEBRIS [3 pts] 0%	Point
BEDROCK (16 pt)	0% LEAF PACK/		Substra
COBBLE (65-256 mm) [12 pts]		RDPAN [0 pt]	Max = 4
GRAVEL (2-64 mm) [9 pts]	0% 🔲 MUCK [0 pts]		7
SAND (<2 mm) [6 pts]		[3 pts]0%	
Total of Percentages of	0.00% ^(A)	100% (B)	A+B
Bidr Siebs, Boulder, Cobbie, Bedrock CORE OF TWO MOST PREDOMINATE SUB:		NUMBER OF SUBSTRATE TYPES:	
· .			Deall
	d culverts or storm water pipes) (Check	er (200 ft) evaluation reach at the time of k ONLY one box):	Pool De Max = 3
> 30 centimeters [20 pts]	5 cm - 10	cm [15 pts]	
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	<pre>< 5 cm [5 pt </pre>	ts] <u>t OR MOIST CHANNEL [0 pts]</u>	0
······································	NAXI		
	MEAA1		
BANK FULL WIDTH (Measured as the	a average of 3-4 measurements)	(Check ONLY one box):	
	a average of 3-4 measurements)	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]	Width
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]	e average of 3-4 measurements)	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]	Width
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') (30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	e average of 3-4 measurements)	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts]	Bankfa Width Max=30
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') (30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	a avarage of 3-4 measurements) ✓ > 1.0 m ~ 1.1 ≤ 1.0 m (<=3)	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts]	Width Max=3
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') (30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	a avarage of 3-4 measurements) > 1.0 m - 1.1 < 1.0 m (<= AVEF This information <u>must</u> also be PLAIN QUALITY & XNOTE: River Left	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20	Width Max=3
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	avarage of 3-4 measurements) > 1.0 m - 1.1 > 1.0 m (<= AVEF This information must also be PLAIN QUALITY & NOTE: River Left FLOODPLAIN QUALITY	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed t (L) and Right (R) as looking downstream ?	Width Max=3
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	a avarage of 3-4 measurements) > 1.0 m - 1.1 < 1.0 m (<= AVEF This information <u>must</u> also be PLAIN QUALITY & XNOTE: River Left	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed t (L) and Right (R) as looking downstream ?	Width Max=3
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	AVER This information must also be PLAIN QUALITY & NOTE: River Left FLOODPLAIN QUALITY L R (Most Predominant per Bar Meture Forest, Wetland immature Forest, Shrub or	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed t(L) and Right (R) as looking downstream from the second s	Width Max=3
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BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Annow <5m	AVER This information must also be PLAIN QUALITY 2NOTE: River Left FLOODPLAIN QUALITY L R (Most Predominant per Bar Meture Forest, Wetland Immature Forest, Shrub or Field Residential, Park, New Fiel	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed ! (L) and Right (R) as looking downstream * ik) L R Conservation Tillage Old Open Pasture, Row Crossed id Image	Width Max=3
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 5' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	AVER This information must also be PLAIN QUALITY & NOTE: River Left FLOOPLAIN QUALITY L R (Most Predominant per Bar Mature Forest, Wetland Immature Forest, Shrub or Field	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed t(L) and Right (R) as looking downstream ? tk) L R Conservation Tillage Old Urban or industrial Onen Pasture, Pow Crr	Width Max=3
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BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	avarage of 3-4 measurements) > 1.0 m - 1.1 ≤ 1.0 m (<=3	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed ! (L) and Right (R) as looking downstream * ik) L R Conservation Tillage Old Open Pasture, Row Crossed id Image	Width Max=3
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BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') (30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	avarage of 3-4 measurements) > 1.0 m - 1.1 \$ 1.0 m (<=1)	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed I(L) and Right (R) as looking downstream ¹ / ₂ nk) L Conservation Tillage Old ✓ Urban or industrial Id I Open Pasture, Row Cross Mining or Construction st Channel, isolated pools, no flow (Intermitient) channel, no water (Ephemerel) /LY one box); 3.0	Width Max=3
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Eve Stream Flowing Subsurface flow with isolated por COMMENTS_ SINUOSITY (Number of bends None 0.5	a avarage of 3-4 measurements) > 1.0 m - 1.1 ≤ 1.0 m (<=3 AVEF This information must also be PLAIN QUALITY & NOTE: River Left FLOODPLAIN QUALITY L R (Most Predominant per Bar Meture Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Field Residential, Park, New Fiel Fenced Pasture aluation) (Check ONLY one box): ots (Interstitial) per 61 m (200 ft) of channel) (Check ON	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed t(L) and Right (R) as looking downstream ? nk) L R Conservation Tillage Old Urban or industrial open Pasture, Row Crownstream ? Mining or Construction st Channel, isolated pools, no flow (Intermittent) channel, no water (Ephemerel) // Y one box);	Width Max=3 15
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOOD/ RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Eve Stream Flowing Subsurface flow with isolated por COMMENTS_ SINUOSITY (Number of bends None	a avarage of 3-4 measurements) > 1.0 m - 1.1 ≤ 1.0 m (<=3 AVEF This information must also be PLAIN QUALITY ±NOTE: River Left FLOODPLAIN QUALITY L R (Most Predominant per Bar Meture Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Field Residential, Park, New Fiel Fenced Pasture aluation) (Check ONLY one box): obs (Interstitial) per 61 m (200 ft) of channel) (Check ON 1.0 1.5 2.5	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts] RAGE BANKFULL WIDTH (meters): 1.20 e completed I(L) and Right (R) as looking downstream ¹ / ₂ nk) L Conservation Tillage Old ✓ Urban or industrial Id I Open Pasture, Row Cross Mining or Construction st Channel, isolated pools, no flow (Intermitient) channel, no water (Ephemerel) /LY one box); 3.0	Width Max=3

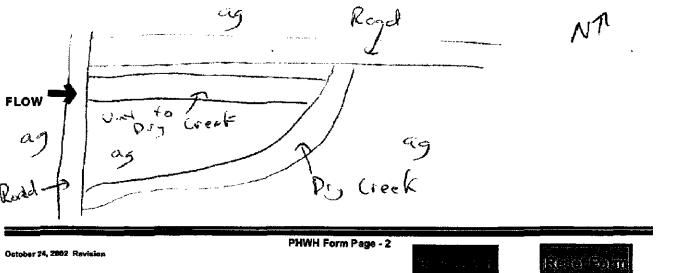
October 24, 2002 Revision

PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score 27.0 (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(5)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Paulding: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N):_Y Date of last precipitation: Quantity:Q000
Photograph Information:
Elevated Turbidity? (Y/N): Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION Performed? (Y/N):
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Satamanders Observed? (Y/N) N Voucher? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:

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

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





Oh	8	PA

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

OhioEPA	• • • • • • • • • • • • • • • • • • • •	at Evaluation Index ment Field Sheet	QHEI Score	9: 27
Stream & Location:			RM:Date	<u>:«] _} _</u>
River Code:	Scorers STORET #:	Full Name & Affiliation: Lat./ Long.:	/8 .	Office verified
1] SUBSTRATE Check ONLY Two		_ (NAD 83-decimāl")		Iocation D
estimate % or note	OTHED TYPE?	Check ONI DIECE ORIGIN	Ë (Or 2 & average) QUAL	ITY
BLOR /SLABS [10]	_ 🚺 🛄 HARDPAN [4] 🤅		HEAVY	
	KI [] SILT [2], Wat 102			
	_ CARTIFICIAL (0) (Score natural substrat		DEC EXTENS	
NUMBER OF BEST TYPES:	4 or more [2] sludge from point			Maximum 20
Comments	3 or less [0] ;		LI NONE [1	
2] INSTREAM COVER Indicate pr quality; 2-	Moderate amounts, but not of his	chest quality or in small amounts of	nighest)UNT Dr 2 8. average)
quality; 3-Highest quality in moderale o diameter log that is stable, well develop	ped rootwad in deep / fast water,	or deep, well-delined, functional po	ols.	>0%[11]
UNDERCUTIBANKS [1]		AQUATIC MACRORHYTE	2. Bell (1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19	25,75%[7]ha 2592 (110-14)
SHALLOWS (IN SLOW WATER)				
Comments	· · ·			Gover Maximum
				20
3] CHANNEL MORPHOLOGY				
SINUOSITY DEVELOPME				
MODERATE [3] [] GOOD [5]	RECOVERED [4]	MI MODERATE [2]		
□ LOW [2] ↓ □ FAIR [3]	RECOVERING (3)			Channel
Comments	· · · · · · · · · · · · · · · · · · ·			Maximum 20
4] BANK EROSION AND RIPA		och catagoni in FACH BANK (Or ?	nechanic & average)	
River right looking downstream	PARIAN WIDTH	FLOOD PLAIN QUALITY		
		DREST, SWAMP 13		
I MODERATE 2	2ROW 5-10m 121	ESIDENTIAL PARK NEW FIELD [1		
	Y NARROW < 5m [1] 🔲 🗍 🗍	ENCED PASTURE [1]	Indicate predominant l past 100m riparian.	and use(s)
Comments		eristandi hvelsijan evoe. Di - 3		Maximum
	1000 OUALING		· · · · · · · · · · · · · · · · · · ·	10
5] POOL / GLIDE AND RIFFLE MAXIMUM DEPTH CI	ANNEL WIDTH	CURRENT VELOCITY	Recreation	n Potential
	: ONE (Or 2 & average) DTH > RIFFLE)WIDTH 2	Check ALL that apply	المتعققية المتحدثة المتحدثة المتحدثة المتحدثة المحتجة محتجة المحتجة محتجة	Contact
0.7Kimiai DPOOLW	DTH=RIFFLEWIDTH [1]	TORRENTIAL [1] DISLOW [1] (5 VERY FASTICLE DINTERSTITIA	STATISTICS IN THE REAL PROPERTY OF	Y Contact
[]0.4≪07m[2] □ POOLW []0.2≪0.4m[4]	IDTH < RIFFLE WIDTH [0]	FAST (1) TERMITTE		Pool /
[]<0.2m [0]		Indicate for reach - pools and riffle	a.	Current /
Comments	•	· · · · · · · · · · · · · · · · · · ·		Maximum
Indicate for functional riffl		arge enough to support a	population	RIFFLE [metric=0]
of riffle-obligate species: RIFFLE DEPTH RU		Or 2 & everage). RUN SUBSTRATE RIFFL	E / RUN EMBEDD	
BEST AREAS -100m [2] MAXI	AUM > 50cm [2] 🔲 STABLE (o	.g., Cobild Boulder) [2]	I NONE (2)	1
BEST AREAS 65cm	NUM < 50cm [1] MOD. STAL	BLE (e.g.starge Gravel) [1] (o.g., Fine Gravel, Sand) [0]	DEOW[1]M	Riffie /
[metric=0] Comments	, 0	in an substantia a substantia a substantia ang	CENTENSIVE [4]	Kun 🦾 Maximum
M ORADIENT II				
	VERY LOW - LOW [2-4] MODERATE [8-10]			Gradient 4
(¹ 0.57mi ²)	HIGH - VERY HIGH [1045]	%RUN: ()%I		10
EPA 4520				06/16/06

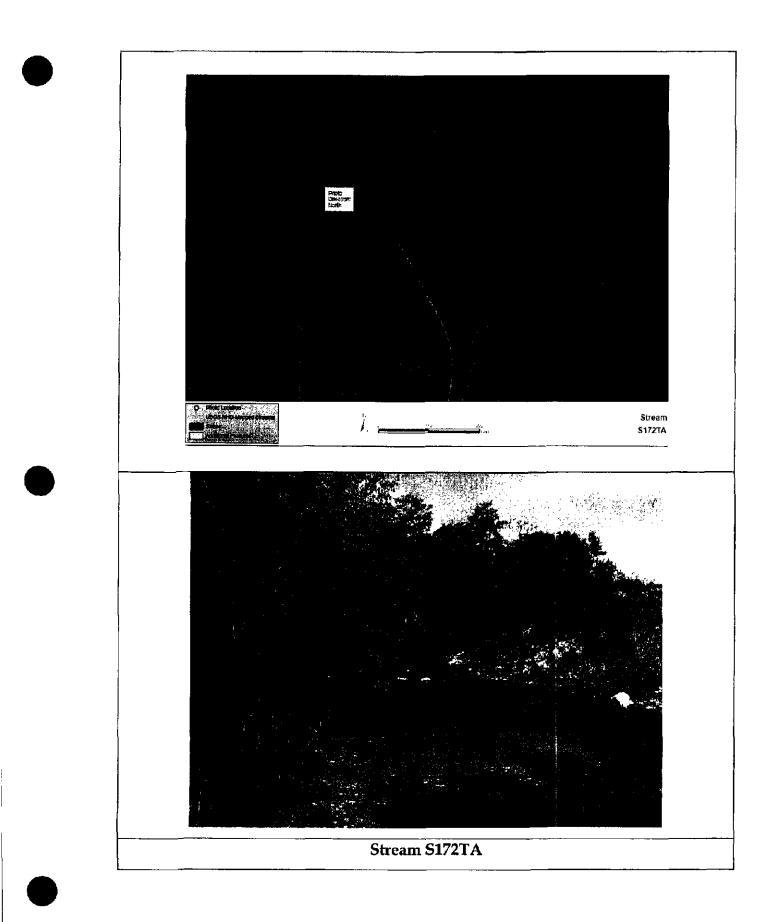
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District In the server of t	District in the intervention of the	M SAUNTLED AGALA Check ALL thal apply METHOD STAGE BOAT tel -terminates 2d -					
District Distr	IDIARIN BJALSTHETICS DJ MANTEVAVOE CLARTIN BJALSTHETICS DJ MANTEVAVOE CLARTIN BJALSTHETICS DJ MANTEVAVOE CLARTINC BJALSTHETICS DJ MANTEVAVOE CLARTIN BJALSTHETICS DJ MANTEVAVOE CLARTIN Each Team CLARTIN BJALSTHETICS DJ MANTEVAVOE CLARTIN Each Team CLARTIN BJALSTHETICS DJ MANTEVAVOE CLARTIN Each Team CLARTIN DJ MANTEVAVOE CLARTIN CLARTIN Each Team CLARTIN DJ MANTEVA COLUCITION Each Team Each CLARTIN DJ MANTEVI DJ MANTEVI DJ MANTEVIN Each Team CLARTIN DJ MANTEVIN DJ MANTEVIN DJ MANTEVIN Each Team CLARTIN DJ MANTEVIN DJ MANTEVIN DJ MANTEVIN DJ MANTEVIN DJ MANTEVIN CLARTIN DJ MANTEVIN <						
			000 000000 \$	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTWE / HISTORIC / BOTH / NA ACTWE / HISTORIC / BOTH / NA YOUNG-BUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / HA LEVEED / OPE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD STABLE ARMOURED / BLUMPS ISLANDS / SCOURED MPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle sume & COMMENT	E) ISSUES WWTP/CBO/NPDES/INDUSTRY HARDENED/URBAN/DIRT&GRIME CONTAMINATED/LANDFILL BIMP&CONSTRUCTION-SEDIMENT LOGGING/IRRIGATION/COOLING BANK/EROBION/SURFACE FALSE BANK/MANURE/LAGOON WASHHAL/WETLAND/STAGNANT PARK/GOLF/LAWN/HOME ATHOOSPHERE/DATA PAUCITY	F] INEA SUREMENTS X width X cepth max. depth trans. depth bashfull X depth WTD ratio bankfull max. depth floodprone x ³ width entrench. ratio Legacy Tree:
		tream Drawing:					
		,					
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Maddox Creek

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WATERBODY DATA SHEET

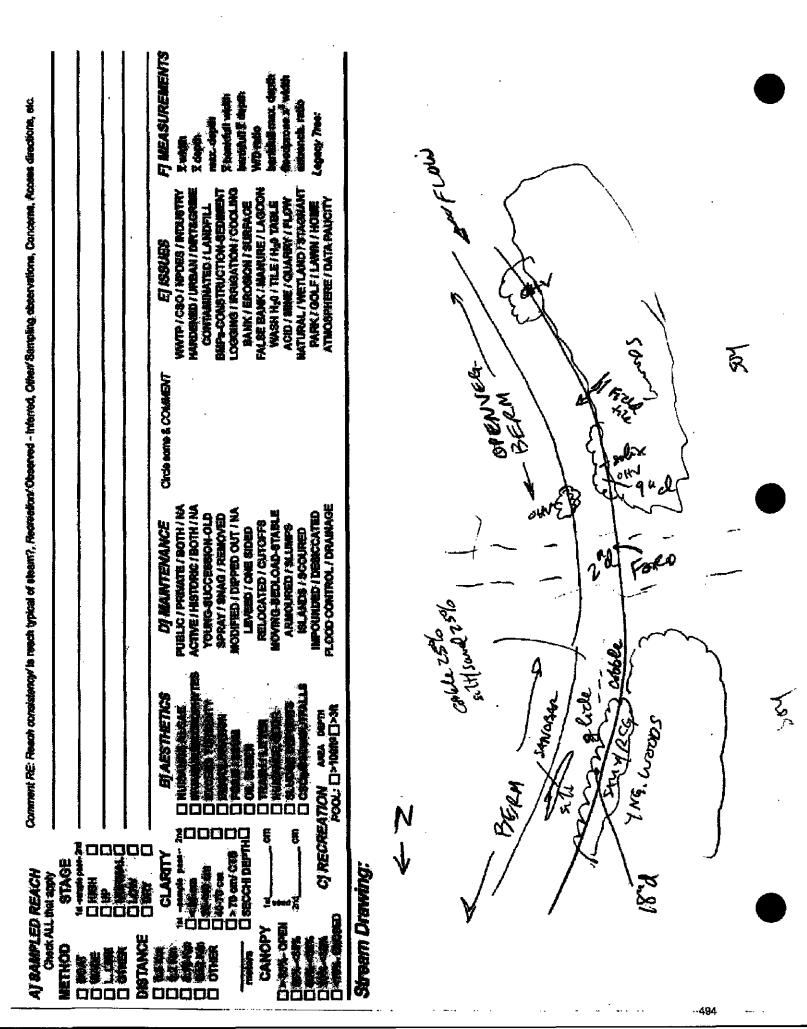
WATERBODY ID NO: S1	72TA		WATERBODY NAME:		
SITE NAME: Blue Creek					
DATE: 9/16/2009	CLIENT/PROJECT NAME: He	eartland V	Vind LLC./Blue C	reek Wind Fa	arm
INVESTIGATORS: AF RH	L		ROVER FILE: RAHO	91609A.cor	QUAD NAME: Scott
STATE/COUNTY: Ohio/Van Wert	Vert Township.: Hoaglin				
Photo No: 5172A					
WATERBODY CHARACTERISTICS					
WATERBODY TYPE:	Stream				
FLOW EVENTS/YEAR:		<u> </u>	<u></u>		
Flow type:	Perennial				
AVG. STREAM DEPTH:	9 (in)				
AVG. STREAM WIDTH:	20 (ft) TOP OF BANK: 35 (ft)		ORDINARY HIGH WATER MARK WIDTH: 35 (ft)		
Avg. Bank Height:	10 (ft)				
AVG. BANK SLOPE (RATIO):	2:1				
QUALITATIVE ATTRIBUTES					
Average Water Appearance:					
PRIMARY SUBSTRATE:	Cobbies				
POTENTIAL HABITAT FOR:	Aq/Wild Diversity				
DEFINED BED AND BANKS:	PRESENT				
RIPARIAN ZONE:	WIDTH OF NATURAL VEGETAT	TION ZONE F	FROM EDGE OF ACTIV	E CHANNEL OU	JT ONTO FLOOD PLAN: 35 (ft)
,	TYPE OF VEGETATION PRESENT	r: Forested			
WETLAND FRINGE (IF PRESENT):	N/A	<u> </u>			
CHANNEL CONDITION:	Not Significant				
Channel Type:	Natural	· ·	CHANNEL	GEOMETRY M	EANDERING
		Сом	MENTS		
More notes on QHEI sheet					
STREAM QUALITY: Medium					
High QUALITY: Natural channel (no structures o access to adequate flood plain; natural vegetati	ir dikes; no evidence of downcutting or exce ion extends at least one or two active chann	ssive lateral cut widths on ear	tting); evidence of past chant ch side; banks stable and pr	nel alteration with si otected by roots tha	gnificant recovery; any dikes/levies are set back to provide t extend to the base-flow elevation; water clear to tea-

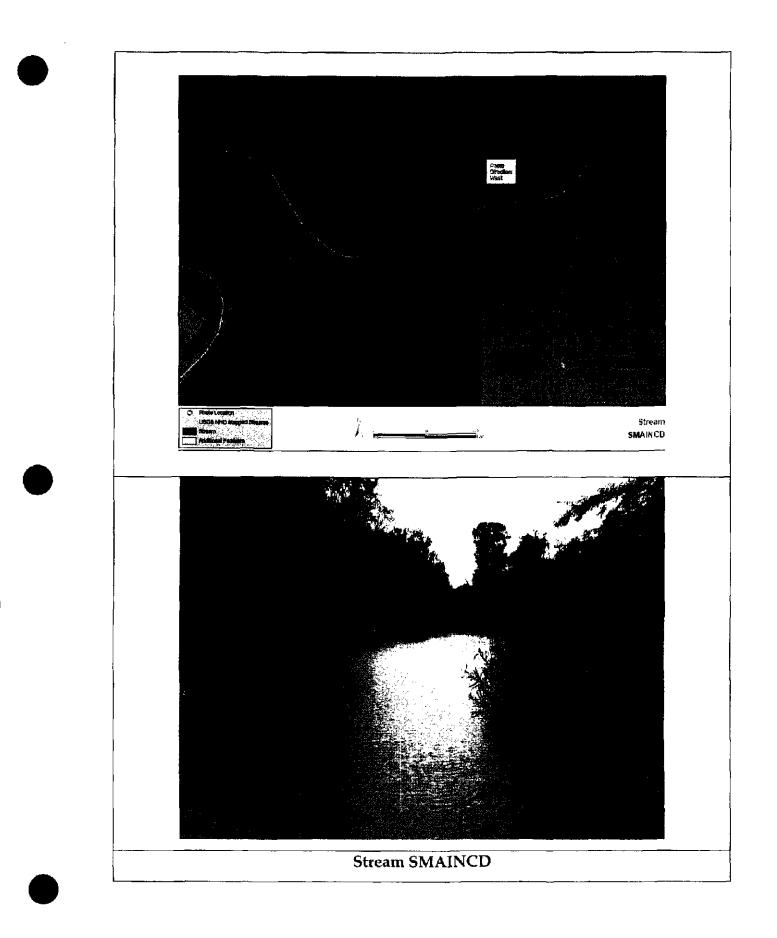
access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-how elevation; watter clear to teacolored; no barriers to fish movement (seasonal water withdrawais prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant microinvertebrates present.

MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with lew fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrales present. Low QUALITY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; h

regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface sourn, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

tream & Location:	5172-TA (M4000	X CREEK)	RM: 5.0Date: 11610
		s Full Name & Affiliation:	EHOOK WHILL
Nver Code:	STORET #:	Lat./ Long.: 40°. 57'	8" 184". 31' 34" Office verti local
BEST TYPES P(BLDR /SLABS (10) BOULDER (9) COBBLE (8)	DNLY Two substrate TYPE BOXES; a % or note every type present DOL RIFFLE OTHER TYPES POO	L RIFFLE ORIGIN	NE (Or 2 & average) QUALITY HEAVY [-2] SILT DIMODERATE [-1] Sub NORMAL [0]
IT BEDROCK (5)	Image: Silt [2] 25 Solution [2] 25 Solution [2] 25 Solution [2] 25 Solution [2] 1 Solution [2]	HARDPAN [0] HARDPAN [0] SANDSTONE [0] tes; ignore Rip/RAP [0] t-sources) I LACUSTURINE [0] SHALE [-1] COAL FINES [-2]	DEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDE
uality: 3-Highest quality in	ETATION [1] ROOTWADS [1]	ighest quality or in small amounts (rge boulders in deep or last water,	of highest Check ONE (Or 2 & average large Deck ONE (Or 2 & average pools. EXTENSIVE >75% [11] RS [1] MODERATE 25-75% [7] FES [1] SPARSE 5-<25% [3]
SINUOSITY DEVE HIGH [4] [] EX MODERATE [3] [] GC LOW [2] [] FA	DLOGY Check ONE in each category (Or LOPMENT CHANNELIZATIO CELLENT [7] INONE [6] DOD [5] IRECOVERED [4] IR [3] IV RECOVERING [3] OR [1] IRECENT OR NO RECOVERING [3]	ON STABILITY	>1.5 Channel Maximum 20
River right looking downstream R / EROSION M NONE / LITTLE [3] MODERATE [2]	R H	FLOOD PLAIN QUALII OREST, SWAMP [3] HRUB OR OLD FIELD [2] ESIDENTIAL PARK, NEW FIELD	
MAXIMUM DEPTH Check ONE (ONLY7) 2 1m [6] 0.7~1m [4]	POOL WIDTH = RIFFLE WIDTH [1] POOL WIDTH < RIFFLE WIDTH [0]	CURRENT VELOCITY Check ALL that apply TORRENTIAL [4] [2] SLOW [1] VERY FAST [1] [2] INTERSTIT FAST [1] [2] INTERMITT MODERATE [1] [2] EDDIES [1] Indicate for reach - pools and riff	FENT [-2] Pool /
Indicate for functi of riffle-obligate s RIFFLE DEPTH BESTAREAS > 10cm [2] BESTAREAS > 10cm [2] BESTAREAS < 50cm [1] BESTAREAS < 50cm [1] Comments	RUN DEPTH RIFFLE / Imaximum > 50cm [2] STABLE (c Imaximum < 50cm [1]	(Or 2 & average). RUN SUBSTRATE RIFF E.g., Cobble, Boulder) [2]	
GRADIENT (3.5	ft/ml) [5 VERY LOW - LOW [2-4]	%POOL:	%GLIDE: (100) Gradient





WATERBODY DATA SHEET

WATERBODY ID NO: SM		WA	WATERBODY NAME: Hoaglin Creek		
SITE NAME: Blue Creek					
DATE: 9/21/2009	CLIENT/PROJECT NAME: Heartland Wind LLC./Blue Creek Wind Farm				
INVESTIGATORS: Hook	L.,,,,,,,,,,,,,	Rovi	R FILE: RAH090921.cor	QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert		Tow	NSHIP.: Union		
	PHOTO NO: smaincc1 2				
WATERBODY CHARACTERISTICS					
WATERBODY TYPE:	Routed under old rr				
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
AVG. STREAM DEPTH:	24 (in)				
Avg. Stream Width:				ORDINARY HIGH WATER MARK WIDTH: 25 (ft)	
Avg. Bank Height:	9 (ft)				
AVG. BANK SLOPE (RATIO): 2:1					
QUALITATIVE ATTRIBUTES					
AVERAGE WATER APPEARANCE:	Turbid				
PRIMARY SUBSTRATE:	Cobbles				
POTENTIAL HABITAT FOR:					
DEFINED BED AND BANKS:	PRESENT				
Riparian Zone:	WIDTH OF NATURAL VEGETAT	TION ZONE FROM E	DGE OF ACTIVE CHANNEL	OUT ONTO FLOOD PLAN: () (ft)	
	TYPE OF VEGETATION PRESEN	T;			
WETLAND FRINGE (IF PRESENT):					
CHANNEL CONDITION:	Not Significant				
Channel Type:	Manipulated		CHANNEL GEOMETRY	RELATIVELY STRAIGHT	
		COMMEN	[5		
STREAM QUALITY: Medium					
 STREAM QUALITY: Medium Hish QuALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to teacolared; no barriers to fish movement (seasonal water withdrawais prevent movement); many fish cover types available; diverse end stable aquatic habitat; no disturbance by livestock or man; infolerant microinvertebrates present. MODERATE QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; netural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with tew fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low QUALITY: Channel is actively downcutting or widening; rip rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lacution expensive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lacution; surface sheen); heavy door; green color to water; severe barriers to fish movement; 2-0 fish cover types available; liftle to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present. 					

Stream & Location:	SMANCD	sessment F	I CICERY	RN.	14 Dates	91711
	DIRACD	1	me & Affiliation:			
River Code:	STORET #:		ong.:40°.56'L			Office ven loca
] SUBSTRATE Check ONLY	Two substrate TYPE BOXE r note every type present				& average)	7004
BEST TYPES POOL		ES POOL RIFFLE	ORIGIN		QUALI	TY
] [] BLDR /SLABS (10]		[4]	LIMESTONE [1]			
			WETLANDS [0]	SILT		[0] Sul
GRAVEL [7]	SILT (2) ARTIFICIAI		HARDPAN [0] SANDSTONE [0]			
BEDROCK ISI	(Score natu	ral substrates; innore		a DUEDA		E [-1] Ma
UMBER OF BEST TYPES	3: 4 or more [2] sludge	from point-sources)	☐ LACUSTURINE [0]{] Shale [-1]	Li I	DEXTENSION MODERAT NORMAL NONE [1]	[0] [•] ^{Ma}
Comments	·		COAL FINES [-2]			
	74/pm/					····-
] INSTREAM COVER Indic quali	ty; Z-Moderate amounts, bi	it not of highest qualit	y or in small amounts o	of highest	nal AMOL Check ONE (Or	
quality; 3-Highest quality in mode diameter log that is stable, well de	rate or greater amounts (e.) aveloped rootwad in deep /	g., very large boulders fast water, or deep, w	in deep or fast water, ell-defined, functional p	large xools.		
UNDERCUT BANKS [1] OVERHANGING VEGETAT	(ION [1] ROOTW	70cm [2] OX	BOWS, BACKWATER	XS [1]	MODERATE:	
SHALLOWS (IN SLOW WA			UATIC MACROPHYT IGS OR WOODY DEB		SPARSE 5-4	
ROOTMATS [1]					_	Cover
comments					~	leximum 20
CHANNEL MORPHOLOG	SY Check ONE in each ca	egory (Or 2 & average	9)			
SINUOSITY DEVELOF		LIZATION	STABILITY			
HIGH [4]		- • 10	HIGH [3]			
LOW [2] 🛛 FAIR [3]	RECOVERI					
NONE [1] DOOR [1			🔲 LOW [1]			_
		NO RECOVERY [1]	🗆 LOW [1]			Channel
			🗖 fom [1]			Channel Iaximum 20
Comments	IPARIAN ZONE Ched	R NO RECOVERY [1]	y for EACH BANK (Or		A-	
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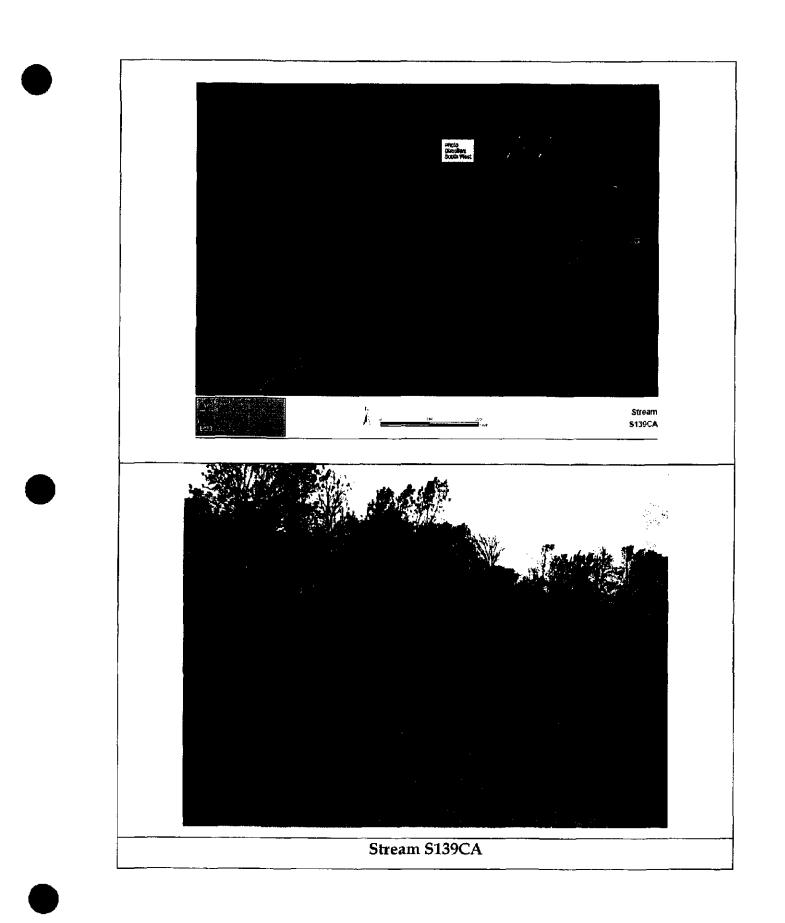
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WATERBODY DATA SHEET

	WATERBODY ID NO: S139CA WATERBODY NAME: Hoagiin Creek				
	39CA		EKBODY NAME: HO		
SITE NAME: Blue Creek					
Date: 10/14/2009	CLIENT/PROJECT NAME: H	eartland Wind LL	C./Blue Creek Wind F	arm	
······································			<u> </u>		
INVESTIGATORS: AF RH		Rover	FILE:	QUAD NAME: Scott	
STATE/COUNTY: Ohio/Van Wert		Towns	HIP.: Hoaglin		
	Photo No:				
	WATER	BODY CHARAC	TERISTICS	······································	
WATERBODY TYPE:	Stream			<u> </u>	
FLOW EVENTS/YEAR:					
FLOW TYPE:	Perennial				
AVG. STREAM DEPTH:	36 (in)				
Avg. Stream Width:	25 (ft) TOP OF BANK: 40 (ft) ORDINARY HIGH WATER MARK WID (ft)			ORDINARY HIGH WATER MARK WIDTH: 30 (ft)	
AVG. BANK HEIGHT:	8 (ft)				
AVG. BANK SLOPE (RATIO):	2:1				
QUALITATIVE ATTRIBUTES					
AVERAGE WATER APPEARANCE:	Turbid				
PRIMARY SUBSTRATE:	Silts				
POTENTIAL HABITAT FOR:	Aq/Wild Diversity				
Defined bed and Banks:	PRESENT				
Riparian Zone:	WIDTH OF NATURAL VEGETATION ZONE FROM EDGE OF ACTIVE CHANNEL OUT ONTO FLOOD PLAN: 15 (ft)				
	Type of vegetation present	T: Forested			
WETLAND FRINGE (IF PRESENT):	N/A	<u></u>		······	
CHANNEL CONDITION:	Not Significant				
CHANNEL TYPE:	Manipulated CHANNEL GEOMETRY MEANDERING				
		COMMENTS	5		
			:		
STREAM QUALITY: Low					
High QUALITY: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea- colored; no barriers to fish movement (seasonal water withdrawels prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by lives/ock or man; intolerant microinvertebrates present. Moderate QUALITY: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor, minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present.					

Involvement woor; minur pamers to itsh movement; 4-3 fish cover types available; fair equatic habitat; minimum disturbance by livestock or man; Facultative microinvertebrates present. Low Quality: Channel is actively downcutting or widening; to rap and channilization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; law regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively ending with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum), surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; tittle to no aquatic habitat; severe disturbance by livestock or man; tolerant or no microinvertebrates present.

Blue Creek

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6 of January, 2009

Keith Lott Ohio Department of Natural Resources Old Woman Creek Research Station 2514 Cleveland Road East **Huron. Ohio 44839**

RE: Blue Creek Wind Project, Van Wert and Paulding Counties, Ohio

Dear Keith,

Iberdrola Renewables, Inc. (IBR) is providing this formal correspondence as a summary of the Blue Creek Wind Project introduction conference call on November 14 and agency field review conducted on November 21, 2008 with representatives of the United States Fish and Wildlife Service (FWS) and Ohio Department of Natural Resources Division of Wildlife (ODNR). A review of the site was conducted by vehicle that determined the site was predominantly active agricultural lands with a few sparse woodlot areas. Based on the existing land use conditions of the site, FWS and ODNR representatives indicated that the site would be considered a "minimum risk" for avian and bat impacts and that no records existed for federal or state listed species of concern within the project area.

It was agreed during the field review that the Flat Rock Creek corridor along the northwest border of the project area provided potential habitat conditions for bat species based on the 10 hectare or larger forested areas along this watercourse. ODNR requested that mist net surveys be conducted along this corridor if wind turbines were placed within 500 meters of the 10 hectare or larger forest areas. IBR has prepared the attached drawings in coordination with ODNR depicting the forested areas within the project limits that are 10 hectares or larger. A 500 meter buffer has been placed around each area, at this time IBR does not plan to site wind turbines within forest areas or the adjacent buffers.

According to the On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio (OSMP), a minimum risk site would require the completion of the following surveys for avian and bat species:

 Breeding Bird Survey – According to the OSMP, if wind turbines are only sited in active agricultural areas then breeding bird surveys would not be required for the project. IBR will not conduct breeding bird surveys based on the current siting of all wind turbines in active agricultural fields, outside of the 500 meter buffers around forest areas that are 10 hectares or larger.

IBERDROLA RENEWABLES, Inc. 201 King of Prussia Road Radnor, PA 19087 Phone: (610) 230-0333 Fax (666) 648-5913 www.ibendrolaranewables.us



- Raptor nest Search According to the OSMP, one early season (1 February 31 March) survey should be conducted on and within 1 mile of the proposed site. If nests for protected raptors are observed, then nest monitoring may be required. IBR proposes to conduct a raptor nest search between 1 February – 31 March on and within 1 mile of the proposed project area. If raptor nests are detected, then IBR will coordinate monitoring requirements with ODNR and FWS.
- Bat Acoustic Monitoring According to the OSMP acoustic equipment should be installed on all METs proposed for the project. IBR has three existing METs that do not have apparatus for mounting the acoustic equipment. Based on the existing active agricultural land use comprising the project IBR would install one MET with the appropriate equipment to conduct acoustic monitoring. The proposed location of the MET is provided on the attached figure. IBR proposes to utilize two detectors on this tower to monitor bat activity at the site from 15 March to 15 November, 2009. The detectors will be mounted at 5 meters, and at approximately 48 meters above ground level. We will utilize Analook software to identify ultrasound passes of bats in a high frequency species group (above or equal to 35 kHz), and a low frequency species group (below 35 kHz).

As we move forward in the development of this project under the assumptions addressed in this letter, IBR requests that ODNR provide their approval of the surveys identified for moving forward and a confirmation that no records exist for state listed species of concern or their habitats within the immediate vicinity of the project area.

IBR appreciates the time and resources that ODNR has provided to our project and looks forward to our future communications on this project. Please feel free to contact me with questions or comments at (610) 230-0333 or ddecaro@iberdrolausa.com.

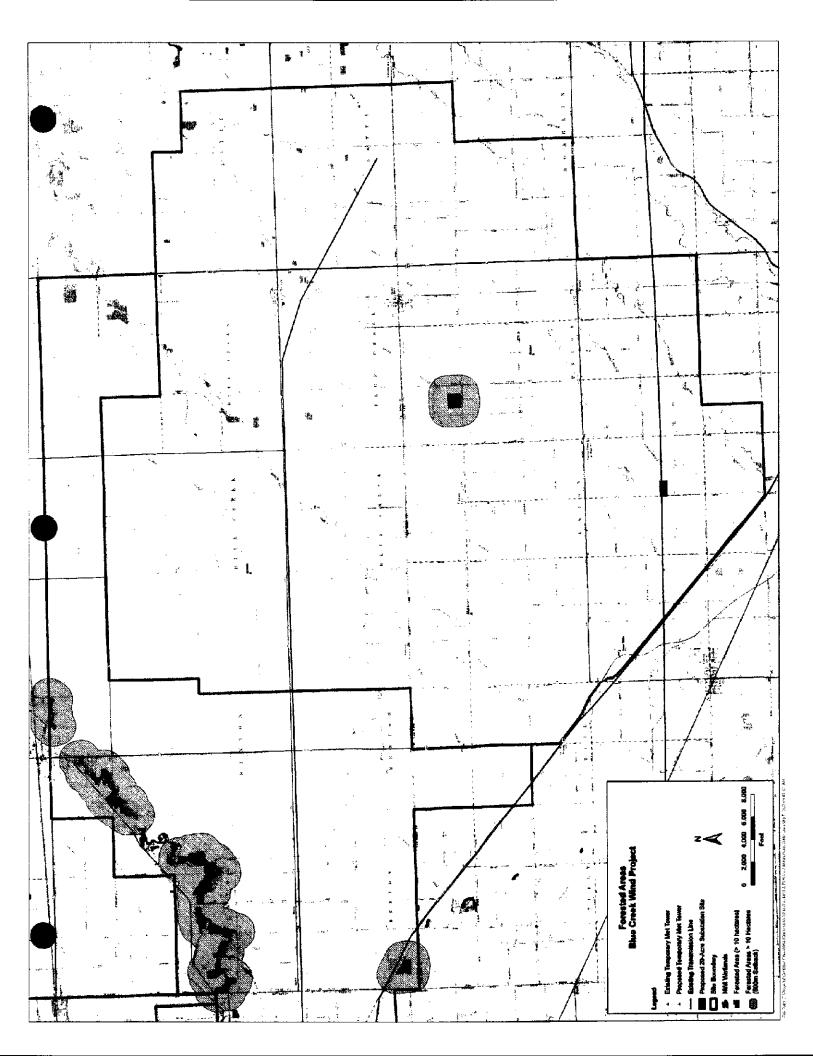
Yours Sincerely,

Dach K. Cola-

David De Caro Senior Permit Manager

CC: D. Litchfield - IBR

Attachment: Blue Creek USGS and Aerial Base Maps – MET Circled for Clarity







6 of January, 2009

Megan Seymour United States Fish and Wildlife Service 4625 Morse Rd. Suite 104 Columbus, OH 43230

RE: Blue Creek Wind Project, Van Wert and Paulding Counties, Ohio

Dear Megan,

Iberdrola Renewables, Inc. (IBR) is providing this formal correspondence as a summary of the Blue Creek Wind Project introduction conference call on November 14 and agency field review conducted on November 21, 2008 with representatives of the United States Fish and Wildlife Service (FWS) and Ohio Department of Natural Resources Division of Wildlife (ODNR). A review of the site was conducted by vehicle that determined the site was predominantly active agricultural lands with a few sparse woodlot areas. Based on the existing land use conditions of the site, FWS and ODNR representatives indicated that the site would be considered a "minimum risk" for avian and bat impacts and that no records existed for federal or state listed species of concern within the project area.

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IBERDROLA RENEWABLES, Inc. 201 King of Prussia Road Radnor, PA 19087 Phone: (610) 230-0333 Fax (866) 648-5913 www.iberdrolarenewablas.us





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As we move forward in the development of this project under the assumptions addressed in this letter, IBR requests that FWS provide their approval of the surveys identified for moving forward and a confirmation that no records exist for federal listed species of concern or their habitats within the immediate vicinity of the project area.

IBR appreciates the time and resources that FWS has provided to our project and looks forward to our future communications on this project. Please feel free to contact me with questions or comments at (610) 230-0333 or ddecaro@iberdrolausa.com.

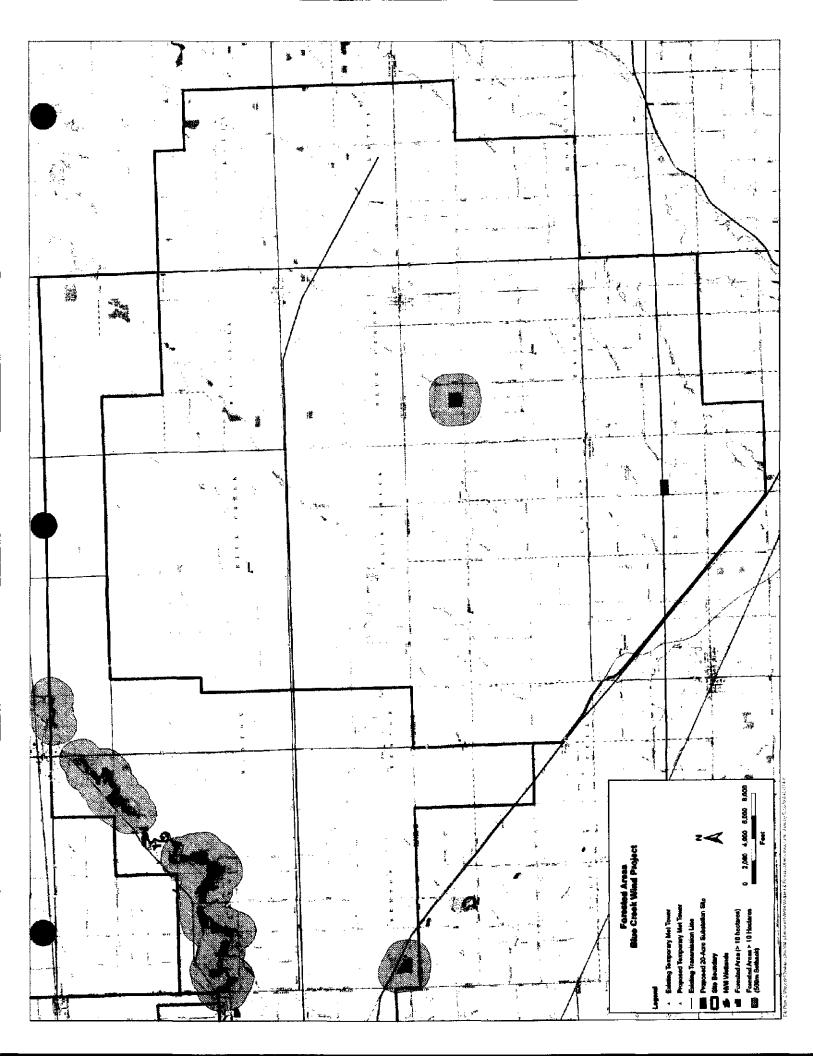
Yours Sincerely,

Carl K. Colon

David De Caro Senior Permit Manager

CC: D. Litchfield - IBR

Attachment: Blue Creek USGS and Aerial Base Maps - MET Circled for Clarity





From: Lott, Keith [mailto:Keith.Lott@dnr.state.oh.us] Sent: Tuesday, January 27, 2009 2:15 PM To: DeCaro, Dave Cc: Megan_Seymour@fws.gov; Siegfried, Stuart Subject: DOW Blue Creek letter response

See attached. <<DOW Blue Creek letter.doc>> <<Blue Creek map.pdf>> <<DNAP Blue Creek.doc>>

Keith Lott, Wind Energy Wildlife Biologist

Old Woman Creek Nat'l Estuarine Research Reserve and State Nature Preserve Ohio Division of Wildlife 2514 Cleveland Road East Huron, OH 44839 Office phone: 419-433-4601 Cell: 419-602-3141 Fax: 419-433-2851



Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR

SEAN D. LOGAN, DIRECTOR

Division of Wildlife David M. Graham, Chief 2045 Morse Rd., Bldg. G Columbus, OH 43229-6693 Phone: (614) 265-6300

26 of January, 2009

To all interested parties,

The following comments have been prepared based upon a review of Iberdrola's proposed Blue Creek Wind Project. The methodologies outlined within the January 6th 2009 letter are consistent with those suggested by the Division of Wildlife (DOW) in the *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocols for Commercial Wind Energy Facilities in Ohio (OSMP)*, with one exception. Typically, the DOW suggests acoustic monitoring of bats at all meteorological towers situated onsite. Due to the extensive agricultural nature of the proposed site, and "minimum" risk classification, the DOW waives that recommendation and does not object to Iberdrola's plan to monitor only 1 meteorological tower. For future projects proposed within the state, it is suggested that all meteorological towers be appropriately equipped for raising and lowering acoustic monitoring devices before they are installed onsite.

As indicated in the accompanying letter, the Division of Natural Areas and Preserves (DNAP) database does not contain any records of rare, threatened, or endangered species within the proposed project area. Records from the DNAP database did indicate the presence of a small (10-15 nest) great blue heron rookery within the project boundaries. Though not specifically addressed within the OSMP due to their uncommon occurrence, heron rookeries are an area of concentrated activity and thus of greater concern. This rookery was last surveyed in 2003; therefore the DOW requests that the number of active nests be assessed. If active nests are found, the DOW requests that the activity patterns of those individuals be determined. Protocols should commence following similar methodologies as the raptor nest monitoring outlined in the OSMP. Monitoring should begin mid-April and continue through June (maximum of 14 visits). The DOW is also suggesting a 1/2 mile buffer of the rookery in an effort to minimize both direct and indirect impacts to the colony. This region is completely encompassed within the existing 500 meter buffer of 10 hectare forests, so no additional land need be set aside. If this project proceeds, particular effort should be made to avoid staging or operating machinery within this zone during the breeding season (February-July).

Much of the proposed project area is extensively agricultural (>95%). Wind turbine facilities located in similar habitat in other parts of the nation have been

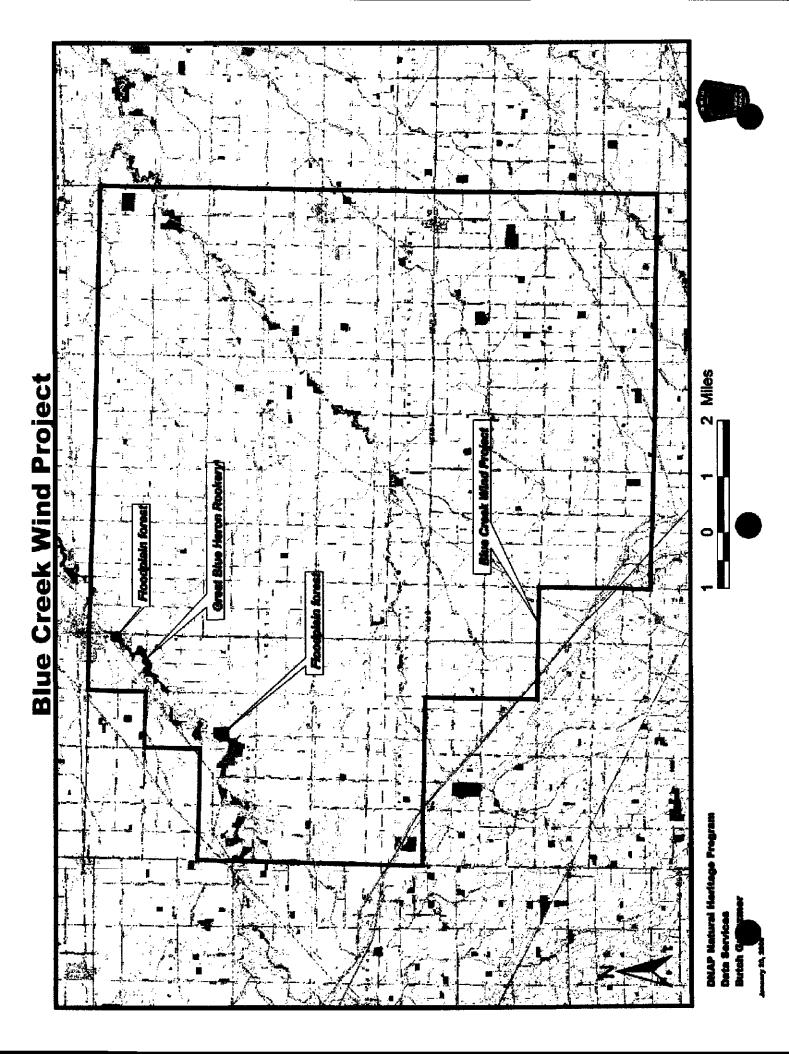
shown to have negligible impacts on wildlife (with a few notable exceptions). The DOW supports the development of green energy in these low impact regions and looks forward to working with Iberdrola on this project.

ODNR appreciates the opportunity to provide these comments. Please contact Keith Lott if you have questions about these survey protocols or need additional information.

Keith Lott, Wind Energy Wildlife Biologist

Old Woman Creek Nat'l Estuarine Research Reserve and State Nature Preserve Ohio Division of Wildlife 2514 Cleveland Road East Huron, OH 44839 Office: 419-433-4601 Mobile: 419-602-3141 Fax: 419-433-2851

cc: Mr. Stuart Siegfried, Ohio Power Siting Board Ms. Megan Seymour, United States Fish and Wildlife Service



Division of Natural Areas & Preserves Steven D. Maurer, Chief 2045 Morse Road, F-1 Columbus, OH 43229-6693 Phone: (614) 265-6453 Fax: (614) 267-3096

January 20, 2009

Keith Lott ODNR Division of Wildlife 2514 Cleveland Road East Huron, OH 44839

Dear Mr. Lott:

After reviewing our Natural Heritage maps and files, I find the Division of Natural Areas and Preserves has no records of rare or endangered species near the ODNR Division of Wildlife Blue Creek Wind project. The site is located in Benton and Blue Creek Twps., Paulding Co., and Tully and Union Twps., Van Wert Co., Woodburn South, Payne, Latty, Dixon, Convoy, and Scott Quadrangles. However, the site is near a high quality Floodplain Forest. Best management practices should be employed to avoid impacting these areas. The site is also near a Great Blue Heron Rookery. Becky Jenkins of the Division of Wildlife should be contacted regarding possible impacts to rare animal species. She can be reached at (614) 265-6631.

There are no existing or proposed state nature preserves at the project site. We are also unaware of any unique ecological sites, geologic features, state parks, state forests, scenic rivers, or wildlife areas within the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although we inventory all types of plant communities, we only maintain records on the highest quality areas.

Please contact me at (614) 265-6409 if I can be of further assistance.

Sincerely,

Butch Grieszmer, Data Specialist Resource Services Group



December 10, 2009

Lynn Army Maumee Watershed Conservancy District 1464 Pinehurst Drive Defiance, Ohio 43512

RE: Blue Creek Wind Farm Project

Dear Mr. Army:

Heartland Wind, LLC, a subsidiary of Iberdrola Renewables, (Heartland Wind) is submitting this letter in response to our discussions on November 19, 2009.

It is our understanding that the proposed project collector lines may cross ditches and streams that are under the jurisdiction of the Maumee Watershed Conservancy District (Maumee). In addition the project has requested the opportunity to use access routes adjacent to Maumee riparian areas. The following conditions are agreed to relative to the above activities:

- Underground collectors would be installed no less then 3 feet below the existing bottom of existing ditches and streams;
- All disturbed areas would be restored to pre-existing conditions;
- If access requires disturbance to Maumee constructed berms then all berms would be restored to pre-existing conditions.

We thank your offices for their continued open communication on this project and we look forward to moving forward with the review process. Please do not hesitate to contact me with any questions at 484-467-3345 or <u>ddecaro@iberdrolausa.com</u>.

Yours sincerely,

Dach K. Colon

David R. De Caro Senior Permit Manager

CC: Dan Litchfield, Heartland, LLC.

IBERDROLA RENEWABLES, Inc. www.iberdrolarenewables.us



Blue Creek Wind Project - Special Hauling and Rightof-Way Permit Requirements

PREPARED FOR: Blue Creek Wind Project, Paulding and Van Wert Counties, Ohio

PREPARED BY: Jeromy Miceli, Iberdrola

DATE: December 16, 2009

Contacts made regarding special hauling and right-of-way permits with:

- Duane Bennett, ODOT Special Hauling Permits Section, (614) 351–2804
- Steve Reichenbach, ODOT District 1, Lima, (419) 222-9055
- Travis McGarvey, Paulding County Engineer, (419) 399-2366
- Kyle Wendel, Van Wert County Engineer, (419) 238-0210

ODOT Special Hauling and Right-of-Way Permits

This morning I spoke with Duane Bennett with ODOT's Special Hauling Permits Section. Based on their specifications, all of the tower sections and the nacelle will need a Special Hauling Permit based on their height, width and weight. In addition, the blades will need a Special Hauling Permit based of length. We can apply for "90 Day Continuing" permits, which will allow for unlimited deliveries of a specified component using a specified type of trailer for a 90 day period. Multiple permits will be required as the 90 day periods expire.

As the permitted loads move from ODOT jurisdictional roads to County and Township roads, the permitting responsibility shifts to those entities. We will need to identify a detailed permitting process in the Roads Agreements that we sign with the Counties and Townships, as opposed to individual permits for each component.

This morning I also spoke with Steve Reichenbach with ODOT's District 1 office in Lima, Ohio regarding permits for right of way use. He indicated that the uses we would require permits for (underground cable crossings, access road entrances, and intersection improvements, all within ODOT jurisdictional rights of way) are all handled using the same permit application. The permit application in these instances will be through the local ODOT District 1 office (Van Wert or Paulding Counties).

Paulding and Van Wert County Hauling and Right-of Way Permits

In meetings held on December 15th, 2009 in the offices of the Paulding County Engineer, Travis McGarvey, representatives from Paulding County, along with Blue Creek, Benton, and Latty Townships, indicated that they were amenable to the idea. As the permitted loads move to County and Township roads, the permitting responsibility shifts to those entities. We will need to identify a detailed permitting process in the Roads Agreements that we sign with the Counties and Townships, as opposed to individual permits for each component. In addition, the representatives of Paulding County, and Blue Creek, Benton,

and Latty Townships indicated that they would be willing to work towards a single Roads Agreement that would cover all roads under those entities' jurisdictions.

In meetings held on December 16th, 2009 in the offices of the Van Wert County Engineer, Kyle Wendel, he also seemed to agree with the approach of having a single Roads Agreement in lieu of individual agreements. The details of the agreements, including sections regarding permit coverage, will be negotiated over the coming months. Mr. Wendel indicated that he would be willing to enter into a single Roads Agreement with the Townships in Van Wert County (Union, Tully, and Hoaglin), however, representatives of those Townships have not yet been contacted regarding the matter.

Right of way use permits for County and Township roads are handled at those levels. In conversations with the Counties and Townships over the past two days, I detailed the typical uses we would need permits for. There was no indication that there would be any problem with granting permits for our uses.



PN: 1848.005

October 2009

INTERIM SUMMARY BAT ACOUSTIC MONITORING AT THE PROPOSED BLUE CREEK WIND FARM, PAULDING AND VAN WERT COUNTIES, OHIO

Prepared for: Iberdrola Renewables, Inc. 201 King of Prussia Rd., Suite 500 Radnor, Pennsylvania 19087

Prepared by: BHE Environmental, Inc. 11733 Chesterdale Rd. Cincinnati, Ohio 45246-4131 Phone: 513.326.1500 www.bheenvironmental.com

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- Table 1. Land cover types within the Iberdrola Blue Creek project planning area as defined by USGS land use/land cover data (http://www.mrlc.gov/index.php).
- Table 2. Bats potentially present within the proposed Blue Creek Wind Farm project planning area during summer, winter, and spring/fall migration.
- Table 3. Bat passes recorded per month at each height and frequency (<35 kHz or \geq 35 kHz).
- Table 4. Bat passes recorded per month by height and species group. Species groups include hoary bats (H), big brown/silver-haired bats (BB/SH), red/evening bats (R/E), Myotis (M), and eastern pipistrelles (P).

FIGURES

- Figure 1. MET tower location within the proposed Blue Creek Wind Farm project planning area, Paulding and Van Wert counties, Ohio.
- Figure 2. Bat hat design.
- Figure 3. Total number of bat passes recorded per month.
- Figure 4. Number of bat passes recorded at each frequency per month.
- Figure 5. Number of bat passes by species group recorded per month. No eastern pipistrelles calls were recorded.
- Figure 6. Bat activity recorded at the Blue Creek site relative to the typical bat life cycle.*

EXECUTIVE SUMMARY

Iberdrola Renewables, Inc. proposes to construct the 350-MW Blue Creek Wind Farm near Van Wert in Paulding and Van Wert counties, Ohio. Because bats have been impacted by wind farms, the Ohio Department of Natural Resources requires pre-construction acoustic surveys within the proposed project planning area to assess bat activity. BHE Environmental, Inc. was contracted to install two Anabat units to a meteorological (MET) tower in Van Wert County and assess bat activity based on calls recorded from March 15, 2009 through November 15, 2009. This preliminary report summarizes call sequences recorded from March 5 to August 19, 2009. During 274 detector-nights, 264 calls were recorded, most (78 percent) of which were big brown/silver-haired bats and most (72 percent) were recorded by a detector mounted at 3 meters (m) above the ground rather than by the detector mounted at 45 m above ground level. Other bat species groups recorded were hoary bats (14 percent), red/evening bats (6 percent), and *Myotis* (2 percent). Bat activity increased throughout the season, peaking in late July, a pattern which has been seen at other wind farms. BHE is continuing to monitor bat activity and will submit a report when data collection and analysis is complete.

1.0 INTRODUCTION

The proposed 350 MW Blue Creek Wind Farm Project is located north of the town of Van Wert in Van Wert County and south of Paulding in Paulding County, Ohio. Iberdrola Renewables, Inc. (IBR) has proposed to install 175 Gamesa G90 2.0 MW wind turbines with 100-m hub heights on the approximately 63,919 acre site. Over 95 percent of the project planning area is cropland (Table 1).

Because bats have been impacted by wind energy projects the Ohio Department of Natural Resources (ODNR) has requested preconstruction acoustic surveys to detect ultrasound used to assess bat activity in the project planning area.

The amount of measured bat activity varies from season to season with many bats migrating between summer roosts and winter hibernacula in the spring and fall. During summer, bats rear young and spend nights foraging for insects. In late summer, young bats become volant, joining the adults in foraging bouts. In the fall, migrating bats may travel several hundred kilometers to appropriate winter habitat. Bats return to their summer roosts the following spring. In addition to migration, mating activity occurs during fall (fall swarming). Bats found in Paulding and Van Wert counties, Ohio in the spring and fall may be summer residents or migrants.

BHE Environmental, Inc. was contracted to assess temporal and spatial patterns of bat activity in the proposed project planning area during spring, fall, and summer. BHE coordinated with the ODNR to prepare a study plan for the investigation; the ODNR subsequently approved the study plan.

2.0 BATS OF OHIO

Eleven species of bat inhabit Ohio (Table 2) and may be found in most forested, urban, or rural areas during the summer months. Except for the eastern small-footed bat (*Myotis leibii*), and Rafinesque's big eared bat (*Corynorhinus rafinesquii*), each of these species has potential to occur in the project planning area. The range of the eastern small-footed bat includes the state of Ohio; however, the American Society of Mammalogists lists the species as extirpated from the state (ASM 2009). The Rafinesque's big-eared bat is also rare in Ohio, known only from Adams County, in extreme south central Ohio (ASM 2009). These two species do not have potential to occur in the project planning area. The other nine species of bats in Ohio include year-round residents as well as species present only during certain seasons or during periods of migration. The Indiana bat (*Myotis sodalis*) is federally listed as endangered. The State of Ohio lists both the eastern small-footed bat and Rafinesque's big-eared bat as Species of Concern (Table 2).

Big brown bats (*Eptesicus fuscus*) and little brown bats (*Myotis lucifugus*) are both common, year-round residents that roost in trees, buildings, and other man-made structures during the summer, and winter in buildings, caves, or mines. Big brown bats move short distances between summer and winter habitat; Whitaker and Hamilton (1998) report local migrations of 48 kilometers (km; 30 miles [mi]) or less.

Tree bats, so called because they tend to roost in trees year round, include silver-haired bats (*Lasionycteris noctivigans*), eastern red bats (*Lasiurus borealis*), hoary bats (*Lasiurus cinereus*), and evening bats (*Nycticeius humeralis*). These four species are thought to migrate long distances (>100 km; 62 mi; Cryan 2003) between summer and winter habitat.

Summer ranges of all four species extend into Ohio, but winter sites are typically south of 40 degrees N latitude (Cryan and Veilleux 2007). Migration typically occurs during March-April and late July-October. Hoary bats have been observed traveling in large migratory flocks (Whitaker and Hamilton 1998).

Indiana bats, northern long-eared bats (*Myotis septentrionalis*), and eastern pipistrelles (*Perimyotis [Pipistrellus] subflavus*) roost in trees in forested areas during summer and migrate to caves and mines to hibernate during the winter. Neither northern long-eared bats nor eastern pipistrelles migrate more than about 48 to 64 km (30 to 40 mi) between summer and winter habitat (Whitaker and Hamilton 1998). However, Indiana bats can migrate up to 575 km (357 mi; Winhold and Kurta 2006).

Because the project planning area is mostly agricultural and open land with small patches of trees, the project planning area does not appear to possess unique or otherwise high quality summer or winter habitat for any of the nine species of bats potentially present.

3.0 METHODS

The Ohio Department of Natural Resources (ODNR) On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio, An Addendum to the Ohio Department of Natural Resource's Voluntary Cooperative Agreement (Protocol) was followed (Appendix A).

The Protocol states the following:

"At least 1 full season (15 March - 15 November) of acoustic monitoring should be conducted. This can be accomplished by attaching AnaBat (either SD1 or those equipped with CF ZCAIMS) units to all meteorological towers, with 1 unit positioned at 5 meters of the ground, and 1 unit within or as close as possible to the rotor swept area. In an effort to standardize results among study sites, the AnaBat's sensitivity should be adjusted to detect a calibration tone-3 at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. A "pass" will be defined as any file with \geq 2 echolocation pulses. When possible, detections should be identified to species or species group (e.g., big brown/silver-haired) within AnaLook. Copies of original and identified detections should be provided to the ODNR Division of Wildlife. In an effort to assess both potential attractant issues, and to correlate the number of detections with bat mortalities, acoustic monitoring should continue through the conclusion of post-construction monitoring."

Two Anabat II ultrasound recorders and compact flash storage zero-crossings analysis interface modules (Anabat II with CF ZCAIM; Titley Electronics, Ballina NSW, Australia) were attached to one MET tower within the project planning area. The instruments will record ultrasonic calls generated by bats nightly from March 15, 2009 through November 15, 2009. Microphones enclosed in weather-resistant housings (bat hat, EME Systems, Berkley, California) were attached to towers at 3 and 45 m above the ground, and connected to Anabat units on the ground via cables. The lower height of 3 meters was deemed acceptable due to the low growing soy bean crop surrounding the MET tower. Sound reflector plates beneath the microphone housings were positioned 15 degrees below horizontal so that the main acceptance angle was directed upward at 45 degrees (Figure 2). The CF ZCAIM units were programmed to record nightly from approximately 30 min before civil sunset to 30 min

after civil sunrise. Monitoring at the 3-m height began March 5, 2009; monitoring at the 45-m height began March 21, 2009.

Recorded files were scanned with a filter developed by Eric Britzke for the Indiana Bat Survey Guidance for the Commonwealth of Kentucky to identify and eliminate noise. All files not eliminated by the filter were viewed. Each file containing two or more complete bat pulses was tallied as a bat pass. Bat call sequences were sorted into two groups based upon the minimum frequency of the call. Big brown bats, silver-haired bats, and hoary bats typically produce calls with a minimum frequency below 35 kHz, and are therefore identified as the low frequency species group. Red bats, evening bats, Indiana bats, little brown bats, northern long-eared bats, and eastern pipistrelles typically produce calls \geq 35 kHz and are identified as the high frequency species group. Where recording quality allowed, bat call sequences were also identified to the following species or species groups: hoary bats, big brown/silver-haired bats, red/evening bats, *Myotis*, and eastern pipistrelles.

This interim report summarizes bat calls recorded between March 5 and August 19, 2009. Bat calls recorded throughout the entire 36-week period (March 5 to November 15, 2009) will be presented, analyzed, and discussed in a report prepared after data collection is completed in November 2009.

4.0 RESULTS AND DISCUSSION

Data were recorded during a total of 274 detector-nights between the evening of March 5 and the morning of August 19, 2009. The two Anabat units recorded a total of 264 bat passes (Table 3; Figure 3). Seventy-two percent of calls were recorded at the 3-meter height, while 28 percent of calls were recorded at the 45-meter height (Table 3). Results of similar studies (e.g., Arnett et al. 2006, Redell 2006) have also shown greater activity of bats at lower elevations.

Low frequency calls comprised 90 percent (238) of the passes, while high frequency calls comprised 10 percent (26; Table 3; Figure 4). Approximately 78 percent of bats recorded were big brown/silver-haired bats (198 passes), while 14 percent (35) were hoary bats, 6 percent (15) were red/evening bats, and 2 percent (5) were *Myotis* (Table 4; Figure 5). No eastern pipistrelles were recorded.

The total number of bat passes recorded was greatest in late July (Figure 6). Relatively high levels of activity in July may be associated with young-of-the year becoming volant, the onset of breeding, or an increase in foraging to build up fat reserves for migration and hibernation. For the purposes of this interim report data collected through August 19, 2009 is summarized. Therefore the decline in bat passes recorded in August is, at least in part, a function of data being collected for only part of the month. When data collection is completed, it will allow complete months to be compared throughout the sampling period.