

## **APPENDIX A**

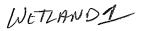
U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION DATA FORMS



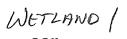
WETLAND 1

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: AEP BY SANDY POND CLOSURE City/Coun	ty: Lovisa, Lawnewlt Sampling Date: 05/23/12
Applicant/Owner: <u>AFP</u>	State: /ك/ Sampling Point: O/
Investigator(s): BAO MOT Section, T	ownship, Range:
Landform (hillslope, terrace, etc.): Departssianus Local relief (c	
Subregion (LRR or MLRA): Lat:	
Soil Map Unit Name: Va F	
	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _	
Are Vegetation, Soil, or Hydrology significantly disturbed	
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampli	ng point locations, transects, important features, etc.
1 11 11 0 11 Dun =	the Sampled Area thin a Wetland? Yes
PEM/DSS WETLAND LOCATED ON SIDE OF TO HAVE BEEN A HISTORICALLY EXCAVATED	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14	
High Water Table (A2) Hydrogen Sulfide Odor (C	· · · · · · · · · · · · · · · · · · ·
	n Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron Sediment Deposits (B2) Recent Iron Reduction in	
Sediment Deposits (B2) Recent Iron Reduction in Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remark	,
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	✓ FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous)	s inspections), if available:
5555, 156 (166 166 166 166 166 166 166 166 166 1	
Remarks:	
WETLAND & ABOTTINA EPH. STREAM	S-MOTO50312-07-5105-4/
	,



VEGETATION (Five Strata) - Use s	cientific names of	piants.		Sampling Point:
		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1. NONE	assente and a second			That Are OBL, FACW, or FAC: (A)
2				
3.				Total Number of Dominant
				Species Across All Strata: (B)
4			<del></del>	Percent of Dominant Species 7
5				That Are OBL, FACW, or FAC:
6.				
7				Prevalence Index worksheet:
		- Total Co		Total % Cover of: Multiply by:
Sapling Stratum (Plot size:		= Total Cov	/ei	OBL species \( \begin{aligned} \lambda \text{ \text{ T}} & \text{ x 1 = } \lefta \text{ CO} \end{aligned} \)
			ra 3	FACW species
1. PLANTUS OCCIDENTALIS				
2. FRAXINUS penns/lvanica			FHCW	FAC species x 3 = / 50
3				FACU species x 4 =
4				UPL species x 5 =
5				.00
				Column Totals:
6				Prevalence Index = B/A = 2.05
7				Hydrophytic Vegetation Indicators:
	<u> </u>	= Total Cov	/er	<u> </u>
Shrub Stratum (Plot size:			_	1 - Rapid Test for Hydrophytic Vegetation
1. Pubus allegheniensis		$\angle$	FACU	2 - Dominance Test is >50%
2				3 - Prevalence Index is ≤3.01
				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3				data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5				resistant flyarophytic vegetation (Explain)
6				1
7				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Cov	/er	
Herb Stratum (Plot size:)		- rotal oot	701	Definitions of Five Vegetation Strata:
1. Dichan thelium Classdestinum		X_	CAC	Tree – Woody plants, excluding woody vines,
				approximately 20 ft (6 m) or more in height and 3 in.
2. Importions capensis			•	(7.6 cm) or larger in diameter at breast height (DBH).
3. Scirpus atrovirus		_X	OBL	
4. Carex Vulginoidea			OBL	Sapling – Woody plants, excluding woody vines,
5. Onoclea sensibilis	5		FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
6				than 3 m. (7.0 dm) DBM.
o				Shrub – Woody plants, excluding woody vines,
7			~	approximately 3 to 20 ft (1 to 6 m) in height.
8				
9				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
10				plants, except woody vines, less than approximately
				3 ft (1 m) in height.
11.				
12				Woody vine - All woody vines, regardless of height.
	_130_	= Total Cov	/er	
Woody Vine Stratum (Plot size:				
1				
2				
3.				
				Hydrophytic
				Vegetation
5				Present? Yes No
		= Total Cov	/er	
Remarks: (Include photo numbers here or or	a separate sheet )			
Terrando, findade prote numbere nere or or	, a sopulate ellect,			



W-BAO-	057312	•	0	/
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Sampling Point:

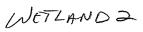
	• `	•	th needed to docu				· maroatorory
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Features %T	ype <sup>1</sup> Loc <sup>2</sup>	Texture	Remarks
0-6	104R4/1				C M		
		70	104R 5/8			Chay	
6-12	10'42 6/1	100				-	
						-	
		-				· <del></del>	
	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked Sa	nd Grains.		Pore Lining, M=Matrix.
Hydric Soil							ors for Problematic Hydric Soils <sup>3</sup> :
Histoso			Dark Surface		CO\ /## DA 447		m Muck (A10) (MLRA 147)
	pipedon (A2) istic (A3)				S8) (MLRA 147 LRA 147, 148)		ast Prairie Redox (A16) MLRA 147, 148)
	en Sulfide (A4)			ed Matrix (F2)	•		dmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma				MLRA 136, 147)
	uck (A10) ( <b>LRR N</b> )		Redox Dark				d Parent Material (TF2)
	d Below Dark Surfac	e (A11)		rk Surface (F	7)		ry Shallow Dark Surface (TF12)
	ark Surface (A12)	DD N	Redox Depr	essions (F8) iese Masses (	E10) /I <b>DD N</b>	Oth	ner (Explain in Remarks)
	Mucky Mineral (S1) ( <b>I</b> <b>A 14</b> 7 <b>, 148</b> )	-KK N,	MLRA 1		1 12) (LIXIX IV,		
	Gleyed Matrix (S4)			ace (F13) ( <b>ML</b>	RA 136, 122)	<sup>3</sup> Indic	ators of hydrophytic vegetation and
	Redox (S5)				(F19) (MLRA 1		tland hydrology must be present,
	d Matrix (S6)					unl	ess disturbed or problematic.
Restrictive	Layer (if observed):						
Type:							$\checkmark$
	iches):					Hydric Soil F	Present? Yes No No
Remarks:							

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Atp BIKSANDY POND CLOSURE City/Co	ounty: Lovisa, Launewice Sampling Date: 05/23/12
Applicant/Owner: AFP Investigator(s): BAO, MOT Section	State: Ku/ Sampling Point: 0 2
Investigator(s): BAO, MOT Section	on, Township, Range:
Local relia	ef (concave, convex, none): Con CANE Slone (%):
Subregion (LRR or MLRA): Lat: 38 18 494	Long: -80.650542 Datum
Soil Map Unit Name: UpF	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? You	
Are Vegetation $\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Jed : Are Normal Circumstances present; res No
SUMMARY OF FINDINGS – Attach site map showing sam	
Comment of America Attached the map enount geam	ping point rotations, transports, important rotations, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks:	
DEM WETLAND LOCATED ON SIDE O TO HAVE BEEN A HISTORICALLY EX	F ACCESS NOAD THAT APPEARS
TO HAVE BEEN A HISTORICALLY EX	CAURTED AREH.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (I	• • • • • • • • • • • • • • • • • • • •
High Water Table (A2) Hydrogen Sulfide Odd	
Saturation (A3) Oxidized Rhizosphere	
Water Marks (B1) Presence of Reduced Recent Iron Reductio	
Sediment Deposits (B2) Recent Iron Reductio Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Ren	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	EAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	· · · · · · · · · · · · · · · · · · ·
Water Table Present? Yes No _K_ Depth (inches):	
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
	·
NETTAND IS ABUTTING EDHEMENA	L STACHM S-MOT-050312-07 SIDE-4/
	14-3015 20-818020-10101

#### VEGETATION (Five Strata) - Use scientific names of plants.

/EGETATION (Five Strata) – Use scientific	names of plant	s.	Sampling Point:
- O. J. (D. J.	Absolute Domi		Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover Spec		Number of Dominant Species
1. <u>No</u> NE			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
			Species Across All Strata: (B)
4			Percent of Dominant Species
5			That Are OBL, FACW, or FAC: (A/B)
6			Prevalence Index worksheet:
7			Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)	= Tota	Cover	OBL species 50 x1 = 50
			FACW species 35 x 2 = 70
2.			FAC species 40 x3 = 120
			FACU species x 4 =
3			UPL species x 5 =
4			Column Totals: $125$ (A) $240$ (B)
5. /			
б́			Prevalence Index = B/A = /. ?>
7.		L Course	Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)	= Tota	Cover	1 - Rapid Test for Hydrophytic Vegetation
			∠ 2 - Dominance Test is >50%
2			3 - Prevalence Index is ≤3.0¹
1. NINE 2			4 - Morphological Adaptations (Provide supporting
4.			data in Remarks or on a separate sheet)
5			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6.			
7			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
	= Tota	I Cover	be present, unless disturbed or problematic.
Herb Stratum (Plot size:)		. 00701	Definitions of Five Vegetation Strata:
1. Sarpus cyperinus	<u></u>	FACW	Tree - Woody plants, excluding woody vines,
2. Scinpus atrovinens	20	052	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Junius effusile		FACU	(7.0 dill) of larger in diameter at breast height (DBH).
4. Cares Vulgia ordea	<i>_3</i> 0×	BBL	Sapling – Woody plants, excluding woody vines,
5. Dicharthelium clarifestinum	<u> </u>	- FAC	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
6. Impations caponsis		FACW	
7. Voncus tenuis		,	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
8.			
9			Herb – All herbaceous (non-woody) plants, including
10.			herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
11.		_	3 ft (1 m) in height.
12.			Woody vine – All woody vines, regardless of height.
	125 = Tota	l Cover	Troody vines, regardless of fleight.
Woody Vine Stratum (Plot size:)		**	
1. NONE			
2			
3			
4			Hydrophytic Vegetation
5			Present? Yes No
	= Tota	l Cover	
Remarks: (Include photo numbers here or on a separat	e sheet.)		
The second secon	· - · <b>/</b>		



COLL		

W-BAD-058312-03	2
Sampling Point:	

Profile Des	cription: (Describe t	o the dep	th needed to do	ocument the	indicator	or confirm	n the absence of i	ndicators.)
Depth	Matrix			tedox Feature		1 2	T	D
(inches)	Color (moist)	<u> %</u>	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
D-19	10/R 6/1	10	10 yr 5/8	7 30		_nl_	Swyciny	
10-12	10 (ny 1	100					ciny_	
				**				
				***************************************				
1Tuno: C=C	oncentration, D=Deple	ation RM-	-Poduced Matrix	MS=Macke	d Sand Gr	aine	21 ocation: DI ~D	ore Lining, M=Matrix.
Hydric Soil		euon, rawi-	-Neduced Math	K, IVIO-IVIASKE	u Sanu Gi	airis.		s for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Sur	face (S7)				Muck (A10) (MLRA 147)
	pipedon (A2)			e Below Surfa	ce (S8) (I	VILRA 147		t Prairie Redox (A16)
	istic (A3)			k Surface (S9				LRA 147, 148)
Hydroge	en Sulfide (A4)			leyed Matrix				nont Floodplain Soils (F19)
	d Layers (A5)			Matrix (F3)				LRA 136, 147)
	ıck (A10) ( <b>LRR N)</b>			ark Surface (I				Parent Material (TF2)
	d Below Dark Surface	(A11)		Dark Surface				Shallow Dark Surface (TF12)
	ark Surface (A12) ⁄lucky Mineral (S1) ( <b>L</b> l	DD N		epres <mark>sions</mark> (F Iganese Mass		/I DD N	Other	(Explain in Remarks)
	A 147, 148)	KK N,		4 136)	665 (F12)	(LIXIX IV,		
	Gleyed Matrix (S4)			Surface (F13)	(MLRA 1	36, 122)	<sup>3</sup> Indicate	ors of hydrophytic vegetation and
	Redox (S5)			t Floodplain S				nd hydrology must be present,
	Matrix (S6)							s disturbed or problematic.
Restrictive	Layer (if observed):							
Type:			<del></del>					
Depth (in	ches):						Hydric Soil Pre	sent? Yes No
Remarks:								



# WETLAND 3 WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: AFP BIG SANDY City/C	County: LAWRENCE Sampling Date: (252 4)2
Applicant/Owner: AEP	State: Ly Sampling Point: 0 /
Investigator(s): BAO, MDT Section	•
Landform (hillslope, terrace, etc.): HILSLOPE SEEP Local reli	
Subregion (LRR or MLRA): Lat: Lat:	
	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? $$ Y	es No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturb	oed? Are "Normal Circumstances" present? Yes NoX
Are Vegetation N, Soil N, or Hydrology N naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes No	
Remarks:	
PEM WETLAND SEEP LOCATEDON HIUSL JUNIUS EFFUSES, FORMERLY EXCAUATED A	OPE. WETLAND IS DOMINATED BY * HEEA (BORROW AREA)
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (I	
High Water Table (A2)  Hydrogen Sulfide Odd	
✓ Saturation (A3) Oxidized Rhizosphere	• • • • • • • • • • • • • • • • • • • •
Water Marks (B1) Presence of Reduced Sediment Deposits (B2) Recent Iron Reductio	• • •
Sediment Deposits (B2) Recent Iron Reductio Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Ren	
Iron Deposits (B5)	✓ Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	→ FAC-Neutral Test (D5)
Field Observations:	4/
Surface Water Present? Yes No Depth (inches):/	<u>/ - '                                  </u>
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): _S	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
I I I I CAT CON CONTRACTOR OF THE CONTRACTOR OF	
HILLSIDE SEEP W/ SATURATION &	INUMDATION PRESENT, SEEPHELE
THROUGH BEDROCK LAYERS	
I Was all 1960 Kock This	

# WTVAND 3 VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Wmd+524/2-

	Absolute	Dominan	t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cove	r Species'	? Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC:(A)
2				
				Total Number of Dominant
3				Species Across All Strata: (B)
4			·	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: _ / (O) (A/B)
6				
7				Prevalence Index worksheet:
		= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)		10141 00	VCI	OBL species 4 x 1 = 4
1				FACW species 65 x2= 130
				FAC species 40 x 3 = 100
2				
3				FACU species x 4 = 4o
4				UPL species x 5 =
5				Column Totals: //9 (A) _294 (B)
6.				
7				Prevalence Index = B/A = 2.4
			·	Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)		_ = Total Co	ivei	1 - Rapid Test for Hydrophytic Vegetation
				∠ 2 - Dominance Test is >50%
1				∠3 - Prevalence Index is ≤3.0¹
2			· <del></del> -	1
3			. ———	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
4				
5				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6.				
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
7.				be present, unless disturbed or problematic.
Herb Stratum (Plot size:)		_ = Total Co	ver	Definitions of Five Vegetation Strata:
1. JUNCUS OFFICES	50	$\vee$	FACW	Tree – Woody plants, excluding woody vines,
1. Noucos offices	20		. ———	approximately 20 ft (6 m) or more in height and 3 in.
2. Juneus teguis		_×_	FAC	(7.6 cm) or larger in diameter at breast height (DBH).
3. WOOLGRASS-SCIRPUS CUPERINUS	10		FACW	
4. SEEDBOX- WOWIHIT afternifolia	5		FACU	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
5. GOLDEN ROD 300 SOLIDAHO SAD.	5_		FAC	than 3 in. (7.6 cm) DBH.
6. FOCTAIL SCOLE SPP.	5.		FAC	114,70 111 (1.10 011) 557.11
7. LORPYE WEED - EUTROCHUM PURPULEUM	10:	-	FAC	Shrub – Woody plants, excluding woody vines,
			FACU	approximately 3 to 20 ft (1 to 6 m) in height.
8. Sch. zochyrium Scoparium				Herb – All herbaceous (non-woody) plants, including
9. NARROWLEAF CATTAIL TIPHA AVAVATIFICIA	<u> </u>		OBL	herbaceous vines, regardless of size, and woody
10. DARK GREEN BULRUSH - 9CORPUS ATTENDED	<u> </u>		BBL	plants, except woody vines, less than approximately
11				3 ft (1 m) in height.
12				Woody vine – All woody vines, regardless of height.
	119	_ = Total Co	vor	Woody vine - All woody vines, regardless of fleight.
Woody Vine Stratum (Plot size: )	11.1	_ = 10ta100	IACI	
1	<del></del>			
·	,			
2				
3				
3				Hydrophytic Venetation
3				Vegetation
3				
3				Vegetation

Profile Desc	ription: (Describe to	o the depth	needed to docur	nent the i	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix			x Feature		<del></del>		_
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks Remarks
0-8.	YSEE BELO							
_8-	REFUGAL	Beoveo	C12				····	
				· ———				
1Type: C=Cc	oncentration, D=Deple		Peduced Matrix M	S=Masker	d Sand Gr	aine	<sup>2</sup> Location: F	PL=Pore Lining, M=Matrix.
Hydric Soil I		elion, IXIVI–N	leduced Matrix, M	3-Masket	J Sallu Gi	ali i5.		eators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surface	(S7)				2 cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Be	. ,	ce (S8) (N	ILRA 147,		Coast Prairie Redox (A16)
Black His			Thin Dark Su				,	(MLRA 147, 148)
Hydrogei	n Sulfide (A4)		Loamy Gleye	ed Matrix (	(F2)		F	Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Ma				_	(MLRA 136, 147)
	ck (A10) (LRR N)	(0.44)	Redox Dark	•				Red Parent Material (TF2)
	Below Dark Surface rk Surface (A12)	(ATT)	Depleted Da					Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
	ucky Mineral (S1) (LF	RR N.	Iron-Mangan	-		LRR N.	_X_ \	Street (Explain in Nemarks)
	147, 148)	·	MLRA 13		, , ,	•		
Sandy G	leyed Matrix (S4)		Umbric Surfa					dicators of hydrophytic vegetation and
. —	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14		wetland hydrology must be present,
	Matrix (S6)							unless disturbed or problematic.
	ayer (if observed):							
, <u> </u>	:hes):						Illudria Cai	l Present? Yes No
Remarks:							- Hyuric 30i	resent? res No
Remarks.								
	* DISTORE	Sec. 0.00	We Ama	11-1 A	0.001/	A	10121	¥ 110
	* Distore		ics, GIVAN	rely, si	HUSY	ciny	WITT	VARIOUS MOTTUNA.
	AT Q"	NEC.10	AL AT B	~~~				
	//	700.09	PL 151	ED KO	-K.			
	110	-0.						
	MOTTLES -	ONAN	FE, WHITISH	AREY, I	BLACK	1		
				*				
					1			
	1HE VA	121005	motte	INH	E W	rsoni	TOO 61	RAVEZ ALLUVIUM
	1-00		0 1					
	APPEAR	is to	BE CA	v 3 E/D	134	HISTO	orle Dis	TURBANCE
					ŧ			
	v							
								}

WETLAND 4

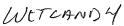
#### W-MDT. 050410-02

#### WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: AED BIG SAND( City/C	County: Louisa, Lawrence Sampling Date: 2012, May 8
Applicant/Owner: AEP	State: OH Sampling Point: O
Investigator(s): BAO, MDT Secti	
Landform (hillslong terrace etc.): SEEP Local re	lief (concave, convex, none):Slope (%):
	Long: — 82.640344 Datum:
	_
Soil Map Unit Name: UpF	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year?	<u> </u>
Are Vegetation $ \underbrace{}_{}$ , Soil $ \underbrace{}_{}$ , or Hydrology $ $	
Are Vegetation $\nearrow$ , Soil $\nearrow$ , or Hydrology $\nearrow$ naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes   No  No  No  No  No  No  No  No  No  N	Is the Sampled Area within a Wetland? Yes No
Remarks:	V
PEM WETLAND SEEP LOCKTED ON HILLSLE DISTURBED SOILS. (FORMER BORROW ARE	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	- ()
High Water Table (A2)  Hydrogen Sulfide Oc	
Saturation (A3)     Oxidized Rhizospher       Water Marks (B1)     Presence of Reduce	
Water Marks (B1) Presence of Reduce Sediment Deposits (B2) Recent Iron Reduction	• • • • • • • • • • • • • • • • • • • •
Sediment Deposits (B2) Treatment Telegraphic (B2) Thin Muck Surface (	
Algal Mat or Crust (B4) Other (Explain in Re	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _X_ Depth (inches):	
Water Table Present? Yes <u>火</u> No Depth (inches): ∑v	
Saturation Present? Yes X No Depth (inches): 90	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections) if available:
Soon is a read and a series of the series of	
Remarks:	
HILLSIDE SEEP W/ SATURATION I	PRESENT

1.)-MOT-	050410-02
0	Sampling Point:

	cription: (Describe to the de			ator or confirm	the absence of	of indicators.)
Depth (inches)	Matrix Color (moist) %	Redo	ox Features % Tv	pe¹ Loc²	Texture	Remarks
1)-H	4 SEE BELOW 4				Texture	Remarks
	REFUGAL					
4-	THE PURAL					
	***************************************					
		***				
1Type: C=C	oncentration, D=Depletion, RM	I=Reduced Matrix M	S=Masked San	d Grains	<sup>2</sup> Location: PL:	=Pore Lining, M=Matrix.
Hydric Soil		r-reduced Wattix, W	O Wasked Gar	d Ordino.		ors for Problematic Hydric Soils <sup>3</sup> :
Histosol		Dark Surface	e (S7)			cm Muck (A10) <b>(MLRA 14</b> 7)
Histic E	pipedon (A2)			8) (MLRA 147,	148) Co	past Prairie Redox (A16)
	istic (A3)	Thin Dark Si		RA 147, 148)		(MLRA 147, 148)
	en Sulfide (A4) d Layers (A5)	Loamy Gley	ed Matrix (F2)			edmont Floodplain Soils (F19) (MLRA 136, 147)
_	uck (A10) (LRR N)		Surface (F6)			ed Parent Material (TF2)
. —	d Below Dark Surface (A11)		rk Surface (F7)			ry Shallow Dark Surface (TF12)
1 —	ark Surface (A12)	Redox Depr		(40) (1 <b>55</b> N	Ot	her (Explain in Remarks)
	Mucky Mineral (S1) (LRR N, A 147, 148)	Iron-Mangar	nese Masses (F 86)	12) (LRR N,		
1	Gleyed Matrix (S4)		ace (F13) <b>(MLR</b>	A 136, 122)	<sup>3</sup> Indic	cators of hydrophytic vegetation and
	Redox (S5)	Piedmont Fl	oodplain Soils (	F19) <b>(MLRA 14</b>	8) we	tland hydrology must be present,
	Matrix (S6)			······································	un	less disturbed or problematic.
	Layer (if observed):					
1	ches):				Hydric Soil F	Present? Yes No No
Remarks:		<del></del>			1	74 110
110///0//						
J		10168 4	CANNI	class w	117-14 CAM	ne knavel
7	DISTURBED S	:0/6>	TANKY		1000	ic removed
	OFFUGAL					
	y" letranc	K				
	,					
	*				,	UNBONIED GRAVER
	ALLUVION &	Functione	o Bedr	were ti	HAT A	PPEAR DUE to
	HISTORK DIS	TURBANCE				
	(1 -					



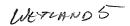
EGETATION (Five Strata) – Use scientific na		Da:	lm al! !	<del></del>	ng Point:	
Tree Stratum (Plot size:)	Absolute % Cover			Dominance Test worksheet:		
				Number of Dominant Species That Are OBL, FACW, or FAC:	$\rightarrow$	<b>(</b> .
1				mat Ale OBL, FACVV, of FAC.		. (A)
2.				Total Number of Dominant	~	
3				Species Across All Strata:		(B)
4				Percent of Dominant Species		
5				That Are OBL, FACW, or FAC:	100	(A/B)
6				Dravalance Index		
7				Prevalence Index worksheet:		
		= Total Co	ver		Multiply by:	_
Sapling Stratum (Plot size:)				OBL species x 1	-	_
1				FACW species 60 x 2		
2				FAC species 50 x 3		
3				FACU species 5 x 4	=	
4				UPL species x 5	=	
5				Column Totals: 121 (A)	294	_ (B)
6				Prevalence Index = B/A = _	2.4	,
7				Hydrophytic Vegetation Indicate		
Shrub Stratum (Plot size:)		= Total Co	ver	1 - Rapid Test for Hydrophytic		
				∠ 2 - Dominance Test is >50%	o vegetation	
1				3 - Prevalence Index is ≤3.01		
2				1	1 (D t.)	
3				4 - Morphological Adaptations data in Remarks or on a se	s (Provide sup eparate sheet)	porting
4				Problematic Hydrophytic Vege	•	
5					CAPIE	,,,,
6				<sup>1</sup> Indicators of hydric soil and wetla	nd budrolomer	
7				be present, unless disturbed or pre-	oblematic.	nust
, (D) ( )		= Total Co	ver	Definitions of Five Vegetation S	trata:	
Herb Stratum (Plot size:)	1 8 500	<b>\</b>		_		
1. Junus effeses			FACW	Tree – Woody plants, excluding water approximately 20 ft (6 m) or more	/00dy vines, in height and 3	3 in
2. Juneus Fenuis		_×_	PAC	(7.6 cm) or larger in diameter at bi	reast height (D	)BH).
3. WOOLARASE - SCIRPUS CYPERNUS			FACW	Senting Monday lants and Indian		ŕ
4. SFF0BEX - LUDWIGHA alternitolia			FACW	Sapling – Woody plants, excludin approximately 20 ft (6 m) or more	g woody vines in height and l	988
5. ELOLDENROD - SOLIDALLO SAP.			FAC	than 3 in. (7.6 cm) DBH.	rioigne and r	C33
6. Corroll Stote - Setaria Spp.	5.		FAC	Church Mande plants sectivities		
7. SOF DIE WHED - FULTOCHIUM Purpureum	10		FAC	Shrub - Woody plants, excluding approximately 3 to 20 ft (1 to 6 m)		
8. Schifochyrum Scoparium	5		FACU	,		
9. NARROWLENE CHTTAIL - Typha Armstifolia			OBL.	Herb – All herbaceous (non-wood		
10. DARKGROEN BULROSH - SCIEDUS atrovirus			OBL	herbaceous vines, regardless of s plants, except woody vines, less tl	ize, and wood) han approxima	y ately
11. SPHAGNUM MASS SPP.			OBL	3 ft (1 m) in height.	Tall approxima	itory
12.				Manda sina Allumada sina m	manulla a	
12.	121	= Total Co	vor	Woody vine – All woody vines, re	gardiess of he	ignt.
Woody Vine Stratum (Plot size:)		- Total Co	VEI			
1						
2.						
3.						
v				Hydrophytic		
<del>4</del>				Vegetation		
5				Present? Yes	No	
		= Total Co	ver			
Remarks: (Include photo numbers here or on a separate sl	neet )					

WETLANDS

W-MDT-052412-03

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: ACP BIG SHV DV	City/County: LAWRENCE Sampling Date: 2012, MAY 84
Applicant/Owner: AFP	State: (   Sampling Point: 03</td
Investigator(s): BAD, MD'T	State: Sampling Point: 3
Subregion (I BB or MI BA):	Second relief (concave, convex, none):       Slope (%):         38./835%       Long:       83.637677         Datum:       Datum:
	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of your state of the stat	· · · · · · · · · · · · · · · · · · ·
	y disturbed? Are "Normal Circumstances" present? Yes NoX
Are VegetationN, SoilN, or HydrologyN naturally pr	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wes No  Wetland Hydrology Present?  Yes No	I IS THE SAMPLED Area
Remarks:  PEM WETCAND LOCATED AT  AREA WITH DISTURBED SOILS.	TOE-OF-SLOPE. * PREVIOUSLY EXCHUPTED
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic F	
High Water Table (A2) Hydrogen Sulf	. , ,
	ospheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of R Sediment Deposits (B2) Recent Iron Re	educed Iron (C4) Dry-Season Water Table (C2) eduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Sur	
Algal Mat or Crust (B4) Other (Explain	
Iron Deposits (B5)	∑ Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	1000
Surface Water Present? Yes No Depth (inches	3):/,5
Water Table Present? Yes No _X Depth (inches	
Saturation Present? Yes No Depth (inches (includes capillary fringe)	s): Surface   Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspections), if available:
Remarks:	
,	NUNDATION & SATURATION PRESENT
TOE- OF SLOPE WITH 1"	0000000 1 000 1 000 1 005600T



Tree Stratum (Plot size: \_\_\_\_\_)

Sapling Stratum (Plot size:

Shrub Stratum (Plot size: \_\_\_\_\_

Herb Stratum (Plot size: \_\_\_\_\_)

Woody Vine Stratum (Plot size:

2. JUNCUS TONNIS

1. BLUESTER - Schizochyrium Scoparum 25

3. NARROWLEHE CATTER - Typha Patifolia 2
4. BROADLERD CATTER - Typha Patifolia 5
5. WOOLERAGS - SCINDUS CYPERNUS 10
6. DARK FIRM BURNEH - SCIRPUS AKOVICUS 2

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

7. JUNEUS EFFUBES 10 8. SPHAGINUM MOSS SP. 15

#### VEGETATION (Five Strata) - Use scientific names of plants.

mes of plants.  Absolute Dominant Indicator	Sampling Point:  Dominance Test worksheet:
% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
	Total Number of Dominant Species Across All Strata: (B)
	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/E
	Prevalence Index worksheet:
= Total Cover	Total % Cover of:Multiply by:
	OBL species $\frac{3H}{}$ x 1 = $\frac{3H}{}$
	FACW species $20 \times 2 = 40$
	FAC species $\frac{70}{}$ x 3 = $\frac{210}{}$
	FACU species x 4 = /06
	UPL species x 5 =
	Column Totals:/39 (A) (B
	Prevalence Index = B/A =
= Total Cover	Hydrophytic Vegetation Indicators:
= Total Gover	1 - Rapid Test for Hydrophytic Vegetation
	2 - Dominance Test is >50%
	∠ 3 - Prevalence Index is ≤3.0¹
	4 - Morphological Adaptations <sup>1</sup> (Provide supportine data in Remarks or on a separate sheet)
	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u> </u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover	Definitions of Five Vegetation Strata:
25 FACU	Tree – Woody plants, excluding woody vines,
70 X FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
	Sapling – Woody plants, excluding woody vines,
5 OBL	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
<u> </u>	Shrub – Woody plants, excluding woody vines,
10 FACW	approximately 3 to 20 ft (1 to 6 m) in height.
15 GBL	Herb – All herbaceous (non-woody) plants, including
	herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
100	Woody vine - All woody vines, regardless of height.
<u>139</u> = Total Cover	
	Hydrophytic
	Vegetation Present? Yes No
= Total Cover	

W-MOT-0504/2-03

SOIL

20	·
	Sampling Point:

Profile Desc	ription: (Describe to the dep	h needed to docume	ent the indica	tor or confirm	the absence	of indicators.)
Dep <b>t</b> h	Matrix	Redox	Features			
(inches)	Color (moist) %	Color (moist)	% Typ	e <sup>1</sup> Loc <sup>2</sup>	Texture	Remarks
0-4_	+SEE BELOW *					
~	REFUSAL					
		<del></del>				
1- 0.0		Dadward Makin MC			21	Den Linia Manage
	oncentration, D=Depletion, RM=	Reduced Matrix, MS=	Masked Sand	Grains.		L=Pore Lining, M=Matrix. ators for Problematic Hydric Soils <sup>3</sup> :
Hydric Soil I		Dad Confere (	07)			· ·
Histosol	• ,	Dark Surface (		) /841 D A 447		cm Muck (A10) (MLRA 147)
	ipedon (A2)	Polyvalue Belo Thin Dark Surf			. 148) C	Coast Prairie Redox (A16) (MLRA 147, 148)
Black His		Loamy Gleyed		(A 147, 140)	<b>E</b>	Piedmont Floodplain Soils (F19)
	n Sulfide (A4) Layers (A5)	Depleted Matri			— '	(MLRA 136, 147)
	ck (A10) (LRR N)	Redox Dark St	. ,		F	Red Parent Material (TF2)
	Below Dark Surface (A11)	Depleted Dark				'ery Shallow Dark Surface (TF12)
	rk Surface (A12)	Redox Depres				Other (Explain in Remarks)
Sandy M	lucky Mineral (S1) (LRR N,	Iron-Manganes	se Masses (F	2) (LRR N,	•	
MLRA	147, 148)	MLRA 136)				
Sandy G	leyed Matrix (S4)	Umbric Surface				licators of hydrophytic vegetation and
	edox (S5)	Piedmont Floo	dplain Soils (l	19) ( <b>MLRA 1</b> 4	•	vetland hydrology must be present,
	Matrix (S6)				u	nless disturbed or problematic.
Restrictive L	ayer (if observed):					
Туре:		<del></del>				
Depth (inc	ches):				Hydric Soil	Present? Yes No
Remarks:						
	V > -					
	* DISTURBED S	OILS SAND	1010			
	* DISTURBED S	, -, -, -	TURY	WITH S	OME GR	1-AVE7
	REFUSAL WA	5 197 4"	/%			
		HT	136000	CR.		
	Solls Amotors			,		etes finance
	100 NOTED	WY VARIOU	s mor	TIING 8	E LINSON	7
	<u> </u>	_			, 0,,00,,	OF GRAVEL
	ALLUVIUM	Inscrune	D BED	ROCU	THAT	ADDED OF DIE
			ŭ			APPEARS DUE
	to Histor	C DISTUR	BANCE	atomic .		
		P 10 10 11	21017			

INETLAND 6	N-BAO-052412-05
WETLAND DETERMINATION DATA FORM - Easters	n Mountains and Piedmont
Project/Site: AEP BIG SANDY City/County: LOUISA  Applicant/Owner: AEP	
Investigator(s): B. OTTO M. THOMPLEY UKS Section, Township, Rar Landform (hillslope, terrace, etc.): Toe OF SLope Local relief (concave, conv Subregion (LRR or MLRA): Lat: 38, 195 745 Long Soil Map Unit Name: Lat: 38, 195 745 Long Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "I Are Vegetation X, Soil X, or Hydrology X naturally problematic? (If new SUMMARY OF FINDINGS — Attach site map showing sampling point to Hydrophytic Vegetation Present?	nge:
Hydric Soil Present?  Wetland Hydrology Present?  Yes No within a Wetlan	
PEM/PSS WETZAND THAT IS LOCATED AT TOE-O STREAM S-MOTS/24/12-OLD (EPHEMENAL). SONS WERE DI HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required) Surface Soil Cracks (B6)
Surface Water (A1)	Dry-Season Water Table (C2)
Field Observations:  Surface Water Present? Yes X No Depth (inches): Aw  Water Table Present? Yes No Depth (inches): Wes  Saturation Present? Yes X No Depth (inches): Surface Wes  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections	etland Hydrology Present? Yes <u>X</u> No
TOE-OF-SLOPE, ROADSIDE DITCH FLOW INT  15 ABUTTINH EPHEMERIAL STREAM	TO WETLAND, & WETLAND

# *W-BA-0-050412-05*Sampling Point:

#### VEGETATION (Five Strata) – Use scientific names of plants.

,	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	<u>Status</u>	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2.				Total Number of Dominant
3.				Species Across All Strata: (B)
4				Developed of Demineral Constitution
5				That Are OBL, FACW, or FAC: (A/B)
6.				
7.				Prevalence Index worksheet:
		= Total Cov	/er	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)	2			OBL species x1 = 55
1. SALIX NIGRA			OBL	FACW species 60 x 2 = 120
2. PLANTUS OCIDENTALIS	5_		FACW	FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals:(A)(B)
6				Prevalence Index = B/A =2.03
7				
	25	= Total Cov	/er	Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)				1 - Rapid Test for Hydrophytic Vegetation
1.				2 - Dominance Test is >50%
2.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
3.				4 - Morphological Adaptations (Provide supporting
4				data in Remarks or on a separate sheet)
5				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6				4
7.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Cov	/er	Definitions of Five Vegetation Strata:
Herb Stratum (Plot size:)				Definitions of Five vegetation Strata:
1. JUNIUS EFFUGUS	15		FACW	Tree – Woody plants, excluding woody vines,
2. SOLIDAGO SPP.	/0_		FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Typha Jostifolia	15_		OBL	(7.0 GH) of larger in diameter at breast neight (DBH).
4. Scirpus cyperinus	<u> -5.                                    </u>		FACW	Sapling – Woody plants, excluding woody vines,
5. Scippis atrovirens	_35_	X	FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
6. VUNCUS tenius	30	<b>×</b>	FAC	
7.	98.16		,	Shrub – Woody plants, excluding woody vines,
8.				approximately 3 to 20 ft (1 to 6 m) in height.
9				Herb – All herbaceous (non-woody) plants, including
10				herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
11				3 ft (1 m) in height.
				I was a second and a second a second and a second a second and a second a second and a second and a second a second a second a second and a second
12	110	- Total Cay		Woody vine - All woody vines, regardless of height.
Woody Vine Stratum (Plot size:)	1100	= Total Cov	ver	
1				
2				
3				
				Hydrophytic
4				Vegetation
5				Present? Yes No
		= Total Cov	ver	
Remarks: (Include photo numbers here or on a separate	sheet.)		-	

Sampling Point:	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix Color (moist)	%	Redo Color (moist)	ox Features % Type <sup>1</sup>	Loc²	Texture	Pomorko	
(inches)	Color (moist)			BELOW	1/	rexture	Remarks	
0-8			X DCE	<u>IJeuses</u>				
	<u> </u>							
				_				
1-Type: C=(	Concentration, D=Depl		aduced Matrix M	S-Masked Sand Gr	aine	21 ocation: DI	=Pore Lining, M=Matrix.	
	Indicators:	suon, rivi-ri	educed Matrix, M	is-iviaskeu sahu Gi	allis.		tors for Problematic Hydric Soils <sup>3</sup> :	
Histoso			Dark Surface	e (S7)			cm Muck (A10) (MLRA 147)	
	Epipedon (A2)			elow Surface (S8) (I	ILRA 147,		past Prairie Redox (A16)	
	Histic (A3)			urface (S9) (MLRA	147, 148)		(MLRA 147, 148)	
	gen Sulfide (A4)			ed Matrix (F2)			edmont Floodplain Soils (F19)	
	ed Layers (A5) fuck (A10) ( <b>LRR N)</b>		Depleted Ma Redox Dark				(MLRA 136, 147) ed Parent Material (TF2)	
	ed Below Dark Surface	(A11)		ark Surface (F7)			ery Shallow Dark Surface (TF12)	
_	Dark Surface (A12)		Redox Depr			✓ot	her (Explain in Remarks)	
	Mucky Mineral (S1) (L	RR N,	•	nese Masses (F12)	LRR N,			
1	RA 147, 148) Gleyed Matrix (S4)		MLRA 13 Umbric Surfa	ace (F13) <b>(MLRA 1</b> :	36, 122)	3Indi	cators of hydrophytic vegetation and	
	Redox (S5)			oodplain Soils (F19)	-		etland hydrology must be present,	
	ed Matrix (S6)						less disturbed or problematic.	
Restrictive	Layer (if observed):							
Type: _								
	nches):					Hydric Soil	Present? YesX_ No	
Remarks:								
	HYDRIC S	016	ASSUM @	う				
¥	DISTURBED	Sei	LS - 6	EAVELY, SI	andy s	Surycin	y WITH VARIOUS	
	MOTTLINH			•				
	THE VARI	9 <i>08 N</i>	OTTLING	& UNSOR	TED F	IR AVEZ 1	ALLUVIUM WITH	
	1						ì	
	FRACTURE	D BEE	nock.	APPEARS	DUE	to H	ISTORIC IMPACT	
							Ì	

WETLAND 7

W. MPT-052412-de

#### WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP BIG-SANDY City/C	County: LOUISH, LAWRENCE Sampling Date: 24 MAY 2012
Applicant/Owner: AEP	county: <u>LOUISIA, LAWRUNCE</u> Sampling Date: 24, MM 20/2 State: <u>LU</u> Sampling Point:
Investigator(s): B. OTTO, M. THOMAYER Section	
Landform (hillslope, terrace, etc.): HUSLOPE SEEP Local reli Subregion (LRR or MLRA): Lat: 38 /8 39/0	1 long: -82 (0.36.80(a Datum:
Soil Map Unit Name: Upr	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Y	to all a state of the state of
Are Vegetation	Ded? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	ipling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes No	within a Wetland? Yes <_ No
Wetland Hydrology Present? Yes No	
Remarks:	,
	TO DAY HUISIDE FORMER ROADON MAIN
YEM WETLAND WITH MINIMUM POS LECTIO	EN CHICKDE, POICHERE PORTOW HILLER
PEM WETLAND WITH MINIMUM POS LOCATE AREA THAT IS NOW A HILLBIDE SE	ed.*
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
	• •
Surface Water (A1)     True Aquatic Plants (       High Water Table (A2)     Hydrogen Sulfide Odd	
1 '	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)  Presence of Reduced	
Sediment Deposits (B2)  Recent Iron Reductio	
Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Ren	
Iron Deposits (B5)	✓ Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	✓ FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): Sav	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
ANEA IS A FORMER BORROW; IT HAS	
1	PEEN HIGHLY PISTURBED WHICH
HAS CAUSED GIROUND	'
HAS CAUSED GROUND WATER TO SEZ	P OUT BEDROGE

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1		-		That Are OBL, FACW, or FAC: (A)
2	and the second			
3	-			Total Number of Dominant Species Across All Strata: (B)
				Opecies Across All Strata. (B)
4				Percent of Dominant Species
5	<del> </del>			That Are OBL, FACW, or FAC:(A/B)
6				Prevalence index worksheet:
7				Total % Cover of: Multiply by:
8	<del></del>			OBL species x1 = 20
		= Total Cov	er	
Sapling/Shrub Stratum (Plot size:)			C . 1	FACW species 92 x2=/84
1. SALIX NIHOTA	5		FACW	FAC species x 3 = (@0
2. PLANTUS OCCIDENTALIS	5		FACW	FACU species 2 x4 = 8
3				UPL species x 5 =
4				Column Totals:
5				
6				Prevalence Index = B/A = 2.03
7				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
8				∠ 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0¹
10				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Liet Chet (Dist size)	10	= Total Cov	er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)		. /	Carl	· '
1. JUNCUS EFFUSUS				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. SCIRPUS CUPERINUS				
3. Saidatio Sp.	_10_		FAC	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. ONOCLEA SENSIBILIS	2_		FACW	
5. Carex VULPINOIDER	10		OBL	Definitions of Four Vegetation Strata:
6. SCIRPUS ATROVIRENS	_5		031	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7. TYPHA LATIFOLIA				more in diameter at breast height (DBH), regardless of
8. EUPATORIUM PURPUREUM				height.
9. RUBUS AMERITENSIS			FACU	Sapling/Shrub – Woody plants, excluding vines, less
				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11.				Herb - All herbaceous (non-woody) plants, regardless
12	15.1			of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)	124	= Total Cov	er	Woody vine All woody vines greater than 3.28 ft in
				height.
1	- Andrews and the second			
2	-			
3	-	·	····	
4	-			I bode who die
5	<del></del>			Hydrophytic Vegetation
6				Present? Yes No
		= Total Cov	er	
Remarks: (include photo numbers here or on a separate	sheet )			
The manner (middle proses manner of the copanies)				
				l l

SOIL

	cription: (Describe	to the depth				or confirm	n the abser	nce of indicators.)
Depth (inches)	<u>Matrix</u> Color (moist)	<del></del>	Redo Color (moist)	ox Features %		Loc <sup>2</sup>	Texture	Remarks
D-8	- 1	NnBE			1100		SILTYCLA	A
0-0		121(13) C	<del>'</del>					
							MALOI	
							Or_	
							GRAVEZ	<i></i>
			-					
							<u> </u>	
	****						-	
	Concentration, D=Depl	etion, RM=Re	educed Matrix, M	S=Masked	Sand Gra	ains.		PL=Pore Lining, M=Matrix.
-	Indicators:		5 . 6 .	(07)				dicators for Problematic Hydric Soils <sup>3</sup> :
Histoso	, ,		Dark Surface	` '	oo (CO) (N	II DA 447		2 cm Muck (A10) (MLRA 147)
	pipedon (A2) listic (A3)		Polyvalue Be Thin Dark Si				, 140)	Coast Prairie Redox (A16) (MLRA 147, 148)
_	en Sulfide (A4)		Loamy Gley			,,		Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma	atrix (F3)	•			(MLRA 136, 147)
	uck (A10) ( <b>LRR N</b> )		Redox Dark	•	•			_ Very Shallow Dark Surface (TF12)
	ed Below Dark Surface	e (A11)	Depleted Da		• •		7	Other (Explain in Remarks)
	ark Surface (A12) Mucky Mineral (S1) (L	PP N	Redox Depro			DD N		
	A 147, 148)	ixix iv,	MLRA 13		55 (1 12) (1	-IXIX IV,		
	Gleyed Matrix (S4)		Umbric Surfa	•	MLRA 13	6, 122)	3	Indicators of hydrophytic vegetation and
Sandy	Redox (S5)		Piedmont Fl	oodplain S	oils (F19)	(MLRA 1		wetland hydrology must be present,
	d Matrix (S6)		Red Parent	Material (F	21) (MLR	A 127, 14	7)	unless disturbed or problematic.
_	Layer (if observed):							
Type: // Depth (ir	SEDROCK nches):						Hvdric S	Soil Present? Yes X No
Remarks:								
, (0.1)								
. /					- 0 -		1771	1.70
-X	SOILS	WEX	CE DI	STOR	め日	$> \nu$	JUH	- VARIOUS
1.	2001							
		<u></u>						
	MOTTLES	S Er 1	COLOR	S. L	ARH	EN	MOUN	T OF GNAVEZ
		-		•		<i>F F</i>		C. Circhi
	111/	_		0		.0	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	WIN	つのしい	5 E.1	SEDR	ven	K	ENUSI	AL ATCS"
	£.							
				ŧ				
	VARIOUS	Mo.	MLES	جر ر	1N50	RIC	D 6	RAVEL WITH
	FRACTUR	ED BE	orock	Арр	EAR	2 D	J€.	To HISTORIC
	DISTUR							
	K							



W-MOT-052412-07

#### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: AFP 1345 S/AA/DK/ City/Co	winty LOVISA LAWRENCE Sampling Date: 24 MAN 201-
Applicant/Owner: AFP	State:   Sampling Date: 24 May 20/2  State:   Sampling Point: 7  n, Township, Range:
Investigatorial BOTTO MITHOMANIA Society	Township Penger
Landform (Allicham Annual at ): HUShall Serio	f. (ownship, Nange.
Landform (hillslope, terrace, etc.): HINSLOPE, SEEP Local relie Subregion (LRR or MLRA): Lat: 38./8342	r (concave, convex, none): Slope (%): 20
	Long:
	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	
Are Vegetation, Soil, or Hydrology significantly disturb	
Are Vegetation $\mathcal{N}$ , Soil $\mathcal{N}$ , or Hydrology $\mathcal{N}$ naturally problemat	ic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing samp	oling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes   No  Yes   No  No  Remarks:	ls the Sampled Area within a Wetland? Yes No
PEM WETLAND LOCATED ON HIMSIDE, * FOR HUISIDE SEEP. *  HYDROLOGY	MER BORROW AREA THAT 15 NOW A
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B	
High Water Table (A2)  Hydrogen Sulfide Odo	' - ' - ' - ' - ' - ' - ' - ' - ' -
Saturation (A3) Oxidized Rhizosphere:	s on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2) Recent Iron Reduction	· · · · · · · · · · · · · · · · · · ·
Drift Deposits (B3) Thin Muck Surface (C7	
Algal Mat or Crust (B4) Other (Explain in Rem	
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Geomorphic Position (D2) Shallow Aguitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	★ FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No _ <del>/_</del> Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev	ious inspections), if available:
Remarks:	
Tomano.	
ANEA IS A FORMER BORROW ARE	- TO SEEP OUT OF BEDROCK
	THE PEEN HIMALY DISTURBED
WHICH HAS CAUSED GROUNDWATER	- TO STOP OUT OF BONDON
	Joe De localette



#### VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-MOT 0524 12-07

	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2	-			Total Number of Dominant
3.				Total Number of Dominant Species Across All Strata:  (B)
4				(-)
5.	• ———			Percent of Dominant Species
	Name of the last o			That Are OBL, FACW, or FAC:(A/B)
6				Prevalence Index worksheet:
7				Total % Cover of:Multiply by:
8				
		= Total Cov	er	
Sapling/Shrub Stratum (Plot size:)				
1	-			FAC species x3 = 51
2				FACU species x 4 =
3				UPL species x 5 =
4.				Column Totals: 109 (A) 225 (B)
5				, ,
6				Prevalence Index = B/A = 2.0(@
6				Hydrophytic Vegetation Indicators:
7	•			1 - Rapid Test for Hydrophytic Vegetation
8				∠ 2 - Dominance Test is >50%
9	-			∠ 3 - Prevalence Index is ≤3.0¹
10				4 - Morphological Adaptations¹ (Provide supporting
		= Total Cov	er	
Herb Stratum (Plot size:)		, ,	-	data in Remarks or on a separate sheet)
1. Junas EFFUSUS	45		GACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Scirpus ATROVIRENS	30	<u> </u>	FACW	
3. CAREX YULFINDIDEA	10		OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4. JUNCUS TENUIS			FAC	be present, unless disturbed or problematic.
5. SOLIDAGIO Sp.				Definitions of Four Vegetation Strata:
6. EUPATORIUM PURPUREUM			PAC	Tree Meady plants avaluation vince 2 in (7.6 cm)
1				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7. LUDWIGHA ALTERNIFOLIA			FACW	height.
8. Symphyptrichum puniceum		•	FACW	0 11 /0 1 11 11 1 1 1 1
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				
12.				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
	109	= Total Cov	er	or size, and woody plants less than 3.20 it tall.
Woody Vine Stratum (Plot size:)			•	Woody vine - All woody vines greater than 3.28 ft in
1.	والمراجع والمراجع والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة	and a strate and a strate of		height.
2.				
3.				
4			• • • • • • • • • • • • • • • • • • • •	
		-		Hydrophytic
5.				Vegetation
6	<u></u>			Present? Yes No
		= Total Cov	er er	
Remarks: (Include photo numbers here or on a separate	sheet.)			



#### SOIL

Sampling Point: W-MBT-1552412-07

Profile Description	on: (Describe to the dep	th needed to document the indicator or confirn	n the absence of indicators.)
Depth	Matrix	Redox Features	
(inches) (	Color (moist) %	Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	Texture Remarks
X 50	F BEZOW	¥	
<del></del>			
1Tyma: C=Canaai	ntrotion D-Donlotion PM:	- Paduaad Matrix MS-Macked Sand Grains	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
* .		Reduced Matrix, MS=Masked Sand Grains.	Indicators for Problematic Hydric Soils <sup>3</sup> :
Hydric Soil Indic		Ded. Co.fe. (27)	-
Histosol (A1)		Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epiped		Polyvalue Below Surface (S8) (MLRA 147,	
Black Histic (		Thin Dark Surface (S9) (MLRA 147, 148)	(MLRA 147, 148)
Hydrogen Su		Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)
Stratified Lay		Depleted Matrix (F3)	(MLRA 136, 147)
2 cm Muck (A		Redox Dark Surface (F6) Depleted Dark Surface (F7)	Very Shallow Dark Surface (TF12)
	ow Dark Surface (A11)	,	Other (Explain in Remarks)
Thick Dark S	Mineral (S1) (LRR N,	Redox Depressions (F8)	
		Iron-Manganese Masses (F12) (LRR N,	
MLRA 147		MLRA 136)	3Indicators of hydrophytic vagatation and
Sandy Gleye		Umbric Surface (F13) (MLRA 136, 122)	<sup>3</sup> Indicators of hydrophytic vegetation and
Sandy Redox		Piedmont Floodplain Soils (F19) (MLRA 14	
Stripped Mate		Red Parent Material (F21) (MLRA 127, 14	7) unless disturbed or problematic.
Restrictive Laye			
	Drock		
Depth (inches)	): 4-6"		Hydric Soil Present? Yes X No
Remarks:			
N <	Solls Wir	11/1/11/11/20	
A 2	o nother	HIGHLY PISTURISED WIT	H VARINGE.
/	IND BONDO	n. a.a.	COLORS
<b>,</b>	12601200	HIGHLY DISTURBED WITH	1-le "
		1	
_	THE VARIOUS	MOTTLING & UNSORT	to GARAVER ALLUVION WITH
	The villeters		
			- Wasse DETINO
	FRACTURED B	EDROCK APPEAR DUE	TO HISTORIC PISTURBANCE
	•		

Wetland 9
WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: AEP Big Sandy Pand Clasure City/Co	ounty: Louisa, Lawrence Sampling Date: 06/05/1
* *,	n, Township, Range:
Landform (hillslope, terrace, etc.): Wase of rock face Local relie	ef (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): Lat: 38.\85936	5 Long: <u>- 82 , 635                                  </u>
Soil Map Unit Name: Dm Va + 2	NWI classification: \( \sqrt{1} \)
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	
Are Vegetation <u>Mo</u> , Soil <u>Mo</u> , or Hydrology <u>Mo</u> significantly disturb	
Are Vegetation <u>Wo</u> , Soil <u>Wo</u> , or Hydrology <u>WO</u> naturally problema SUMMARY OF FINDINGS – Attach site map showing sam	
	, , , , , , , , , , , , , , , , , , , ,
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No  Yes No	Is the Sampled Area within a Wetland?  Yes No
	of and and for Doning of
Remarks: PEM/PSS wetland at base disturbed from pond construc	ton.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (E	
High Water Table (A2)  — Hydrogen Sulfide Odo	• • • • • • • • • • • • • • • • • • • •
✓ Saturation (A3)     Oxidized Rhizosphere  Presence of Reduced  Presence of Reduced	· · · · · · · · · · · · · · · · · · ·
Water Marks (B1) Presence of Reduced  ∠ Sediment Deposits (B2) Recent Iron Reduction	
Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Rem	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	∕ Microtopographic Relief (D4)
Aquatic Fauna (B13)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No _< Depth (inches):	Wetland Hydrology Present? Yes No No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev	vious inspections), if available:
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Remarks:	./
We fland receives hydrology from to Sheet flow off the hillsides to	so streams to the west and
Sheet flow off the hillsides to	to the north.

wetland 9

## VEGETATION (Five Strata) – Use scientific names of plants.

/EGETATION (Five Strata) – Use scientific na	ames of p	olants.		Sampling Point:
To a Charles (Distains)		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1. (None) 2.				That Are OBL, FACW, or FAC:(A)
				Total Number of Dominant
3				Species Across All Strata:(B)
4.         5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
6				That Are OBL, FACW, or FAC:(A/B)
7				Prevalence Index worksheet:
		= Total Cov	er	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)			0.	OBL species 130 x1 = 130
1. (None)				FACW species 70 x 2 = 140
2.				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: 200 (A) 270 (B)
6				Prevalence Index = B/A = 1.35
7				Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)		= Total Cov	er er	1 - Rapid Test for Hydrophytic Vegetation
1. <u>Solix migra</u>	30	125	DBL	2 - Dominance Test is >50%
2. Sycamore	10	101	FACIN	X 3 - Prevalence Index is ≤3.0¹
3				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation¹ (Explain)
5				
6				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
7	110			be present, unless disturbed or problematic.
Herb Stratum (Plot size:)	45 a/	= Total Cov ここ・5	er er	Definitions of Five Vegetation Strata:
1. Juneus offusus	40		DACW	Tree – Woody plants, excluding woody vines.
2. Typha angustion	50	yes	DBL	approximately 20 ft (6 m) or more in height and 3 in.
3. In sedar - C. vullingicla	20	No	OBC	(7.6 cm) or larger in diameter at breast height (DBH).
4. Tapertiporush - J. accuminatus	30	No	OBL	Sapling – Woody plants, excluding woody vines,
5.CoSquarroso	15	_No	FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
6				
7				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
8				
9				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
10				plants, except woody vines, less than approximately
11				3 ft (1 m) in height.
12	10-			Woody vine - All woody vines, regardless of height.
Mandu Vine Stratum (Diet eizer		= Total Cov	er er	
Woody Vine Stratum (Plot size:)  1. \( \lambda \to \to \tau \lambda \)		77.5		
3				
4				Hydrophytic
5				Vegetation Present? Yes No
5		= Total Cov		resent? resNo
Remarks: (Include photo numbers here or on a separate s		1 3 1 1 0 0 1		
nemains. (include prioto numbers here of on a separate s	neet.)			

wetland 9
Sampling Point:

SOIL

Profile Desc	ription: (Describe t	o the depth	needed to docum	ent the in	ndicator	or confirm	the absence	of indicators.)	
Dep <b>t</b> h	Matrix (moist)	<del></del>	Redox Color (moist)	Features		_Loc²	Toytura	Domosil	
(inches) D-8"	Color (moist)	70 -	LOYR4/6	<u>%</u> 30	Type <sup>1</sup>	ΛΛ	Sandy Clay	Remark VPS+x=c+:v=e	
<u> </u>	10/12/2		1012 1/4			101	<u> Ciciy</u>	layer	Sans frock
	-							(	
	-								<del></del>
								1-4-1	
,									·
<sup>1</sup> Type: C=Co	oncentration, D=Deple	etion, RM=R	educed Matrix, MS	=Masked	Sand Gr	ains.		L=Pore Lining, M=Mate ators for Problematic	
Histosol			Dark Surface	(\$7)				cm Muck (A10) (MLRA	-
	ipedon (A2)		Polyvalue Bel		ce (S8) (I	/ILRA 147,		Coast Prairie Redox (A1	
Black His			Thin Dark Sur				, <u> </u>	(MLRA 147, 148)	,
	n Sulfide (A4)		Loamy Gleyer		F2)		F	Piedmont Floodplain So	ils (F19)
	Layers (A5) ck (A10) ( <b>LRR N</b> )				6)		r	( <b>MLRA 136, 147</b> ) Red Parent Material (TF	:0)
	Below Dark Surface	(A11)	Depleted Dark					ery Shallow Dark Surfa	
	rk Surface (A12)	, ,	Redox Depres					Other (Explain in Remar	
	lucky Mineral (S1) (LI	RR N,	Iron-Mangane		es (F12)	LRR N,			
	14 <b>7, 148</b> ) leyed Matrix (S4)		MLRA 136		MI DA 1	RE 122\	3lnc	dicators of hydrophytic	rogotation and
	edox (S5)		Piedmont Flor					vetland hydrology must	-
	Matrix (S6)							ınless disturbed or prob	
Restrictive I	ayer (if observed):								
Type:	P) 11		<u> </u>					( )	,
Depth (ind	ches):		<del></del>				Hydric Soi	Present? Yes X	No
Remarks:									

W-pr 6/t/2012-1 Welland 10

#### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: AEP Big Sandy Pard Closure Projectity/C	ounty Lawise / awelike Sampling Date: 66/62/12
Applicant/Owner: AFO 0	State: VV Sampling Point: Of
Application with the property of the property	
Investigator(s): MOT, PR Section	on, Township, Range:
Landform (hillslope, terrace, etc.): Along and out-fell Local reli Subregion (LRR or MLRA): Lat: 38.18799	ef (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): Lat: Lat:Lat:	<u> 5 Long: 一分2、6.335 と名</u> Datum:
Soil Map Unit Name: Va F2	NWI classification: \( \sum / 9 \)
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation <u>Mo</u> , Soil <u>465</u> , or Hydrology <u>Mo</u> significantly disturb	bed? Are "Normal Circumstances" present? Yes No
Are Vegetation , Soil , or Hydrology \( \frac{1}{2} \) naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes ✓ No	
Hydric Soil Present? Yes V No	Is the Sampled Area
Wetland Hydrology Present?	within a Wetland? YesX No
Wetland Hydrology Present? Yes X No	Ignafil nuttell Partie of
Contract of the positions	all soutett. I allow of
weekens extends up stope as a	et ( .
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (	. ,
High Water Table (A2)  Hydrogen Sulfide Od	
Saturation (A3) Oxidized Rhizosphere	
Water Marks (B1) Presence of Reduced	d Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction	on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Rer	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)  FAC-Neutral Test (D5)
Aquatic Fauna (B13) Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes Yo Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Davida	
Remarks:	
welland abots landfill outfall.	
	, in the second

W-Pr 6/+/ 2012-1 Wetland 10

## VEGETATION (Five Strata) – Use scientific names of plants.

/EGETATION (Five Strata) – Use scientifi	GETATION (Five Strata) – Use scientific names of plants.				
Turn Charles (District)		minant Indicator	Dominance Test worksheet:		
<u>Tree Stratum</u> (Plot size:)  1		ecies? Status	Number of Dominant Species That Are OBL, FACW, or FAC:	(A)	
2			Total Number of Dominant		
3			Species Across All Strata:	(B)	
4			Percent of Dominant Species		
5			That Are OBL, FACW, or FAC:	(OO(A/B)	
6			Dravelenes lade		
7			Prevalence Index worksheet:	Madeline	
Sapling Stratum (Plot size:)	= To	tal Cover	OBL species  x 1		
			FACW species x 2		
12			FAC species x 3		
3			FACU species x 4		
4			UPL species x 5		
5			Column Totals: (A)	115 (B)	
6					
7			Prevalence Index = B/A =		
	= To		Hydrophytic Vegetation Indicat		
Shrub Stratum (Plot size:)			1 - Rapid Test for Hydrophyti	c Vegetation	
1			2 - Dominance Test is >50%		
2			X3 - Prevalence Index is ≤3.0¹		
3			4 - Morphological Adaptation	s <sup>1</sup> (Provide supporting	
4			data in Remarks or on a s  Problematic Hydrophytic Veg	•	
5			Problematic Hydrophytic Veg	etation (Explain)	
6			<sup>1</sup> Indicators of hydric soil and wetla	and budgalage.	
7			be present, unless disturbed or pr	oblematic.	
Herb Stratum (Plot size:)	= To	tal Cover	Definitions of Five Vegetation S	Strata:	
	70 4	es OBI	Tree – Woody plants, excluding v	uoody win = =	
2. Typha argustifolia	30 1		approximately 20 ft (6 m) or more	in height and 3 in.	
3. Fox redage	15 %		(7.6 cm) or larger in diameter at b	reast height (DBH).	
4.			Sapling - Woody plants, excluding	ng woody vines.	
5.			approximately 20 ft (6 m) or more than 3 in. (7.6 cm) DBH.	in height and less	
6.			man 3 m. (7.0 dh) DBA.		
7			Shrub – Woody plants, excluding approximately 3 to 20 ft (1 to 6 m)	woody vines,	
8					
9			Herb – All herbaceous (non-wood	ly) plants, including	
10			herbaceous vines, regardless of s plants, except woody vines, less t	han approximately	
11			3 ft (1 m) in height.	1,	
12.			Woody vine - All woody vines, re	agardless of height	
	115 = Tot	al Cover			
Woody Vine Stratum (Plot size:)	23/57.	5	-		
1.					
2					
3			Hydrophytic		
4			Vegetation		
5			Present? Yes	No	
	= Tot	aı Cover			
Remarks: (Include photo numbers here or on a separa	ite sheet.)	-			

w- pr b/ +/2012-1 wetlanz 10

OIL									イムへと (〇 sampling Point:	
	windless (Daniell	to the -!	th nooded to de-	man 4 41 1	adicat-	ov o = = £!	a tha chas			
	ription: (Describe	to the dep				or confirm	tne absence c	or indicate	ors.)	
epth	Matrix Color (moist)	<del></del>	Red Color (moist)	ox Features %		Loc²	Texture		Damedia	
nches)	Color (moist)	<u> </u>			Type <sup>1</sup>				Remarks	
D-9"	10xR6/2	10	10484/6	30		M	silty chy			
	,									
~~~~										
							<del></del>			
							*****	······		
				_						·
			<del></del>							
		<del></del>								
vne: C=Cc	ncentration, D=Dep	letion RM:	=Reduced Matrix N	 1S=Masked	Sand Gra	ains	<sup>2</sup> Location: PL	≃Pore Lini	ing M=Matrix	
	ndicators:				344 011		Indicat	ors for P	roblematic Hyd	dric Soile3.
_ Histosol			Dark Surfac	e (S7)					A10) <b>(MLRA 1</b> 4	
	ipedon (A2)		Polyvalue B		n (SS) (N	11 RA 147			Redox (A16)	1)
_ Histic Ep _ Black His			Thin Dark S					(MLRA 14		
	n Sulfide (A4)		Loamy Gley			-1, 1 <del>4</del> 0)			oodplain Soils (l	F1Q\
	Layers (A5)		Depleted M	-	-,			(MLRA 13		1 10)
	ck (A10) (LRR N)		Redox Dark		6)			-	Material (TF2)	
	Below Dark Surfac	e (A11)	Depleted D						v Dark Surface	(TF12)
	rk Surface (A12)	· (, ,	Redox Dep						in in Remarks)	(11 12)
	lucky Mineral (S1) (I	RR N.	Iron-Manga			LRR N.				
	147, 148)	<b>-</b> ,	MLRA 1							
	leyed Matrix (S4)		Umbric Sur	-	MLRA 13	6, 122)	<sup>3</sup> Indic	cators of h	ydrophytic vege	etation and
	edox (S5)		Piedmont F						rology must be	
	Matrix (S6)				, ,	•			bed or problem	
	ayer (if observed):									
• • • • • • • • • • • • • • • • • • • •							Hydric Soil F	Procent?	Yes_	No
····	ches):						nyuric Soil i	-resent?	res	NO
emarks:										

w-pr 6/7/2012-2 wetland 11

## WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: AEP Big Sandy Po	and Closure Pajed City/C	County: Louisa Caus	Sampling Date: 06/07/12 State: // Sampling Point: 02		
Applicant/Owner: AEP	, , , , , , , , , , , , , , , , , , ,		State: K Y Sampling Point:		
restigator(s): Section, Township, Range:					
			ne):Slope (%):		
·			52. 632687 Datum:		
		40			
			NWI classification: N/a		
Are climatic / hydrologic conditions on the site	typical for this time of year? Y				
Are Vegetation <u>10</u> , Soil <u>965</u> , or Hydrol	ogy <i>/16</i> _ significantly distur		Circumstances" present? Yes No		
Are Vegetation	ogy <u>NO</u> naturally problema	atic? (If needed, e	explain any answers in Remarks.)		
SUMMARY OF FINDINGS – Attach	site map showing san	npling point location	ons, transects, important features, etc.		
Hydric Soil Present? Yes	sX No s	Is the Sampled Area within a Wetland?	Yes No		
Remarks: PEM wetland	L				
HYDROLOGY					
Wetland Hydrology Indicators:			Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is require	ed; check all that apply)		Surface Soil Cracks (B6)		
X Surface Water (A1)	True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)	Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)				
XSaturation (A3)		es on Living Roots (C3)	X Moss Trim Lines (B16)		
∕ Water Marks (B1)	Presence of Reduce		Dry-Season Water Table (C2)		
Sediment Deposits (B2)		on in Tilled Soils (C6)	Crayfish Burrows (C8)		
Drift Deposits (B3) Algal Mat or Crust (B4)	Thin Muck Surface ( Other (Explain in Re	•	Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	Other (Explain in rea	narks)	Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7	)		Shallow Aquitard (D3)		
Water-Stained Leaves (B9)	,		Microtopographic Relief (D4)		
Aquatic Fauna (B13)			FAC-Neutral Test (D5)		
Field Observations:					
Surface Water Present? YesX	lo Depth (inches):				
Water Table Present? Yes N	lo 🟏 Depth (inches):		$\checkmark$		
	No Depth (inches):	4 Wetland I	Hydrology Present? Yes No		
(includes capillary fringe)  Describe Recorded Data (stream gauge, mor	nitoring well sorial photos pr	avious inspections) if ava	pilablo:		
Describe Recorded Data (stream gadge, mor	illoring weir, aeriai priotos, pre	svious inspections), it ave	anable.		
Remarks:					
Tromand.					

## W-Pr6/7/2012-2 Wetland 11 Sampling Point:

## **VEGETATION** (Five Strata) – Use scientific names of plants.

		Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata:(B)
4			Percent of Dominant Species / 00
5			That Are OBL, FACW, or FAC: (A/B)
6			Prevalence Index worksheet:
7			
	=	Total Cover	
Sapling Stratum (Plot size:)			
1			FACW species x 2 =
2			FAC species x 3 =
3			FACU species x 4 =
4			UPL species x 5 =
5			Column Totals: $\underline{/00}$ (A) $\underline{/00}$ (B)
6			Prevalence Index = B/A =/
7			Hydrophytic Vegetation Indicators:
Chruh Stratum (Diat size)	=	Total Cover	
Shrub Stratum (Plot size:)			2 - Dominance Test is >50%
1			✓ 3 - Prevalence Index is ≤3.0¹
2			4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3			data in Remarks or on a separate sheet)
4			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5			
6			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
7			be present, unless disturbed or problematic.
Herb Stratum (Plot size:)		Total Cover	Definitions of Five Vegetation Strata:
	70	Yes OBL	Tree – Woody plants, excluding woody vines,
2 /acex vuldinoides	15	N. OBL	approximately 20 ft (6 m) or more in height and 3 in.
3. Typha angustifolia	15	N OBL	(7.6 cm) or larger in diameter at breast height (DBH).
4.			Sapling - Woody plants, excluding woody vines,
5			approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
6.			
7			Shrub – Woody plants, excluding woody vines,
8.			approximately 3 to 20 ft (1 to 6 m) in height.
9.			Herb – All herbaceous (non-woody) plants, including
10.			herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
11.			3 ft (1 m) in height.
			Was desired All
12	100 -	Total Cover 50	Woody vine – All woody vines, regardless of height.
Woody Vine Stratum (Plot size:)	=	Total Cover 50	
1			
2			
3.			
4			Hydrophytic
5			Vegetation
<u> </u>		Total Cover	res_/_ No
Pamarke: (Include photo numbers here or on a conserts		. 3.0 00101	
Remarks: (Include photo numbers here or on a separate	c 311661.)		
			•

SOIL

Wetland 11
Sampling Point:

Profile Desc	ription: (Describe t	o the depth	needed to docun	nent the in	ndicator	or confirm	the absence of indica	ators.)
Depth	Matrix		Redo	x Features		1 - 2	T	D 1
(inches)	Color (moist)	<del>%</del> -	Color (moist)	%	Type <sup>1</sup>	_Loc²	Texture	Remarks
0-9	107R 6/2	<u> 10 11</u>	XR 4/6			M	silty clay	
								•
					***************************************			
						<u>-</u>		
******								
							2	
	ncentration, D=Deple	etion, RM=Re	educed Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore L	ining, M=Matrix.  Problematic Hydric Soils <sup>3</sup> :
Hydric Soil I			Davis Curfosa	(07)				
Histosol	(A1) ipedon (A2)		Dark Surface Polyvalue Be		ce (S8) /#	11 RA 147		k (A10) ( <b>MLRA 14</b> 7) irie Redox (A16)
Histic Ep			Polyvalue Be Thin Dark Su					147, 148)
	n Sulfide (A4)		Loamy Gleye			, ,		Floodplain Soils (F19)
	Layers (A5)		∠ Depleted Ma		ŕ			136, 147)
	ck (A10) (LRR N)		Redox Dark	•				nt Material (TF2)
	Below Dark Surface	(A11)	Depleted Dai				_	ow Dark Surface (TF12)
	rk Surface (A12)	DD 11	Redox Depre			I DD N	Other (Exp	olain in Remarks)
	ucky Mineral (S1) ( <b>L</b> l . <b>1</b> 47, <b>148</b> )	KK N,	Iron-Mangan MLRA 13		es (F12) (	LKK N,		
	leyed Matrix (S4)		Umbric Surfa		MLRA 13	6, 122)	<sup>3</sup> Indicators o	f hydrophytic vegetation and
	edox (S5)		Piedmont Flo					ydrology must be present,
	Matrix (S6)							turbed or problematic.
Restrictive L	ayer (if observed):							
Type:			<u> </u>					<b>\</b>
Depth (inc	:hes):						Hydric Soil Present	? Yes X No
Remarks:								
								•
								'
								İ
								I
								•

W-Pr6/7/2012-3 Wetlanz 12

## WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: AEP Rig Sandy Pond Closuce Project City/County: Lou	isa lawrence Sampling Date: 06/07/12				
Project/Site: AEL Big Sandy Rond Closure Project City/County: Low Applicant/Owner: AEO	State: V Y Sampling Point: 03				
	Section, Township, Range:				
Landform (hillslope, terrace, etc.): Local relief (concave,					
Subregion (LRR or MLRA): Lat: Lat:					
***************************************					
Soil Map Unit Name:	NWI classification: \( \sum / \alpha \)				
Are climatic / hydrologic conditions on the site typical for this time of year? Yes I	· ·				
Are Vegetation <u>\( \lambda \circ \ci</u>	Are "Normal Circumstances" present? Yes No				
Are Vegetation <u>Mo</u> , Soil <u>Mo</u> , or Hydrology <u>Mo</u> naturally problematic?	(If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sampling poi	nt locations, transects, important features, etc.				
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No No within a W	/etland? Yes No				
Remarks: PEM wetland to cated in former	landfill outfall.				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	X Surface Soil Cracks (B6)				
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)  Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)				
Saturation (A3) Oxidized Rhizospheres on Living					
Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled So	Dry-Season Water Table (C2) oils (C6) Crayfish Burrows (C8)				
Sediment Deposits (B2) Necesti from Needclich in Filied St Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)				
✓ Algal Mat or Crust (B4)  ✓ Other (Explain in Remarks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)	Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)				
Water-Stained Leaves (B9)	Microtopographic Relief (D4)				
Aquatic Fauna (B13)	∠ FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes NoX Depth (inches):					
Water Table Present? Yes NoX_ Depth (inches):					
Saturation Present? Yes NoX Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No No				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	ctions), if available:				
Remarks:					
Remarks: Algol most and Surface Crocens	noted.				

#### VEGETATION (Five Strata) – Use scientific names of plants.

EGETATION (Five Strata) – Use scientific	names of	plants.	Sampling Point:
From Stratum /Plot size:	Absolute	Dominant Indicator Species? Status	Dominance Test worksheet:
ree Stratum (Plot size:)			Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
•			Total Number of Dominant Species Across All Strata:  (B)
•			(0)
•			Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
•			mat Ale OBL, FACW, OF FAC. (A/B)
•			Prevalence Index worksheet:
		= Total Cover	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)			OBL species $\frac{2}{1/2}$ x1 = $\frac{2}{1/2}$
•			FACW species $\frac{43}{3}$ x 2 = $\frac{86}{3}$
•			FAC species x 3 = 3
•			FACU species x 4 =
•			UPL species x 5 =
•			Column Totals: (a) (B)
			Prevalence Index = B/A = 1.69
· Landerson and the second sec			Hydrophytic Vegetation Indicators:
hrub Stratum (Plot size:)		= Total Cover	1 - Rapid Test for Hydrophytic Vegetation
. Salix nigra		Yes OBL	2 - Dominance Test is >50%
·			_X 3 - Prevalence Index is ≤3.0¹
•			4 - Morphological Adaptations (Provide supporting
			data in Remarks or on a separate sheet)
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
•			be present, unless disturbed or problematic.
lerb Stratum (Plot size:)		= Total Cover	Definitions of Five Vegetation Strata:
	_ 5	no OBL	Tree – Woody plants, excluding woody vines,
Corex Vulpinoidea	<del>- 15-</del>	YES DBC	approximately 20 ft (6 m) or more in height and 3 in.
Moneylapot - L numerlacia			(7.6 cm) or larger in diameter at breast height (DBH).
Puner cosous		no FAC	Sapling - Woody plants, excluding woody vines,
. Boneset - E. perfolicitum	3	no FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
•			
•			Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
•			
			Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
0			plants, except woody vines, less than approximately
1.			3 ft (1 m) in height.
2			Woody vine - All woody vines, regardless of height.
Voody Vine Stratum (Plot size:)		= Total Cover	
·)	6,5	156	
-			
-			Hydrophytic
			Vegetation Present? Yes No
		= Total Cover	resent: resNo
emarks: (Include photo numbers here or on a separate		. 210, 00101	
omano. Imolute proto numbers here of on a separate	. oneet. j		

SOIL

w- Pr 6/7/2012-3 wetland 12 Sampling Point:

Profile Desc	ription: (Describe t	o the depti	needed to do	cument the	indicator or confire	n the ab	sence of indicators.)
Depth	Matrix	<del></del> _	Color (moist)	edox Feature		Tow	hura Domonto
(inches)	Color (moist)				74		ture Remarks
0-10	104R 6/1	70	10412 4/6	30	C Msilly c	C14 <u>4</u>	
						· ——	
1Type: C=C(	oncentration, D=Depl	etion RM=F	Reduced Matrix	MS=Maske	d Sand Grains	<sup>2</sup> l oca	tion: PL=Pore Lining, M=Matrix.
Hydric Soil		Cuon, ruivi i	teddoca Matrix,	WO WILDRO	a dana dramo.	2000	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surfa	ace (S7)			2 cm Muck (A10) (MLRA 147)
	pipedon (A2)			` '	ace (S8) (MLRA 147	'. 148)	Coast Prairie Redox (A16)
Black Hi					) (MLRA 147, 148)	,,	(MLRA 147, 148)
	n Sulfide (A4)			eyed Matrix			Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted		` ,		(MLRA 136, 147)
	ick (A10) (LRR N)			rk Surface (	F6)		Red Parent Material (TF2)
	d Below Dark Surface	(A11)	Depleted	Dark Surface	e (F7)		Very Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)			pressions (F			Other (Explain in Remarks)
Sandy M	lucky Mineral (S1) (L	RR N,			ses (F12) ( <b>LRR N,</b>		
	<b>\</b> 147 <b>, 14</b> 8)		MLRA				
	Sleyed Matrix (S4)				(MLRA 136, 122)		<sup>3</sup> Indicators of hydrophytic vegetation and
	edox (S5)		Piedmont	Floodplain S	Soils (F19) (MLRA 1	48)	wetland hydrology must be present,
	Matrix (S6)						unless disturbed or problematic.
	_ayer (if observed):					1	<b>k</b>
							×
	ches):					Hydi	ric Soil Present? Yes No
Remarks:							

W-Pr6/7/2012-4 Wetland 13

#### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: AEP Bic Sandy Pord Closura City	//County: Louisa, Lauvence Sampling Date: 06/07/1
Applicant/Owner: AF	State: KV Sampling Point: D4/
	ction, Township, Range:
Landform (hillslope, terrace, etc.):Local r	
Subregion (LRR or MLRA): Lat: 38.184 &L	eller (concave, convex, note)
7	
Soil Map Unit Name:	NWI classification: N/a
Are climatic / hydrologic conditions on the site typical for this time of year?	· · ·
Are Vegetation <u>MO</u> , Soil <u>MO</u> , or Hydrology <u>MO</u> significantly dist	turbed? Are "Normal Circumstances" present? Yes No
Are Vegetation $\sqrt[M]{Q}$ , Soil $\sqrt[M]{Q}$ , or Hydrology $\sqrt[M]{Q}$ naturally problem	matic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         YesX No           Hydric Soil Present?         YesX No           Wetland Hydrology Present?         YesX No	Is the Sampled Area within a Wetland? Yes No
Remarks: PEM Wetland provided w	with water from seeps in dam.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	s (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide C	
	neres on Living Roots (C3) Moss Trim Lines (B16)
X Water Marks (B1)     Presence of Reduction Process (B2)     Resent Iran Reduction Process (B2)     Presence of Reduction Process (B2)     No. 1	- · · · · · · · · · · · · · · · · · · ·
Sediment Deposits (B2) Recent Iron Reduc Drift Deposits (B3) Thin Muck Surface	ction in Tilled Soils (C6) Crayfish Burrows (C8) c (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in R	
Iron Deposits (B5)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	_X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes X No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	previous inspections), if available:
Remarks:	

W-Pr 6/7/2012-4 Wetland 13

#### VEGETATION (Five Strata) – Use scientific names of plants.

/EGETATION (Five Strata) – Use scientific	names of	plants.		Sampling Point:
T 01 (7) (7) (7)		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2	<del></del>			Total Number of Dominant
3				Species Across All Strata: 2 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				v ·
7				Prevalence Index worksheet:
		= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)				OBL species $0$ $x1 = 60$
1				FACW species  x2 = 1(0
2.				FAC species
3				FACU species 5 x 4 = 20
4				UPL species $x 5 = $ Column Totals: $x 5 = $ (A) $y = $ (B)
56				1
7				Prevalence Index = B/A =
		= Total Co	ver	Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)				1 - Rapid Test for Hydrophytic Vegetation
1.				∠ 2 - Dominance Test is >50%
2				3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting
3 4				data in Remarks or on a separate sheet)
5				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6				
7				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Harb Stratum (Diet aire)		= Total Co	ver	Definitions of Five Vegetation Strata:
Herb Stratum (Plot size:)  1. Carex (upulina	30	(100	OBL	Tree – Woody plants, excluding woody vines,
2. Cawaa goldencod		no	FACU	approximately 20 ft (6 m) or more in height and 3 in
3. Euperforium maculatum		No.	FACW	(7.6 cm) or larger in diameter at breast height (DBH).
4. Elebraris acionlaris		No.	€08L	Sapling - Woody plants, excluding woody vines,
5. Typha angrustifolia	Ö	No	<u> </u>	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
5. Taportip rush Junius accumin	atu) 20	405	DBC	Shrub Woody planta avaluding was to
7. Carex scoparia		10	FACU	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
8				Herb – All herbaceous (non-woody) plants, including
9				herbaceous vines, regardless of size, and woody
10				plants, except woody vines, less than approximately 3 ft (1 m) in height.
11				
12	73	= Total Co		Woody vine - All woody vines, regardless of height.
Woody Vine Stratum (Plot size:)	146	= 10tal Co	vei	
1.		7,90		
2.				
3				
4				Hydrophytic Vegetation
5				Present? Yes No
		= Total Co	ver	
Remarks: (Include photo numbers here or on a separate	e sheet.)			

u pr 6/7/2012-7 uetland 13 Sampling Point:\_\_\_\_\_

SOIL

Profile Desc Depth	cription: (Describe t Matrix	to the depth ne		nent the in x Features			the abse	nce of indicat	tors.)	
(inches)	Color (moist)		olor (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	<del>-</del>	Remarks	
0-8	109K 6/2	70 10	7/R 4/6	30		M	Silty	clay		
	,									
				·				***************************************		
					<del></del>				<del></del>	
			****			· · · · · · · · · · · · · · · · · · ·				
	oncentration, D=Depl	etion, RM=Red	uced Matrix, MS	S=Masked	Sand Gr	ains.			ning, M=Matrix.	
Hydric Soil	Indicators:						ln	dicators for F	Problematic Hyd	dric Soils³:
Histosol			_ Dark Surface				_		(A10) <b>(MLRA 1</b> 4	7)
	pipedon (A2)		_ Polyvalue Be				148)		ie Redox (A16)	
Black Hi		-	_ Thin Dark Su _ Loamy Gleye			147, 148)		(MLRA 1	47, 148) Ioodplain Soils (I	E40)
	en Sulfide (A4) d Layers (A5)	_	_ Loainy Gleye ∠Depleted Ma		4)		_	_ Pledifionit F MLRA 1)		F19)
	ick (A10) (LRR N)	7	_ Redox Dark		3)				Material (TF2)	
	d Below Dark Surface	: (A11)	_ _ Depleted Dar						w Dark Surface	(TF12)
	ark Surface (A12)		_ Redox Depre	ssions (F8	3)				ain in Remarks)	
	lucky Mineral (S1) (L	RR N,	_ Iron-Mangan		s (F12) (	LRR N,				
	<b>1</b> 147, 148)		MLRA 13					3		
	Gleyed Matrix (S4)		<ul><li>Umbric Surfa</li><li>Piedmont Flo</li></ul>						hydrophytic vege drology must be	
	Redox (S5) I Matrix (S6)		_ Fledinonti id	ouplain Sc	) (F 19)	(INLINA 14	10)		irbed or problem	
	Layer (if observed):					· · · · · · · · · · · · · · · · · · ·		4		
Type:	-								V	
• • •	ches):						Hydric	Soil Present?	Yes	No
Remarks:							<del></del>			
		•								
					4					

#### WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

4 0 0 0 0	Tuesday included and production
Project/Site: $AFPBIFSANDYPONDCIOSURE$ City/C Applicant/Owner: $AFP$ Investigator(s): $BAO$ $WDT$ Section	ounty: LOUSA, VAUNCENCE Sampling Date: 19/15/12
Applicant/Owner:	State: // Sampling Point:
Landform (hillslope, terrace, etc.): Tor or super Local reli	
Subregion (LRR or MLRA): Lat: Lat:	Long: \$2, 605342 Datum:
Soil Map Unit Name: DM, ShF	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation	bed? Are "Normal Circumstances" present? Yes No _X
Are Vegetation $N$ , Soil $N$ , or Hydrology $N$ naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	ppling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes   No  Yes   No  No  No  Remarks:	Is the Sampled Area within a Wetland? Yes No
PEM/PSS WETLAND LACATED AT TOE-O OUTFALL PROVIDENT ADDITIONAL HYDROLO	ry
* NETLAND SOILS OBSERVED IMPACTED BY	AMO
HYDROLOGY	
Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water-Stained Leaves (B9)  Aquatic Fauna (B13)  Presence of Reduced  Recent Iron Reductio  Other (Explain in Ren  Water-Stained Leaves (B9)  Aquatic Fauna (B13)	or (C1)
Saturation Present? Yes $\angle$ No Depth (inches): $5\nu$	1
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre  Remarks:	
WETLAND IS LOCATED AT TOE OF SCI EPHEMENAL STREAM FLOWS INTO.  DAM OUT FALL ALSO PROVIDES ADD	WETLAND

#### VEGETATION (Five Strata) – Use scientific names of plants.

4	10,210,00
	Sampling Point:

To a Observery (Distriction)		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1. SALIX NIGRA		_X_	086	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata:(B)
4				Demonto (De 1)
5				Percent of Dominant Species That Are OBL, FACW, or FAC:/OO (A/B)
6.				(A/B)
7				Prevalence Index worksheet:
		= Total Cov		Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)	-/-	- Total Cov	<i>/</i> CI	OBL species <u>54</u> x1 = <u>54</u>
1. SALLY NIGHA	10	L	OBL	FACW species
2. ERRXINUS OCCIDENTALIS			FACW	FAC species 25 x3 = 75
				FACU species x 4 =
3.				I
4.				UPL species x 5 =
5				Column Totals: M8 (A) 267 (B)
6				Prevalence Index = B/A =/. &
7.				Hydrophytic Vegetation Indicators:
	20	= Total Cov	/er	
Shrub Stratum (Plot size:)	IMA.			1 - Rapid Test for Hydrophytic Vegetation
1. Resa palustris				2 - Dominance Test is >50%
2				3 - Prevalence Index is ≤3.0¹
3				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
4				data in Remarks or on a separate sheet)
5				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6.				
7				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
	40	= Total Cov	———	be present, unless disturbed or problematic.
Herb Stratum (Plot size:)		- 10121 001		Definitions of Five Vegetation Strata:
1. SISPET FLAT - Acons calamus	20	×	OBL	Tree – Woody plants, excluding woody vines,
2. Furtieren - Chelone glabra			FACW	approximately 20 ft (6 m) or more in height and 3 in.
3. Stedios - Lindingia alternifolia			FROW	(7.6 cm) or larger in diameter at breast height (DBH).
				Sapling – Woody plants, excluding woody vines,
4 DER table To De Controllian Clarette	10		(-B	
4. DER TONAUE - Decembelian clares none	10			approximately 20 ft (6 m) or more in height and less
5. EALSE NATTIE - Buelmona cylindrica	<u> 10                                    </u>		FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
5. EARSE NITTLE - BURLIMPIA CYLINERS 6. Schipus Cyperinus	<u> 10                                    </u>		FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines.
5. LAKSE NETTIE - BURLAMENTA CYLINDRICA 6. SCHEPUS CYPERINUS 7. TYPHA AMENOMEOLIA	5		FACW FACW OBL	approximately 20 ft (6 m) or more in height and less
5. Enese Nettle - Buelmeria cylindrica 6. Schiepus cyperinus 7. Typien Ambrestifolia 8. Impotiens capensis	5		FACW OBL FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
5. EARSE NETTIE - BURLMARIA CYLINDRA 6. SCHOOL CYPERINOS 7. Typha Americala 8. Importans Capensis 9. Carex Spp.	5 2 5 5		FACW FACW OBL	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including
5. Enese Nettle - Buelmeria cylindrica 6. Schiepus cyperinus 7. Typien Ambrestifolia 8. Impotiens capensis	5 2 5 5		FACW FACW FACW FAC	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
5. EARSE NETTIE - BURLMANG CYLINERS 6. SCIRPUS CYPERINUS 7. TYPHA AMENORISOLA 8. Importans capensis 9. Carex Spp. 10. Naparise STILL CHASS M. Vimineum 11. BIDENS SPP.	5 2 5 5		FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
5. LARGE NETTIE - BURLMANG CYLINDRA 6. SCIRPUS CYPERINUS 7. Typhen Americalia 8. Impatient capensis 9. Carex Spp. 10. Naparist Stut CIRBSS M. Vimineum	5 2 5 5		FACW FACW FACW FAC	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
5. LAKSE NETTIE - Buchmeria cylindrica 6. Schrous cyperinus 7. Typhia Amenopricalia 8. Importions capensis 9. Carex Spp. 10. Naparise still chass M. Vimineum 11. Bidens Spp. 12. Sousitaltean - Onoclea Censibilis	5 5 5 5 2		FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
5. LARGE NETTIE - BURLMARIA CYLINDRA 6. SCHIPUS CYPERINUS 7. TYPHA AMENOTICOLA 8. Importans capensis 9. Carex Spp. 10. Naparise Still CHASS M. Vimineum 11. BIDENS Spp.	5 5 5 5 8		FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
5. LAKSE NETTIE - Buchmeria cylindrica 6. Schrous cyperinus 7. Typhia Amenopricalia 8. Importions capensis 9. Carex Spp. 10. Naparise still chass M. Vimineum 11. Bidens Spp. 12. Sousitaltean - Onoclea Censibilis	5 5 5 5 2		FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
5. LARGE NETTIE - BURLMANG CYLINDRA 6. SCHANS CYPERINOS 7. TYPHA AMENORADIA 8. TIMPATIENS CAPENSIS 9. CAREX SPP. 10. NAPARISE STILL PIRASS M. VIMINEUM 11. BIDENS SPP. 12. SONSITHEFORM - Onocles Censibies Woody Vine Stratum (Plot size:)	5 5 5 5 2		FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
5. LARGE NETTIE - BURLMANG CYLINDRA 6. SCIRPUS CYPERINUS 7. TYPHA AMENORATIONA 8. Importants capensis 9. Carex Spp. 10. Naparist STILL CHASS M. Vimineum 11. BIDENS Spp. 12. SOUSITHETERN - Onoclea Censisius Woody Vine Stratum (Plot size:) 1.	5 5 5 5 2		FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
5. LAKSE NETTIE - BURLMANG CYLINDRA 6. SCINANS CYPERINOS 7. TYPHA AMENOPIFOLIA 8. TIMPATIENS CAPENSIS 9. CATEX SPP. 10. NAPARIST STILT CHASS M. Vimineum 11. BIDENS SPP. 12. SONSITHEFOLIA - Onoclea Censibius Woody Vine Stratum (Plot size:) 1. 2. 3.	5 2 2 5 5 5 5 2 ///	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic
5. LARGE NETTIE - BURLMANG CYLINDRA 6. SCIMPUS CYPERINUS 7. TYPHA AMENORATIONA 8. Importung capensis 9. Carex Spp. 10. Naparise Still CHASS M. Vimineum 11. BIDENS Spp. 12. SONSITHE FROM - Onocica Censisius Woody Vine Stratum (Plot size:) 1. 2. 3. 4.	5 2 2 5 5 5 5 2 ///(0	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic Vegetation
5. LAKSE NETTIE - BURLMANG CYLINDRA 6. SCHENS CYPERINOS 7. TYPHA AMENOTIFOLA 8. TIMPATIENS CAPENSIS 9. CATEX SPP. 10. NAPARISE STUT CHASS M. Vimineum 11. BIDENS SPP. 12. SONSITHE CAM - DNOCLEG CASILIUS Woody Vine Stratum (Plot size:) 1. 2. 3.	5 2 2 5 5 5 5 8 /((0	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic
5. LAKSE NETTIE - BURLMARIA CYLINDRA 6. SCHENS CYPCHINUS 7. TYPHA AMENOTIFOLA 8. TIMPATIENS CAPENSIS 9. CARLEX SPP. 10. NAPARIST STUT CHASS M. Vimineum 11. BIDENS SPP. 12. SONSITHEFORM - Onoclea Censibius  Woody Vine Stratum (Plot size:) 1	10 5 2 2 5 5 5 5 8 ////	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic Vegetation
5. LARGE NETTIE - BURLMARIA CYLINDRA 6. SCHARUS CYPERINUS 7. TYPHA AMENORATIONA 8. Importuns capensis 9. Carex Spp. 10. Naparise Still Chass M. Vimineum 11. BIDENS Spp. 12. SOUSITHE FROM - Onoclea Censisius Woody Vine Stratum (Plot size:) 1. 2. 3. 4.	10 5 2 2 5 5 5 5 8 ////	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic Vegetation
5. LAKSE NETTIE - BURLMANG CYLINDRA 6. SCINANS CYPCHINUS 7. TYPHA AMENORIFOLA 8. TIMPATIENS CAPENSIS 9. CARLEX SPP. 10. NARAMEST STILL CHASS M. Vimineum 11. BIDENS SPP. 12. SONSITHE FORM - Onocles Censibius  Woody Vine Stratum (Plot size:) 1. 2. 3. 4. 5.	10 5 2 2 5 5 5 5 8 ////	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic Vegetation
5. LAKSE NETTIE - BURLMANG CYLINDRA 6. SCINANS CYPCHINUS 7. TYPHA AMENORIFOLA 8. TIMPATIENS CAPENSIS 9. CARLEX SPP. 10. NARAMEST STILL CHASS M. Vimineum 11. BIDENS SPP. 12. SONSITHE FORM - Onocles Censibius  Woody Vine Stratum (Plot size:) 1. 2. 3. 4. 5.	10 5 2 2 5 5 5 5 8 ////	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic Vegetation
5. LAKSE NETTIE - BURLMANG CYLINDRA 6. SCINANS CYPCHINUS 7. TYPHA AMENORIFOLA 8. TIMPATIENS CAPENSIS 9. CARLEX SPP. 10. NARAMEST STILL CHASS M. Vimineum 11. BIDENS SPP. 12. SONSITHE FORM - Onocles Censibius  Woody Vine Stratum (Plot size:) 1. 2. 3. 4. 5.	10 5 2 2 5 5 5 5 8 ////	= Total Cov	FACW FACW FACW FACW FACW FACW FACW FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.  Woody vine – All woody vines, regardless of height.  Hydrophytic Vegetation

Sampling Point:

Depth inches)	Matrix Color (moist)	%	Redo Color (moist)	ox Features %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
		QD .	IDUR 5/6	10				Remarks
-10	2.5y 5/1		roya spe		RM		SILTYCLAY_	
	*							
								•
		-						
	****						2	
	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ins.		e Lining, M=Matrix.
	Indicators:							for Problematic Hydric Soils <sup>3</sup>
Histosol			Dark Surface		(00) (14	U DA 447		luck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be					Prairie Redox (A16)
	istic (A3) en Sulfide (A4)		Loamy Gley			41, 140)		RA 147, 148) ont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma		1 4)			RA 136, 147)
_	uck (A10) (LRR N)		Redox Dark		·6)			arent Material (TF2)
	d Below Dark Surfac	e (A11)	Depleted Da					hallow Dark Surface (TF12)
_ Thick Da	ark Surface (A12)		Redox Depr	essions (F	8)		Other (	Explain in Remarks)
	/lucky Mineral (S1) (I	LRR N,	Iron-Mangar		es (F12) (l	LRR N,		
	<b>4</b> 147, 148)		MLRA 13	-			3	<b>.</b>
	Sleyed Matrix (S4)		Umbric Surf					s of hydrophytic vegetation and
	Redox (S5) I Matrix (S6)		Piedmont FI	ooapiain S	olis (F19)	(MLRA 1		d hydrology must be present, disturbed or problematic.
	Layer (if observed):						uniess	disturbed of problematic.
Type:	-	•						
	_						Hudria Sail Bros	ent? Yes <u>∠</u> No
marks:	ches):						nyunc son Fies	entr res No
OB	Served A	ceas.	of much		0165	inf	pactes) B(	JAMD.

### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: AtP B16 SANDY POND CLOSURE City/C	county: Louis A. LAWRENCE Sampling Date: 10/15/12
Project/Site: AtP B16 SANDY POND CLOSURE City/C  Applicant/Owner: AtP	State: 44 Sampling Point: 52
Investigator(s): BAO, NOT Section	on, Township, Range:
Landform (hillslope, terrace, etc.): Torof Scope Local reli	
Subregion (LRR or MLRA): Lat:	
Subjegion (LRR of MLRA).	Long Bayas 117 Datum:
Soil Map Unit Name:	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Y	*
Are Vegetation, Soil, or Hydrology significantly disturb	
Are Vegetation, Soil, or Hydrology naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area within a Wetland? Yes No
Remarks:  Remark	To DAM outface STREAM &
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (	
High Water Table (A2)  Hydrogen Sulfide Odd	· ,
Saturation (A3) Oxidized Rhizosphere	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	
Sediment Deposits (B2) Recent Iron Reductio	
Drift Deposits (B3) Thin Muck Surface (C	
Algal Mat or Crust (B4) Other (Explain in Ren Iron Deposits (B5)	marks) Stunted or Stressed Plants (D1)  × Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches):	<u> </u>
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes <u>×</u> No Depth (inches): <u>Saturation Present?</u>	No No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Booding (1000) and Contain garage, memoring want at present pre-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Remarks:	

#### VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point:

		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4.				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:/©-O (A/B)
6.				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)		= Total Cov	er	OBL species x 1 =/O
				FACW species x2 = 50
1				FAC species x3 =/5
2				FACU species x 4 =
2. 3. 4. 5.				UPL species x 5 =
4.				I
s				Column Totals:
7.				Prevalence Index = B/A =/. 45
		= Total Cov	er	Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)	·			1 - Rapid Test for Hydrophytic Vegetation
1				2 - Dominance Test is >50%
2				3 - Prevalence Index is ≤3.0¹
3.				4 - Morphological Adaptations (Provide supporting
4.			N	data in Remarks or on a separate sheet)
5.				Problematic Hydrophytic Vegetation¹ (Explain)
6.				1
7				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	=	= Total Cov	er er	Definitions of Five Vegetation Strata:
Herb Stratum (Plot size:)	Δ	_		
1. Tupha angusticolia	<u> 40 </u>		OBL	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
2. REDROOT FLATSOMET CYPETUS CRYTHROCHIZES 3. SCRIPS CYPETINUS	20		FACW	(7.6 cm) or larger in diameter at breast height (DBH).
3. Sirches Cypening			FACE	
4. NHEAR SAME FOUNDER - FLEDCHAVIS OCICULARIS	20		<u>OBL</u>	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
5. BIDENS Spp.	2		FAC	than 3 in. (7.6 cm) DBH.
6				Shrub – Woody plants, excluding woody vines,
7				approximately 3 to 20 ft (1 to 6 m) in height.
8				Herb – All herbaceous (non-woody) plants, including
9				herbaceous vines, regardless of size, and woody
10				plants, except woody vines, less than approximately
11			****	3 ft (1 m) in height.
12				Woody vine - All woody vines, regardless of height.
	190 :	= Total Cov	er er	
Woody Vine Stratum (Plot size:)				
1.				
2.				
3.				Hydrophytic
4				Venetation
5				Present? Yes No
	=	= Total Cov	er	
Remarks: (Include photo numbers here or on a separate sh	neet.)			
				I

ldes"	MIDI	_	10	151	0	^	Ó	KINE.
Sampling	Point:	_				_		

Profile Desc	ription: (Describ	to the dept	h needed to do	ocument the in	ndicator or confirm	the abse	nce of indicators.)
Depth	Matrix Color (moist)	<del></del> .	Color (moist	edox Features	Type <sup>1</sup> Loc <sup>2</sup>	Texture	Domostro
(inches)	H SEE	- <del>70</del>	COIDI (MOISI		ASSUME		e Remarks
			and the second	20160	<u>843701100</u> 1	J	
		<del></del>					
					e		
		<del></del>					
	ncentration, D=De	pletion, RM=	Reduced Matrix	k, MS=Masked	Sand Grains.		n: PL=Pore Lining, M=Matrix.
lydric Soil I						ir	adicators for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Dark Sur		00 (CO) (MI DA 147	140\	_ 2 cm Muck (A10) (MLRA 147)
Histic Ep Black His	ipedon (A2)				ce (S8) (MLRA 147, (MLRA 147, 148)	146) _	Coast Prairie Redox (A16) (MLRA 147, 148)
	n Sulfide (A4)			Bleyed Matrix (		_	_ Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted				(MLRA 136, 147)
	ck (A10) ( <b>LRR N</b> )			ark Surface (F	•	_	_ Red Parent Material (TF2)
	Below Dark Surfa	ce (A11)	•	Dark Surface		_	Very Shallow Dark Surface (TF12)
	rk Surface (A12) ucky Mineral (S1)	/I RR N		epressions (F8	es (F12) ( <b>LRR N,</b>	Ş	Other (Explain in Remarks)
	147, 148)	(LICITIE)		<b>A</b> 136)	50 (1 12) ( <b>ERREIN</b> ,		
	leyed Matrix (S4)				MLRA 136, 122)		<sup>3</sup> Indicators of hydrophytic vegetation and
	edox (S5)		Piedmor	t Floodplain S	oils (F19) ( <b>MLRA 1</b> 4	8)	wetland hydrology must be present,
	Matrix (S6)	N -				<del></del>	unless disturbed or problematic.
	ayer (if observed						
Type:						Lludria	Soil Present? Yes No
Depth (inc	nes).				·	nyunc	Soft Fresent? FesNo
Remarks:							
		, a			6		
46	1 501	LS K	455UM	GO Y	typric -	AS	THEY ARE &
	_				l.		A The second
	SEV	HRILL	1 DIST	MBED	BY AV	UD.	& INUNDATED
					(		
	THE	DAFE	SKALLE E	C AIRA	n motos	-00	OVERLYING
	1110	, ,,,	chu c	I ATOM	Drimeri	acs	OVERLYINA
	111167	1.04	0		,	_	
	NASO	ruted	HLLUUI	AL GI	TAVEZ E	FRAC	TURED BEDROCK
	MATE	RIAL	SOIL L	-4965	SIGNIFICE	of T	071
		ı			1019	rr I	OTHANIC MATTER
	/N (	ibber 1	AYERS.	2016	JATURATE	OA	- Surface-
							•

# WETLAND KO

#### WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: ALP BIG SANDU POWD CLOSURE CITYO	County: Louis A. Lhonerce Sampling Date: 10/15/12
A	State: / Sampling Point: 03
Investigator(s): BAD, MAT Section	
	ief (concave, convex, none):
· · · · · · · · · · · · · · · · · · ·	Long: — 8 2. 6 2 4 8 25
	-
Are climatic / hydrologic conditions on the site typical for this time of year? Y	NWI classification: NA
Are Vegetation, Soil, or Hydrology significantly disturb	
Are Vegetation, Soil, or Hydrology significantly disturb  Are Vegetation, Soil, or Hydrology naturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes No  Yes No	Is the Sampled Area within a Wetland? Yes No
DEM/PSS WETLAND LUCATED AT TOE-O DISTURBED AREA	F-SUPE & WITHIN FORMARY
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (	
High Water Table (A2) Hydrogen Sulfide Od	
	res on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Sediment Deposits (B2) Recent Iron Reduction	
Sediment Deposits (B2) Recent Iron Reduction Drift Deposits (B3) Thin Muck Surface (0	
Algal Mat or Crust (B4) Other (Explain in Rer	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	XFAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes K No
Saturation Present? Yes No Depth (inches): 5:	wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	
Remarks.	
SATURATION PRESENT IN AREAS O.	F WETCHNO

EGETATION (Five Strata) – Use scientific		Sampling Point:
Tree Stratum (Plot size:)	Absolute Dominant Indicator % Cover Species? Status	A 3
·		Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
·		Total Number of Dominant
l		
·		
5.		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
5		
7.		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)		OBL species $\frac{10}{10}$ x 1 = $\frac{10}{10}$
. SALIX NIGRA		FACW species <u>(45</u> x 2 = <u>/30</u>
FRACTIONS OCCIDENTALIS	25 _X_ FRU	
3		FACU species x 4 =
k		UPL species x 5 =
5		Column Totals: <u>195</u> (A) <u>300</u> (B)
6		Prevalence Index = B/A =
7		Hydrophytic Vegetation Indicators:
	45 = Total Cover	
Shrub Stratum (Plot size:)		1 - Rapid Test for Hydrophytic Vegetation  × 2 - Dominance Test is >50%
1		- I <del></del>
2.		3 - Prevalence Index is ≤3.0¹
3.		4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
1		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.		-
6		¹Indicators of hydric soil and wetland hydrology must
/·		be present, unless disturbed or problematic.
Herb Stratum (Plot size:)	= Total Cover	Definitions of Five Vegetation Strata:
1. Typha latifolici	20 194	Tree – Woody plants, excluding woody vines,
2. VUNCUS OFFUSUS		approximately 20 ft (6 m) or more in height and 3 in.
3. Caste Vulpinoidea		(7.6 cm) or larger in diameter at breast height (DBH).
4. TURTLEHEAD - Chelone glaba	-	Sapling – Woody plants, excluding woody vines,
5. SEEDBOX - LUDWING atternifolia		approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
3. Solipation Sep.		(7.6 cm) DBn.
7		Shrub – Woody plants, excluding woody vines,
3		approximately 3 to 20 ft (1 to 6 m) in height.
9.		Herb – All herbaceous (non-woody) plants, including
10		herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately
11		3 ft (1 m) in height.
12		Woody vine – All woody vines, regardless of height.
	150 = Total Cover	woody vines, regardless of neight.
Woody Vine Stratum (Plot size:)		
1		-
2.		-
3.		- Under a book
4		Hydrophytic Vegetation
5		Present? Yes No No
	= Total Cover	
Remarks: (Include photo numbers here or on a separa	ate sheet.)	

$\sim$	^	1	•

Sampling Point: \_\_\_\_\_

Profile Desc	cription: (Describe	to the depth	needed to docu	ment the i	ndicator	or confirm	n the absence of indicators.)
Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type¹ Loc²							Texture Remarks
(inches)	Color (moist) /DVR 5//			<u>%</u>			SULLICIALY GRAVEZ OBSENUED
000	10 yr 5/1	<u> </u>	Office U/O		KM	_W(	SCHICKLY STRIFFUEL OBJERVED
	<u></u>						
<b> </b>			····				
¹Type: C=C	oncentration, D=Dep	Netion RM=F	Reduced Matrix M	IS=Masked	Sand Gr	aine	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil		orchors, rain 1	teddeed Wattix, W	io inacitod	Odina On	unio.	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surfac	e (S7)			2 cm Muck (A10) ( <b>MLRA 147</b> )
	oipedon (A2)		Polyvalue B		ce (S8) (N	ILRA 147	
Black Hi	stic (A3)		Thin Dark S	urface (S9)	(MLRA 1	47, 148)	(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gley		F2)		Piedmont Floodplain Soils (F19)
. —	Layers (A5)		Depleted Ma				(MLRA 136, 147)
	ick (A10) (LRR N)	o (A11)	Redox Dark Depleted Da		•		Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
	d Below Dark Surfac ark Surface (A12)	æ (ATT)	Redox Depr				Other (Explain in Remarks)
1 —	lucky Mineral (S1) (	LRR N,	Iron-Mangai			LRR N,	Guller (Explain in Normaline)
	A 147, 148)		MLRA 1		. , ,		
	Gleyed Matrix (S4)		Umbric Surf				<sup>3</sup> Indicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Fl	loodplain S	oils (F19)	(MLRA 1	
	Matrix (S6)						unless disturbed or problematic.
l	Layer (if observed)	•					
Type:	at a a V						Hydric Soil Present? Yes No
	ches):						Hydric Soil Present? Yes No
Remarks:							
ļ							
l							

WETLAND 17

W-MDT-101512-04

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AFP BIG SANDI City/C	County: LOVISA, VALACNCE Sampling Date: 15, OCT. 20
M (3)	State: Ky Sampling Point:
Investigator(s): B. OTTO, M. THONNYER, UKS Section	ion, Township, Range:
Landform (hillslope, terrace, etc.): FLOOD PLAIN Local re	·
Subregion (LRR or MLRA): Lat:	Long: Datum:
Soil Map Unit Name: 4	
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly distu	
Are Vegetation, Soil, or Hydrology naturally problem	astic? (If needed, explain any answers in Remarks )
SUMMARY OF FINDINGS – Attach site map showing sar	
Command of The Interior Action of the Interior	inputing point focutions, transcots, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes No
Wetland Hydrology Present? YesX No	·
Remarks:	
PFO WETLAND LOCATED ALONG STREN	*
-	₹ •
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	· · · · · · · · · · · · · · · · · · ·
High Water Table (A2) Hydrogen Sulfide Oc	. , ,
★ Saturation (A3)	res on Living Roots (C3) Moss Trim Lines (B16)
•	d Iron (C4) Dry-Season Water Table (C2) on in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (	. , ,
Algal Mat or Crust (B4) Other (Explain in Re	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	K FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): Su	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	
WETLAND IS LOCATED ABUTTING S	TREAM H.
Remarks:	

WETHIND 17

### **VEGETATION** (Four Strata) – Use scientific names of plants.

Sampling Point: ω-ΜοΤ- 101512-04

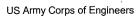
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species
1. RIVER BIRCH - BETULA nigra	25	×	FACW	That Are OBL, FACW, or FAC: (A)
2. SHUFELMAPLE ACES GOECHASIUM			FACIN	, , ,
3. Sycamore - Plant's occidentalis		~	FACW	Total Number of Dominant Species Across All Strate:  (B)
				Species Across All Strata: (B)
4. Am. EIM - Ulmus AMERICANO			FACW	Percent of Dominant Species
5. Ga. ASH - ENARINUS DEMOSILUMANCUM	_5_		FACW	That Are OBL, FACW, or FAC:
6. BLIL WHERE - SALIX NIGRA	_5		OBL	
7				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
	96	= Total Cov		OBL species x1= 5
Sapling/Shrub Stratum (Plot size:)		= Total Cov	er	FACW species 210 x 2 = 420
1. Spice BUSH - LINDERA BENZON	7.	<b>\</b>	Ear	FAC species <u>UT</u> x3 = /4/
			- Ma	
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: <u>202</u> (A) <u>506</u> (B)
5				
			***************************************	Prevalence Index = B/A = 2./6
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				
9				2 - Dominance Test is >50%
10.				× 3 - Prevalence Index is ≤3.0¹
		= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:)		- Total Covi	EI	data in Remarks or on a separate sheet)
1. WHITEGRASS. Leessia VIRGINICA	70	×_	Caca	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. WHITE BROWN - LECT YELL VIRGINITION			FACW	residential ryareprijate regelation (Explain)
2. POLYGONOM PENNSYlvancium				1
3. BIDENS SPP			fac	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. FALSE NETTLE - BORMETIA CYLINDRICA	_5_		FACW	
5. SENSITIVE FERN - Onoclea Sensibilis	5		FACW	Definitions of Four Vegetation Strata:
6. Posson My - Toxicohedran Fordiens			FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7. DERR TONHUE - Dischanthelium Clarifestawin	-2		FAC	more in diameter at breast height (DBH), regardless of
				height.
8. Sourceto see				
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				,
12.			*	Herb – All herbaceous (non-woody) plants, regardless
12,	147			of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)		= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in
				height.
1			-	<u> </u>
2				
3				
4				
5.				Hydrophytic
6.				Vegetation
0				Present? Yes No
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate s	heet.)			

WETLAND 17

#### SOIL

Sampling Point: 4- MAT-101512 - 04

Profile Des	cription: (Describe t	to the dept				r confirm	n the absence	of indicators.)	
Depth	Matrix		Redo	x Features		12	T4	D 1	
(inches)	Color (moist)	<u>%</u> _	Color (moist)	- <u>%</u> 30	Type <sup>1</sup>	Loc <sup>2</sup>	Calaba	Remarks	
0-9	104K 3/2	90 -	10 yr 1/6		EM .	M	SANDY		
4-12	10 yk 5/1	00	104R 416	20	RN	M	SANDY	Lonin	
			· · · · · · · · · · · · · · · · · · ·	-					
]									
			***						
¹Type: C=C	oncentration, D=Depl	etion RM=I	Reduced Matrix M	S=Masked	Sand Grai	ne	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.	
Hydric Soil		Guori, Mili-i	reduced Matrix, Mi	o-iviaskeu	Janu Grai	113.		ators for Problematic Hy	dric Soils <sup>3</sup> :
Histosol			Dark Surface	e (S7)				2 cm Muck (A10) ( <b>MLRA 1</b>	1
	pipedon (A2)		Polyvalue Be		e (S8) (ML	RA 147,		Coast Prairie Redox (A16)	
1	istic (A3)		Thin Dark Su					(MLRA 147, 148)	
Hydroge	en Sulfide (A4)		Loam <b>y</b> Gleye	ed Matrix (F			F	Piedmont Floodplain Soils	(F19)
	d Layers (A5)		Depleted Ma					(MLRA 136, 147)	
	uck (A10) (LRR N)		Redox Dark					/ery Shallow Dark Surface	
	d Below Dark Surface	e (A11)	Depleted Da				— (	Other (Explain in Remarks	)
	ark Surface (A12) Mucky Mineral (S1) (L	RR N	Redox Depre Iron-Mangan			RRN			
1	A 147, 148)	,	MLRA 13		.5 (1 12) ( <b>L</b>	1414,			
	Gleyed Matrix (S4)		Umbric Surfa		MLRA 136	, 122)	<sup>3</sup> Inc	dicators of hydrophytic veg	etation and
	Redox (S5)		Piedmont Flo					etland hydrology must be i	
	l Matrix (S6)		Red Parent I	Material (F2	21) <b>(MLRA</b>	127, 147	<b>7</b> ) ur	nless disturbed or problem	atic.
Restrictive	Layer (if observed):								
Type:									
Depth (in	ches):						Hydric Soi	l Present? Yes <u>×</u>	. No
Remarks:									
									Ì
1									





# APPENDIX B OHIO EPA WETLAND ORAM FORMS



ORAM v. 5.0 Field Form Quantitative Rating	w-bao 5/23/12-1
Site: AFP BE SANDY POND CLOSURE Rater(s): M. THOMPYER B. OTTO	10-bao 5/23/12-1 Date: 5/23/12
Metric 1. Wetland Area (size).  Select one size class and assign score.  >50 acres (>20.2ha) (6 pts)  25 to <50 acres (10.1 to <20.2ha) (5 pts)  10 to <25 acres (4 to <10.1ha) (4 pts)  3 to <10 acres (1.2 to <4ha) (3 pts)  0.3 to <3 acres (0.12 to <1.2ha) (2pts)  0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)  <0.1 acres (0.04ha) (0 pts)	
Metric 2. Upland buffers and surrounding land use.	
max 14 pts. subtotal  2a. Calculate average buffer width. Select only one and assign score. Do not double check.  WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)  NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)  VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)  2b. Intensity of surrounding land use. Select one or double check and average.  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  LOW. Old field (>10 years), shrub land, young second growth forest. (5)  MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow the first of the f	ow field. (3)
Metric 3. Hydrology.	
Precipitation (1)  Seasonal/Intermittent surface water (3)  Perennial surface water (lake or stream) (5)  3c. Maximum water depth. Select only one and assign score.  >0.7 (27.6in) (3)  0.4 to 0.7m (15.7 to 27.6in) (2) <a href="#"></a>	ain (1)  lake and other human use (1)  pland (e.g. forest), complex (1)  r upland corridor (1)  curation. Score one or dbl check.  ently inundated/saturated (4)  ited/saturated (3)  dated (2)  ated in upper 30cm (12in) (1)
weir dredging other.  Metric 4. Habitat Alteration and Development.	
max 20 pts. subtotal  4a. Substrate disturbance. Score one or double check and average.  None or none apparent (4)  Recovered (3)  Recovering (2)  Recent or no recovery (1)  4b. Habitat development. Select only one and assign score.  Excellent (7)  Very good (6)  Good (5)  Moderately good (4)  Fair (3)  Poor to fair (2)  Poor (1)	
4c. Habitat alteration. Score one or double check and average.  None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Recent or no recovery (1) Recovering (3) Recovering (4) Re	atic bed removal

WE	124	ND 1		
RAM v. 5.0 Field	d Form	Quantitative Rating		w bao 5/23/12-1
Site:		Rater(	s):	Date:
20 subtotal fir		letric 5. Special Wetlan	ds.	
0 20		•		
ax 10 pts. subto	tal Ch	eck all that apply and score as indicated.  Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Openi Relict Wet Prairies (10) Known occurrence state/federal three Significant migratory songbird/water	estricted hydro ings) (10) atened or enda fowl habitat or	angered species (10) usage (10)
		Category 1 Wetland. See Question		
3 2	, IV	letric 6.  Plant communi	ties, int	erspersion, microtopography.
		Mattend Vegetation Communities	Vocatation	Community Cover Scale
x 20 pts. subto		. Wetland Vegetation Communities. ore all present using 0 to 3 scale.	vegetation 0	Community Cover Scale Absent or comprises <0.1ha (0.2471 acres) contiguous area
	00	Aquatic bed	1	Present and either comprises small part of wetland's
		2 Emergent	·	vegetation and is of moderate quality, or comprises a
		Shrub		significant part but is of low quality
	2	Forest	2	Present and either comprises significant part of wetland's
		Mudflats		vegetation and is of moderate quality or comprises a small
		Open water		part and is of high quality
		Other	3	Present and comprises significant part, or more, of wetland's
	6b.	horizontal (plan view) Interspersion.		vegetation and is of high quality
	Se	lect only one.		
		High (5)		escription of Vegetation Quality
		Moderately high(4)	low	Low spp diversity and/or predominance of nonnative or
		Moderate (3)		disturbance tolerant native species
		Moderately low (2)	mod	Native spp are dominant component of the vegetation,
	0	Low (1)		although nonnative and/or disturbance tolerant native spp
	6.	None (0)		can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare
		Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add		threatened or endangered spp
		deduct points for coverage	high	A predominance of native species, with nonnative spp
	OI V	Extensive >75% cover (-5)	ı ngı ı	and/or disturbance tolerant native spp absent or virtually
		Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,
		Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp
	0	× Nearly absent <5% cover (0)		
		Absent (1)	Mudflat and	d Open Water Class Quality
	6d.	Microtopography.	0	Absent <0.1ha (0.247 acres)
		ore all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)
	/	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more
		O Standing dead >25cm (10in) dbh		
		Amphibian breeding pools	Microtopog	graphy Cover Scale
			0	Absent
			1	Present very small amounts or if more common
				of marginal quality
			2	Present in moderate amounts, but not of highest
		Catoonia		quality or in small amounts of highest quality
William Company of the		Category	3	Present in moderate or greater amounts
		1		and of highest quality

		中WDネ Form Quantitative Rating W-bao 5/23/12	7- <i>2</i>
Site:	AEP	Form Quantitative Rating W-bao 5/23/12 BK SANDY POND CLOSURE Rater(s): M.THONNYEN, B. OTTO UMS Date: 23 MAY.	20/2
max 6 pts.	subtotal	Metric 1. Wetland Area (size).	
6	6	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtota	2a. Calculate average buffer width. Select only one and assign score. Do not double check.  WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)  NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)  VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)  2b. Intensity of surrounding land use. Select one or double check and average.  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  LOW. Old field (>10 years), shrub land, young second growth forest. (5)  MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)  HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	
8	14	Metric 3. Hydrology.	
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.  High pH groundwater (5)  Other groundwater (3)  Precipitation (1)  Seasonal/Intermittent surface water (3)  Perennial surface water (lake or stream) (5)  3c. Maximum water depth. Select only one and assign score.  >0.7 (27.6in) (3)  0.4 to 0.7m (15.7 to 27.6in) (2) <a href="#">Seasonally in undated/saturated (3)</a> Regularly inundated/saturated (3)  Seasonally saturated in upper 30cm (12in) (1)  3e. Modifications to natural hydrologic regime. Score one or double check and average.  None or none apparent (12)  Recovered (7)  Recovering (3)  Recent or no recovery (1)  A connectivity. Score all that apply.  100 year floodplain (1)  Part of wetland/upland (e.g. forest), complex (Part of riparian or upland corridor (1)  Part of riparian or upland corridor (1)  Part of riparian or upland corridor (1)  Part of wetland/upland (e.g. forest), complex (Part of vetland/upland (e.g. forest), complex (Part of vetland/	(1) eck.
6	20	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal 20	4a. Substrate disturbance. Score one or double check and average.  None or none apparent (4)  Recovered (3)  Recent or no recovery (1)  4b. Habitat development. Select only one and assign score.  Excellent (7)  Very good (6)  Good (5)  Moderately good (4)  Fair (3)  Poor to fair (2)  Poor (1)  4c. Habitat alteration. Score one or double check and average.  None or none apparent (9)  Recovered (6)  Recovered (6)  Recovering (3)  Recent or no recovery (1)  None or no recovery (1)  Recent or no recovery (1)	
	subtotal this		

Site:		Rater	(s):		Date:
		7			<u> </u>
su	ZG Ibtotal first pa	1			
0	20	Metric 5. Special Wetlan	ids.		
max 10 pts.	subtotal	Check all that apply and score as indicated.			
		Bog (10)			
		Fen (10)			
		Old growth forest (10) Mature forested wetland (5)			
		Lake Erie coastal/tributary wetland-u	unrestricted hyd	Irology (10)	
		Lake Erie coastal/tributary wetland-r			
		Lake Plain Sand Prairies (Oak Open	nings) (10)		
		Relict Wet Prairies (10)			
		Known occurrence state/federal thre			
		Significant migratory songbird/water Category 1 Wetland. See Question			
	<u> </u>	1 <u></u>			
3	23	Metric 6. Plant commun	iues, inc	erspersion, inicroto	pograpny.
max 20 pts.	subtotal	] 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
11/2X 20 pts.	Jubiolai	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	171 acres) contiguous area
		Aquatic bed	1	Present and either comprises sm	
		Emergent		vegetation and is of moderate of	uality, or comprises a
		Shrub		significant part but is of low qua	
		Forest	2	Present and either comprises sign	
		Mudflats Onen water		vegetation and is of moderate of	juality or comprises a small
		Open water Other	3	part and is of high quality  Present and comprises significan	t part or more of wetland's
		6b. horizontal (plan view) Interspersion.	· ·	vegetation and is of high quality	
		Select only one.			
		High (5)		escription of Vegetation Quality	
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predomi disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	
		o Low (1)		although nonnative and/or distu	
		✓ None (0)		can also be present, and specie	es diversity moderate to
		6c. Coverage of invasive plants. Refer		moderately high, but generally	w/o presence of rare
		to Table 1 ORAM long form for list. Add	la i e la	threatened or endangered spp	
		or deduct points for coverage  Extensive >75% cover (-5)	high	A predominance of native species and/or disturbance tolerant nati	• •
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	* *
		Sparse 5-25% cover (-1)		the presence of rare, threatene	
		○ Nearly absent <5% cover (0)			
		Absent (1)		Open Water Class Quality	·········
		6d. Microtopography. Score all present using 0 to 3 scale.	<u>0</u> 1	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	2001
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh	COLUMN TO THE PARTY OF THE PART		
		Amphibian breeding pools		raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if of marginal quality	more common
			2	Present in moderate amounts, but quality or in small amounts of h	
	Ch	×aru	3	Present in moderate or greater ar	
27	Cate			and of highest quality	ikana antananya and Professional Antonia and Antonia a
23		J			

Site: W MOT	- 052412-01	Rater(s): BAO, V	Wat	Date: 2013, MAYA
90	Metric 1. Wetland A	rea (size).		, ,
max 6 pts. subtotal	Select one size class and assign scores (>20.2ha) (6 pts 25 to <50 acres (10.1 to <2 10 to <25 acres (4 to <10.1 3 to <10 acres (1.2 to <4ha 0.3 to <3 acres (0.12 to <1. 0.1 to <0.3 acres (0.04 to <0.1 acres (0.04ha) (0 pts)	) 0.2ha) (5 pts) ha) (4 pts) ) (3 pts) 2ha) (2pts)		
3 3	Metric 2. Upland bu	ffers and surrou	nding land use	<b>).</b>
2	MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers  b. Intensity of surrounding land use VERY LOW. 2nd growth o LOW. Old field (>10 years	m (164ft) or more around wetla 25m to <50m (82 to <164ft) are e 10m to <25m (32ft to <82ft) average <10m (<32ft) around w. Select one or double check ar older forest, prairie, savannality, shrub land, young second grosidential, fenced pasture, park,	nd perimeter (7) ound wetland perimeter (4) around wetland perimeter (* vetland perimeter (0) and average. a, wildlife area, etc. (7) bowth forest. (5) conservation tillage, new fa	1)
10 13	Metric 3. Hydrology	<b>'.</b>		
3	Ba. Sources of Water. Score all that High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surfa Perennial surface water (la Bc. Maximum water depth. Select or >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) \$\times \cdot 0.4m (<15.7in) (1)  Be. Modifications to natural hydrological	ce water (3) ke or stream) (5) nly one and assign score. (2)	Part of wetland Part of riparian  3d. Duration inundation/s Semi- to perma Regularly inund Seasonally inundseasonally sat	plain (1) m/lake and other human use (1) l/upland (e.g. forest), complex (1) or upland corridor (1) aturation. Score one or dbl checlenently inundated/saturated (4) dated/saturated (3)
	None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)			ack
7 20	Metric 4. Habitat Al	teration and Dev		
max 20 pts. subtotal 4	Ia. Substrate disturbance. Score on None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Recent or no recovery (1) Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	y one and assign score.		
4	None or none apparent (9)	Check all disturbances obse		
subtotal this page		mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	sedimentation  dredging	uatic bed removal

ORAM v. 5.0 Field Form Quantitative Rating

Site:	M D7-	050412-01	Rater(s):	BAO MOT	Date: 058418
	aubtotal first p	Metric 5. Special	Wetlands.		
max 10 pts,	subtofal	Check all that apply and score as  Bog (10) Fen (10) Old growth forest (10) Mature forested wetland Lake Erie coastal/tributa Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state Significant migratory son Category 1 Wetland. Se	(5)  ry wetland-unrestricted  ry wetland-restricted hy s (Oak Openings) (10)  /federal threatened or e ngbird/water fowl habital be Question 1 Qualitativ	ndangered species (10) or usage (10) e Rating (-10)	
2	22	Metric 6. Plant co	mmunities, ii	nterspersion, m	icrotopography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communi	ties. Vegetati	on Community Cover Scale	
		Score all present using 0 to 3 scale			.1ha (0.2471 acres) contiguous area
		Aquatic bed	1	Present and either com	prises small part of wetland's
		/ Emergent		vegetation and is of m	oderate quality, or comprises a
		Shrub		significant part but is o	
		Forest	2	1	prises significant part of wetland's
		Mudflats		•	oderate quality or comprises a small
		Open water		part and is of high qua	
		Other	3	1	significant part, or more, of wetland's
		6b. horizontal (plan view) Interspe	rsion.	vegetation and is of hi	gh quality
		Select only one.			
		High (5)		Description of Vegetation	
		Moderately high(4)	low	1	r predominance of nonnative or
		Moderate (3)		disturbance tolerant n	
		Moderately low (2)	mod	1	t component of the vegetation,
		Low (1)		· ·	nd/or disturbance tolerant native spp
			- <i>-</i>	,	and species diversity moderate to
		6c. Coverage of invasive plants. I			generally w/o presence of rare
		to Table 1 ORAM long form for list	***************************************	threatened or endange	
		or deduct points for coverage	high	1 '	ve species, with nonnative spp
		Extensive >75% cover (-			erant native spp absent or virtually
		Moderate 25-75% cover	• •		diversity and often, but not always,
		Sparse 5-25% cover (-1)		the presence of rare, i	threatened, or endangered spp
		Nearly absent <5% cove		and Onen Water Class Ovel	14
		Absent (1)	0	and Open Water Class Qual	············
		6d. Microtopography.  Score all present using 0 to 3 scale		Absent <0.1ha (0.247 a	
		Vegetated hummucks/tu		Low 0.1 to <1ha (0.247 Moderate 1 to <4ha (2.	
		Coarse woody debris >1		High 4ha (9.88 acres) o	······································
				Inigh 4ha (9.66 acres) of	rmore
		Standing dead >25cm (1  Amphibian breeding poo		ography Cover Scale	
		The International preeding poor	0	Absent	
			1	Present very small amo	unts or if more common
			ľ	of marginal quality	and an interest community
					nounts, but not of highest
	_		2	· · · · · · · · · · · · · · · · · · ·	ounts of highest quality
	Coto	gory 1	3	Present in moderate or	
	1	<b>ゾフ</b> ~	Ü	and of highest quality	• · · · · · · · · · · · · · · · · · · ·

Site: W-MD	1-050412-02	Rater(s): BAO, MOT	Date: গুচন্ট্রধ হি
	Metric 1. Wetland A	rea (size).	
max 6 pts. subtotal	』 Select one size class and assign sco	re.	
•	>50 acres (>20.2ha) (6 pts		
	25 to <50 acres (10.1 to <2		
	10 to <25 acres (4 to <10.1		
	3 to <10 acres (1.2 to <4ha		
	0.3 to <3 acres (0.12 to <1 > 0.1 to <0.3 acres (0.04 to <		
	<0.1 acres (0.04ha) (0 pts)		
	Metric 2. Upland bu		na land uso
3 4	Metric 2. Opiana bu	illers and surroundi	ng iana use.
max 14 pts. subtotal	2a. Calculate average buffer width.		
		m (164ft) or more around wetland per 25 <b>m</b> to <50m (82 to <164ft) around v	
		e 10m to <25m (32ft to <82ft) around	
		average <10m (<32ft) around wetland	
	2b. Intensity of surrounding land use	. Select one or double check and av	erage.
		r older forest, prairie, savannah, wildl	
		), shrub land, young second growth fo	
		sidential, fenced pasture, park, conse pen pasture, row cropping, mining, co	
	1	· · · · · · · · · · · · · · · · · · ·	ristraction: (1)
1 11 15	Metric 3. Hydrology	<b>/.</b>	
11 15			
max 30 pts. subtotal	3a. Sources of Water. Score all that	apply. 3b. 0	Connectivity. Score all that apply.
	High pH groundwater (5)		100 year floodplain (1)
	Other groundwater (3) Precipitation (1)		Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1)
	Seasonal/Intermittent surfa	ce water (3)	Part of riparian or upland corridor (1)
	Perennial surface water (la		Duration inundation/saturation. Score one or dbl chec
	3c. Maximum water depth. Select of	• • •	Semi- to permanently inundated/saturated (4)
	>0.7 (27.6in) (3)		Regularly inundated/saturated (3) - Sp. moss
	0.4 to 0.7m (15.7 to 27.6in	3 (2)	Seasonally inundated (2)
	<0.4m (<15.7in) (1) 3a Madifications to natural hydrolog	ia ragima. Caera ana ar daubla abaal	Seasonally saturated in upper 30cm (12in) (1)
	3e. Modifications to natural hydrolog		Carlo average.
	Recovered (7)	Check all disturbances observed ditch	point source (nonstormwater)
	Recovering (3)	tile	
	Recent or no recovery (1)	dike	road bed/RR track
		weir	dredging
		stormwater input	✓ other Excavation
	Bactric A Hobitot Al	toration and Davala	nmané
1 20	Metric 4. Habitat Al	teration and Develo	hmenr
1 00	<u> </u>		
max 20 pts. subtotal	4a. Substrate disturbance. Score or None or none apparent (4)		
	Recovered (3)		
	Recovering (2)		
	Recent or no recovery (1)		
	4b. Habitat development. Select onl	y one and assign score.	
	Excellent (7)		
	Very good (6)		
	Good (5) Moderately good (4)		
	Fair (3)		
	Poor to fair (2)		
	Poor (1)		
	4c. Habitat alteration. Score one or	double check and average.	
	None or none apparent (9)	[	
	Recovered (6)	mowing	shrub/sapling removal
	Recovering (3)	grazing	herbaceous/aquatic bed removal
<del> </del>	Recent or no recovery (1)	clearcutting selective cutting	sedimentation dredging
100		woody debris removal	farming
da		toxic pollutants	nutrient enrichment
subtotal this pa	ge		
last revised 1 Februa	y 2001 jjm		

WETLAND H

ORAM v. 5.0 Field Form Quantitative Rating

Metric 5. Special Wetlands.  Check all that apply and score as indicated.  Bog (10) Frex 10 pis.  Robinson Check all that apply and score as indicated.  Bog (10) Frex (10) Oid growth forest (10) Mature forested wetland (5) Lake Eric coastal/titotary wetland-unrestricted hydrology (10) Lake Eric coastal/titotary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songiphidwater fow habitat or usage (10) Category i Wetland. See Question 1 Qualitative Resting (-10) Significant migratory songiphidwater fow habitat or usage (10) Category in Wetland. See Question 1 Qualitative Resting (-10) Significant migratory songiphidwater fow habitat or usage (10) Category in Wetland. See Question 1 Qualitative Resting (-10) Significant migratory songiphidwater fow habitat or usage (10) Category in Wetland. See Question 1 Qualitative Resting (-10) Significant part or communities, interspersion, microtopography.  Wegetation and is of noticerate quality or comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality Soore all present using via vegetation and is of moderate quality or comprises a small part and is of high quality See the properties of the present and either comprises significant part or wetland's vegetation and is of moderate quality or comprises a small part and is of high quality See the properties of the present and is of moderate quality or comprises a small part and is of high quality See the properties of the present and is of moderate quality or comprises as mall part and is of high quality See the properties of the present and is of high quality See the properties of the present and is of moderate quality or comprises as mall part and is of high quality See the properties of the present and is of high quality or comprises as mall part and is of high quality See the properties of the present and is of hi	Site:	W-mo	t- 029417-09-	Rater(s):	BA	D, MDT	Date: 0534/2
Bog (10)   Fern (10)   Old growth forest (10)   Old growth forest (10)   Old growth forest (10)   Mature forested wetland (5)   Lake Erie coastal/tributary wetland-unrestricted hydrology (5)   Lake Plain Sand Prairies (20 Kopenings) (10)   Relict Wet Prairies (10)   Known occurrence state/federal threatened or endangered species (10)   Significant migratory songbird/water fowl habitat or usage (10)   Category 1 Wetland. See Question 1 Qualitative Rating (-10)   Significant migratory songbird/water fowl habitat or usage (10)   Category 1 Wetland. See Question 1 Qualitative Rating (-10)   Metric 6. Plant communities, interspersion, microtopography.    Metric 6. Plant communities, interspersion, microtopography.	s	ubtotal first pa	í	Vetlands.			
Metric 6. Plant communities, interspersion, microtopography.  6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale.  Aquatic bed  ∫ Emergent Shrub Forest Mudflats Open water Other Other High (5) Moderately high(4) Moderately low (2) Low (1) ✓ None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-1) ✓ Nearly absent <5% cover (0) Absent (1) 6d. Microtopography.  Mudflat and Open Water Class Quality  Moderate (3) Moderately high, but generally w/o presence of rare threatened or endangered spp  Moderate (3) Moderated 28-75% cover (-5) Moderate (3) Moderate (3) Moderately for overage Extensive >75% cover (-1) ✓ Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale.  Vegetation Community Cover Scale  0 Absent or comprises <0.11a (0.247 1 acres) contiguous area as inclination of moderate quality, or comprises a significant part of wetland's vegetation and is of moderate quality or comprises a small part of wetland's vegetation and is of moderate quality or comprises a significant part of wetland's vegetation and is of high quality  Narrative Description of Vegetation Quality  Iow Low spp diversity and/or predominance of nonnative or disturbance tolerant native species moderately high, but generally w/o presence of rare threatened or endangered spp  A predominance of native species, with nonnative spp and/or disturbance tolerant native spp assent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp  Mudflat and Open Water Class Quality  0 Absent <0.1ha (0.247 to 9.88 acres)  1 Low 0.1 to <1ha (0.247 to 9.88 acres)  1 Low 0.1 to <1ha (0.247 to 9.88 acres)  1 Low 0.1 to <1ha (0.247 to 9.88 acres)  1 Low 0.1 to <1ha (0.247 to 9.88 acres)	max 10 pts.		Bog (10) Fen (10) Old growth forest (10) Mature forested wetland Lake Erie coastal/tributar Lake Erie coastal/tributar Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state/ Significant migratory sone	(5) y wetland-unrestric y wetland-restricted (Oak Openings) (1 federal threatened of	d hydrold 0) or endal bitat or u	ngered species (10) usage (10)	
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Other  6b. horizontal (plan view) Interspersion.  Select only one.  High (5)  Moderately high(4)  Moderately low (2)  Low (1)  None (0)  6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage  Extensive >75% cover (-5)  Moderate 25-75% cover (-1)  X Nearly absent <5% cover (-1)  X Nearly absent <5% cover (0)  Absent (1)  6d. Microtopography.  Score all present using 0 to 3 scale.  Vegetated hummucks/tussucks  Coarse woody debris >15cm (6in)  Standing dead >25cm (10in) dbh						<u> </u>	e quanty or comprises a small
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or deduct points for coverage  Extensive >75% cover (-5)  Moderate 25-75% cover (-3)  Sparse 5-25% cover (-1)  X Nearly absent <5% cover (0)  Absent (1)  6d. Microtopography.  Score all present using 0 to 3 scale.  Vegetated hummucks/tussucks  Coarse woody debris >15cm (6in)  Standing dead >25cm (10in) dbh  high  A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp  Mudflat and Open Water Class Quality  0 Absent <0.1ha (0.247 acres)  1 Low 0.1 to <1ha (0.247 to 2.47 acres)  Woderate 1 to <4ha (2.47 to 9.88 acres) or more			6c. Coverage of invasive plants. R	efer		moderately high, but generall	y w/o presence of rare
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Coarse woody debris >15cm (6in) 3 High 4ha (9.88 acres) or more  Standing dead >25cm (10in) dbh					2	Moderate 1 to <4ha (2.47 to 9.	88 acres)
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Amphibian breeding pools Microtopography Cover Scale		,		•	otopogr	aphy Cover Scale	
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Present very small amounts or if more common of marginal quality				distribution many		Present very small amounts or	if more common
2 Present in moderate amounts, but not of highest					2	Present in moderate amounts,	
3 Present in moderate or greater amounts		~ 1	2x 4 1		3		
Category 2  3 Present in moderate or greater amounts and of highest quality		1 Cate	サ・ノ		-	-	· <del>-</del>

Site: U	J-MDT	1-052412-03   Rater(s): BAD, MOT   Dai	e. NOID, MAY 24
	l	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.  >50 acres (>20.2ha) (6 pts)  25 to <50 acres (10.1 to <20.2ha) (5 pts)  10 to <25 acres (4 to <10.1ha) (4 pts)  3 to <10 acres (1.2 to <4ha) (3 pts)  0.3 to <3 acres (0.12 to <1.2ha) (2pts)	
3	4	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check.  WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)  NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)  VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)  2b. Intensity of surrounding land use. Select one or double check and average.  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  LOW. Old field (>10 years), shrub land, young second growth forest. (5)  MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field.  HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	d. (3)
	15	Metric 3. Hydrology.	
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.  3b. Connectivity. Score all that a poly.  High pH groundwater (5)  Other groundwater (3)  Percipitation (1)  Seasonal/Intermittent surface water (3)  Perennial surface water (lake or stream) (5)  3c. Maximum water depth. Select only one and assign score.  New York of riparian or uplar part of riparian or uplar perennial surface water (lake or stream) (5)  3c. Maximum water depth. Select only one and assign score.  New York of riparian or uplar part of riparian or uplar per to permanently in semi-to permanently in Regularly inundated/sa Seasonally inundated (seasonally inundated (seasonally saturated in Seasonally saturated in	nd other human use (1) (e.g. forest), complex (1) nd corridor (1) n. Score one or dbl chec nundated/saturated (4) turated (3)
		None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)  None or none apparent (12) Check all disturbances observed ditch Dittel Simple Stormwater input Dittel Ditte	
7	22	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.  None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1)	
		4b. Habitat development. Select only one and assign score.  Excellent (7)  Very good (6)  Good (5)  Moderately good (4)  Fair (3)  Poor to fair (2)  Poor (1)	
		4c. Habitat alteration. Score one or double check and average.	
	22		
last revised	ı reprua	ry Zuut jini	

ORAM v. 5.0 Field Form Quantitative Rating

Site:	W-MD	T- 052412-03	Rater(s):	BAD	, ms T	Date: 2018 my 24
	22 subtotal first p	Metric 5. Special	Wetlands.			,
max 10 pts.	subtotal	LI Check all that apply and score as	s indicated.			
		Bog (10) Fen (10) Old growth forest (10) Mature forested wetlar Lake Erie coastal/tribu Lake Erie coastal/tribu Lake Plain Sand Prairi Relict Wet Prairies (10 Known occurrence sta Significant migratory s Category 1 Wetland.	nd (5) tary wetland-unrestrict tary wetland-restricted es (Oak Openings) (10 ) te/federal threatened c ongbird/water fowl hab	I hydrolo 0) or endan oitat or u	nggy (5) ngered species (10) sage (10)	
Q	24	Metric 6. Plant co	ommunities,	, inte	erspersion, microto	ppography.
max 20 pts.	subtotal	6a. Wetland Vegetation Commu	nities. <u>Vege</u> t	tation C	ommunity Cover Scale	
		Score all present using 0 to 3 sca	ale	0	Absent or comprises <0.1ha (0.24	
		Aquatic bed		1	Present and either comprises sm vegetation and is of moderate of	15
		Emergent 			significant part but is of low qua	•
		Forest		2	Present and either comprises sign	
		Mudflats			vegetation and is of moderate of	
		Open water			part and is of high quality	
		Other		3	Present and comprises significan	
		6b. horizontal (plan view) Intersp	persion.		vegetation and is of high quality	
		Select only one. High (5)	Narra	itive Des	scription of Vegetation Quality	
		Moderately high(4)		ow	Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)	·		disturbance tolerant native spec	
		Moderately low (2)	n	nod	Native spp are dominant compon	ent of the vegetation,
		Low (1)			although nonnative and/or distu	• •
		None (0)	Defen		can also be present, and specie	•
		6c. Coverage of invasive plants. to Table 1 ORAM long form for list			moderately high, but generally threatened or endangered spp	
		or deduct points for coverage		nigh	A predominance of native species	
		Extensive >75% cover	(-5)		and/or disturbance tolerant nati	ve spp absent or virtually
		Moderate 25-75% cove			absent, and high spp diversity a	
		Sparse 5-25% cover (-			the presence of rare, threatener	d, or endangered spp
		Nearly absent <5% co		iat and (	Open Water Class Quality	
		6d. Microtopography.		0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 sca	ale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	cres)
		Vegetated hummucks/		2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		Coarse woody debris >	· · · · · · · · · · · · · · · · · · ·	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm  Amphibian breeding po		tonoar	aphy Cover Scale	
		L I Amphibian precuing po		0	Absent	
				1	Present very small amounts or if of marginal quality	more common
				2	Present in moderate amounts, bu	•
	Catego	W 1		3	quality or in small amounts of h Present in moderate or greater ar	
	コレニン	1		J	and of highest quality	nound

W-NOH 5/24/12-5

Site: -	AEP E	lig Sandy		Rater(s): M.T.	onere B. Mo	Date: 24 N	
		7	Wetland A	rea (size).			
0	0	IAICCIIO I.	AACTIONIO L	uca (3126).			
max 6 pts.	, subtotal	>50 aci 25 to < 10 to < 3 to <10 0.3 to < 0.1 to <	ass and assign sco es (>20.2ha) (6 pts 50 acres (10.1 to <2 25 acres (4 to <10.1) 0 acres (1.2 to <4ha 3 acres (0.12 to <1 0.3 acres (0.04 to <1 res (0.04ha) (0 pts)	) 20.2ha) (5 pts) Iha) (4 pts) a) (3 pts) .2ha) (2pts) 50.12ha) (1 pt)			
9	9	٠	, , , , ,	ıffers and sur	rounding lan	d use.	
max 14 pts.	subtotal	WIDE.  WERY  WERY  WERY  WERY  LOW.  MODEI	Buffers average 50M. Buffers average W. Buffers average VARROW. Buffers Irrounding land use LOW. 2nd growth of Old field (>10 years RATELY HIGH. Re	Select only one and assign (164ft) or more around 225m (82 to <16 to <25m (82 to <16 to <25m (32ft to <16 t	wetland perimeter (7) 4ft) around wetland per 82ft) around wetland per bund wetland perimeter sheck and average. vannah, wildlife area, etc and growth forest. (5) park, conservation tilla	imeter (4) erimeter (1) (0) c. (7) ge, new fallow field. (3)	
14	72		Hydrology		g,g, construction	( )	
max 30 pts.	23 subtotal	High ph Other g Precipit Season Perenn 3c. Maximum wa >0.7 (2' 0.4 to 0 X <0.4 m (	al/Intermittent surfa al surface water (la ter depth. Select o 7.6in) (3) .7m (15.7 to 27.6in <15.7in) (1)	ace water (3) ike or stream) (5) nly one and assign score	100 y   Betw   Part	y. Score all that apply. year floodplain (1) een stream/lake and other hur of wetland/upland (e.g. forest), of riparian or upland corridor (* undation/saturation. Score one - to permanently inundated/sa ularly inundated/saturated (3) onally inundated (2) onally saturated in upper 30cn	, complex (1) 1) e or dbl check turated (4)
		None o Recove Recove Recent	none apparent (12 red (7) ring (3) or no recovery (1)	Check all disturbance ditch tile dike weir stormwater inpu	s observed  point  filling  road dredg other	source (nonstormwater) /grading bed/RR track ging	
9	32	Wetric 4.	Habitat Ai	teration and	Development	Į.	
max 20 pts.	subtotal	W None of Recover Recover Recent 4b. Habitat devel Exceller Very go Good (5)	r none apparent (4) red (3) ring (2) or no recovery (1) opment. Select on at (7) od (6) c) rely good (4)	ne or double check and a	verage.		
				double check and average			<b>1</b>
sı last revised	32 ubtotal this pa	Recove Recove Recent		Check all disturbance mowing grazing clearcutting selective cutting woody debris re toxic pollutants			

ORAM v. 5.0 Field Form Quantitative Rating		W-14d+5/24/12-5
Site: AEP Bis Sandy	Rater(s):	Date:
subtotal first page    S2   Metric 5. Sp	ecial Wetlands. score as indicated.	
Lake Erie coa Lake Plain Sa Relict Wet Pra Known occurr Significant mid Category 1 W	ed wetland (5) stal/tributary wetland-unrestricted hydrolo stal/tributary wetland-restricted hydrolog and Prairies (Oak Openings) (10) siries (10) ence state/federal threatened or endang gratory songbird/water fowl habitat or usa etland. See Question 1 Qualitative Ratir	ered species (10) age (10) ng (-10)
8 40 Wetric 6. Pla	int communities, inter	spersion, microtopography.
max 20 pts. subtotal 6a. Wetland Vegetation		mmunity Cover Scale
Score all present using a Aquatic bed 3 Emergent		Absent or comprises <0.1ha (0.2471 acres) contiguous area Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a
// Shrub Forest Mudflats Open water		significant part but is of low quality Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
Other		Present and comprises significant part, or more, of wetland's
6b. horizontal (plan view	v) Interspersion.	vegetation and is of high quality
Select only one.  High (5)	Narrative Desc	cription of Vegetation Quality
Moderately him Moderate (3)		Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
Moderately ion  /   k Low (1)	v (2) mod 1	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp
None (0) 6c. Coverage of invasiv to Table 1 ORAM long fo	·	can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
or deduct points for cove Extensive >75 Moderate 25-7 Sparse 5-25%	% cover (-5) 75% cover (-3)	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
Nearly absent	<5% cover (0)	
Absent (1) 6d. Microtopography.		pen Water Class Quality Absent <0.1ha (0.247 acres)
Score all present using (		Low 0.1 to <1ha (0.247 to 2.47 acres)
2 Vegetated hur		Moderate 1 to <4ha (2.47 to 9.88 acres)
		High 4ha (9.88 acres) or more
3 ⊘ Standing dead	l >25cm (10in) dbh eding pools Microtopograp	ohy Cover Scale
****		Absent
		Present very small amounts or if more common of marginal quality
Category 2		Present in moderate amounts, but not of highest quality or in small amounts of highest quality
<u></u>	3	Present in moderate or greater amounts and of highest quality

Site:	W-MDt	- 652412-66 Rater(s): B. OTTO, M. THOMPHE Date: (do 241)
D	D	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score.  >50 acres (>20.2ha) (6 pts)  25 to <50 acres (10.1 to <20.2ha) (5 pts)  10 to <25 acres (4 to <10.1ha) (4 pts)  3 to <10 acres (1.2 to <4ha) (3 pts)  0.3 to <3 acres (0.12 to <1.2ha) (2pts)  0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)  <0.1 acres (0.04ha) (0 pts)
7	7	Metric 2. Upland buffers and surrounding land use.
max 14 pts	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check.  WDE. Buffers average 50m (164ft) or more around wetland perimeter (7)  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)  NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)  VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)  2b. Intensity of surrounding land use. Select one or double check and average.  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  LOW. Old field (>10 years), shrubland, young second growth forest. (5)  MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)  HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
12	19	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.  High pH groundwater (5)  Other groundwater (3)  Precipitation (1)  Seasonal/Intermittent surface water (3)  Perennial surface water (lake or stream) (5)  3c. Maximum water depth. Select only one and assign score.  Semi- to permanently inundated/saturated (4)  Regularly inundated/saturated (3)  Seasonally inundated (2)  Seasonally inundated (2)  Seasonally saturated in upper 30cm (12in) (1)  Recovered (7)  Recovered (7)  Recovered (7)  Recovered (7)  Recovered (7)  Recovering (3)  Recent or no recovery (1)  About 100 year floodplain (1)  Between stream/lake and other human use (1)  Part of riparian or upland comidor (1)  Part of ripar
7.5	265	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.  None or none apparent (4)  Recovering (2)  Recent or no recovery (1)  4b. Habitat development. Select only one and assign score.  Excellent (7)  Very good (6)  Good (5)  Moderately good (4)  Fair (3)  Poor (1)  4c. Habitat alteration. Score one or double check and average.  None or none apparent (9)  Recovered (6)  Recovering (3)  Recovering (3)  Recent or no recovery (1)  Recent or no recovery (1)  Recent or no recovery (1)
	aubtotal this pag	selective cutting dredging woody debris removal farming toxic pollutants nutrient enrichment

WETZANDF

24.5					Date: 24, MMy 3
sublotal trits par					
0 24.5	1	ric 5. Special We	etlands		
max 10 pts. subtotal	<b>-4</b>	III that apply and score as indicated.			
That to pis.		Bog (10)			
		Fen (10)			
		Old growth forest (10)			
		Mature forested wetland (5)			
		Lake Erie coastal/tributary wetland	d-unrestricted hydrology	(10)	
	<u> </u>	Lake Erie coastal/tributary wetland			
	<u> </u>	Lake Plain Sand Prairies (Oak Op	enings) (10)		
	<u> </u>	Relict Wet Praires (10)		(40)	
	-	Known occurrence state/federal th	=		
	-	Significant migratory songbird/wat Category 1 Wetland. See Question	· ·		
	1 -	Category   Wetland. See Questic	on I Quantative Itating (-	10)	
2 28.5	Met	ric 6 Plant com	nunities, in	terspersion, micr	otopography
max 20 pts subtotal	4	lland Vegetation Communities.	Vegetation Commun	<del>-</del>	otopogiapily.
max zo pas subblan		I present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	171 acres) contiguous area
		Aquatic bed	1	Present and either comprises sm	
		Emergent		vegetation and is of moderate of	juality, or comprises a
	م <u>_</u>	Shrub		significant part but is of low qua	lity
	2	Forest	2	Present and either comprises sign	nificant part of wetland's
	<u> </u>	Mudflats		vegetation and is of moderate of	uality or comprises a small
	<u> </u>	Open water		part and is of high quality	
		Other	3	Present and comprises significan	•
	Select o	zontal (plan view) Interspersion.		vegetation and is of high quality	
	Selecto	High (5)	Narrative Descriptio	n of Vegetation Quality	
	F	Moderately high(4)	low	Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	cies
	'	Moderately low (2)	mod	Native spp are dominant compon	ent of the vegetation,
	$\times$	Low (1)		although nonnative and/or distu	rbance tolerant native spp
	L	None (0)		can also be present, and specie	
		erage of invasive plants. Refer		moderately high, but generallyy	√o presenœ of rare
		1 ORAM long form for list. Add	high	threatened or endangered spp  A predominance of native species	s with poppative con
	or deduc	ct points for coverage  Extensive >75% cover (-5)	ngn	and/or disturbance tolerant nati	• •
	<u> </u>	Moderate 25-75% cover (-3)		absent, and high spp diversity a	
	-1 🔀	Sparse 5-25% cover (-1)		the presence of rare, threatene	•
		Nearly absent <5% cover (0)			
		Absent (1)	Mudflat and Open W	later Class Quality	
		rotopography.	0	Absent <0.1ha (0.247 acres)	
	Score a	Il present using 0 to 3 scale.	11	Low 0.1 to <1ha (0.247 to 2.47 ac	
	0	Vegetated hummucks/tussucks	2 3	Moderate 1 to <4ha (2.47 to 9.88	s acres)
	<b> </b>	Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh	<u> </u>	High 4ha (9.88 acres) or more	
	-	Amphibian breeding goots	Microtonography Co	over Scale	
	٠		U	JAbseni	
			1	Present very small amounts or if	more common
				of marginal quality	
			2	Present in moderate amounts, bu	it not of highest
				quality or in small amounts of h	
-1			3	Present in moderate or greater a	mounts
rat 1			ğ	-	
catil				and of highest quality	

WETLAND 8

Site: 🛵	9-MOT.	0524/2-07	Rater(s): B. OFTO	M. THOMAYOR	Date: 24 MAY 2012
0		Metric 1. Wetland	Area (size)		, , ,
max 6 ρts.	sublotal	Select one size class and assign score.  >50 acres (>20.2ha) (6 pts)  25 to <50 acres (10.1 to <20.1  10 to <25 acres (4 to <10.1ha  3 to <10 acres (1.2 to <4ha) (  0.3 to <3 acres (0.12 to <1.2h  0.1 to <0.3 acres (0.04 to <0.1  <<0.1 acres (0.04ha) (0 pts)	2ha) (5 pts) ı) (4 pts) 3 pts) ıa) (2pts)		
7	7	Metric 2. Upland b	ouffers and su	ırrounding land ı	use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Se WIDE. Buffers average 50m MEDIUM. Buffers average 25 NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY LOW. 2nd growth or o LOW. Old field (>10 years), s	elect only one and assign scc (164ft) or more around wetland form to <50m (82 to <164ft) ar 10m to <25m (32ft to <82ft) around v erage <10m (<32ft) around v Select one or double check lider forest, prairie, savannate shrubland, young second groential, fenced pasture, park,	ore. Do not double check. and perimeter (7) ound wetland perimeter (4) around wetland perimeter (1) vetland perimeter (0) and average. a, wildlife area, etc. (7) owth forest. (5) conservation tillage, new fallow fiel	
10	17	Metric 3. Hydrolog	1\/		
max 30 pts.	subtotal	3a. Sources of Water. Score all that an High pH groundwater (5)  Other groundwater (3)  Precipitation (1)  Seasonal/Intermittent surface Perennial surface water (lake  3c. Maximum water depth. Select only  >0.7 (27.6in) (3)  0.4 to 0.7m (15.7 to 27.6in) (2) <ol> <li>&lt;0.4m (&lt;15.7in) (1)</li> </ol> <li>3e. Modifications to natural hydrologic recovered (7)  Recovered (7)  Recovering (3)  Recent or no recovery (1)</li>	water (3) or stream) (5) one and assign score.	Part of wetland/upland Part of riparian or upla 3d. Duration inundation/satural Semi- to permanently Regularly inundated/s Seasonally inundated Seasonally saturated e check and average.	and other human use (1) d (e.g. forest), complex (1) and comdor (1) lion. Score one or dbl check inundated/saturated (4) aturated (3) (2) in upper 30cm (12in) (1)
-1 /	215	]			
max 20 pts	subtotal	4a. Substrate disturbance. Score one of None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1)  4b. Habitat development. Select only of Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3)	or double check and average		
		4c. Habitat alteration. Score one or do	uble check and average.		
Si	24.5	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances ob mowing grazing clearcutting selective cutting woody debris remove toxic pollutants	shrub/sapling remova herbaceous/aquatic b sedimentation dredging	n

Site:	W-MOT	- 052412 - 07	Rater(s): B. orre	D. M. THOMAYER	Date: 24, May 2
	24.5	]			,
	subtotal this pa	ige <b>~1</b>			
C-0		Matric E Consist	Matlanda		
$\bigcirc$	24.5	<b>⊣</b>			
max 10 pts.	subtotal	Check all that apply and score as inc	dicated.		
		Bog (10)			
		Fen (10) Old growth forest (10)			
		Mature forested wetland (5	;)		
		· · · · · · · · · · · · · · · · · · ·	wetland-unrestricted hydrology	(10)	
		<del></del>	wetland-restricted hydrology (5)		
		Lake Plain Sand Prairies (0	Oak Openings) (10)		
		Relict Wet Praires (10)			
			deral threatened or endangered		
		* · · · ·	oird/water fowl habitat or usage	• •	
······································	т —	Category I Wetland. See	Question 1 Qualitative Rating (-	-10)	
3	27,5	Metric 6. Plant co	ommunities in	terenersion mic	rotonography
		6a. Wetland Vegetation Communitie		-	rotopograpity.
max 20 pts	subtotal	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0	2471 acres) contiguous area
		Aquatic bed	1	Present and either comprises s	
		∠ Emergent		vegetation and is of moderate	
		2 Shrub		significant part but is of low q	uality
		Forest	2	Present and either comprises s	significant part of wetland's
		Mudflats		=	e quality or comprises a small
		Open water		part and is of high quality	
		OtherOther	3	Present and comprises signification and is of high aug	•
		6b. horizontal (plan view) Interspersi Select only one.	10(1.	vegetation and is of high qua	nty
		High (5)	Narrative Description	on of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predo	minance of nonnative or
		Moderate (3)	***************************************	disturbance tolerant native sp	pecies
		Moderately low (2)	mod	Native spp are dominant comp	- · · · · · · · · · · · · · · · · · · ·
		Low (1)		although nonnative and/or dis	•••
		None (0)	f==	can also be present, and spe	•
		6c. Coverage of invasive plants. Re to Table 1 ORAM long form for list. A		moderately high, but generall threatened or endangered sp	•
		or deduct points for coverage	high	A predominance of native spec	I
		Extensive >75% cover (-5)	•	and/or disturbance tolerant n	• • •
		Moderate 25-75% cover (-3	3)	absent, and high spp diversit	y and often, but not always,
		Sparse 5-25% cover (-1)		the presence of rare, threater	ned, or endangered spp
		Nearly absent <5% cover (	·		
		Absent (1)	Mudflat and Open V		
		6d. Microtopography.  Score all present using 0 to 3 scale.	0	Absent <0.1ha (0.247 acres)	acroc)
		Vegetated hummucks/tuss		Low 0.1 to <1ha (0.247 to 2.47 Moderate 1 to <4ha (2.47 to 9.	
		Coarse woody debris >15c	~	High 4ha (9.88 acres) or more	.00 40103)
		Standing dead >25cm (10in		1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		Amphibian bearding posts	*Floratanagraphy C	awar Canta	
			0	Absent	
			1	Present very small amounts or	if more common
			M-M-M-M-M-M-M-M-M-M-M-M-M-M-M-M-M-M-M-	of marginal quality	
			2	Present in moderate amounts,	•
			3	quality or in small amounts o  Present in moderate or greater	
			J	and of highest quality	amounto
	-			3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	

27.5 GRAND TOTAL(max 100 pts)

W-Ndf 6/5/2012-1

Site:	AEP	BUSANDY	Rater(s): M. THom ruge	a BOTTO	Date: 06/05/12
0	0	Metric 1. Wetland A	•		•
max 6 pts.	subtotal	Select one size class and assign sco >50 acres (>20.2ha) (6 pts 25 to <50 acres (10.1 to < 10 to <25 acres (4 to <10. 3 to <10 acres (1.2 to <4h. 0.3 to <3 acres (0.12 to <10. 0.1 to <0.3 acres (0.04 to <0.1 acres (0.04 to <0.1 acres (0.04 to ))	s) 20.2ha) (5 pts) 1ha) (4 pts) a) (3 pts) .2ha) (2pts) <0.12ha) (1 pt) )		
3	3	Metric 2. Upland bu	uffers and surroundi	ng land use	=
max 14 pts.		WIDE. Buffers average 50 MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers 2b. Intensity of surrounding land use VERY LOW. 2nd growth of LOW. Old field (>10 years MODERATELY HIGH. Re	Select only one and assign score. Dom (164ft) or more around wetland per e 25m to <50m (82 to <164ft) around we ge 10m to <25m (32ft to <82ft) around wetland average <10m (<32ft) around wetland e. Select one or double check and avor older forest, prairie, savannah, wildlies), shrub land, young second growth for esidential, fenced pasture, park, conseppen pasture, row cropping, mining, content of the content	rimeter (7) wetland perimeter (4) d wetland perimeter (1 d perimeter (0) perage. ife area, etc. (7) perst. (5) proverst. (5)	
8	11	Metric 3. Hydrology	<b>y.</b>		
max 30 pts.		None or none apparent (1	ace water (3) ake or stream) (5) only one and assign score. a) (2) gic regime. Score one or double check 2) Check all disturbances observed	Part of wetland/ Part of riparian Duration inundation/sa Semi- to perma Regularly inund Seasonally inur Seasonally satu k and average.	plain (1)  n/lake and other human use (1)  /upland (e.g. forest), complex (1)  or upland corridor (1)  aturation. Score one or dbl check nently inundated/saturated (4)  lated/saturated (3)  idated (2)  urated in upper 30cm (12in) (1)
	_	Recovered (7) Recovering (3) Recent or no recovery (1)	ditch tile dike weir stormwater input	point source (no filling/grading road bed/RR tradredging other	
6	17	Metric 4. Habitat A	Iteration and Develo	pment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score o  None or none apparent (4  Recovered (3)  Recovering (2)  Recent or no recovery (1)  4b. Habitat development. Select or  Excellent (7)  Very good (6)  Good (5)  Moderately good (4)  Fair (3)  Poor to fair (2)  Poor (1)	)		
		4c. Habitat alteration. Score one or None or none apparent (9			
	subtotal this p	Recovered (6)  Recovering (3)  Recent or no recovery (1)	mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling reherbaceous/aquesedimentation dredging farming nutrient enrichn	uatic bed removal

ORAM v. 5.0 Field Form Quantitative Rating

10-moff6/5/12-1

Site:	Rater(	s):	Date:			
subtotal first pa	     	ds.				
max 10 pts. subtotal	Check all that apply and score as indicated.  Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Erie coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Prairies (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10)					
7 24			erspersion, microtopography.			
max 20 pts. subtótal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale			
	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area			
	Aquatic bed	1	Present and either comprises small part of wetland's			
	3 Emergent		vegetation and is of moderate quality, or comprises a			
	// Shrub		significant part but is of low quality			
	Forest	2	Present and either comprises significant part of wetland's			
	Mudflats		vegetation and is of moderate quality or comprises a small			
	Open water		part and is of high quality			
	Other	3	Present and comprises significant part, or more, of wetland's			
	6b. horizontal (plan view) Interspersion.		vegetation and is of high quality			
	Select only one.					
	High (5)	Marrativo D	escription of Vegetation Quality			
	` ` ·	low	Low spp diversity and/or predominance of nonnative or			
	Moderately high(4)	iow				
	Moderate (3)		disturbance tolerant native species			
	Moderately low (2)	mod	Native spp are dominant component of the vegetation,			
	/ × Low (1)		although nonnative and/or disturbance tolerant native spp			
	None (0)		can also be present, and species diversity moderate to			
	6c. Coverage of invasive plants. Refer		moderately high, but generally w/o presence of rare			
	to Table 1 ORAM long form for list. Add		threatened or endangered spp			
	or deduct points for coverage	high	A predominance of native species, with nonnative spp	_		
	Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtually			
	Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not always,			
	Sparse 5-25% cover (-1)		the presence of rare, threatened, or endangered spp			
			<u> </u>			
	Absent (1)	Mudflat and	d Open Water Class Quality			
	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)			
	Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)			
	/ Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)			
	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more			
	2 Standing dead >25cm (10in) dbh		Trigit tria (0.00 deles) of more			
	/ Amphibian breeding pools	Microtonos	raphy Cover Scale			
	Amphibian breeding pools		Absent			
		<u>0</u> 1				
		ı	Present very small amounts or if more common of marginal quality			
		2	Present in moderate amounts, but not of highest			
		2				
			quality or in small amounts of highest quality			
/	The same	3	Present in moderate or greater amounts			
	, terory		and of highest quality			

24 Contegory 1

Site:	WETTHAND 10  Form Quantitative Rating	Rater(s):	ω-pr 6/7/12-/ Date:
oite.		itater(3).	Date.
00	Metric 1. Wetland A	rea (size).	
max 6 pts. subto	Select one size class and assign score >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20 10 to <25 acres (4 to <10.1h 3 to <10 acres (1.2 to <4ha) 0.3 to <3 acres (0.12 to <1.2 0.1 to <0.3 acres (0.04 to <0 <0.1 acres (0.04ha) (0 pts)	0.2ha) (5 pts) na) (4 pts) (3 pts) tha) (2pts)	
1 /	Metric 2. Upland but	ffers and surroundi	ng land use.
max 14 pts. subto	WIDE. Buffers average 50m MEDIUM. Buffers average 2 NARROW. Buffers average VERY NARROW. Buffers a 2b. Intensity of surrounding land use. VERY LOW. 2nd growth or LOW. Old field (>10 years), MODERATELY HIGH. Resi HIGH. Urban, industrial, op	n (164ft) or more around wetland pe 25m to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) around verage <10m (<32ft) around wetland Select one or double check and avolder forest, prairie, savannah, wildlight shrub land, young second growth fidential, fenced pasture, park, conse en pasture, row cropping, mining, co	rimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) verage. life area, etc. (7) orest. (5) ervation tillage, new fallow field. (3)
16 1	Metric 3. Hydrology.	•	
max 30 pts. subto	High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lak 3c. Maximum water depth. Select onl >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (1) 3e. Modifications to natural hydrologic None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	ce water (3) e or stream) (5) y one and assign score.  (2) c regime. Score one or double chect of the ditch tile dike weir stormwater input	point source (nonstormwater)  filling/grading  road bed/RR track  dredging other
7 29	Metric 4. Habitat Alt	eration and Develo	pment.
max 20 pts. subto	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1)  4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)  4c. Habitat alteration. Score one or development.	one and assign score.	
29 subtotal fi	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed    March   March	shrub/sapling removal herbaceous/aquatic bed removal sedimentation dredging farming nutrient enrichment

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Category ]

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

with the substance of t

NARROW. Buffers average 20m to <25m (32ft to <82ft) around wetland perimeter (4)

NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)

VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

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

VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)

LOW. Old field (>10 years), shrub land, young second growth forest. (5)

MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)

HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

Sources of Water. Score all that apply. 3b. Connectivity. Score all that apply. За. High pH groundwater (5) 100 year floodplain (1) Between stream/lake and other human use (1) Other groundwater (3) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check. Maximum water depth. Select only one and assign score. 3c. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) Regularly inundated/saturated (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Seasonally inundated (2) <0.4m (<15.7in) (1) × Seasonally saturated in upper 30cm (12in) (1) 3e. Modifications to natural hydrologic regime. Score one or double check and average. Check all disturbances observed None or none apparent (12) Recovered (7) ✓ ditch point source (nonstormwater)

7 22 ax 20 pts. subtotal 4

## Metric 4. Habitat Alteration and Development.

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

None or none apparent (4)

None or none apparent (4)

× Recovering (2)

Recovering (2)
Recent or no recovery (1)

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

Excellent (7)
Very good (6)
Good (5)

Moderately good (4)

Fair (3)
Poor to fair (2)

Poor (1)
4c. Habitat alteration. Score one or double check and average.

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

<u>iec</u> k all disturbances observed		_
mowing		shrub/sapling removal
grazing		herbaceous/aquatic bed removal
clearcutting	X	sedimentation
selective cutting	K	dredging
woody debris removal		farming
toxic pollutants		nutrient enrichment
	mowing grazing clearcutting selective cutting woody debris removal	mowing grazing clearcutting selective cutting woody debris removal

22 subtotal this page

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ORAM v. 5.0 Field Form Quantitative Rating

w-pr 6/7/12-2

Site:		Rater(	s):		Date:
SU	ZZ btotal first pa	1			
0	22	Metric 5. Special Wetland	ds.		
max 10 pts.	subtotal	Check all that apply and score as indicated.  Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-re Lake Erie coastal/tributary wetland-re Lake Plain Sand Prairies (Oak Openi Relict Wet Prairies (10) Known occurrence state/federal threa Significant migratory songbird/water in Category 1 Wetland. See Question 1	estricted hydrol ngs) (10) atened or enda fowl habitat or I Qualitative Ra	ogy (5) Ingered species (10) Usage (10) ating (-10)	
/	23	Metric 6. Plant communi	ties, inte	erspersion, microto	pography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	171 acres) contiguous area
		Aquatic bed	1	Present and either comprises sma	all part of wetland's
		2 Emergent		vegetation and is of moderate q	- · · · · · · · · · · · · · · · · · · ·
		Shrub		significant part but is of low qua	
		Forest	2	Present and either comprises sign	
		<sup>2</sup> Mudflats		vegetation and is of moderate q	uality or comprises a small
		Open water		part and is of high quality	
		Other	3	Present and comprises significant	part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
		Select only one.  High (5)	Narrative Do	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomin	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	ies
		Moderately low (2)	mod	Native spp are dominant component	ent of the vegetation,
		o Low (1)		although nonnative and/or distu	rbance tolerant native spp
		✓ None (0)		can also be present, and specie	s diversity moderate to
		6c. Coverage of invasive plants. Refer		moderately high, but generally v	v/o presence of rare
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	s, with nonnative spp
		Extensive >75% cover (-5)		and/or disturbance tolerant nativ	ve spp absent or virtually
		✓ Moderate 25-75% cover (-3)		absent, and high spp diversity a	ind often, but not always,
		-3 Sparse 5-25% cover (-1)		the presence of rare, threatened	• .
		Nearly absent <5% cover (0)			
		Absent (1)	Mudflat and	Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	eres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		(6in)	3	High 4ha (9.88 acres) or more	
		2 © Standing dead >25cm (10in) dbh			
		Amphibian breeding pools	Microtopoa	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if r	more common
			·	of marginal quality	
			2	Present in moderate amounts, bu	t not of highest
		,	_	quality or in small amounts of hi	=
	1.4	907 1	3	Present in moderate or greater ar	
	Car,	J ノ Ł	S	and of highest quality	nounta

	WETZAND 2		
ORAM v. 5.0 Field F	orm Quantitative Rating		W-pr 6/7/12-3
Site:		Rater(s):	Date:
00	Metric 1. Wetland Ar	rea (size).	
max 6 pts. subtotal	Select one size class and assign score	.2ha) (5 pts) a) (4 pts) (3 pts) ha) (2pts) .12ha) (1 pt)	
3 3	Metric 2. Upland but	fers and surroundi	ng land use.
max 14 pts. subtotal	MEDIUM. Buffers average 2 NARROW. Buffers average 2 VERY NARROW. Buffers average 2  2b. Intensity of surrounding land use. VERY LOW. 2nd growth or LOW. Old field (>10 years), MODERATELY HIGH. Resi	n (164ft) or more around wetland per 25m to <50m (82 to <164ft) around v 10m to <25m (32ft to <82ft) around verage <10m (<32ft) around wetland	rimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) verage. ife area, etc. (7) prest. (5) vervation tillage, new fallow field. (3)
10 13	Metric 3. Hydrology.		
max 30 pts. subtotal	Recovered (7) Recovering (3) Recent or no recovery (1)	e water (3) e or stream) (5) 3d. y one and assign score.  (2)  regime. Score one or double chec  Check all disturbances observed  ditch tile dike weir stormwater input	point source (nonstormwater)  filling/grading road bed/RR track  dredging other
7 20	Metric 4. Habitat Alt	eration and Develo	pment.
max 20 pts. subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1)  4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)  4c. Habitat alteration. Score one or development.	one and assign score.	π
20	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed  mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling removal herbaceous/aquatic bed removal sedimentation dredging farming nutrient enrichment

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Category

of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts

and of highest quality

grazing

clearcutting

selective cutting

toxic pollutants

woody debris removal

herbaceous/aquatic bed removal

sedimentation

nutrient enrichment

dredging

farming

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subtotal this page

Recovering (3)

Recent or no recovery (1)

wpr6/7/12-4

Site:	F	Rater(s):		Date:
subtotal first page				
0 25 M	etric 5. Special We	etlands.		
	ck all that apply and score as indice Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetlake Erie coastal/tributary wetlake Plain Sand Prairies (Ook Relict Wet Prairies (10) Known occurrence state/fed Significant migratory songbi	vetland-unrestricted hydrological vetland-restricted hydrological (10) are all threatened or endal or divater fowl habitat or the strict of th	ngered species (10) usage (10) ating (-10)	
4 29 Me	etric 6. Plant com	munities, inte	erspersion, microto	pography.
max 20 pts. subtotal 6a.	Wetland Vegetation Communities	. Vegetation 0	Community Cover Scale	
Scor	e all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	71 acres) contiguous area
	Aquatic bed	1	Present and either comprises sma	
	2 Emergent		vegetation and is of moderate qu	uality, or comprises a
	Shrub		significant part but is of low quali	ity
	Forest	2	Present and either comprises sign	
2	Mudflats		vegetation and is of moderate qu	
ľ	Open water		part and is of high quality	and a simple section.
	Other	3	Present and comprises significant	part or more of wetland's
6h	horizontal (plan view) Interspersio	•	vegetation and is of high quality	part, or more, or wettand's
		(I.	vegetation and is of high quality	
Sele	ct only one.	Manus Cara Da		
	High (5)	***************************************	escription of Vegetation Quality	
	Moderately high(4)	low	Low spp diversity and/or predomin	
	Moderate (3)	***	disturbance tolerant native speci	
	Moderately low (2)	mod	Native spp are dominant compone	ent of the vegetation,
Ð	Low (1)		although nonnative and/or distur	bance tolerant native spp
			can also be present, and species	s diversity moderate to
6c.	Coverage of invasive plants. Refe	er	moderately high, but generally w	//o presence of rare
to Ta	able 1 ORAM long form for list. A	dd	threatened or endangered spp	
or de	educt points for coverage	high	A predominance of native species	, with nonnative spp
	Extensive >75% cover (-5)		and/or disturbance tolerant nativ	e spp absent or virtually
	Moderate 25-75% cover (-3)	)	absent, and high spp diversity ar	nd often, but not always.
, 1	× Sparse 5-25% cover (-1)		the presence of rare, threatened	
-1	Nearly absent <5% cover (0	)		,
	Absent (1)		Open Water Class Quality	
6d	Microtopography.	0	Absent <0.1ha (0.247 acres)	
	e all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acr	res)
1	/ Vegetated hummucks/tussu		Moderate 1 to <4ha (2.47 to 9.88	
	O Coarse woody debris >15cn		High 4ha (9.88 acres) or more	acres)
3	O Standing dead >25cm (10in		Trigit 4112 (0.00 acres) of more	Windle Committee of the
´	2 Amphibian breeding pools		raphy Cover Scale	
1		0	Absent	
		0	Present very small amounts or if m	nore common
		ı	of marginal quality	IOLE COLLINOLE
				and of high and
		2	Present in moderate amounts, but	
			quality or in small amounts of hig	
~ /~	2019 7	3	Present in moderate or greater am	nounts
2a Cate	<b>アノ ノ</b>		and of highest quality	

 ${\bf End\ of\ Quantitative\ Rating.\ \ Complete\ Categorization\ Worksheets.}$ 

1	)	Metric 1. Wetland Area (size).	
max 6 pts.	subtotal	Select one size class and assign score.    >50 acres (>20.2ha) (6 pts)   25 to <50 acres (10.1 to <20.2ha) (5 pts)   10 to <25 acres (4 to <10.1ha) (4 pts)   3 to <10 acres (1.2 to <4ha) (3 pts)   0.3 to <3 acres (0.12 to <1.2ha) (2pts)   >	, 'A . ₹
7	4	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check.  WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)  NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)  VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)	
		2b. Intensity of surrounding land use. Select one or double check and average.  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  LOW. Old field (>10 years), shrubland, young second growth forest. (5)  MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)  HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	
17	25	Metric 3. Hydrology.	
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply.  High pH groundwater (5)  Other groundwater (3)  Precipitation (1)  Seasonal/Intermittent surface water (3)  Perennial surface water (lake or stream) (5)  3d. Duration inundation/saturation. Score one or double check and average.  None or none apparent (12)  Check all disturbances observed  100 year floodplain (1)  Between stream/lake and other human use ( Part of wetland/upland (e.g. forest), complex Part of riparian or upland corridor (1)  Seasonal/Intermittent surface water (3)  Part of riparian or upland corridor (1)  Semi- to permanently inundated/saturated (4)  Regularly inundated/saturated (3)  Seasonally saturated in upper 30cm (12in) (1)  Check all disturbances observed	check.
		Recovered (7) Recovering (3) Recent or no recovery (1)  Recovering (3) Recovering (4) Recovering (4) Recovering (5) Recovering (5) Recovering (6) Recovering (6) Recovering (7) Recovering (7) Recovering (7) Recovering (8) Reco	
13	.38	Metric 4. Habitat Alteration and Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average.  None or none apparent (4)  Recovered (3)  Recovering (2)  Recent or no recovery (1)  4b. Habitat development. Select only one and assign score.  Excellent (7)  Very good (6)  Good (5)  Moderately good (4)  Fair (3)  Poor to fair (2)  Poor (1)  4c. Habitat alteration. Score one or double check and average.	
_	·	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)  Check all disturbances observed mowing grazing herbaceous/aquatic bed removal sedimentation	

selective cutting dredging --farming woody debris removal toxic pollutants nutrient enrichment

Site: A-	P BIG	SANOY	Rater(s): B. Oriz	M. THOMAYOR	Date: 10/15/12
max 10 pts.	3% ubtotal this page 3% subtotal	Metric 5. Special V Check all that apply and score as indica Bog (10) Fen (10)			
q	47	Old growth forest (10)  Mature forested wetland (5)  Lake Erie coastal/tributary we  Lake Erie coastal/tributary we  Lake Plain Sand Prairies (Oal  Relict Wet Praires (10)  Known occurrence state/feder  Significant migratory songbird  Category 1 Wetland. See Qu	tland-restricted hydrology (5) c Openings) (10) ral threatened or endangered //water fowl habitat or usage estion 1 Qualitative Rating (-	d species (10) (10) 10)	otopography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation Commun	•	
max 20 pts.	Subtotal	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	471 acres) contiguous area
		Aquatic bed  3 Emergent	1	Present and either comprises sm vegetation and is of moderate of	all part of wetland's
		Shrub		significant part but is of low qua	
		Forest	2	Present and either comprises sig	nificant part of wetland's
		Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water		part and is of high quality	
		Other	3	Present and comprises significan	t part, or more, of wetland's
		6b. horizontal (plan view) Interspersion		vegetation and is of high quality	,
		Select only one.			
		High (5)	Narrative Description	n of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predom	inance of nonnative or
		· · · · · · · · · · · · · · · · · · ·	IOW		
		Moderate (3)		disturbance tolerant native spe	
		Widderatery low (2)	mod	Native spp are dominant compon	-
		Low (1)		although nonnative and/or distu	
		None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally	v/o presence of rare
		to Table 1 ORAM long form for list. Add	***************************************	threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native specie	• •
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	ve spp absent or virtually
		Moderate 25-75% cover (-3)		absent, and high spp diversity	and often, but not always,
		∠ Sparse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
		` Nearly absent <5% cover (0)			
		Absent (1)	Mudflat and Open W	Vater Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	cres)
		Vegetated hummucks/tussuck	(S 2	Moderate 1 to <4ha (2.47 to 9.88	,
		Coarse woody debris >15cm		High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) of	` ' ———————————————————————————————————		
		/ Amphibian breeding pools	Microtopography Co	over Scale	
		, anymolan processing pools	0	Absent	
			1	Present very small amounts or if	more common
			ı		more common
				of marginal quality	
X n			2	Present in moderate amounts, bu	_
12				quality or in small amounts of h	
', "			3	Present in moderate or greater a	mounts
				and of highest quality	

111

H쿠 GRAND TOTAL(max 100 pts)

toxic pollutants

nutrient enrichment

Site: 🏄	EP BK	SANDY	/ F	Rater(s): אוניסוד	, M. THOMAYER	Date: 10/15/12
s	24.5					
0	24.5	<b> Metric</b>	5. Special Wo	etlands.		
max 10 pts.	subtotal	Check all tha Bo Fe OI Ma La La Re Kn	at apply and score as indicated by (10) on (10) d growth forest (10) ature forested wetland (5) ke Erie coastal/tributary wetland ke Erie coastal/tributary wetland ke Plain Sand Prairies (Oak Opelict Wet Praires (10) bown occurrence state/federal tognificant migratory songbird/wategory 1 Wetland. See Questi	d-unrestricted hydrology d-restricted hydrology (5 penings) (10) hreatened or endangered ter fowl habitat or usage	d species (10) (10)	
13	21.5	Metric	6. Plant com	munities, in	terspersion, micr	otopography.
max 20 pts.	subtotal	6a. Wetland	Vegetation Communities.	Vegetation Commun	nity Cover Scale	
		Score all pre	sent using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2-	471 acres) contiguous area
		<b>∠</b> En	juatic bed nergent irub	1	Present and either comprises sm vegetation and is of moderate of significant part but is of low qua	juality, or comprises a
		l Fo	rest	2	Present and either comprises sig	nificant part of wetland's
		Mu	udflats		vegetation and is of moderate of	quality or comprises a small
		L Or	en water		part and is of high quality	
		1	her	3	Present and comprises significan	•
			al (plan view) Interspersion.		vegetation and is of high quality	/
		Select only o	one. gh (5)	Narrative Description	on of Vegetation Quality	
			oderately high(4)	low	Low spp diversity and/or predomi	nance of nonnative or
		М	oderate (3)		disturbance tolerant native spec	
		67	oderately low (2)	mod	Native spp are dominant compon	
			w (1)		although nonnative and/or distu	rbance tolerant native spp
		∑No	ne (0)		can also be present, and specie	es diversity moderate to
		6c. Coverag	e of invasive plants. Refer		moderately high, but generallyv	v/o presence of rare
		to Table 1 O	RAM long form for list. Add	***************************************	threatened or endangered spp	
		h	ints for coverage	high	A predominance of native species	s, with nonnative spp
		. —	tensive >75% cover (-5)	•	and/or disturbance tolerant nati	,,
		, )	oderate 25-75% cover (-3)		absent, and high spp diversity a	• •
		— <b>⊢</b>	arse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
		-	early absent <5% cover (0)	Modflet and Ones 18	Vatar Class Cualify	
		6d. Microtop	sent (1)	Mudflat and Open W		
			sent using 0 to 3 scale.	1	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	orge)
			getated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
			parse woody debris >15cm (6in		High 4ha (9.88 acres) or more	acies)
			anding dead >25cm (10in) dbh	,	Trigit 4ta (0.00 deleg) of their	· · · · · · · · · · · · · · · · · · ·
			nphibian breeding pools	Microtopography Co	over Scale	
		———· "'	, President	0	Absent	
				1	Present very small amounts or if	more common
					of marginal quality	
- A -				2	Present in moderate amounts, bu	t not of highest
1 V					quality or in small amounts of h	
1.7				3	Present in moderate or greater a	mounts
					and of highest quality	

QL5 GRAND TOTAL(max 100 pts)

WETCH	FND IU.	· ·	•
ORAM v. 5.0 Field Form Quantitative Rating			W-MDT 101512-03 Date: 10/15/12
Site: AtP BUYSANDY	Rater(s): B ono	M. THOMANER	Date: 10/15/13
Metric 1. Wetland A		11/10/11/20	
max 6 pts. subtotal Select one size class and assign scor			
25 to <50 acres (10.1 to <2) 10 to <25 acres (4 to <10.1)			
3 to <10 acres (1.2 to <4ha	(3 pts)		
0.3 to <3 acres (0.12 to <1 0.1 to <0.3 acres (0.04 to <			
V < 0.1 acres (0.04ha) (0 pts) Metric 2. Upland bu	ffore and surro	unding land	luso
<u> </u>		-	
WIDE. Buffers average 50r	m (164ft) or more around we	tland perimeter (7)	
Ψ	e 10m to <25m (32ft to <82f	t) around wetland peri	meter (1)
VERY NARROW. Buffers a 2b. Intensity of surrounding land use.			)
VERY LOW. 2nd growth or LOW. Old field (>10 years)			.7)
MODERATELY HIGH. Res			
Metric 3. Hydrology			,
11 18		01 0 0 0 0	
max 30 pts. subfotal 3a. Sources of Water. Score all that High pH groundwater (5)	арріу.	100 yea	Score all that apply. ar floodplain (1)
Other groundwater (3)  / Precipitation (1)			n stream/lake and other human use (1) wetland/upland (e.g. forest), complex (1)
Seasonal/Intermittent surfaction Perennial surface water (lake	, ,		riparian or upland corridor (1) dation/saturation. Score one or dbl check.
3c. Maximum water depth. Select on >0.7 (27.6in) (3)		Semi- to	o permanently inundated/saturated (4) rly inundated/saturated (3)
0.4 to 0.7m (15.7 to 27.6in)	(2)	Season	nally inundated (2) nally saturated in upper 30cm (12in) (1)
3e. Modifications to natural hydrologi	c regime. Score one or dou		
None or none apparent (12 Recovered (7)	Check all disturbances of ditch		ource (nonstormwater)
Recovering (3) Recent or no recovery (1)	tíle dike	filling/gr	
	weir	dredgin	· •
	stormwater input	other	
10.5 28.5 Metric 4. Habitat Al	teration and De	evelopment.	
max 20 pts. subtotal 4a. Substrate disturbance. Score on None or none apparent (4)	e or double check and avera	age.	
Recovered (3) Recovering (2)			
Recent or no recovery (1)			
4b. Habitat development. Select only Excellent (7)	one and assign score.		
Very good (6) Good (5)			
Moderately good (4)  ✓ Fair (3)			
Poor to fair (2)			
L] Poor (1) 4c. Habitat alteration. Score one or o	double check and average.		
None or none apparent (9) Recovered (6)	Check all disturbances of mowing		apling removal
Recovered (6) Recovering (3) Recent or no recovery (1)	grazing  clearcutting		eous/aquatic bed removal
	selective cutting	dredgin	ng
28.5	woody debris remo toxic pollutants		t enrichment
subtotal this page last revised 1 February 2001 jjm			

WETLAND Ke

Site: AEP BH SANDY	Rater(s): B. Olio	M. THOWAYER	Date: 10/15/12
subtotal first page  O 29.5  Metric 5. Special V  max 10 pts. subtotal Check all that apply and score as inc.  Bog (10)			
Lake Erie coastal/tributary Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state/f Significant migratory song Category 1 Wetland. See	wetland-unrestricted hydrology wetland-restricted hydrology wetland-restricted hydrology (Oak Openings) (10)  ederal threatened or endange in the properties of the properties	ogy (5) ngered species (10) usage (10) uting (-10)	
4 32.5 Metric 6. Plant con			pograpny.
max 20 pts. subtotal 6a, Wetland Vegetation Communitie		Community Cover Scale	374
Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	
Aquatic bed	1	Present and either comprises small	
Emergent		vegetation and is of moderate of	
$\frac{\mathcal{L}}{2}$ Shrub		significant part but is of low qua	
Forest	2	Present and either comprises sign	nificant part of wetland's
Mudflats		vegetation and is of moderate of	uality or comprises a small
Open water		part and is of high quality	
Other	3	Present and comprises significan	part, or more, of wetland's
6b. horizontal (plan view) Interspers	***************************************	vegetation and is of high quality	
	3011.	vegetation and to or riight quality	
Select only one.			
High (5)	Narrative De	escription of Vegetation Quality	
Moderately high(4)	low	Low spp diversity and/or predomi	
Moderate (3)		disturbance tolerant native spec	cies
, Moderately low (2)	mod	Native spp are dominant compon	ent of the vegetation.
Low (1)		although nonnative and/or distu	
None (0)		can also be present, and specie	
1	afa	1	•
6c. Coverage of invasive plants. R		moderately high, but generally with restaured an angle state of the st	wo presence or rare
to Table 1 ORAM long form for list.		threatened or endangered spp	
or deduct points for coverage	high	A predominance of native species	* *
Extensive >75% cover (-5	5)	and/or disturbance tolerant nati	ve spp absent or virtually
Moderate 25-75% cover (	-3)	absent, and high spp diversity a	and often, but not always,
Sparse 5-25% cover (-1)		the presence of rare, threatened	d, or endangered spp
Nearly absent <5% cover	(0)		
Absent (1)		Open Water Class Quality	
6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
Score all present using 0 to 3 scale.		Low 0.1 to <1ha (0.247 to 2.47 ac	cree)
		Moderate 1 to <4ha (2.47 to 9.88	
Vegetated hummucks/tus	****		acres
Coarse woody debris >15		High 4ha (9.88 acres) or more	
Standing dead >25cm (10			
Amphibian breeding pools	Microtopogi	raphy Cover Scale	
	0	Absent	
	1	Present very small amounts or if	more common
	•	of marginal quality	-
	2	Present in moderate amounts, bu	t not of highest
H 2	2		
11.0		quality or in small amounts of h	
	3	Present in moderate or greater a	nounts
		and of highest quality	

	form Quantitative Rating   WEIVA		W-MOT-101512-04
Site: AEP BU	i SANDY	Rater(s): B.OTTO, M. THOM BYER	Date: /0//5//2
2 2	Metric 1. Wetland	Area (size).	
max 6 pts. subtotal	Select one size class and assign so >50 acres (>20.2ha) (6 p 25 to <50 acres (10.1 to 10 to <25 acres (4 to <10 3 to <10 acres (1.2 to <41 0.3 to <3 acres (0.12 to <0.1 to <0.3 acres (0.04 to <0.1 acres (0.04ha) (0 pt	ts) <20.2ha) (5 pts) .1ha) (4 pts) ha) (3 pts) 1.2ha) (2pts) <0.12ha) (1 pt) s)	
7 9	Metric 2. Upland b	uffers and surrounding land	d use.
max 14 pts. subtotal	WIDE. Buffers average 5 MEDIUM. Buffers average 5 NARROW. Buffers average 5 VERY NARROW. Buffer	Select only one and assign score. Do not double 50m (164ft) or more around wetland perimeter (7) ge 25m to <50m (82 to <164ft) around wetland perinage 10m to <25m (32ft to <82ft) around wetland perins average <10m (<32ft) around wetland perimeter (6 se. Select one or double check and average.	neter (4) rimeter (1)
<b></b>	VERY LOW. 2nd growth LOW. Old field (>10 year MODERATELY HIGH. R HIGH. Urban, industrial,	or older forest, prairie, savannah, wildlife area, etc. rs), shrub land, young second growth forest. (5) lesidential, fenced pasture, park, conservation tillagopen pasture, row cropping, mining, construction. (	e, new fallow field. (3)
# 23	Metric 3. Hydrolog	y.	
max 30 pts. subtotal	3a. Sources of Water. Score all the High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent sur Perennial surface water (3c. Maximum water depth. Select >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (3) Addifications to natural hydrological surface water (15.7in) (1)  3e. Modifications to natural hydrological surface water (15.7in) (1)	face water (3)  lake or stream) (5)  only one and assign score.  1 00 ye Betwe Part of  A Duration inur Semi- Regula Regula Seaso	Score all that apply.  Per floodplain (1)  Pen stream/lake and other human use (1)  Wetland/upland (e.g. forest), complex (1)  Friparian or upland corridor (1)  Indation/saturation. Score one or dbl check.  To permanently inundated/saturated (4)  Per finally inundated (2)  Per finally saturated in upper 30cm (12in) (1)
	None or none apparent (** Recovered (7) Recovering (3) Recent or no recovery (1)	Check all disturbances observed ditch younger filling/g tile dike weir stormwater input point s filling/g tredgi	ource (nonstormwater) grading ed/RR track ng
13 36	Metric 4. Habitat A	Iteration and Development.	
max 20 pts. subtotal	4a. Substrate disturbance. Score of None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1)  4b. Habitat development. Select of Excellent (7) Very good (6)	<b>4</b> ) )	
	Good (5)  Moderately good (4)  Fair (3)  Poor to fair (2)  Poor (1)  4c. Habitat alteration. Score one of the content of the c	Check all disturbances observed	sapling removal
3( <sub>e</sub> subtotal this pa last revised 1 Februa	Recovering (3) Recent or no recovery (1)	grazing herbac  clearcutting sedim  selective cutting dredgi woody debris removal farmin	ceous/aquatic bed removal entation ng

Site:	AEP B	SH SAN	Rate	r(s): <i>B</i> 4	O, MOT	Date: /0/15/12
0	34 subtotal first p	નં	ic 5. Special Wetla	nds.		
		]				
max 10 pts.	subtotal	Check a	It that apply and score as indicated.  Bog (10)  Fen (10)  Old growth forest (10)  Mature forested wetland (5)  Lake Erie coastal/tributary wetland  Lake Erie coastal/tributary wetland  Lake Plain Sand Prairies (Oak Ope  Relict Wet Prairies (10)  Known occurrence state/federal th	l-restricted hydro enings) (10)	ology (5)	
			Significant migratory songbird/wate			
			Category 1 Wetland. See Questio	n 1 Qualitative R	lating (-10)	
10	46	Metr	ic 6. Plant commur	nities, int	erspersion, microt	opography.
max 20 pts.	subtotal	ີ່ 6a. Wet	land Vegetation Communities.	Vegetation	Community Cover Scale	
		Score al	present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
			Aquatic bed	1	Present and either comprises sm	
		<u> </u>	Emergent		vegetation and is of moderate	•
		6 3	Shrub		significant part but is of low qua	
		P 2	Forest	2	Present and either comprises sig	-
		<u></u>	Mudflats		vegetation and is of moderate	quality or comprises a small
			Open water		part and is of high quality	
		a. L.	Other	3	Present and comprises significan	
			zontal (plan view) Interspersion.		vegetation and is of high qualit	у
		Select or	eq <sup></sup>	Normative D	escription of Vegetation Quality	
			High (5) Moderately high(4)			inance of populative or
		2 =	Moderately high(4) Moderate (3)	low	Low spp diversity and/or predom disturbance tolerant native spe	
		3 🔀	Moderate (3)	mod	Native spp are dominant compor	
			Low (1)	mou	although nonnative and/or dist	<b>g</b> ,
		<b> </b>	None (0)		can also be present, and speci	
		6c Cove	erage of invasive plants. Refer		moderately high, but generally	•
			1 ORAM long form for list. Add		threatened or endangered spp	
			t points for coverage	high	A predominance of native specie	
			Extensive >75% cover (-5)	5	and/or disturbance tolerant nat	
			Moderate 25-75% cover (-3)		absent, and high spp diversity	
		,	Sparse 5-25% cover (-1)		the presence of rare, threatene	• .
		1	Nearly absent <5% cover (0)			
		V	Absent (1)	Mudflat and	l Open Water Class Quality	
		6d. Micro	otopography.	0	Absent <0.1ha (0.247 acres)	
		Score all	present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	cres)
		0	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.8	8 acres)
		0 0	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
			Standing dead >25cm (10in) dbh Amphibian breeding pools	Microtopog	raphy Cover Scale	
		ك	Amphibian breeding pools	0	Absent	
					Present very small amounts or if	more common
				•	of marginal quality	oro commun
					Present in moderate amounts, but	ut not of highest
TO				-	quality or in small amounts of h	
TQ				3	Present in moderate or greater a	
	1			-	and of highest quality	· · · · · · · · · · · · · · · ·
11//	1			***************************************		



## **APPENDIX C**

## USACE FUNCTIONAL ASSESSEMENT FOR HIGH-GRADIENT EPHEMERAL AND INTERMITTENT STREAM FORMS



Version 1-25-11

	High-G	radient l	Headwat			stern Ke et and C	_	and wes	tern Wes	st Virgini	а
	Team:	M. Thomay	er B Otto	i ieiu L	Jala Sile	et and C	aicuiai		M Northina:	38 179562	
Pro	oject Name:			re Project			Latitude/UTM Northing: 38.179562 Longitude/UTM Easting: -82.624478				1
110	·=		County, Ken		m Hahitat A	\rea 1\	•	-	_	15 October	
		Lawrence	-			·	F			10 October	2012
SA	AR Number:		Reach	Length (ft):	185	Stream Ty	/pe: Eph	emeral Stream	1		$\sim$
	Top Strata:	Tree	Tree/Sapling Strata (determined from percent calculated in V <sub>CCANOPY</sub> )								
Site a	and Timing:	ming: Project Site   Before Project						•			
Sample	e Variables										
1	V <sub>CCANOPY</sub>	equidistant 20%, enter	Average percent cover over channel by tree and sapling canopy. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree/sapling cover is at least 20%. (If less than 20%, enter at least one value between 0 and 19 to trigger Top Strata choice.) tent cover measurements at each point below:							95.5 %	
	100	90	90	100	95	100	100	95	90	95	
	100	90	90	100	90	100	100	95	90	95	
2	V <sub>EMBED</sub>	along the s	tream. Sele	ct a particle	from the be	ed. Before i	moving it, o	er than 30 rou determine the iment, and e	e percentag	e of the	2.5
		according trating score	o the followie of 1. If the ness rating	ng table. If bed is com	the bed is a posed of be	an artificial s edrock, use	urface, or a rating sc	composed of	f fine sedime	ents, use a	
		Rating	Rating Des								
		5						fine sedimen		k)	
		3						d by fine sedied by fine sed			
		2						ed by fine sec			
		1						/ fine sedime		ial surface)	
,	List the rati	ngs at each	point below	<b>/</b> :							
	2	3	2	1	2	3	2	1	2	2	
	2	3	2	4	2	3	2	3	2	1	
	2	3	3	2	4	3	4	3	4	4	
3	\/	Madian atra	om channa	Laubatrata	oortiolo oizo	Mogauro	at no fouro	than 30 rou	ably oquidio	tant painta	
3		along the s	tream; use t	he same po	oints and pa	rticles as us	ed in V <sub>EMB</sub>	ED.			0.08 in
	•		ches to the 0.0 in, sand			•	w (bedrock	should be c	ounted as 9	9 in,	
	0.08	0.08	0.08	0.08	0.08	0.50	0.08	0.08	0.08	0.08	
	0.08	0.10	0.08	1.00	0.08	0.50	0.08	0.50	0.08	0.08	
	0.08	0.25	0.25	0.50	4.00	2.00	5.00	4.00	10.00	11.00	
4	$V_{BERO}$	•	e total perce					er of feet of e oded, total e			16 %
			Left Bank:	15	5 ft	i	Right Bank	: 15	5 ft		

Sampl	e Variables	s 5-9 within t	he entire r	iparian/buf	fer zone ad	jacent to tl	ne stream cl	hannel (25	feet from e	ach bank).	
5	$V_{LWD}$	stream read	ch. Enter th		rom the enti		eter and 36 in buffer and w				3.2
							oody stems:		6		
6	$V_{TDBH}$						ng cover is a	at least 20%	6). Trees ar	e at least 4	10.2
		•	•	neter. Enter				. "			
		the stream		nents of indi	vidual trees	(at least 4	in) within the	buffer on 6	each side of		
		the stream	Left Side					Right Side	)		
	8	10	6	12	8	9	12	9	8	6	
	14	5	9	11	12	7	16	6	10	11	
	12	16	11	10		13	15				
7	$V_{SNAG}$	Number of	snags (at le	east 4" dbh a	and 36" tall)	per 100 fee	et of stream.	Enter num	ber of snag	s on each	
	014710			d the amoun					J		0.5
			Left Side:		1		Diaht Cida		0		
8	$V_{SSD}$	Number of			-	up to 4 inc	Right Side: hes dbh) per	100 feet o	~	easure only	
	- 220						ubs on each				Not Used
		amount per 100 ft of stream will be calcul Left Side:					D: 1 ( 0: 1				
9	V	· · · · · · · · · · · · · · · · · · ·				feet of stree	Right Side:	hack all en	acies prese	at from	
3	▼ SRICH	V <sub>SRICH</sub> Riparian vegetation species richness per Group 1 in the tallest stratum. Check all 6									2.70
							from these of		•		
			p 1 = 1.0						2 (-1.0)		
<b>✓</b>	Acer rubru	um		Magnolia ti	ripetala		Ailanthus a	Itissima		Lonicera ja	ponica
	Acer sacc	harum		Nyssa sylv	atica		Albizia julib	rissin		Lonicera ta	tarica
	Aesculus	flava		Oxydendrun	n arboreum		Alliaria peti	olata		Lotus corni	culatus
	Asimina tı	riloba	<b>✓</b>	Prunus ser	rotina		Alternanthe	era		Lythrum sa	licaria
	Betula alle	ghaniensis	<b>✓</b>	Quercus ai	lba		philoxeroid			Microstegiun	n vimineum
	Betula len	nta		Quercus co	occinea		Aster tatari	cus		Paulownia	tomentosa
	Carya alb	а		Quercus in	nbricaria		Cerastium	fontanum		Polygonum d	cuspidatum
	Carya gla	bra		Quercus pi	rinus		Coronilla va	aria		Pueraria m	ontana
	Carya ova	alis		Quercus ru	ıbra		Elaeagnus u	mbellata		Rosa multit	flora
<b>✓</b>	Carya ova	ata		Quercus ve	elutina		Lespedeza	bicolor		Sorghum h	alepense
<b>V</b>	Cornus flo	orida		Sassafras	albidum		Lespedeza	cuneata		Verbena br	asiliensis
	Fagus gra	andifolia		Tilia ameri	cana		Ligustrum ob	otusifolium			
	Fraxinus a	americana		Tsuga can	adensis		Ligustrum s	sinense			
	Liriodendron tulipifera Ulmus americana										
	☐ Magnolia acuminata										
	5 Species in Group 1							0	Species in	Group 2	
		J	Openies III	Jioup i				U	Obecies III	Oroup Z	

					40" x 40", c					n 25 feet fro	m each		
10	V <sub>DETRITUS</sub>	bplots shou Average pe	ercent cover		er and								
.0	*DEIRIIUS				ercent cove					or arra	91.88 %		
			Left				Righ	t Side					
		80	100	95	85	100	95	90	85				
11	$V_{HERB}$	100	100	90 over of herb	95 aceous vege	100	100	75	80	o not			
• • •	▼ HERB				oh and 36" ta						Not Used		
				s up through	n 200% are	accepted. E	Enter the pe	ercent cover	of ground v	egetation	Not Oseu		
		at each sub	Left	Side			Righ	t Side		1			
										1			
Sample	e Variable 1	2 within the	e entire cat	chment of	the stream.								
12	$V_{\text{WLUSE}}$	Weighted A	Average of F	Runoff Score	e for watersh	ned:					1.00		
									Runoff	% in	Running		
			Land	Use (Choos	se From Dro	p List)			Score	Catch-	Percent		
	Forest and n	ativo rango (	> 7E0/ groups	d cover)						ment	(not >100)		
	rorest and n	ative range (	>75% ground	<u>~</u>	1	100	100						
	<u>-</u>		•										
	_	•											
								_					
								_	-				
								_	-				
	Su	mmary					No	tes:					
Va	ariable	Value	VSI										
Vcc	CANOPY	96 %	1.00										
VEN	MBED	2.5	0.65										
V <sub>st</sub>	JBSTRATE	0.08 in	0.04										
V <sub>BE</sub>	≣RO	16 %	0.99										
$V_{LV}$	VD	3.2	0.41										
V <sub>TC</sub>	овн	10.2	1.00										
V <sub>SN</sub>	NAG	0.5	0.91										
Vss	SD	Not Used	Not Used										
V <sub>SF</sub>	RICH	2.70	1.00										
V <sub>DE</sub>	ETRITUS	91.9 %	1.00										
$V_{HE}$	ERB	Not Used	Not Used										

**V**<sub>WLUSE</sub> 1 1.00

Version 1-25-11

	High-G	radient l	Headwat		ms in ea Data She		_	and wes	tern Wes	st Virgini	а	
	Team:	M. Thomay	er, P. Renn		outa Ono	ot and o	aioaiai	Latitude/UT	M Northina:	38.182254		
Pro	ject Name:							_ongitude/U	_			
	-		County, Ken		am Habitat A	rea 2)		-	_	5 June 201	2	
SA	R Number:		-	Length (ft):	88	Stream Ty	/De: Enh	emeral Stream				
		_				•		Control of the Contro				
	Top Strata:	Tree	e/Sapling St	rata	(determine	d from perce	ent calculat	ed in V <sub>CCANO</sub>	)PY)			
	and Timing:	Project Site				~	Before Proje	ect				
Sample	Variables											
1		equidistant 20%, enter		g the strean value betw	n. Measure reen 0 and 1	only if tree/ 9 to trigger	sapling cov	easure at no rer is at least choice.)			87.0 %	
	100	100	100	100	95	100	100	95	65	15		
	100	100	100	100	90	100	100	95	03	15		
2	Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.											
Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)												
		Rating	Rating Des	cription								
		5						ine sedimen		k)		
		3						by fine sedied by fine sed				
		2						ed by fine sec				
		1	>75 percen	t of surface	covered, su	ırrounded, c	or buried by	fine sedime	nt (or artific	al surface)		
	List the rati	ngs at each	point below	<b>/</b> :				_			ı.	
	1	2	1	2	3	2	2	2	1	2		
	2	3	1	2	1	2	2	2	1	2		
	2	2	3	1	1	2	3	3	2	3		
3	V	Modian ctro	oom channo	Leubetrato	oartiele size	Monguro	at no fower	than 30 rou	ably oquidic	tant points		
3	V SUBSTRATE		tream; use t						grily equicis	iani points	0.08 in	
							w (bedrock	should be c	ounted as 9	9 in,		
asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):  0.08												
	0.08	0.40	0.50	1.50	0.08	0.08	0.08	0.08	0.08	0.10		
	0.25	0.50	0.08	1.00	0.08	4.00	0.50	2.00	1.00	0.08		
	0.20	0.00	0.00	1.00	0.00	1.00	0.00	2.00	1.00	0.00		
4	$V_{BERO}$	•	e total perce					r of feet of e oded, total e			8 %	
		a, 20 ap	Left Bank:	2	ft		Right Bank	5	ft			

Sampl	e Variables	s 5-9 within t	he entire r	iparian/buf	fer zone ad	jacent to th	ne stream cl	nannel (25	feet from e	ach bank).	
5	$V_{LWD}$	stream rea	ch. Enter th		rom the enti		eter and 36 in buffer and w				3.4
							oody stems:		3		
6	$V_{TDBH}$						ng cover is a	t least 20%	6). Trees ar	e at least 4	10.7
		,	•	neter. Enter				. "			
		the stream		nents of Indi	vidual trees	(at least 4	in) within the	buffer on 6	each side of		
		the stream	Left Side					Right Side	)		
	10	11	8	12	9	15	12	9	13	11	
	12	6	4	19	6	14	9	8	7	12	
	11	7	13	14	21	18	13	9	7	11	
	7	5	10								
7	$V_{SNAG}$	Number of	snags (at le	east 4" dbh a	and 36" tall)	per 100 fee	et of stream.	Enter num	ber of snag	s on each	
•	* SNAG			d the amoun				Zinoi nan	.co. or onag	0 011 00011	2.3
			Left Side:		1		Right Side:		1		
8	$V_{SSD}$						hes dbh) per				
							ubs on each	side of the	stream, and	I the	Not Used
		amount per	amount per 100 ft of stream will be calcula Left Side:				Right Side:				
9	$V_{SRICH}$	Riparian vegetation species richness per				feet of strea	-	heck all sp	ecies preser	nt from	
	Group 1 in the tallest stratum. Check all								all strata. Sp	ecies	6.82
			p 1 = 1.0	and the subi	ndex will be	e calculated from these data.  Group 2 (-1.0)					
<b>V</b>	Acer rubru		p i = i.∪	Magnolia ti	rinetala	Group 2 (-1.0)  ☐ Ailanthus altissima ☐ Lonicera ja					nonica
	Acer sacc			_	-					Lonicera ta	
				Nyssa sylv			Albizia julib				
	Aesculus			Oxydendrun			Alliaria peti	olata		Lotus corni	
	Asimina ti	riloba	<b>V</b>	Prunus sei	rotina		Alternanthe			Lythrum sa	licaria
	Betula alle	ghaniensis	<b>✓</b>	Quercus a	lba		philoxeroid	es		Microstegiun	n vimineum
	Betula len	nta		Quercus co	occinea		Aster tatari	cus		Paulownia	tomentosa
	Carya alb	а		Quercus in	nbricaria		Cerastium	fontanum		Polygonum d	cuspidatum
	Carya gla	bra		Quercus p	rinus		Coronilla va	aria		Pueraria m	ontana
	Carya ova	alis	<b>✓</b>	Quercus ru	ıbra		Elaeagnus u	mbellata		Rosa multit	flora
<b>V</b>	Carya ovata Quercus velutina						Lespedeza	bicolor		Sorghum h	alepense
	Cornus florida						Lespedeza	cuneata		Verbena br	asiliensis
<b>V</b>	🗸 Fagus grandifolia 🗌 Tilia americana						Ligustrum ob	otusifolium			
							Ligustrum s	sinense			
	Liriodendron tulipifera Ulmus americana										
	☐ Magnolia acuminata										
	6 Species in Group 1							0	Species in	Group 2	
		U	Species III	Cloub i				U	Opcoles III	Cloup 2	

_						-	_		zone within	n 25 feet fro	m each
10	V <sub>DETRITUS</sub>	b <b>plots sho</b> u Average pe							s <4" diamet	er and	
. •	DETRITUS				ercent cove					_	84.38 %
			Left				Righ	t Side	_	]	
		100	80	75	100	100	95	90	100		
11	$V_{HERB}$	50 Average pe	75 Proentage of	100 over of herb	65 aceous veg	65 etation (mea	85 asure only if	95 tree cover	75 is <20%). D	o not	
• • •	▼ HERB	include woo	ody stems a	t least 4" db	oh and 36" ta	all. Because	there may	be several l	layers of gro	ound cover	Not Used
		vegetation at each sub		s up through	n 200% are	accepted. E	Enter the pe	rcent cover	of ground v	egetation	Not Osed
		at each suc	Left	Side			Righ	t Side		1	
							J			1	
Sample	e Variable 1	2 within the	e entire cat	chment of	the stream.						
12	$V_{\text{WLUSE}}$	Weighted A	Average of F	Runoff Score	e for watersl	ned:					1.00
									D:::- "	% in	Running
			Land	Use (Choos	e From Dro	p List)			Runoff Score	Catch-	Percent
	=		56447	i						ment	(not >100)
	Forest and n	ative range (	>/5% ground	d cover)					1	100	100
	_			_							
								•			
	_										
								_			
								_			
								_			
	Su	mmary					No	tes:			
Va	ariable	Value	VSI	Lower rea	ches of str	eams have			result of hi	storical wo	rk around
	CANOPY	87 %	0.99	existing po	ond.						
	MBED	1.9	0.44								
	JBSTRATE	0.08 in	0.04								
V <sub>BE</sub>		8 %	1.00								
V <sub>LV</sub>		3.4	0.43								
V <sub>TC</sub>	овн	10.7	1.00								
V <sub>SN</sub>	NAG	2.3	1.00								
Vss	SD	Not Used	Not Used								
V <sub>SF</sub>	RICH	6.82	1.00								
V <sub>DE</sub>	ETRITUS	84.4 %	1.00								
$V_{HE}$	ERB	Not Used	Not Used								

**V**<sub>WLUSE</sub> 1 1.00

Version 1-25-11

	nign-G	radient i	Headwat		ms in ea Data She			_		ern wes	t virgini	a
	Team:	M. Thomay	er, B. Otto	1 10101 -		0.0000				M Northing:	38.183078	
Pro			Pond Closu	re Project						_	-82.637348	
	·=		County, Ken		am Habitat A	Area 3)			-	_	24 May 201	
9.4	R Number:		-			Stream Ty	no:	Pales				
SA	ik Number.		Reach	Length (ft):	200	Sueam ry	ype.	Epne	meral Stream			
	Top Strata:	Tree	e/Sapling St	rata	(determine	d from perce	ent cal	culate	ed in V <sub>CCANO</sub>	<sub>PY</sub> )		
Site a	and Timing:	Project Site				•	Before	Proje	ct			•
Sample	<b>Variables</b>	1-4 in strea	ım channel									
1	V <sub>CCANOPY</sub>	equidistant 20%, enter	ercent cover points along at least one measureme	g the strean value betw	n. Measure reen 0 and 1	only if tree/ 9 to trigger	sapling	g cove	er is at least			84.5 %
	100	95	85	100	95	100	10	nn	85	65	20	
	100	90	0.0	100	90	100	10	,0	00	0.5	20	
2	$V_{EMBED}$											1.8
	according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.  Embeddedness rating for grayel, cobble and boulder particles (rescaled from Platts, Megahan, and											
	Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)											
		Rating	Rating Des									
		5			covered, sur						k)	
		3			ace covered face covere							
		2			face covere							
		1			covered, su						al surface)	
	List the rati	ngs at each	point below	<i>l</i> :							,	
	1	2	1	2	1	2	2	<u> </u>	2	1	2	
	2	3	1	2	1	2	2	<u>)</u>	2	1	2	
	2	2	3	1	1	2	3	3	3	2	2	
3 V <sub>SUBSTRATE</sub> Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V <sub>EMBED</sub> .									0.08 in			
			ches to the 0.0 in, sand				w (bed	rock s	should be co	ounted as 9	9 in,	
	0.08	0.08	0.08	0.50	0.08	0.20	0.0	)8	0.50	0.08	0.08	
	0.08	0.08	0.08	0.08	0.08	0.08	0.0	)8	0.08	0.08	0.10	
	0.25	0.50	0.08	1.00	0.08	2.00	0.5	50	2.00	1.00	0.08	
4	$V_{BERO}$	•	nt of eroded e total perce to 200%.									14 %
		, ар	Left Bank:	12	2 ft	I	Right E	Bank:	15	5 ft	ı	

Sampl	e Variables	s 5-9 within t	he entire r	iparian/buf	fer zone ad	jacent to th	ne stream ch	nannel (25	feet from e	ach bank).	
5	$V_{LWD}$	stream read	ch. Enter th		rom the enti		ter and 36 in buffer and w				2.0
							oody stems:		4		
6	$V_{TDBH}$						ng cover is a	it least 20%	6). Trees ar	e at least 4	8.5
		•	,	neter. Enter			مطاع منظانی (من	button on			
		the stream		nents of Indi	viduai trees	(at least 4 i	n) within the	butter on 6	each side of		
		tilo otroain	Left Side					Right Side	<b>,</b>		
	10	11	8	12	9	9	12	9	13	11	
	12	6	4	5	6	5	9	8	7	6	
	9	7	13	8	6	5	6	9	7	11	
	7	5				10	13				
7	$V_{SNAG}$	Number of	snags (at le	east 4" dbh a	and 36" tall)	per 100 fee	et of stream.	Enter num	ber of snag	s on each	
	O.W.C			d the amoun					J		0.0
			Left Side:		0		Right Side:		0	l	
8	$V_{SSD}$	Number of			-	up to 4 inc	hes dbh) per		-	easure only	
	- 33D						ubs on each				Not Used
		amount per 100 ft of stream will be calcul Left Side:					Dialet Oide				
9	Variati					feet of strea	Right Side:	heck all sn	ecies nreser	nt from	
	SRICH	V <sub>SRICH</sub> Riparian vegetation species richness per Group 1 in the tallest stratum. Check all of									2.85
				and the subi	ndex will be	calculated	from these d				
			p 1 = 1.0						2 (-1.0)		
<b>✓</b>	Acer rubru	ım		Magnolia ti	ripetala		Ailanthus a	ltissima		Lonicera ja	ponica
	Acer sacc	harum		Nyssa sylv	atica		Albizia julib	rissin		Lonicera ta	tarica
	Aesculus	flava		Oxydendrun	n arboreum		Alliaria peti	olata		Lotus corni	culatus
	Asimina tr	riloba	<b>V</b>	Prunus ser	otina		Alternanthe	era		Lythrum sa	licaria
	Betula alle	ghaniensis	<b>✓</b>	Quercus al	lba		philoxeroid	es		Microstegiun	n vimineum
	Betula len	ıta		Quercus co	occinea		Aster tatario	cus		Paulownia	tomentosa
	Carya alba	а		Quercus in	nbricaria		Cerastium	fontanum		Polygonum d	cuspidatum
	Carya gla	bra		Quercus pi	rinus		Coronilla va	aria		Pueraria m	ontana
	Carya ova	alis	<b>V</b>	Quercus ru	ıbra		Elaeagnus u	mbellata	<b>√</b>	Rosa multit	flora
<b>✓</b>	Carya ova	ata		Quercus ve	elutina		Lespedeza	bicolor		Sorghum h	alepense
	Cornus flo	orida		Sassafras	albidum		Lespedeza	cuneata		Verbena br	
<b>✓</b>	Fagus gra	ndifolia		Tilia ameri	cana		Ligustrum ob	tusifolium			
							Ligustrum s				
	Liriodendro			Ulmus ame			ū				
	☐ Magnolia acuminata										
		7	Species in	Group 1				1	Species in	Group 2	

_	Variables The four sul			-		-	_			n 25 feet fro	m each
10	V <sub>DETRITUS</sub>	Average pe	rcent cover	of leaves, s	sticks, or oth	er organic r	material. W	oody debris	<4" diamet	er and	88.44 %
	İ	<36" long a			ercent cove	r of the detri	-		ot.	1	00.44 //
		100	Left 100	85	90	100	95	Side 100	70	ł	
		100	75	80	65	100	85	95	75		
11	$V_{HERB}$				aceous vego oh and 36" ta						
					n 200% are						Not Used
	1	at each sub	plot. Left	Side			Pigh	t Side		1	
			Leit	Side			Right	Jue		ł	
Sample	e Variable 1	2 within the	e entire cat	chment of	the stream.						
12	$V_{\text{WLUSE}}$	Weighted A	Average of F	Runoff Score	e for watersl	ned:					0.60
									Runoff	% in	Running
			Land	Use (Choos	se From Dro	p List)			Score	Catch- ment	Percent (not >100)
	Forest and n	ative range (	>75% ground	d cover)				_	1	35	35
	Forest and n	ative range (	50% to 75%	ground cover	r)			-	0.7	35	70
	Newly grade	d areas (bare	soil, no vege	etation or pav	vement)			-	0	30	100
				•							
			•								
				•							
								•			
								•			
	Su	mmary					No	tes:			
Va	ariable	Value	VSI		above strea		ls has bee	n altered in	past. App	ears the a	rea was
Vc	CANOPY	85 %	0.95	once used	d for borrov	<i>I</i> .					
VE	MBED	1.8	0.40								
V <sub>SUBSTRATE</sub> 0.08 in 0.04											
V <sub>BI</sub>	ERO	14 %	1.00								
VLV	WD	2.0	0.25								
V <sub>TI</sub>	овн	8.5	0.96								
Vsi	NAG	0.0	0.10								
Vs	SD	Not Used	Not Used								
Vsi	RICH	2.85	1.00								
V <sub>DI</sub>	ETRITUS	88.4 %	1.00								
$V_{HI}$	V <sub>DETRITUS</sub> 88.4 % 1.00 V <sub>HERB</sub> Not Used Not Used										

Representative Field Sheet for Habitat Area 3

V<sub>WLUSE</sub> 0.6 0.63

Version 1-25-11

	Hign-G	radient i	neadwat		ms in ea Data She			_		tern wes	st virgini	a
	Team:	M. Thomay	er, B. Otto							M Northing:	38.184279	
Pro			Pond Closu	re Project						-	-82.644254	
	-		County, Ken		am Habitat 4	l)			-	-	3 May 2012	
SA	R Number:			Length (ft):		Stream T	vpe:	Enhe	meral Stream			
		T				•			- To the Age of the Control			
	Top Strata:	Tre	e/Sapling St	гата	(determine)	a from perd	ent car	culate	ed in V <sub>CCANC</sub>	PY)		
Site a	and Timing:	Project Site				•	Before	Projec	ct			-
Sample			am channel									
1		equidistant 20%, enter	ercent cover points along at least one measureme	g the strean value betw	n. Measure veen 0 and 1	only if tree.	/sapling	g cove	er is at least			99.0 %
Ī	100	100	95	100	100	100	10	00	100	100	95	
	100	100	30	100	100	100	10	,,,	100	100	30	
2	along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating											2.5
	according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.  Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and											
		Minshall 19	983)									
		Rating	Rating Des									
		5			covered, sur						k)	
		<u>4</u> 3			ace covered face covere							
		2			face covere							
		1			covered, su						ial surface)	
	List the rati	ngs at each	point below								•	
	2	3	2	1	2	3	2	2	1	2	2	
	2	3	2	3	2	3	2	2	3	2	1	
	2	3	3	2	4	3	4	1	3	4	4	
3			eam channe tream; use t							ghly equidis	tant points	0.08 in
Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in):												
	0.08	0.08	0.08	0.08	0.08	1.00	0.0	08	0.08	0.08	0.08	
	0.08	0.10	0.08	1.00	0.08	0.50	0.0		0.50	0.08	0.08	
	0.08	1.00	0.25	1.00	4.00	2.00	5.0		4.00	6.00	10.00	
4	BEIG 1											14 %
		. '	Left Bank:	17	7 ft		Right E	Bank:	14	l ft		

Sampl	e Variable:	s 5-9 within t	the entire r	iparian/buf	fer zone ad	jacent to tl	he stream cl	nannel (25	feet from e	ach bank).	
5	$V_{LWD}$	stream rea	ch. Enter th		rom the enti		eter and 36 in buffer and w				2.7
							oody stems:		6		
6	$V_{TDBH}$				nly if V <sub>CCANOF</sub> tree DBHs		ing cover is a	t least 20%	6). Trees ar	e at least 4	11.6
				nents of indi	vidual trees	(at least 4	in) within the	buffer on e	each side of		
		the stream						D: 1 / O: 1			
	0	40	Left Side	40	47	0	40	Right Side			
	8 14	10 5	12 9	12 11	17 12	9	12 16	9	13 10	6 14	
	12	16	11	10	14	13	15	10	18	14	
	13	10	11	10		10	10	10	10		
	\/	Niverie		4 4 11 - 11- 1-	00   +-   )	400 f		F			
7	$V_{SNAG}$				and 36" tall) nt per 100 fe		et of stream. alculated.	Enter num	iber of snag	s on eacn	2.3
			Left Side:		3		Right Side:		2	,	
8	$V_{SSD}$						hes dbh) per				N
							ubs on each	side of the	stream, and	tne	Not Used
					Right Side:			, i			
9	$V_{SRICH}$	amount per 100 ft of stream will be calcul  Left Side:  Riparian vegetation species richness per  Group 1 in the tallest stratum. Check all									
							from these o		ali strata. Sp	ecies	2.73
			p 1 = 1.0						2 (-1.0)		
<b>V</b>	Acer rubri		<u> </u>	Magnolia t	ripetala		Ailanthus a	-		Lonicera ja	ponica
	Acer sacc	charum		Nyssa sylv	atica		Albizia julib	rissin		Lonicera ta	tarica
	Aesculus	flava		Oxydendrur	n arboreum		Alliaria peti	olata		Lotus corni	culatus
	Asimina ti	riloba	<b>V</b>	Prunus sei	rotina		Alternanthe	era		Lythrum sa	licaria
	Betula alle	eghaniensis	✓	Quercus a	lba		philoxeroid			Microstegiun	n vimineum
	Betula ler	nta		Quercus c	occinea		Aster tatari	cus		Paulownia	tomentosa
	Carya alb	a		Quercus in	mbricaria		Cerastium	fontanum		Polygonum o	cuspidatum
	Carya gla	bra		Quercus p	rinus		Coronilla va	aria		Pueraria m	ontana
	Carya ova	alis	<b>V</b>	Quercus ru	ubra		Elaeagnus u	mbellata		Rosa multii	flora
<b>✓</b>	Carya ova	ata		Quercus v	elutina		Lespedeza	bicolor		Sorghum h	alepense
<b>V</b>	Cornus flo	orida		Sassafras	albidum		Lespedeza	cuneata		Verbena br	asiliensis
	Fagus gra	andifolia		Tilia ameri	cana		Ligustrum ob	otusifolium			
	Fraxinus	americana		Tsuga can	adensis		Ligustrum s	sinense			
	Liriodendro	on tulipifera		Ulmus ame	ericana						
	Magnolia	acuminata									
		6	Species in	Group 1				0	Species in	Group 2	

_				-		-	-		zone within	n 25 feet fro	om each
<b>banк. і</b> 10		Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diame <36" long are include. Enter the percent cover of the detrital layer at each subplot.									
10	DETRITUS									or and	93.75 %
			Left	Side			Righ	t Side			
		95	100	65	100	100	95	90	100		
11	$V_{HERB}$	100	100	90	95	100	100	75	95 is <20%). D	o not	
• • •	▼ HERB								layers of gro		Not Used
				s up through	n 200% are	accepted. E	Enter the pe	rcent cover	of ground v	egetation	Not Used
		at each sub	plot. Left	Side			Righ	t Side		]	
							J			1	
Sample	e Variable 1	2 within the	e entire cat	chment of	the stream.						
12	$V_{\text{WLUSE}}$	Weighted A	Average of F	Runoff Score	e for watersl	ned:					1.00
									Runoff	% in	Running
			Land	Use (Choos	e From Dro	p List)			Score	Catch-	Percent
	Faucat and a	ativa vanas (	750/ 20200							ment	(not >100)
	rorest and n	ative range (	>/5% ground	i cover)					1	100	100
			_								
	▼										
▼											
	_							•			
								~			
	_							_			
									<u> </u>		
							NI-	4			
\/-		mmary	\ (O)	Streams	are within m	nature unla		tes:			
	ariable	Value	VSI	Ott Carris c	are within ii	iature upia	ina iorest.				
V <sub>C</sub>	CANOPY	99 %	1.00								
VEN	MBED	2.5	0.64								
V <sub>st</sub>	JBSTRATE	0.08 in	0.04								
V <sub>BE</sub>	ERO	14 %	1.00								
$V_{LV}$	VD	2.7	0.34								
V <sub>TE</sub>	овн	11.6	1.00								
V <sub>sn</sub>	NAG	2.3	1.00								
Vss	SD	Not Used	Not Used								
V <sub>SF</sub>	RICH	2.73	1.00								
V <sub>DE</sub>	ETRITUS	93.8 %	1.00								
$V_{HE}$	-RB	Not Used	Not Used								

**V**<sub>WLUSE</sub> 1 1.00

<u>Version 1-25-11</u>

	Hign-G	radient i	Headwat		ms in ea Data She		_	and wes	tern wes	st virgini	a	
	Team:	M. Thomay	er, B. Otto					Latitude/UT	M Northing:	38.184011		
Proie			Pond Closu	re Project				Longitude/U	-			
			County, Ken		am Habitat A	Area 5)		-	_	15 May 201		
SAR	R Number:		-	Length (ft):		Stream Ty	/pe: Epl	nemeral Stream		<u> </u>	-	
To	op Strata:	Tree	e/Sapling St	rata	(determine	d from perce	ent calcula	ated in V <sub>CCANO</sub>	opy)			
Site an	nd Timing:	Project Site	n.			-	Before Pro	ject			-	
		1 4 in etros	ım channel					701				
1 V	CCANOPY	Average pe equidistant 20%, enter	rcent cover	g the strean value betw	n. Measure reen 0 and 1	only if tree/ 9 to trigger	sapling co	easure at no ver is at least a choice.)			98.5 %	
	100	95	100	100	95	100	100	95	100	100		
_	100	95	100	100	95	100	100	95	100	100		
2 V	/ <sub>EMBED</sub>	Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following table. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5.										
	rating score of 1. If the bed is composed of bedrock, use a rating score of 5.											
	Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983)											
		Rating	Rating Des	cription								
		5						fine sedimen		k)		
		4						d by fine sedi				
								ed by fine sed ed by fine sed				
								y fine sedime		ial surface)		
L	ا ist the rati∟		point below					<i>y</i>	(0)			
	1	2	1	2	1	2	2	2	1	2		
	2	3	1	2	1	2	2	2	1	2		
	2	2	3	1	1	2	3	4	3	4		
3 V	SUBSTRATE	Median stream	eam channe tream; use t	l substrate   he same po	particle size pints and pa	. Measure a rticles as us	at no fewe sed in V <sub>EM</sub>	r than 30 roug	ghly equidis	tant points	0.08 in	
			ches to the 0.0 in, sand				w (bedroc	k should be c	ounted as 9	9 in,		
	0.08	0.08	0.08	0.50	0.08	0.20	0.08	0.50	0.08	0.08		
	0.08	0.50	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.10		
	0.25	0.50	1.00	1.00	0.08	2.00	2.00	6.00	8.00	5.00		
4 V	$I_{BERO}$	•	e total perce					er of feet of e roded, total e			6 %	
			Left Bank:	8	ft	1	Right Banl	k: 10	) ft	· '		

Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank).												
5	$V_{LWD}$	Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated.									1.9	
		Number of downed woody stems:  6  Average dbh of trees (measure only if V <sub>CCANOPY</sub> tree/sapling cover is at least 20%). Trees are at least 4										
6	$V_{TDBH}$						8.2					
	inches (10 cm) in diameter. Enter tree DBHs in inches.  List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below:											
		Left Side					Right Side					
	10	11	8	12	9	9	12	9	13	11		
	12	6	4	5	6	5	9	8	7	6		
	9	7	13	8	6	5	6	9	7	11		
	7	5	6	9	5	10	13	5	7	9		
	5	8	11			6	5	9	11			
7	$V_{SNAG}$	Number of	snags (at le	east 4" dbh a	and 36" tall)	per 100 fee	et of stream.	Enter num	ber of snag	s on each		
	SNAG			the amoun							0.6	
			Left Side:		1		Right Side:		1			
8	V <sub>SSD</sub> Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only								Not Used			
	if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount per 100 ft of stream will be calculated.								Not Used			
	Left Side:					Right Side:						
9	V <sub>SRICH</sub> Riparian vegetation species richness per 100											
	Group 1 in the tallest stratum. Check all exotion richness per 100 feet and the subindex will be							ili strata. Sp	ecies	1.87		
	Group 1 = 1.0				carcaratea							
<b>V</b>	Acer rubru	Acer rubrum		Magnolia tripetala		Ailanthus altissima			2 (-1.0)	Lonicera japonio		
	Acer sacc	Acer saccharum		Nyssa sylvatica						Lonicera tatarica		
	Aesculus	Aesculus flava		Oxydendrum arboreum			Alliaria petiolata			Lotus corniculatus		
	Asimina tr		<u></u>	Prunus serotina		☐ Alternanthera			Lythrum salicaria			
	Betula alleghaniensis			Quercus alba		philoxeroides			Microstegium vimineum			
		Betula lenta		Quercus alba  Quercus coccinea		☐ Aster tataricus		П	Paulownia tomentosa			
	Carya alba	_		Quercus imbricaria			☐ Cerastium fontanum			Polygonum cuspidatum		
	•			Quercus prinus			☐ Coronilla varia			Pueraria montana		
		Carya ovalis		Quercus rubra			Elaeagnus umbellata		<u> </u>	Rosa multiflora		
<b>▽</b>	-	arya ovata		Quercus velutina			_			Sorghum halepense		
	-	ornus florida		Sassafras albidum		-			Verbena br			
		Fagus grandifolia		Tilia americana			Ligustrum ob		_			
			П	Tsuga canadensis			Ligustrum s	sinense				
				Ulmus ame			•					
	Magnolia a		<del>_</del>									
					-		4	Onesis - :	Crouse C			
7 Species in Group 1								1	Species in	Group 2		

Comple Veriables 40.44 within at least 0 cubulate (40" v 40" as 4 m v 4 m) in the singular hoffer cone within 05 feet from a ch												
	Sample Variables 10-11 within at least 8 subplots (40" x 40", or 1m x 1m) in the riparian/buffer zone within 25 feet from each bank. The four subplots should be placed roughly equidistantly along each side of the stream.											
10	10 V <sub>DETRITUS</sub> Average percent cover of leaves, sticks, or other organic material. Woody debris <4" diameter and									00.00.0/		
	į	<36" long are include. Enter the percent cover of the detrital layer at each subplot.					ot.		89.06 %			
		400		Side		Right Side		0.5				
		100 100	95 75	85 80	90 65	100 100	95 85	100 95	85 75			
11	$V_{HERB}$				aceous veg				_	o not		
		include woody stems at least 4" dbh and 36" tall. Because there may be several layers of ground cover									Not Used	
		vegetation percentages up through 200% are accepted. Enter the percent cover of ground vege at each subplot.										
		Left Side				Right Side				'		
Sample Variable 12 within the entire catchment of the stream.												
12	V <sub>WLUSE</sub> Weighted Average of Runoff Score for watershed:									0.90		
										% in	Running	
		Land Use (Choose From Drop List)							Score	Catch- ment	Percent (not >100)	
	Forest and n	orest and native range (>75% ground cover)								65	65	
	Forest and n	Forest and native range (50% to 75% ground cover)									100	
	_	▼										
		▼										
		•										
	-											
		▼										
	▼											
	Su	mmary					No	tes:	•			
Va	ariable	Value	VSI	Forest is younger than other areas on property. Understory is denser than							most	
V <sub>CCANOPY</sub>		99 %	1.00	other locations on property.								
V <sub>EMBED</sub>		2.0	0.45									
V <sub>SUBSTRATE</sub>		0.08 in	0.04									
$V_{BERO}$		6 %	1.00									
$V_{LWD}$		1.9	0.24									
$V_{TDBH}$		8.2	0.90									
V <sub>SNAG</sub>		0.6	1.00									
$V_{SSD}$		Not Used	Not Used									
V <sub>SRICH</sub>		1.87	0.89									
V <sub>DETRITUS</sub>		89.1 %	1.00									
$V_{HERB}$		Not Used	Not Used									

**V**<sub>WLUSE</sub> 0.9 0.95

Version 1-25-11

	High-G	radient l	Headwat		ms in ea Data She		_	and west	tern Wes	st Virgini	а
	Team:	M. Thomay	er B Otto	i icia L	Julu Onc	ot and o	aioaiate	Latitude/UT	M Northina	38 177507	
Pro	oject Name:			re Project				_ongitude/U7	-		
	-		County, Ken		m Habitat A	Area 6)				4 May 2012	
C .			-								650
SF	R Number:		Reach	Length (ft):		Stream Ty	1.00	emeral Stream			
	Top Strata:	Tree	e/Sapling St	rata	(determine	d from perc	ent calculat	ed in V <sub>CCANC</sub>	DPY)		
	and Timing:	Project Site				~	Before Proje	ect			
Sample	<b>Variables</b>										
1		equidistant 20%, enter		g the strean value betw	n. Measure reen 0 and 1	only if tree/ 9 to trigger	sapling cov	easure at no er is at least choice.)			95.5 %
	100	100	100	100	95	100	100	95	100	65	
	100	100	100	100	90	100	100	90	100	0.5	
2	$V_{EMBED}$	along the s	tream. Sele	ct a particle	from the be	ed. Before	moving it, c	r than 30 rou letermine the ment, and e	e percentag	e of the	1.8
		according t		ng table. If	the bed is a	an artificial s	surface, or o	composed of			
			ness rating		-			led from Pla	tts, Megaha	n, and	
		Rating	Rating Des	cription							
		5	<5 percent	of surface o	overed, sur	rounded, or	buried by f	ine sedimen	t (or bedroc	k)	
		4						by fine sedi			
		3						d by fine sec			
		<u>2</u> 1						d by fine sed fine sedime		ial surface)	
	List the rati	ngs at each	point below		0010.00, 00	oundou, c	or buriou by	mio coamio	in (or artino	ar ouridoo)	
	1	2	1	2	1	2	2	2	1	2	1.
	2	3	1	2	1	2	2	2	1	2	
	2	2	3	1	1	2	3	2	2	3	
2	V	Madian stra		l auchatuata u	a autiala aima	Managema	at wa farran	th am 20 man		tant nainta	
3	V <sub>SUBSTRATE</sub>		eam channe tream; use t					than 30 rou <sub>ED</sub> .	gniy equiais	tant points	0.08 in
							w (bedrock	should be c	ounted as 9	9 in,	
			0.0 in, sand								
	0.08	0.08	0.08	0.50	0.08	0.20	0.08	0.50	0.08	0.08	
	0.08	0.50	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.10	
	0.25	0.50	1.00	1.00	0.08	3.00	2.00	6.00	8.00	5.00	
4	V	Total	nt of an all	l otro'	annal beer	Enter the si	otal muss b	n of foot of	rodod b = l	on oaak	
4	$V_{BERO}$	•	e total perce					r of feet of e oded, total e			6 %
		, '	Left Bank:	4	ft		Right Bank	6	ft		

Sampl	e Variable:	s 5-9 within	the entire r	iparian/buf	fer zone ad	jacent to th	ne stream cl	nannel (25	feet from e	ach bank).	
5	$V_{LWD}$	stream rea	ch. Enter th		rom the enti		ter and 36 ir buffer and w				3.9
							oody stems:		7		
6	$V_{TDBH}$			measure on neter. Enter			ng cover is a	it least 20%	6). Trees ar	e at least 4	9.1
		•	•				n) within the	buffer on e	each side of		
		the stream	below:			`	,				ı
		_	Left Side					Right Side			
	10	11	8	12	9	9	12	9	13	11	
	12	6	4	5	6	5	14	8	15	6	
	9 12	13 11	15 12	8	6 5	5 10	6 13	13 5	7	11 9	
	12	+ ''	12	9	3	6	5	9	11	9	
						- ŭ	Ů	Ü			
7	$V_{SNAG}$			east 4" dbh a d the amour			et of stream. alculated.	Enter num	ber of snag	s on each	1.1
			Left Side:		2		Right Side:		0	·	
8	$V_{SSD}$						hes dbh) per				N
				Enter numi tream will be			ubs on each	side of the	stream, and	I the	Not Used
		amount po	Left Side:		oaloulatou		Right Side:				
9	$V_{SRICH}$						am reach. C				
							ive species p from these c		ıll strata. Sp	ecies	3.15
		-	p 1 = 1.0	and the ode	HOOK WIII DO	calculated	110111 111000 0		2 (-1.0)		
<b>V</b>	Acer rubri			Magnolia t	ripetala		Ailanthus a			Lonicera ja	ponica
	Acer sacc	charum		Nyssa sylv	•		Albizia julib			Lonicera ta	-
	Aesculus	flava		Oxydendrun	n arboreum		Alliaria peti	olata		Lotus corni	iculatus
	Asimina ti	riloba	<b>V</b>	Prunus sei	rotina		Alternanthe	ara		Lythrum sa	licaria
	Betula alle	eghaniensis	~	Quercus a			philoxeroid			Microstegiun	
	Betula ler	nta		Quercus c	occinea		Aster tatari	cus		Paulownia	tomentosa
	Carya alb	a		Quercus in	nbricaria		Cerastium	fontanum		Polygonum o	cuspidatum
	Carya gla	bra		Quercus p	rinus		Coronilla va	aria		Pueraria m	ontana
	Carya ova	alis	<b>V</b>	Quercus ru	ıbra		Elaeagnus u	mbellata	<b>V</b>	Rosa multii	flora
<b>V</b>	Carya ova	ata		Quercus v	elutina		Lespedeza	bicolor		Sorghum h	alepense
	Cornus flo	orida		Sassafras	albidum		Lespedeza	cuneata		Verbena br	asiliensis
✓	Fagus gra	andifolia		Tilia ameri	cana		Ligustrum ob	otusifolium			
		americana		Tsuga can	adensis		Ligustrum s	sinense			
<u></u> ✓						-					
		7	Species in	Group 1				1	Species in	Group 2	
		1	opecies in	Gloup I				1	opedies in	Group 2	

_				-	40" x 40", c equidistant	-	_			n 25 feet fro	om each
10	V <sub>DETRITUS</sub>	Average pe	rcent cover	of leaves, s	sticks, or oth	er organic r	material. W	oody debris	<4" diamet	er and	90.00 %
				Side			-	t Side		]	
		100	95	95	90	100	95	90	85	1	
		100	90	80	65	100	85	95	75		
11	V <sub>HERB</sub>	include woo	ody stems a percentage: oplot.	t least 4" dk s up through	aceous vego th and 36" to the 200% are	all. Because	there may Enter the pe	be several l rcent cover	ayers of gro	ound cover	Not Used
			Left	Side			Righ	Side		ł	
										1	
_					the stream.						
12	V <sub>WLUSE</sub>	Weighted A	Average of F	Runoff Score	e for watersl	ned:					0.81
	I and Use (Unoose From Drop List)							Runoff Score	% in Catch- ment	Running Percent (not >100)	
	Forest and native range (>75% ground cover)						1	35	35		
Forest and native range (50% to 75% ground cover)						0.7	65	100			
	_							•			
								•			
								•			
								•			
								•			
								•			
	Su	mmary					No	tes:			
Va	ariable	Value	VSI		ounger tha						
V <sub>C</sub>	CANOPY	96 %	1.00	locations. work on p	Downstrea ond.	ım limits of	some cha	nnels have	e been imp	acted by cu	urrent
VE	MBED	1.8	0.40								
V <sub>st</sub>	<b>V</b> <sub>SUBSTRATE</sub> 0.08 in 0.04										
V <sub>BI</sub>	ERO	6 %	1.00								
<b>V</b> <sub>LWD</sub> 3.9 0.49											
V <sub>TI</sub>	рвн	9.1	1.00								
Vs	NAG	1.1	1.00								
Vss	SD	Not Used	Not Used								
Vsi	V <sub>SRICH</sub> 3.15 1.00										
V <sub>DI</sub>	ETRITUS	90.0 %	1.00								
$V_{HI}$	ERB										

Representative Field Sheet for Habitat Area 6

V<sub>WLUSE</sub> 0.81 0.85

<u>Version 1-25-11</u>

	Hign-G	radient i	Headwat		ms in ea Data She			•		tern wes	st virgini	a
	Team:	M. Thomay	er, P. Renn							M Northing:	38.17447	
Pro			Pond Closu							_	-82.648223	
	-		County, Ken		m Habitat A	Area 7)	Sampling Date: 6 June 2012					
0.4			•	• (		,	<u>.</u> 	Section 1				4-5
SA	R Number:		Reacn	Length (ft):	225	Stream Ty	Type: Ephemeral Stream					
	Top Strata:	Tree	e/Sapling St	rata	(determine	d from perce	ent cald	culate	ed in V <sub>CCANC</sub>	<sub>PY</sub> )		
Site a	and Timing:	Project Site				•	Before	Projec	ct			•
Sample	<b>Variables</b>	1-4 in strea	ım channel									
1	V <sub>CCANOPY</sub>	equidistant 20%, enter	ercent cover points along at least one measureme	g the strean value betw	n. Measure reen 0 and 1	only if tree/ 9 to trigger	sapling	cove	er is at least			99.5 %
	100	100	95	100	100	100	10	n	100	100	100	
	100	100	30	100	100	100	10		100	100	100	
2	$V_{EMBED}$	along the s	nbeddednes tream. Sele d area surro	ect a particle	from the be	ed. Before	moving	j it, de	etermine the	percentage	e of the	2.5
		according t	o the followie of 1. If the	ng table. If bed is com	the bed is a posed of be	an artificial s edrock, use	urface, a ratino	, or co	omposed of re of 5.	fine sedime	ents, use a	
		Minshall 19			obble and b	oulder parti	cies (re	escaie	ed from Plat	rts, Megana	n, and	
		Rating	Rating Des									
		5 4			covered, sur						K)	
		3			ace covered face covere							
		2			face covere							
		1			covered, su						ial surface)	
	List the rati	ngs at each	point below	<i>r</i> :								
	2	3	2	1	2	3	2		1	2	2	
	2	3	2	3	2	3	2		3	2	2	
	2	3	3	2	4	3	4		3	4	4	
3	V <sub>SUBSTRATE</sub>		eam channe tream; use t							ghly equidis	tant points	0.15 in
			ches to the 0.0 in, sand				w (bedı	rock s	should be c	ounted as 9	9 in,	
	0.08	0.08	0.08	0.08	0.08	1.00	0.0	8	0.08	0.08	0.08	
	0.08	0.10	0.08	1.00	0.08	0.50	0.0	8	0.50	0.08	0.20	
	0.50	1.00	0.25	1.00	4.00	2.00	5.0	00	7.00	6.00	10.00	
4	$V_{BERO}$	•	nt of eroded e total perce to 200%.									10 %
			Left Bank:	11	l ft		Right B	ank:	12	2 ft		

Sampl	e Variables	s 5-9 within	the entire r	iparian/buf	fer zone ad	jacent to th	ne stream ch	nannel (25	feet from e	ach bank).	
5	$V_{LWD}$	stream rea	ch. Enter th		rom the enti		eter and 36 in buffer and w				3.1
							oody stems:		7		
6	$V_{TDBH}$			measure on neter. Enter			ng cover is a	it least 20%	6). Trees ar	e at least 4	12.0
		,	•				in) within the	buffer on e	each side of		
		the stream					•				l
			Left Side					Right Side			
	14	10 5	12 9	12 11	17 12	9	12 16	15 11	13 10	6 14	
	12	16	11	10	14	13	15	10	18	12	
	13	12	15	10	17	9	13	15	10	12	
	- 10	1									
7	\/	Number of	opogo (ot la	oot 4" dbb	and 26" tall)	por 100 for	et of stream.	Entor num	har of anga	o on oooh	
,	$V_{SNAG}$			d the amour				Enter nun	iber of snag	s on each	2.7
			Left Side:		3		Right Side:		3		
8	$V_{SSD}$						hes dbh) per				Not Used
				Enter numi tream will be			ubs on each	side of the	stream, and	i the	Not Used
			Left Side:				Right Side:				
9	$V_{SRICH}$						am reach. C				
							ive species p from these o		ııı strata. Sp	ecies	2.67
		-	ıp 1 = 1.0						2 (-1.0)		
<b>/</b>	Acer rubri	um		Magnolia t	ripetala		Ailanthus a	ltissima		Lonicera ja	ponica
	Acer sacc	charum		Nyssa sylv	atica		Albizia julib	rissin		Lonicera ta	tarica
	Aesculus	flava		Oxydendrun	n arboreum		Alliaria peti	olata		Lotus corni	iculatus
	Asimina ti	riloba	<b>J</b>	Prunus sei	rotina		Alternanthe	era		Lythrum sa	licaria
	Betula alle	ghaniensis	<b>V</b>	Quercus a	lba		philoxeroid			Microstegiun	m vimineum
	Betula ler	nta		Quercus c	occinea		Aster tatari	cus		Paulownia	tomentosa
	Carya alb	a		Quercus in	nbricaria		Cerastium	fontanum		Polygonum o	cuspidatum
	Carya gla	bra		Quercus p	rinus		Coronilla va	aria		Pueraria m	ontana
	Carya ova	alis	<b>V</b>	Quercus ru	ıbra		Elaeagnus u	mbellata		Rosa multii	flora
<b>V</b>	Carya ova	ata		Quercus v	elutina		Lespedeza	bicolor		Sorghum h	alepense
<b>V</b>	Cornus flo	orida		Sassafras	albidum		Lespedeza	cuneata		Verbena br	asiliensis
	Fagus gra	andifolia		Tilia ameri	cana		Ligustrum ob	otusifolium			
		americana		Tsuga can			Ligustrum s	sinense			
	Liriodendro			Ulmus ame			<u>-</u>				
		acuminata									
		•	0 : :	0 1				•	0	0 5	
		6	Species in	Group 1				0	Species in	Group 2	

_		10-11 withi				-	_			n 25 feet fro	m each
10	V <sub>DETRITUS</sub>	bplots shou Average pe				ner organic r				er and	
.0	*DETRITUS					r of the detri				_	96.88 %
			Left	Side			Righ	t Side		]	
		95	100	100	100	100	100	90	100		
11	$V_{HERB}$	100 Average pe	100	90 over of herb	95 aceous veg	100 etation (mea	100	85	95 is <20%) □	o not	
• • •	▼ HERB					all. Because					Not Used
				s up through	n 200% are	accepted. E	Enter the pe	rcent cover	of ground v	egetation	Not Oseu
		at each sub	Left	Side			Righ	t Side		1	
							J			1	
Sample	e Variable 1	2 within the	e entire cat	chment of	the stream.						
12	$V_{\text{WLUSE}}$	Weighted A	Average of F	Runoff Score	e for watersl	hed:					1.00
									Runoff	% in	Running
	Land Use (Choose From Drop List)								Score	Catch-	Percent
	Forest and native range (>75% ground cover)								ment	(not >100)	
	Forest and n	auve range (	>75% ground	i cover)					1	100	100
	_							_			
	_							•			
								•			
	-							_			
								_			
								_			
								<b>~</b>			
	Su	mmary					No	tes:			
Va	ariable	Value	VSI	Streams a	are within m	nature upla	nd forest.				
V <sub>cc</sub>	CANOPY	100 %	1.00								
VEN	MBED	2.5	0.65								
V <sub>st</sub>	JBSTRATE	0.15 in	0.08								
V <sub>BE</sub>	≣RO	10 %	1.00								
$V_{LV}$	VD	3.1	0.39								
V <sub>TC</sub>	овн	12.0	1.00								
V <sub>SN</sub>	NAG	2.7	1.00								
Vss	SD	Not Used	Not Used								
V <sub>SF</sub>	RICH	2.67	1.00								
$V_{DE}$	ETRITUS	96.9 %	1.00								
$V_{HE}$	ERB	Not Used	Not Used								

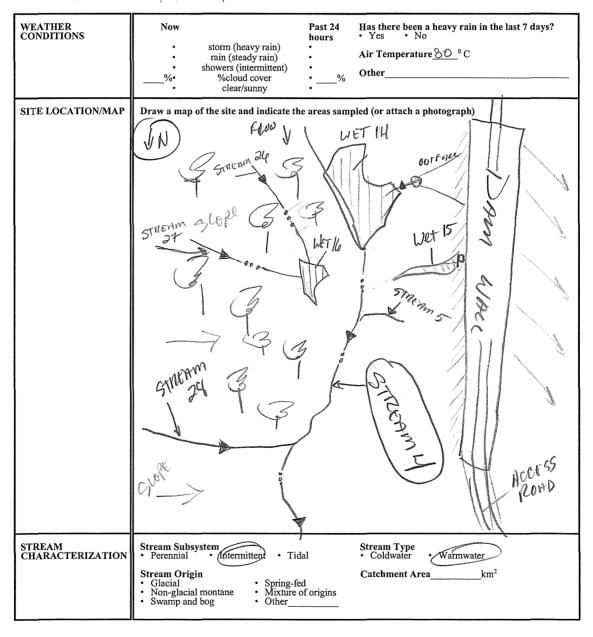
**V**<sub>WLUSE</sub> 1 1.00



# APPENDIX D U.S. EPA RAPID BIOASSESSMENT STREAM FORMS



STREAM NAME 5-840-101512-01	LOCATION AEP Bia	Sandy Lawrence (O. KY
STATION # RIVERMILE	STREAM CLASS 0	All Jackshire.
LAT38. 174875 LONG-82.625015	RIVER BASIN —	
STORET#	AGENCY —	
INVESTIGATORS B. Otto, M.	Momente/	
FORM COMPLETED BY	DATE 10/15/12	REASON FOR SURVEY
B. Otto, M. Thomaser URS coin	TIME 7 AM PM	POND CLOSURE



WATERS: FEATURI		Fores	Pasture • Industria ultural • Other _	rcial al	Local Watershed NPS-1 No evidence • Some Obvious sources  Local Watershed Erosi None • Moderate	on
RIPARIA VEGETA (18 meter					minant species present • Grasses • He  NAPLE MILLED	rbaceous
INSTREA FEATURI		Estimat Estimat Samplin Area in Estimat	red Reach Length ed Stream Width g Reach Area km² (m²x1000) red Stream Depth Velocity	m m² km² km²	Canopy Cover Partly open Partly High Water Mark Proportion of Reach Re Morphology Types	epresented by Stream Run% • No
LARGE W DEBRIS	NONt	LWD Density	of LWDm	1 <sup>2</sup> /km² ( <b>LWD</b> / 1	reach area)	
AQUATIO VEGETA	TION	Indicate Roote Floati	e the dominant type and ed emergent • Ro ng Algae • At	record the do ooted submerge tached Algae	minant species present nt • Rooted floating	Free floating
Non	It	domina	nt species present of the reach with aquat			
WATER O	-	Specific Dissolv pH Turbidi	rature° C Conductance ed Oxygen ty ttument Used		Water Odors  Normal/None • Sewa Petroleum Fishy  Water Surface Oils Slick • Sheen None • Other  Turbidity (if not measu Clear • Slightly tu Opaque • Stained	Chemical AMD Globs • Flecks
SEDIMEN SUBSTRA	RATE  • Normal • Sewage • Chemical • Anaerobic • Other  — Anaerobic		Petroleum     None	Relict shells     Looking at stones which	h are not deeply embedded,	
		Oils Abser	Slight • Moderat	te • Profus	are the undersides blac se • Yes • No	k in color?
INC		STRATE COMPONENTS add up to 100%)			ORGANIC SUBSTRATE C (does not necessarily add	
Substrate Type	Diamet	Diameter % Composition in Sampling Reach		Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock				Detritus	sticks, wood, coarse plant materials (CPOM)	20
Boulder	> 256 mm (10")		10	Muck-Mud	black, very fine organic	
Gravel	Cobble 64-256 mm (2.5 Gravel 2-64 mm (0.1"-2		40	1470CV-1410G	(FPOM)	

Sand

Silt

Clay

0.06-2mm (gritty)

< 0.004 mm (slick)

0.004-0.06 mm

grey, shell fragments

Marl

30

#### HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

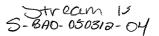
STREAM NAME S-BAD-101512-01	LOCATION BIG SANDY POND CLOSURE SUFE
STATION#RIVERMILE	STREAM CLASS
LATLONG	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS BAO, MOT	
FORM COMPLETED BY	DATE /s/2 REASON FOR SURVEY TIME AM PM
BKD, NOT	TIME AM (B) POND CLOSURE

	Habitat		Condition	Category	
l	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
each	SCORE X	20 19 18 17 16	15 14 13 12 11	10 9 7 7 6	5 4 3 2 1 0
Parameters to be evaluated in sampling reach	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
uate	SCORE / 5	20 19 18 17 16	15 14 (13 12 11	10 9 8 7 6	5 4 3 2 1 0
rs to be eval	3. Pool Variability	Even mix of large- shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large- deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small- shallow or pools absent.
mete	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<b>(5)</b> 4 3 2 1 0
Para	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 🕏 6	5 4 3 2 1 0

#### HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE /	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
pling reach	7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length I to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
ı sam	SCORE 10	20 19 18 17 16	15 14 13 (12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
e eva	SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
to b	SCORE (RB)	Right Bank 10 9	8 7 6	5 4/ 3	2 1 0
Parameters	9. Vegetative Protection (score each bank)  Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE <u>(</u> (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12- 18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE(LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
	SCORE (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0

Total Score 103



STREAM NAME S-BAO-050310-04	LOCATION AEP BIG	SANDY LAWRENCE CO. KY
STATION# RIVERMILE —	STREAM CLASS —	
LAT 38.185593 LONG-82. U48905	RIVER BASIN —	
STORET#	AGENCY	
INVESTIGATORS B. OTTO, M. THOMA	YERC / 1	
FORM COMPLETED BY	DATE OSOZIO TIME 0936 AM) PM	REASON FOR SURVEY
B. OTTO, M. THOMAYER, URS CORP	TIME 0936 AM PM	POND CLOSURE

WEATHER CONDITIONS	Now  Past 24 hours  storm (heavy rain) rain (steady rain) showers (intermittent) % % Cloud cover elear/sunny  Past 24 hours Yes No  Air Temperature 90 ° C  Other  Other
SITE LOCATION/MAP	Draw a map of the site and indicate the areas sampled (or attach a photograph)  S-340-05812 04 Slove Change Lag.  Shope  Slope  Slope  Wooded  Wooded
	HORSEFORD CREEK
	13 3 GANAGH
STREAM CHARACTERIZATION	Stream Subsystem  • Perennial Intermittent • Tidal  • Coldwater • Catchment Area km²  • Spring-fed • Non-glacial montane • Swamp and bog  • Swamp and bog

WATERSHED FEATURES	Predominant Surrounding Landuse Forest • Commercial • Field/Pasture • Industrial • Agricultural • Residential	Local Watershed NPS Pollution  No evidence Some potential sources  Obvious sources  Local Watershed Erosion  None Moderate Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant trees. • Shrubs	
INSTREAM FEATURES	Estimated Reach Length  Estimated Stream Width  Sampling Reach Area  Area in km² (m²x1000)  Estimated Stream Depth  Surface Velocity (at thalweg)	Canopy Cover Partly open Partly shaded  High Water Mark  Proportion of Reach Represented by Stream Morphology Types Riffle 80 % Run % Pool 20 %  Channelized Yes  No  Dam Present Yes  No
LARGE WOODY DEBRIS	LWDm² THENE 15 A D  Density of LWDm²/km² (LWD/ reac	OT OF WOODY DEBRIS h area)
AQUATIC VEGETATION	Indicate the dominant type and record the domin  Rooted emergent Floating Algae  dominant species present  Portion of the reach with aquatic vegetation	• Rooted floating • Free floating
WATER QUALITY	Temperature0 C Specific Conductance Dissolved Oxygen pH Turbidity_ WQ Instrument Used	Water Odors  Normal/None  Petroleum  Chemical
SEDIMENT/ SUBSTRATE	Odors Normal Chemical Other  Sewage Petroleum None None  Other  Oils Absent Slight Moderate Profuse	Deposits • Sludge • Sawdust • Paper fiber • Sand • Relict shells • Other  Looking at stones which are not deeply embedded, are the undersides black in color? • Yes • No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")	30		materials (CPOM)	
Cobble	64-256 mm (2.5"-10")	10	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	15	1	(FPOM)	
Sand	0.06-2mm (gritty)	5	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	5	1		
Clay	< 0.004 mm (slick)	35	1		

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

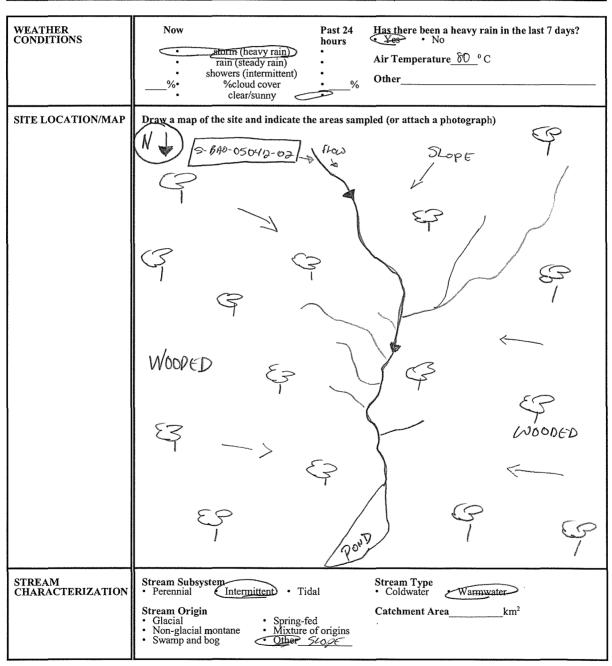
STREAM NAME S-BAD-050312-04	LOCATION AEP BIGS.	ANDY, LAURENCE CO. KLY		
STATION# RIVERMILE	STREAM CLASS			
LAT 38/85593 LONG-85.64 89 05	RIVER BASIN —			
STORET#	AGENCY —			
INVESTIGATORS B. O 470, M. THOM RYEN	, U15			
FORM COMPLETED BY B.0170	DATE <u>6503/2</u> TIME <u>6930</u> <b>M</b> PM	REASON FOR SURVEY		

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not now fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE (/	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ı sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ted in	SCORE V	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
ıram	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3) 2 1 0
Par	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 🐌 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
H	score 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

ſ		Habitat		Condition	Category	
		Parameter	Optimal	Suboptimal	Marginal	Poor
		6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
20		SCORE 20	20) 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	ling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
/o	samp	SCORE /D	20 19 18 17 16	/15 / 14 13 12 11 /	<b>10</b> 9 8 7 6	5 4 3 2 1 0
le	Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
W.	be ev	SCORE $\frac{3}{3}$ (LB)	Left Bank 10 9	8 7 6	5 4 💋	2 1 0
l	s to	SCORE $3$ (RB)	Right Bank 10 9	8 7 6	5 4 🐧	2 1 0
	S Parameter	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
		SCORE (LB)	Left Bank 10 9	<u>(8)</u> 7 <sub>-</sub> 6	5 4 3	2 1 0
		SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
	18	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
		SCORE $\frac{Q}{Q}$ (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
10		SCORE (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0

STREAM NAME 5-340-050412-02	LOCATION AEP BIG SANDY, LAWRENCE CO. KY			
STATION# RIVERMILE	STREAM CLASS —			
LAT 38.17461 LONG -82.642901	RIVER BASIN			
STORET#	AGENCY			
INVESTIGATORS B. 5710, M. THOMAYE	YL			
FORM COMPLETED BY	DATE 05/04//2 REASON FOR SURVEY TIME 07:00 AM PM			
B.OTTO	TIME UTION AM PM POND CLOSURE			



WATERSHED FEATURES	Predominant Surrounding Landuse Forest - Forest - Fored/Pasture - Agricultural - Residential - Commercial - Industrial - Other	Local Watershed NPS Pollution  No evidence Some potential sources  Obvious sources  Local Watershed Erosion  None Moderate Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the domin  Trees  Shrubs  dominant species present  M(LED ME3-	
INSTREAM FEATURES	Estimated Reach Length 894 m  Estimated Stream Width 3 m + .  Sampling Reach Area m²  Area in km² (m²x1000) km²  Estimated Stream Depth H M M AVE.  Surface Velocity (at thalweg) AFT AFT (9 IN MP)	Canopy Cover Partly open Partly shaded  High Water Mark  Proportion of Reach Represented by Stream Morphology Types Riffle O Pool 40  Channelized Yes  No  No No No No No No No No No No No N
LARGE WOODY DEBRIS	LWD        m²           Density of LWD        m²/km² (LWD/ reac	ch area)
AQUATIC VEGETATION	Indicate the dominant type and record the domin  Rooted emergent Floating Algae  dominant species present  Portion of the reach with aquatic vegetation	• Rooted floating • Free floating
WATER QUALITY	Temperature0 C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors  Normal/None Petroleum Fishy Other  Water Surface Oils Slick Slick Sheen Other  Turbidity (if not measured) Clear Slightly turbid Opaque Stained  Turbid Opaque Stained
SEDIMENT/ SUBSTRATE	Odors  Normal Chemical Other  Oils Absent Slight Moderate Petroleum None Petroleum Profuse	Deposits • Sludge • Sawdust • Paper fiber • Sand • Relict shells • Other  Looking at stones which are not deeply embedded, are the undersides black in color? • Yes • No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		5	Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")	15		materials (CPOM)	
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	30		(FPOM)	
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-0.06 m <b>m</b>				
Clay	< 0.004 mm (slick)	80	]		

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME S-B40-050412-02	LOCATION AEP BIGG	BANDY, LAWNENCE KY	
STATION # RIVERMILE	STREAM CLASS -	,	
LAT <u>78./85593</u> LONG <u>82.648905</u>	RIVER BASIN —		
STORET#	AGENCY —		
INVESTIGATORS BOTTO, M. THOMPYE	ح.		
FORM COMPLETED BY  B. 0170	DATE <u>0504/2</u> TIME <u><b>0900</b></u>	REASON FOR SURVEY	

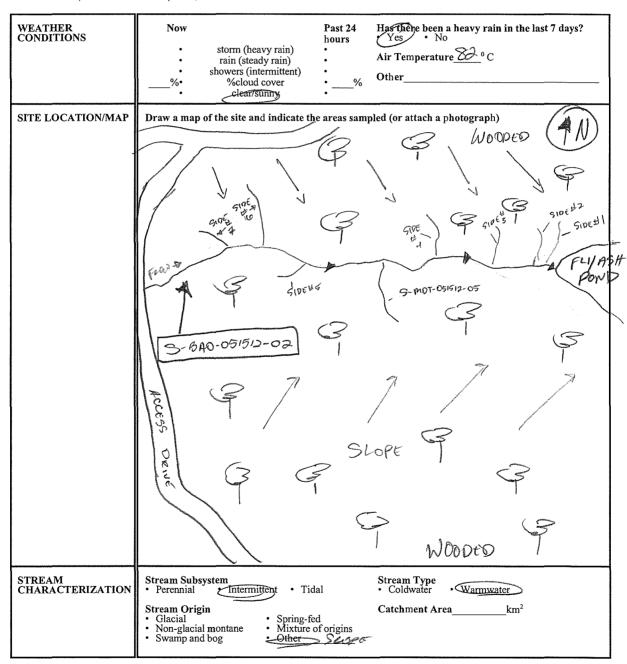
	Habitat	Condition Category				
	Parameter Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	SCORE 15	20 19 18 17 16	<b>6</b> 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.	
ted ir	SCORE /	20 19 18 17 16	15 14 (13/12 11	10 9 8 7 6	5 4 3 2 1 0	
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
ıram	score 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<b>®</b> 4 3 2 1 0	
Par	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
	SCORE L	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
	SCORE	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	score /5	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	-5 4 3 2 1 0
ing reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
ampl	SCORE /	20 19 (18/ 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
e eva	SCORE (LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
to b	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
Parameter	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
	SCORE G(RB)	Right Bank 10	8 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE (LB)	Left Bank 10	8 7 6	5 4 3	2 1 0
l	SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0

Total Score 144

STREAM NAME S-BAD-051512-02	LOCATION AND BIGSANDY, LAWRENCE, KY
STATION# RIVERMILE	STREAM CLASS /
LAT 38.18225 LONG - 82. 1048104	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS B. OTTO M. THOMPYCE	R
FORM COMPLETED BY	DATE 05/15/12 TIME H440  AM AM POLICY CLOCKED
B. OTTO, M. THOMAYER, URS	11ME 1440 AM RM POND CLOSURE



WATERSHED FEATURES	Predominant Surrounding Landuse  Commercial  Field/Pasture  Agricultural  Residential	Local Watershed NPS Pollution  No evidence Some potential sources  Obvious sources  Local Watershed Erosion  None Moderate Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the domin Shrubs  dominant species present Sycamone, To	ant species present Grasses  • Herbaceous
INSTREAM FEATURES	Estimated Reach Length   120 m F4  Estimated Stream Width   2.5 mc P4.  Sampling Reach Area   m²  Area in km² (m²x1000)   km²  Estimated Stream Depth   5 m/s MPP  Surface Velocity   m/sec (at thalweg)	Canopy Cover Partly open Partly shaded  High Water Mark  Proportion of Reach Represented by Stream  Morphology Types  Proportion of Reach Represented by Stream
LARGE WOODY DEBRIS	LWD m²  Density of LWD m²/km² (LWD/ reac	
AQUATIC VEGETATION	Indicate the dominant type and record the domin  Rooted emergent Floating Algae  dominant species present  Portion of the reach with aquatic vegetation	Rooted floating     Free floating
WATER QUALITY	Temperature0 C Specific Conductance Dissolved Oxygen pH Turbidity WQ/instrument Used	Water Odors  Mormal/None • Sewage  Petroleum • Chemical Fishy • Other  Water Surface Oils Slick • Sheen • Globs • Flecks None • Other  Turbidity (if not measured) Clear • Slightly turbid Opaque • Stained • Other
SEDIMENT/ SUBSTRATE	Odors  Normal Sewage Chemical Other Other  Oils Absent Slight Moderate Petroleum None Profuse	Deposits Sludge • Sawdust • Paper fiber • Sand Relict shells • Other  Looking at stones which are not deeply embedded, are the undersides black in color? Yes • No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")	20	1		
Cobble	64-256 mm (2.5"-10")	lo	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	20		(FPOM)	
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	/0 /			
Clay	< 0.004 mm (slick)	30			

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME S-BAO. 015/512-08	LOCATION AEP BIG SANDY, LAWRENCE, KLY		
STATION # RIVERMILE	STREAM CLASS —		
LATLONG	RIVER BASIN —		
STORET# —	AGENCY		
INVESTIGATORS B. OTTO U. THOMA	yer, URS		
FORM COMPLETED BY B. 6170	DATE OS 1512 REASON FOR SURVEY TIME AM PM		

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE /	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ted in	SCORE ()	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
ram	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 🌀	5 4 3 2 1 0
Paı	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE ()	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
A	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
'	score V	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat		Condition	Category	
	Parameter Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE (4)	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
samp	SCORE /O	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
be ev	SCORE 1 (LB)	Left Bank 10 9	8 (2) 6	5 4 3	2 1 0
rs to	SCORE 1(RB)	Right Bank 10 9	8 Ø 6	5 4 3	2 1 0
Parameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE $\frac{7}{4}$ (LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0
	SCORE 1/2 (RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE $\frac{1}{a}$ (LB)	Left Bank 10	8 7 6	5 4 3	2 1 0
	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 112

STREAM NAME S-1340-052412 -04	LOCATION AEP BIH	SANDY, LAURENCE COLLY
STATION # RIVERMILE	STREAM CLASS —	
LAT 38.182538 LONG-82.636175	RIVER BASIN —	
STORET#	AGENCY —	
INVESTIGATORS B. OTTO, M. THOM AL	in , uns comp	
FORM COMPLETED BY	DATE OS/24/12 TIME AM PM	REASON FOR SURVEY
B.0470		POHD CLOSUNE

WEATHER CONDITIONS	Now	Past 24 Has there been a heavy rain in the last 7 days? hours • Yes No
	storm (heavy rain) rain (steady rain) showers (intermittent) % wcloud cover	Air Temperature 90 ° C  Other
	• clear/sunny	
SITE LOCATION/MAP	Draw a map of the site and indicate th	ne areas sampled (or attach a photograph)
	PORMEN PUT BEORDE	5-BAD-052412-041 (JOODED)
	Anca Ding Rices,	Scope (
	Stope Orive	
	9 6	gry Ast Pors
STREAM CHARACTERIZATION	Stream Subsystem - EPHONE • Perennial • Intermittent • Tio	
	Stream Origin      Glacial     Non-glacial montane     Swamp and bog      Gther	Catchment Areakm²

WATERSHED FEATURES	Predominant Surrounding Landuse	Local Watershed NPS Pollution  No evidence • Some potential sources  Obvious sources  Local Watershed Erosion  None • Moderate Heavy			
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the domin  Trees Shrubs dominant species present				
INSTREAM FEATURES	Estimated Reach Length 778 m  Estimated Stream Width 1 m 4.  Sampling Reach Area m²  Area in km² (m²x1000) km²  Estimated Stream Depth 0 m 1 N 1 N 1 N 1 N 1 N 1 N 1 N 1 N 1 N 1	Canopy Cover Partly Shaded • Shaded  High-Water-Mark m  Proportion of Reach Represented by Stream Morphology Types Riffle % - Run % Pool % - Run % Channelized • Yes No			
LARGE WOODY DEBRIS	LWD m <sup>2</sup> Density of LWD m <sup>2</sup> /km <sup>2</sup> (LWD/ reach	h area)			
AQUATIC VEGETATION NO (LOW)	Indicate the dominant type and record the dominant species present  • Rooted emergent  • Rooted emergent  • Rooted floating  • Free floating  dominant species present  Portion of the reach with aquatic vegetation				
WATER QUALITY	Temperature0 C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors  Notinal/None · Sewage Petroleum · Chemical Fishy · Other  Water Surface Oils Slick · Sheen · Globs · Flecks None · Other  Turbidity (if not measured) Clear · Slightly turbid · Turbid Opaque · Stained · Other			
SEDIMENT/ SUBSTRATE	Odors Normal Chemical Other  Oils Absent Slight Moderate Petroleum None Porfuse	Deposits Sludge Sawdust Paper fiber Sand Relict shells Other  Looking at stones which are not deeply embedded, are the undersides black in color? Yes No			

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		50	Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")	10		materials (CPOM)	
Cobble	64-256 mm (2.5"-10")		Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	20		(FPOM)	
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	10			
Clay	< 0.004 mm (slick)		]		

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME 5- BAO-05242-04	LOCATION AED BY SANDY, LAWRENCE CO., KY
STATION# RIVERMILE	STREAM CLASS —
LAT 38.182538 LONG-82.636/75	RIVER BASIN —
STORET#	AGENCY
INVESTIGATORS B. 0770 M. THOMAYER	
FORM COMPLETED BY	DATE 0524/2 REASON FOR SURVEY
B. 0170	TIME ///65 (AM) PM

	Habitat	Condition Category				
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	SCORE (	20 19 18 17 16	15 14 13 12 🛈	10 9 8 7 6	5 4 3 2 1 0	
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.	
ted in	score 5	20 19 18 17 16	15 14 13 12 11	10 9 🚳 7 6	5 4 3 2 1 0	
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
ıram	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 🕥 Ó	
PE	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
	SCORE O	20 19 18 17 16	15 14 13 12 11	10 9 🕸 7 6	5 4 3 2 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
28	SCORE U	20 19 18 17 16	15 14 1 <b>3</b> 12 11	10 9 8 7 6	5 4 3 2 1 0	

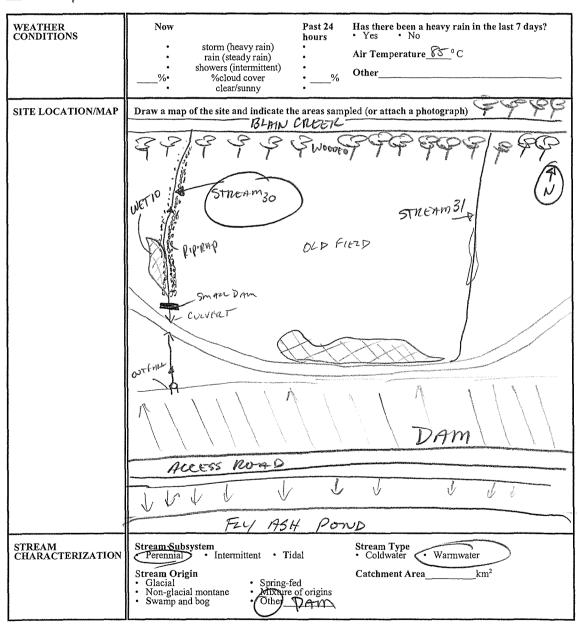
#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat	Condition Category				
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
	score /O	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0	
ling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
amp	SCORE 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<b>3</b> 4 3 2 1 0	
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
pe ev	SCORE (LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0	
rs to	SCORE (RB)	Right Bank 10 9	8 7 🕏	5 4 3	2 1 0	
Parameter	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
	SCORE $\frac{7}{2}$ (LB)	Left Bank 10 9	8 7 6	5 4 (3)	2 1 0	
	SCORE 3 (RB)	Right Bank 10 9	8 7 6	<u> </u>	2 1 0	
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.	
A	SCORE 5 (LB)	Left Bank 10 9	8 7 6	5 4 (8)	2 1 0	
8	SCORE 3 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

Total Score

Canafil outfall 1 Stream 30

STREAM NAME Jandfill ourfress /	LOCATION AL-P BIG	BANDY			
STATION# RIVERMILE	STREAM CLASS	*			
LAT 38 188125 LONG-92 (133499	RIVER BASIN				
STORET#	AGENCY				
INVESTIGATORS MOT, PR					
FORM COMPLETED BY		SON FOR SURVEY			
MOT, RAS	THVIE 0500 AM PM	OND CLOSURE			



WATERSHED FEATURES		cial	Local Watershed NPS I No evidence • Some Obvious sources  Local Watershed Erosi None Moderate	potential sources	
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant species present  • Trees  • Shrubs  • Grassee  • Herbaceous  dominant species present				
INSTREAM FEATURES	Estimated Stream Width 5	m² km²	Canopy Cover Partly open • Partly High Water Mark  Proportion of Reach Re Morphology Types • Riffle 10 % • Pool 70 %  Channelized • Yes  Dam Present Yes	m epresented by Stream	
LARGE WOODY DEBRIS NONE	LWDm² Density of LWDm²/km² (LWD/ reach area)				
AQUATIC VEGETATION	Indicate the dominant type and record the dominant species present  Rooted emergent  Rooted chargent  Rooted chargent  Attached Algae  dominant species present  Sweet Fifth  Portion of the reach with aquatic vegetation /0 %				
WATER QUALITY	Temperature ° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used		Water Odors Normal None Sewa Petroleum Fishy  Water Surface Oils Slick Sheen None Other  Turbidity (if not measu Clear Slightly tu Opaque Stained	OtherGlobs • Flecks	
SEDIMENT/ SUBSTRATE	Odors Normal Chemical Other  Oils Absent Slight Moderat		Deposits Sludge Sawdust Relict shells  Looking at stones whic are the undersides blac	Other	
INORGANIC SUB	STRATE COMPONENTS add up to 100%)		DRGANIC SUBSTRATE C (does not necessarily add		
Substrate Diamet	or % Composition in	Substrate	Characteristic	% Composition in	

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus sticks, wood, coarse plant		
Boulder	> 256 mm (10")	10	materials (CPOM)		
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	25		(FPOM)	
Sand	0.06-2mm (gritty)	1-6	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	<i>7</i> 5			
Clay	< 0.004 mm (slick)				

RIP-RAP ON BANKS & SUBSTRATE

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME STR. 30	LOCATION AEP BILL SANOW		
STATION # RIVERMILE	STREAM CLASS		
LATLONG	RIVER BASIN		
STORET#	AGENCY		
INVESTIGATORS			
FORM COMPLETED BY	DATE REASON FOR SURVEY TIME AM PM		

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	score !!	20 19 18 17 16	15 14 13 12 (17)	10 9 8 7 6	5 4 3 2 1 0
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ed in	SCORE J	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
aran	SCORE (	20 19 18 17 16	15 14 13 12 11	10 9 8 🕤 6	5 4 3 2 1 0
Pa	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE (4	20 19 18 17 16	15 (4) 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
MH	SCORE /U	20 19 18 17 16	15 14 13 12 11	(fo) 9 8 7 6	5 4 3 2 1 0

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat	Condition Category					
	Parameter	Optimal	Suboptimal	Marginal	Poor		
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 (1)0		
ing reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
ampl	SCORE 0	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0		
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.  SCORE (LB)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Left Bank 10	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.		
s to	SCORE (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0		
₹ A Parameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
	SCORE (LB)	Left Bank 10 9	8 7 🔞	5 4 3	2 1 0		
	SCORE (RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0		
Ð	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.		
	SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 0 0		
	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 0 0		

Total Score

41

STREAM NAME OUTFALL # 3	LOCATION AEP BK, SANDI/
STATION # RIVERMILE	STREAM CLASS
LAT 38.18806/LONG -82.63079/	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS NOT. PR	
FORM COMPLETED BY	DATE 6/2/12 REASON FOR SURVEY TIME 5/2/0 AM PM FOND CLOSURE

WEATHER CONDITIONS	Now Past 24 hours Yes No  storm (heavy rain) rain (steady rain) showers (intermittent) Modeling the following storm of the last 7 days? Air Temperature Other Clear/sunny  Other
SITE LOCATION/MAP	Draw a map of the site and indicate the areas sampled (or attach a photograph)  BURIN CREEK  TORON STANDARD  Small (LOSER SPREADER)  SMALL IS  OUTFAIL  OUTFAIL
STREAM	Stream Subsystem • Perennial • Intermittent • Tidal • Coldwater • Warmwater
CHARACTERIZATION	• Perennial • Intermittent • Tidal • Coldwater • Warmwater  Stream Origin

WATERSHED FEATURES	Predominant Surrounding Landuse  Forest  Commercial Industrial Industrial Residential  Other  Pam  Pam  Pam  Pam  Pam  Pam  Pam  Pa	Local Watershed NPS Pollution  No exidence Some potential sources  Cobvious sources  Local Watershed Erosion  None Moderate Heavy			
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant species present  • Trees • Shrubs • Grasses  dominant species present				
INSTREAM FEATURES	Estimated Reach Length m  Estimated Stream Width Sm Ft.  Sampling Reach Area m²  Area in km² (m²x1000) km²  Estimated Stream Depth S m/sec m/sec (at thalweg)	Canopy Cover Partly open Partly shaded • Shaded  High Water Markm  Proportion of Reach Represented by Stream Morphology Types • Riffle% • Run/% • Pool			
LARGE WOODY DEBRIS	LWD m <sup>2</sup> /km <sup>2</sup> (LWD/ reach	h area)			
AQUATIC VEGETATION	Indicate the dominant type and record the dominant species present  Rooted emergent  Rooted submergent  Floating Algae  Attached Algae  dominant species present  Portion of the reach with aquatic vegetation%				
WATER QUALITY	Temperature ° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors  Normal None • Sewage  Petroleum • Chemical Fishy • Other  Water Surface Oils Slick • Sheen • Globs • Flecks None • Other  Turbidity (if not measured) Clear • Slightly turbid • Turbid Opaque • Stained • Other			
SEDIMENT/ SUBSTRATE	Odors Norma Chemical Other Oils Anaerobic None Oils Anaerobic Petroleum None Profuse	Deposits  • Sludge • Sawdust • Paper fiber • Sand  • Relict shells • Other  Looking at stones which are not deeply embedded, are the undersides black in color?  • Yes • No			

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant	
Boulder	> 256 mm (10")		7	materials (CPOM)	20
Cobble	64-256 mm (2.5"-10")	10	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	30		(FPOM)	
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-0.06 mm	40	]		
Clay	< 0.004 mm (slick)		]		

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME STREAM 31	LOCATION AEP BIHSHNOU		
STATION # RIVERMILE	STREAM CLASS /		
LAT 39, 188601 LONG-82. (130791	RIVER BASIN		
STORET #	AGENCY		
INVESTIGATORS			
FORM COMPLETED BY	DATE OG 54/12 REASON FOR SURVEY  TIME AM PM		

	Habitat	Condition Category			
Parameters to be evaluated in sampling reach	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE 9	20 19 18 17 16	15 14 13 12 11	10 ③ 8 7 6	5 4 3 2 1 0
	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
	SCORE O	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
	score 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<b>5</b> 4 3 2 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE ->	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	Ø 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE /()	20 19 18 17 16	15 14 13 12 11	100 9 8 7 6	5 4 3 2 1 0

57

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Wahitat		Condition	Category	
	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE 7	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4) 3 2 1 0
ling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
amp	score 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<u>(5)</u> 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
e eva	SCORE 6 (LB)	Left Bank 10 9	8 7 😥	5 4 3	2 1 0
to be	SCORE <b>(</b> (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
Parameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
12	SCORE $\mathcal{Q}$ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	SCORE (P) (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
10	SCORE 5 (LB)	Left Bank 10 9	\$ <del>7</del> 7 6	(5) 4 3	2 1 0
-	SCORE (RB)	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0

Total Score S

43

# PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME LANFIL OUTFALL &	LOCATION ARP BIG SANDI
STATION# RIVERMILE	STREAM CLASS
LAT 38. 188/2000 - 82,6317	73 RIVER BASIN —
STORET# —	AGENCY
INVESTIGATORS MOT PR	
FORM COMPLETED BY	DATE (1/1/2) REASON FOR SURVEY
MDT. BAD	POND CLOSURE
WEATHER Now CONDITIONS	Past 24 Has there been a heavy rain in the last 7 days? hours • Yes • No

WEATHER CONDITIONS	Now  storm (heavy rain) rain (steady rain) showers (intermittent) % %cloud cover clear/sunny	Past 24 Has there been a heavy rain in the last 7 days? hours 'Yes 'No  Air Temperature C  Other
SITE LOCATION/MAP	Draw a map of the site and indicate the state of the site and indicate the state of the site and indicate the	PLAIN CREEK  VEHETATE SUSPECTION  STREAM 32  WET 12
	D. Acc	AM ESS NOAD
STREAM CHARACTERIZATION	Stream Subsystem Perennial Intermittent Ti  Stream Origin Glacial Spring-1 Non-glacial montane Swamp and bog Other 1	Catchment Areakm² fed of origins

## PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERS FEATUR		Predominant Surrounding Landuse Forest Commercial Residential Commercial Industrial Other Forest Commercial Obvious sources Obvious sources Cocal Watershed NPS Pollution No evidence Obvious sources Cocal Watershed Erosion None Moderate Heavy				potential sources	
RIPARIA VEGETA (18 meter	RIAN ETATION  Indicate the dominant type and record the do Trees  Shrubs				minant species present He	rbaceous	
		domina	nt species present	CLOCK	fornoc, money war	420_	
INSTREA FEATUR		Estimat Estimat	ed Reach Length ed Stream Width	m	Canopy Cover Partly open Partly		
			ng Reach Area		High Water Mark		
		Area in	km² (m²x1000)	km²	Proportion of Reach Re Morphology Types	epresented by Stream	
		Estimat	ed Stream Depth	<u> </u>	• Riffle % • Pool%	Run%fore	
		Surface (at thal	Velocitym weg)	/sec	Channelized Yes  Dam Present Yes	• No	
LARGE V DEBRIS	VOODY JONE	ll .	m² of LWDm	1²/km² ( <b>LWD</b> / 1	reach area)		
AQUATIO VEGETA	C TION	Indicate • Roote • Floati	e the dominant type and d emergent • Ro ng Algae • At	record the do ooted submerge tached Algae	minant species present nt • Rooted floating	Free floating	
		dominant species present MONEYWORT, BONESET, CAREL SPE					
<u> </u>			of the reach with aquat				
WATER	QUALITY	Specific Dissolve	eature ° C Conductance ed Oxygen		Water Odors Normal/None Sewa Petroleum Fishy  Water Surface Oils	Ī	
		Water Surface Oils • Slick • Sheen • Globs • Flecks • Other					
	•	Turbidity (if not measured)  • Clear • Slightly turbid • Opaque • Stained				red) rbid Turbid	
SEDIME! SUBSTRA		Odors Normal Sewage Petroleum Sludge Sawdust Paper fiber Sand Relict shells Other				• Paper fiber • Sand Other	
Looking at stones w				are the undersides blac	h are not deeply embedded, k in color?		
INORGANIC SUBSTRATE CO (should add up to 100					ORGANIC SUBSTRATE C (does not necessarily add		
Substrate Type	Diamet	er	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse plant materials (CPOM)		
Boulder	> 256 mm (10")				materials (Ct Olvi)	50	
Cobble	64-256 mm (2.5	5"-10")	20	Muck-Mud	black, very fine organic (FPOM)		
Gravel	2-64 mm (0.1"-	2.5")	40				
Sand	0.06-2mm (gritt	y)		Marl	grey, shell fragments		
Silt	0.004-0.06 mm		/0				

Clay

< 0.004 mm (slick)

#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME TINEAM 31	LOCATION AEP BIGGANDY			
STATION# RIVERMILE	STREAM CLASS			
LAT LONG	RIVER BASIN			
STORET#	AGENCY			
INVESTIGATORS				
FORM COMPLETED BY MDT, BAD	DATE CLOSTIF REASON FOR SURVEY TIME OGO MPM PONDCLOSURE			

	Habitat	Condition Category				
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	SCORE +	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
ı sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.	
ed ir	SCORE +	20 19 18 17 16	15 14 13 12 11	10 9 8 🗘 6	5 4 3 2 1 0	
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
ram	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 8) 2 1 0	
Pa	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
	SCORE 1	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 1	

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#### HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

Г		Habitat			C	ondition	Categor	у				
		Parameter Parameter	Optimal	Subo	optima	l l		Margin:	al		Poor	
	6. Channel Alteration		Channelization or dredging absent or minimal; stream with normal pattern.	Some chanr present, usu of bridge ab evidence of channelizati dredging, (g past 20 yr) r present, but channelizati present.	pally in putment past ion, i.e. greater may be recent	areas s; , than	extensive or shoring presente and 40 to	ization r e; embar ng structi on both t o 80% o annelize d.	nkments ures oanks; f stream	Banks shor cementhe streamelic channelic disrupted habitat gremoved	nt; over 8 m reach zed and l. Instre reatly al	am tered or
1		SCORE (	20 19 18 17 16	15 14	13 1	2 11	10 9	8	7 6	5 4	3 2	① 0
11.	ung reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence infrequent; between rift the width of between 7 to	distance fles divi f the str	e ided by	bottom of some had between the widt	contours bitat; dis riffles d	stance ivided by stream is	shallow	riffles; p distance vided by the strea	between the
	samp	SCORE O	20 19 18 17 16	15 14	13 1	2 11	10 9	8	7 6	5 4	3 2	1 (1)
Parameters to be evaluated broader than sampling reach		8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately infrequent, s erosion mos over. 5-30% reach has ar	small a stly hea % of ba	reas of led nk in	60% of areas of	-		Unstable areas; "r frequent sections obvious 60-100% erosiona	aw" area along st and bend bank slo 6 of bank	s raight ds; oughing;
\	e ev	SCORE (LB)	Left Bank 10 9	(3)	7	6	5	4	3	2	1	0
	s to p	SCORE <u>\$</u> (RB)	Right Bank 10 9	(8)	7	6	5	4	3	2	1	()
		9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of istreambank covered by vegetation, of plants is represented evident but full plant gr to any great than one-hapotential plantight remarks.	surface native but one not wel ; disrup not affi rowth p t extent alf of the ant stul-	e class II- otion ecting otential ; more e	covered disrupti patches closely commo half of t stubble	ank surfit by vege on obvio of bare s cropped n; less the he poten height re	tation; us; soil or vegetation an one- tial plant emaining.	streambe covered disruption vegetation vegetation removed 5 centime average	by veget on of stre on is ver on has be I to leters or stubble I	aces ation; ambank y high; een less in neight.
1	(0	SCORE $\frac{4}{5}$ (LB)	Left Bank 10 9	8	7	6	(5)	4	3	2	<u>l</u>	0
		SCORE (RB)	Right Bank 10 9	8	7	6	(5)	4	3	2	l	0
	det.	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of rij 12-18 mete activities ha zone only n	rs; hum ave imp	nan pacted lly.	12 mete activitie zone a g	ers; huma es have ir great dea	npacted I.	meters: riparian human a	little or r vegetation	on due to
	•	SCORE (LB)	Left Bank 10 9	8	7	6	5	(4) (4)	3	2	1	0
		SCORE (RB)	Right Bank 10 9	8	7	6	5	$T_A$	3	2	1	0

Total Score \_\_\_\_\_\_\_

A-8

# Stream 44 5-nd + 5/15/2012 - 7 PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

C. (	I Creek		
STREAM NAME 5-NOT 5/15/12-7 Horsel	LOCATION Big Sandy Plant: Lawrence Co KY		
STATION # RIVERMILE	STREAM CLASS		
LAT 38./8353 LONG 82.65/65	RIVER BASIN		
STORET#	AGENCY		
INVESTIGATORS M. Thomases, B. Oth	to		
FORM COMPLETED BY M. THOMUSER B. OHO; URS COLD	DATE 15 May 2012 TIME 1713 AM PM Landfill		

1 DOUGE POUL	, OR 3 CAP   2410(111)
WEATHER CONDITIONS	Now  Past 24 hours Yes Yes You  Air Temperature  Cother  clear/sumy  Past 24 hours Yes Yes You  Air Temperature  Other
SITE LOCATION/MAP	Draw a map of the site and indicate the areas sampled (or attach a photograph)
	Land State of the state of the
several photos were also taken	P John Flyhold
STREAM	Stream Subsystem Stream Type Perennial Intermittent Tidal Coldwater Warmwater
CHARACTERIZATION	
	Stream Origin  Output  Glacial  Non-glacial montane Swamp and bog  Catchment Areakm²  Mixture of origins  Other 669

# Stylan 44 5-12-7 PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	Predominant Surrounding Landuse Foresp • Commercial FieldPasture • Industrial • Agricultural • Other • Residential	Local Watershed NPS Pollution No evidence • Some potential sources • Obvious sources  Local Watershed Erosion • None • Moderate • Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the domina Shrubs . Shrubs . dominant species present Wixed wes - and	ant species present Grasses  Herbaceous  alt-naple-hich-beech
INSTREAM FEATURES	Estimated Reach Length  Estimated Stream Width  Sampling Reach Area  Mrea in km² (m²x1000)  Estimated Stream Depth  Surface Velocity (at thalweg)	Canopy Cover Partly open Partly shaded  Shaded  High Water Mark  Proportion of Reach Represented by Stream Morphology Types Riffle 60 % Run 30 % Pool 10 %  Channelized Yes No  Dam Present Yes
LARGE WOODY DEBRIS	LWDm <sup>2</sup> /ofs of a  Density of LWDm <sup>2</sup> /km <sup>2</sup> (LWD/ reach	woody debnis
AQUATIC VEGETATION	Indicate the dominant type and record the domina  Rooted emergent Floating Algae  dominant species present  Portion of the reach with aquatic vegetation	• Rooted floating • Free floating
WATER QUALITY	Temperature ° C  Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors  Normal/None • Sewage  Petroteum • Chemical  Fishy • Other  Water Surface Oils  Slick • Sheen • Globs • Flecks  None • Other  Turbidity (if not measured)  Clear Slightly turbid • Turbid  Opaque • Stained • Other
SEDIMENT/ SUBSTRATE	Odors Normal Chemical Other  Oils Slight Moderate Petroleum None Profuse	Deposits Sludge Sawdust Paper fiber Relict shells Other  Looking at stones which are not deeply embedded, are the undersides black in color? Yes

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		15	Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")	15		materials (CPOM)	
Cobble	64-256 mm (2.5"-10")	40	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	15		(FPOM)	
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	5	]		
Clay	< 0.004 mm (slick)				

# Stream 44 5-Nd+5/15/2012-7 HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

LOCATION Big Sandy Plant: Lawrence Co., RY
STREAM CLASS
RIVER BASIN
AGENCY
DATE 15 May 2012 REASON FOR SURVEY
TIME 1713 AM EN Landfill

	Habitat		Condition	Category	
	Parameter	<b>Opti</b> mal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	score 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ted in	SCORE /	20 19 18 🕜 16	15 14 13 12 11	10 9 8 7 6	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.  5 4 3 2 1 0  Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.  5 4 3 2 1 0  Dominated by 1 velocity/depth regime (usually slow-deep).  5 4 3 2 1 0  Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.  5 4 3 2 1 0  Very little water in channel and mostly present as standing pools.
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	depth regime (usually
ıram	SCORE //	20 19 18 17 16	15 14 13 12 🕕	10 9 8 7 6	5 4 3 2 1 0
Раг	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment
	score (7	20 19 18 17 16	<b>(</b> 15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	channel and mostly
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Stycam 49 5-nd+5/5/2012-7 HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	score 17	20 19 18 🗗 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
amp	score /8	20 19 🔞 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
e ev	SCORE <u>(</u> (LB)	Left Bank 10 9	8 7 🚳	5 4 3	2 1 0
s to k	SCORE <u>(</u> (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
Parameter	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE (LB)	Left Bank 10 9	8 7 6	5 4 🚳	2 1 0
	SCORE <u>3</u> (RB)	Right Bank 10 9	8 7 6	5 4 (3)	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
,	SCORE $\frac{Q}{Q}$ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
6	SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0

Total Score 142

# Stream 68 5-pr 6/06/2012 PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHIP (FRONT)

STREAM NAME 5- pr 6/6/2012 - 2	LOCATION Big Sandy Plant, Lawrence Co, Ky
STATION # RIVERMILE	STREAM CLASS
LAT 38. 17564 LONG -82. 64765	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS M. Thomas, B. OHO	,
FORM COMPLETED BY N.Thomayer B. Otto, URS Carp	DATE 6 June 2012 REASON FOR SURVEY  TIME 1227 AM PM Land fill
, , , , , , , , , , , , , , , , , , , ,	

VII HOMAGE, 12.0110	y or cif
WEATHER CONDITIONS	Now Past 24 hours Storm (heavy rain) rain (steady rain) showers (intermittent) % % cloud cover elear/sumy  Past 24 hours Yes Yes Yes Air Temperature Other  Other
SITE LOCATION/MAP	Draw a map of the site and indicate the areas sampled (or attach a photograph)
de tos	Green Francisco Consol
several photos severalso taken	The state of the s
	'n'
STREAM CHARACTERIZATION	Stream Subsystem Perennial • Intermittent • Tidal • Coldwater Warmwater
	Stream Origin  Output  Glacial  Non-glacial montane Swamp and bog  Catchment Area km²  Mixture of origins  Other Lugo

# Stream 68 5-pr 6/6/2012-2 PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES		Local Watershed NPS Pollution No evidence • Some potential sources  Local Watershed Erosion None Moderate • Heavy  unt species present
VEGETATION (18 meter buffer)	Indicate the dominant type and record the domina  • Shrubs  dominant species present    Wixed   Mes :	ogh-ruple- hickory-beech
INSTREAM FEATURES		Canopy Cover Partly open Partly shaded Shaded  High Water Mark Proportion of Reach Represented by Stream Morphology Types Riffle New New New New New New New New New New
LARGE WOODY DEBRIS	LWD m² lof5 of 10000 Density of LWD m²/km² (LWD/ reach	dy debnis
AQUATIC VEGETATION	Indicate the dominant type and record the domina  Rooted emergent Floating Algae  dominant species present  Portion of the reach with aquatic vegetation	Rooted floating     Free floating
WATER QUALITY	Temperature ° C  Specific Conductance JJ Adde Specific Conductance J	Water Odors  Nermat/None • Sewage  Petroleum • Chemical  Fishy • Other  Water Surface Oils  Slick • Sheen • Globs • Flecks  None • Other  Turbidity (if not measured)  • Clear • Slightly turbid • Turbid  • Opaque • Stained
SEDIMENT/ SUBSTRATE	Odors Odors Chemical Other  Oils Absent Sewage Petroleum None None Profuse	Deposits Sudge Sawdust Paper fiber Sand Other  Looking at stones which are not deeply embedded, are the undersides black in color? Yes

INC	ORGANIC SUBSTRATE (should add up to			ORGANIC SUBSTRATE C (does not necessarily add	
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		10	Detritus	sticks, wood, coarse plant	
Boulder	> 256 mm (10")	30		materials (CPOM)	
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	25		(FPOM)	
Sand	0.06-2mm (gritty)	5	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)	·			

Stream 68 5-pr6/06/2012-2 HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAME 5-pr6/06/2012-2	LOCATION Big Sandy Plant; Lawrence Co, WY
STATION# RIVERMILE	STREAM CLASS
LAT 38. 17564 LONG 82.64765	RIVER BASIN
STORET#	AGENCY
INVESTIGATORS 4-Thomas et B.C	9Ho
FORM COMPLETED BY M. ThOMMYEY, B. OHO; URS CORP	DATE 6 June 2012 REASON FOR SURVEY TIME 1227 AM PS LAND Fill

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	score /8	20 19 28 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ted in	score /8	20 19 (8) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
ıram	score /4	20 19 18 17 16	15 13 12 11	10 9 8 7 6	5 4 3 2 1 0
$P_{\Sigma}$	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE /	20 19 18 17 (6)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
89	SCORE (7	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0

Stream 68 5-pr 6/06/2012-Z HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat		Condition	Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
g reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
amp	score /8	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
e ev	SCORE $\frac{7}{3}$ (LB)	Left Bank 10 9	8 0 6	5 4 3	2 1 0
s to b	SCORE / (RB)	Right Bank 10 9	8 D 6	5 4 3	2 1 0
Parameter	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE 3 (LB)	Left Bank 10 9	8 7 6	5 4 ③	2 1 0
	score 3 (RB)	Right Bank 10 9	8 7 6	5 4 ③	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
78	SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 67

# Stream 71 5-1245/15/2012-7 3:de PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET Channel #2 (FRONT)

STREAM NAME 5-NOT	5/15/12-7 Side #3	LOCATION	Pig Sand	la Plant; i	Lawrence	Co. KY
	IVERMILE	STREAM CLAS				
lat <u>38./8557</u> lo	ONG-82.65327	RIVER BASIN				
STORET#		AGENCY				
INVESTIGATORS M. T.	homayer, B. Otto					
FORM COMPLETED BY MThomayer, B. Otlo	, URS Corp	DATE 15 May TIME 1358	2012_ AM PM	REASON FO	OR SURVEY	
WEATHER CONDITIONS	Now		Past 24 hours	Has there been	a heavy rain	in the last 7 days?
		(heavy rain) steady rain)	•	Air Temperatu	re0 C	
	<ul> <li>shower</li> </ul>	s (intermittent) loud cover	• %	Other		
		ear/sumny	. — ′°			
SITE LOCATION/MAP	Draw a map of the sit	e and indicate the	areas samp	led (or attach a	photograph)	4
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	1	4/ /	53 /		1	<i>l</i> *
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			(P	)	4,	
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	/	2-7		4		11-1-1-2
		-N)	7		A	5-Md+5/15/12-7
		18.	(1)			
			-	~		
STREAM CHARACTERIZATION	Stream Subsystem • Perennial • Int	ermittent • Tida	al	Stream Type • Coldwater	Warmwat	er
	Stream Origin		1	Catchment Ar	ea	_km²
	Glacial     Non-glacial montant	Spring-fex     Mixture o	f origins			
	Swamp and bog	• Others	210pa			

Stream 71

5710H 5/15/12-7 side change (BACK)

	, year	
WATERSHED FEATURES	Predominant Surrounding Landuse Forest Commercial FieldPasture Industrial Agricultural Residential	Local Watershed NPS Pollution  • No evidence Some potential sources  • Obvious sources  Local Watershed Erosion  • None • Moderate • Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the domina Trees Shrubs dominant species present Hive Mes Say	nt species present Grasses  Herbaceous  L-Maple-hickory-beech
INSTREAM FEATURES	Estimated Reach Length / B15 and f  Estimated Stream Width 4-6 and f  Sampling Reach Area m²  Area in km² (m²x1000) km²  Estimated Stream Depth 2 m in upd  Surface Velocity m/sec (at thalweg)	Canopy Cover Partly open Partly shaded Right Water Mark Proportion of Reach Represented by Stream Morphology Types Riffle 40 % Pool 70 % Channelized Yes Dam Present Yes
LARGE WOODY DEBRIS	LWDm <sup>2</sup> Lots of a Density of LWDm <sup>2</sup> /km <sup>2</sup> (LWD/ reach	seedy debris
AQUATIC VEGETATION	Indicate the dominant type and record the domina  Rooted emergent Floating Algae  dominant species present  Portion of the reach with aquatic vegetation	Rooted floating     Free floating
WATER QUALITY	Temperature ° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors  Normal/None • Sewage  Petroleum • Chemical  Fishy • Other  Water Surface Oils  Slick • Sheen • Globs • Flecks  None • Other  Turbidity (if not measured)  Clear • Slightly turbid • Turbid  Opaque • Stained • Other
SEDIMENT/ SUBSTRATE	Odors  Norma Sewage Petroleum Chemical Anaerobic None  Other  Oils Absent Slight Moderate Profuse	Deposits Sludge Sawdust Paper fiber Sand Relict shells Other  Looking at stones which are not deeply embedded, are the undersides black in color? Yes

INC	ORGANIC SUBSTRATE (should add up to			ORGANIC SUBSTRATE Co	
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant	
Boulder	> 256 mm (10")	15		materials (CPOM)	
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	35		(FPOM)	
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)	10			

Stream + 1

S-Not 5/15/2012-75ide chunne/43

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (FRONT)

STREAM NAMES-nots/15/12-7 5100 #3	LOCATION Big Sandy Plant, Lawrence Co, KY			
STATION # RIVERMILE	STREAM CLASS			
LAT 38./8557 LONG 82.65327	RIVER BASIN			
STORET#	AGENCY			
INVESTIGATORS N. Thomayer, B. Otto				
FORM COMPLETED BY H. Thomayer B. Otto : ORS Corp	DATE 15 May 2012 TIME 1358 AM 190	REASON FOR SURVEY		

	Habitat	Condition Category				
	Parameter	Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	score 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0	
sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.	
ted in	score 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
ıram	score 7	20 19 18 17 16	15 14 13 12 11	10 9 8 🕖 6	5 4 3 2 1 0	
Pa	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
	score 13	20 19 18 17 16	15 14 🐼 12 11	10 9 8 7 6	5 4 3 2 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
55	score /	20 19 18 17 16	15 14 13 12 11	10 9 8 🕖 6	5 4 3 2 1 0	

Stylcem 71

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	Habitat	Condition Category				
ing reach	Parameter	Optimal	Suboptimal	Marginal	Poor	
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
	score /4	20 19 18 17 16	15 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
amp	score /3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.  SCORE 7 (LB)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.  Left Bank 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
o pe	SCORE 7 (RB)	Right Bank 10 9	8 P 6	5 4 3	2 1 0	
Parameters t	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
	SCORE $\frac{U}{U}$ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
	SCORE (RB)	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0	
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.	
	SCORE $\frac{7}{2}$ (LB)	Left Bank 10 9	8 <b>1</b> 6	5 4 3	2 1 0	
63	SCORE (RB)	Right Bank 10 9	8 🗇 6	5 4 3	2 1 0	

Total Score 1/8



# APPENDIX E DELINEATED FEATURES PHOTOGRAPHS





E1 – WETLANDS





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 1

Date:

May 23, 2012

**Description:** 

Wetland 1

Facing southwest

PEM/PSS



Photo No. 2

Date:

May 23, 2012

**Description:** 

Wetland 2

Facing east





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 3

Date:

May 24, 2012

**Description:** 

Wetland 3

Facing north

PEM



#### Photo No. 4

Date:

May 24, 2012

**Description:** 

Wetland 4

Facing west





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 5

Date:

May 24, 2012

**Description:** 

Wetland 5

Facing south

PEM



Photo No. 6

Date:

May 24, 2012

**Description:** 

Wetland 6

Facing northwest

PEM/PSS





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No.

13815152

Photo No. 7

Date:

May 24, 2012

**Description:** 

Wetland 7

Facing northeast

PEM



Photo No. 8

Date:

May 24, 2012

**Description:** 

Wetland 8

Facing north





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 9

Date:

June 5, 2012

**Description:** 

Wetland 9

Facing northeast

PEM/PSS



Photo No. 10

Date:

June 7, 2012

**Description:** 

Wetland 10

Facing west





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 11

Date:

June 7, 2012

**Description:** 

Wetland 11

Facing north

PEM



Photo No. 12

Date:

June 7, 2012

**Description:** 

Wetland 12

Facing north





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 13

Date:

June 7, 2012

**Description:** 

Wetland 13

Facing southeast

PEM



Photo No. 14

Date:

October 15, 2012

**Description:** 

Wetland 14

Facing north

PEM/PSS





Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No.

13815152

Photo No. 15

Date:

October 15, 2012

**Description:** 

Wetland 15

Facing east

PEM



Photo No. 16

Date:

October 15, 2012

**Description:** 

Wetland 16

Facing east

PEM/PSS





Client Name: Dames & Moore

AEP

Site Location:

Project No.

Big Sandy Pond Closure Project

13815152

Photo No. 17

Date:

October 15, 2012

**Description:** 

Wetland 17

Facing east

PFO





E2 –STREAMS





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 1

Date:

May 2, 2012

**Description:** 

Stream 1

Facing downstream

Ephemeral stream



#### Photo No. 2

Date:

May 2, 2012

**Description:** 

Stream 2

Facing upstream





**Streams** 

**Client Name:** 

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 3

Date:

May 2, 2012

**Description:** 

Stream 3

Facing downstream

Ephemeral stream



#### Photo No. 4

Date:

October 15, 2012

**Description:** 

Stream 4

Facing Downstream

Intermittent stream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 5

Date:

October 15, 2012

**Description:** 

Stream 5

Facing Upstream

Ephemeral stream



Photo No. 6

Date:

May 2, 2012

**Description:** 

Stream 6

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 7

Date:

May 2, 2012

**Description:** 

Stream 7

Facing upstream

Ephemeral stream



#### Photo No. 8

Date:

May 2, 2012

**Description:** 

Stream 8

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 9

Date:

May 2, 2012

**Description:** 

Stream 9

Facing upstream

Ephemeral stream



Photo No. 10

Date:

May 3, 2012

**Description:** 

Stream 10

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 11

Date:

May 3, 2012

**Description:** 

Stream 11

Facing upstream

Intermittent stream



Photo No. 12

Date:

May 3, 2012

**Description:** 

Stream 12

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 13

Date:

May 3, 2012

**Description:** 

Stream 13

Facing upstream

Intermittent stream



#### Photo No. 14

Date:

May 4, 2012

**Description:** 

Stream 14

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 15

Date:

May 4, 2012

**Description:** 

Stream 15

Facing upstream

Intermittent stream



Photo No. 16

Date:

May 4, 2012

**Description:** 

Stream 16

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 17

Date:

May 15, 2012

**Description:** 

Stream 17

Facing upstream

Intermittent stream



Photo No. 18

Date:

May 15, 2012

**Description:** 

Stream 18

Facing upstream

Intermittent stream





**Streams** 

**Client Name:** 

Site Location:

Project No.

AEP

Big Sandy Pond Closure Project

13815152

Photo No. 19

Date:

May 15, 2012

**Description:** 

Stream 19

Facing upstream

Ephemeral stream



Photo No. 20

Date:

May 15, 2012

**Description:** 

Stream 20

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 21

Date:

May 24, 2012

**Description:** 

Stream 21

Facing upstream

Ephemeral stream



Photo No. 22

Date:

May 24, 2012

**Description:** 

Stream 22

Facing downstream

Intermittent stream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 23

Date:

May 24, 2012

**Description:** 

Stream 23

Facing downstream

Ephemeral stream



Photo No. 24

Date:

May 24, 2012

**Description:** 

Stream 24

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 25

Date:

May 24, 2012

**Description:** 

Stream 25

Facing downstream

Ephemeral stream



Photo No. 26

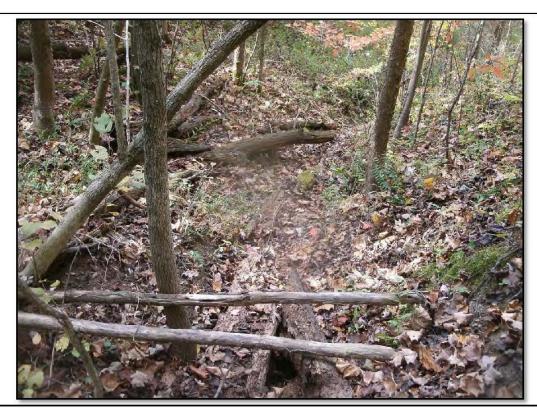
Date:

October 15, 2012

**Description:** 

Stream 26

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 27

Date:

October 15, 2012

**Description:** 

Stream 27

Facing upstream

Ephemeral stream



Photo No. 28

Date:

October 15, 2012

**Description:** 

Stream 28

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 29

Date:

October 15, 2012

**Description:** 

Stream 29

Facing downstream

Ephemeral stream



Photo No. 30

Date:

June 7, 2012

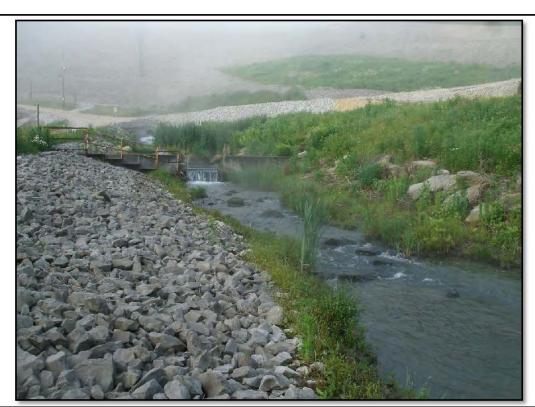
**Description:** 

Stream 30

Landfill Outfall

Facing upstream

Perennial Stream





**Streams** 

**Client Name:** 

Site Location:

Project No.

AEP

Big Sandy Pond Closure Project

13815152

Photo No. 31

Date:

June 7, 2012

**Description:** 

Stream 31

Landfill Outfill

Intermittent Stream



Photo No. 32

Date:

June 7, 2012

**Description:** 

Stream 32

Former Landfill Outfall

Facing downstream

Intermittent Stream





**Streams** 

Client Name: Dames & Moore

Site Location:

Project No.

AEP

Big Sandy Pond Closure Project

13815152

Photo No. 33

Date:

May 3, 2012

**Description:** 

Stream 33

Facing downstream

Ephemeral stream



Photo No. 34

Date:

May 3, 2012

**Description:** 

Stream 34

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 35

Date:

May 3, 2012

**Description:** 

Stream 35

Facing downstream

Intermittent stream



Photo No. 36

Date:

May 4, 2012

**Description:** 

Stream 36

Facing upstream





**Streams** 

**Client Name:** 

Site Location:

Project No.

AEP

Big Sandy Pond Closure Project

13815152

Photo No. 37

Date:

May 4, 2012

**Description:** 

Stream 37

Facing upstream

Ephemeral stream



Photo No. 38

Date:

May 15, 2012

**Description:** 

Stream 38

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 39

Date:

May 15, 2012

**Description:** 

Stream 39

Facing downstream

Intermittent stream



Photo No. 40

Date:

May 15, 2012

**Description:** 

Stream 40

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 41

Date:

May 15, 2012

**Description:** 

Stream 41

Facing upstream

Intermittent stream



Photo No. 42

Date:

May 15, 2012

**Description:** 

Stream 42

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 43

Date:

May 15, 2012

**Description:** 

Stream 43

Facing upstream

Ephemeral stream



Photo No. 44

Date:

May 15, 2012

**Description:** 

Stream 44

Facing upstream

Perennial stream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 45

Date:

May 24, 2012

**Description:** 

Stream 45

Facing upstream

Ephemeral stream



Photo No. 46

Date:

May 24, 2012

**Description:** 

Stream 46

Facing downstream

Intermittent stream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 47

Date:

May 24, 2012

**Description:** 

Stream 47

Facing upstream

Ephemeral stream



#### Photo No. 48

Date:

May 24, 2012

**Description:** 

Stream 48

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 49

Date:

May 24, 2012

**Description:** 

Stream 49

Facing downstream

Ephemeral stream



Photo No. 50

Date:

May 24, 2012

**Description:** 

Stream 50

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 51

Date:

May 24, 2012

**Description:** 

Stream 51

Ephemeral stream



Photo No. 52

Date:

June 5, 2012

**Description:** 

Stream 52

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 53

Date:

June 5, 2012

**Description:** 

Stream 53

Facing downstream

Ephemeral stream



Photo No. 54

Date:

June 5, 2012

**Description:** 

Stream 54

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 55

Date:

June 5, 2012

**Description:** 

Stream 55

Facing downstream

Ephemeral stream



Photo No. 56

Date:

June 5, 2012

**Description:** 

Stream 56

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 57

Date:

June 6, 2012

**Description:** 

Stream 57

Ephemeral stream



Photo No. 58

Date:

June 6, 2012

**Description:** 

Stream 58

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 59

Date:

June 6, 2012

**Description:** 

Stream 59

Ephemeral stream



Photo No. 60

Date:

June 6, 2012

**Description:** 

Stream 60





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 61

Date:

June 5, 2012

**Description:** 

Stream 61

Facing upstream

Ephemeral stream



Photo No. 62

Date:

June 5, 2012

**Description:** 

Stream 62

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 63

Date:

June 5, 2012

**Description:** 

Stream 63

Facing upstream

Ephemeral stream



Photo No. 64

Date:

June 5, 2012

**Description:** 

Stream 64

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 65

Date:

June 5, 2012

**Description:** 

Stream 65

Facing downstream

Ephemeral stream



Photo No. 66

Date:

June 5, 2012

**Description:** 

Stream 66

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 67

Date:

June 6, 2012

**Description:** 

Stream 67

Facing downstream

Ephemeral stream



Photo No. 68

Date:

June 6, 2012

**Description:** 

Stream 68

Perennial stream





**Streams** 

**Client Name:** 

Site Location:

Project No.

AEP

Big Sandy Pond Closure Project

13815152

Photo No. 69

Date:

June 6, 2012

**Description:** 

Stream 69

Ephemeral stream

(no photo available)

Photo No. 70

Date:

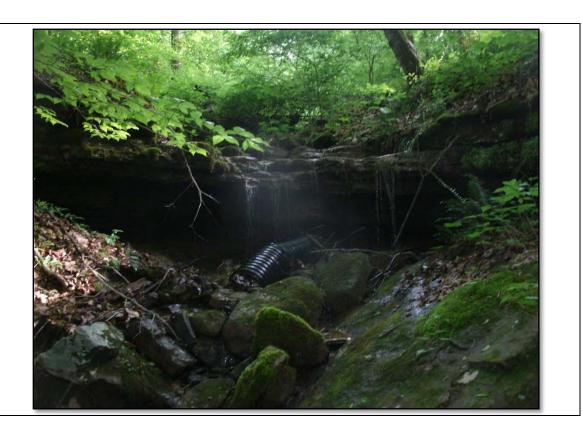
May 15, 2012

**Description:** 

Stream 70

Facing upstream

Intermittent stream





**Streams** 

**Client Name:** 

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 71

Date:

May 23, 2012

**Description:** 

Stream 71

Facing upstream

Intermittent stream



Photo No. 72

Date:

October 15, 2012

**Description:** 

Stream 72

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 73

Date:

October 15, 2012

**Description:** 

Stream 73

Facing upstream

Ephemeral stream



Photo No. 74

Date:

October 15, 2012

**Description:** 

Stream 74

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 75

Date:

October 15, 2012

**Description:** 

Stream 75

Facing downstream

Ephemeral stream



Photo No. 76

Date:

October 15, 2012

**Description:** 

Stream 76

Facing upstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

Project No. 13815152

Photo No. 77

Date:

October 15, 2012

**Description:** 

Stream 77

Facing upstream

Ephemeral stream



Photo No. 78

Date:

October 15, 2012

**Description:** 

Stream 78

Facing downstream





**Streams** 

Client Name: Dames & Moore

AEP

Site Location:

Big Sandy Pond Closure Project

**Project No.** 13815152

Photo No. 79

Date:

October 15, 2012

**Description:** 

Stream 79

Facing upstream

Ephemeral stream



Photo No. 80

Date:

October 15, 2012

**Description:** 

Stream 80

Facing downstream





E3 – PONDS





**Ponds** 

Client Name: Dames & Moore

AEP

Site Location:

Project No.

Big Sandy Pond Closure Project

13815152

Photo No. 1

Date:

May 4, 2012

**Description:** 

Pond 1

Facing southwest

