Supplemental Aquatic Resources Report

Mariner East Project – Houston to Delmont Mainline

June 2014

Prepared for:

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Prepared by:

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Supplemental Aquatic Resources Report Mariner East 1, Houston to Delmont Project Washington County, Pennsylvania

Introduction

Tetra Tech, Inc. (Tetra Tech) was contracted by Sunoco Pipeline, L.P. (SPLP) to perform an aquatic resources survey throughout Washington County, Pennsylvania, for the proposed Mariner East 1 (ME1), Houston to Delmont Project. In the General Permit registration packages submitted for the ME1 Project in July 2013 an Aquatic Resources Report was also submitted to support the registration. Since that submission, new project areas have been identified and field surveys have been completed. This report presents the results of the field surveys conducted and is considered a supplement to the original Aquatic Resources Report. The new project areas resulted in the identification of two (2) new wetlands and eight (8) new streams.

Specifically, the purpose of this supplement is to present the results of the field investigation that was conducted to determine the presence and extent of additional areas within the survey areas that meet the criteria for federal wetlands designation according to the United States Army Corps of Engineers (USACE) guidelines, and are potentially jurisdictional and regulated under Section 404 of the Clean Water Act (CWA). Background review information, field methods, soils, and the presence of USFWS NWI features that fall within 100 feet of the survey areas are provided in the previously submitted ME1 report.

This supplemental report summarizes the characteristics of the delineated resources and provides figures of the survey area (Attachment A, Figures), photographic documentation of the identified aquatic resources (Attachment B, Photographic Record), and datasheets for each resource (Attachment C, Aquatic Resource Data Forms).

Survey Results - Additional Project Areas

Wetlands

Two (2) additional wetlands meeting USACE criteria were identified in the survey area. Their geometry and alignments are included in Attachment A, and photographs of each wetland can be viewed in Attachment B. A summary of wetland characteristics are summarized in Table 1 below.

Table 1. Additional Wetlands Delineated Within the Survey Area

Wetland ID	County ¹	Figure Page Number	Photo Number	Cowardin Classification ²	Brief Wetland Description
W201	WA	5	1, 2	PEM	Seep within floodplain of stream S269.
W204	WA	6	3, 4	PEM	Topographic depression within hillslope.

¹ WA-Washington

² Field classification based on Cowardin *et al.* 1979. PEM = palustrine emergent wetland.

Waterbodies

Tetra Tech identified eight (8) additional streams within the survey area. Their alignments and locations are included in Attachment A and photographs of each stream are included in Attachment B. Table 2 below summarizes the features and characteristics of each stream.

Table 2. Additional Streams Identified Within the Survey Area

Stream ID	County ¹	Figure Page No.	Photo No.	USGS Name	Flow Regime	Bank Width (ft.)	Substrate ²
S250	WA	1	5, 6	Unnamed Tributary to Little Chartiers Creek	Intermittent	6	
S260	WA	2	7, 8	Unnamed Tributary to Little Chartiers Creek	Ephemeral	2	B, O
S269	WA	3	9, 10	Unnamed Tributary to Little Chartiers Creek	Intermittent	6	C/G, S, O
S270	WA	3	11, 12	Unnamed Tributary to Little Chartiers Creek	Intermittent	2	C/G, S
S271	WA	3	13, 14	Unnamed Tributary to Little Chartiers Creek	Intermittent	5	C/G, S, O
S279	WA	4	15, 16	Unnamed Tributary to Little Chartiers Creek	Ephemeral	3	C/G, S, O
S280	WA	4	17, 18	Unnamed Tributary to Little Chartiers Creek	Intermittent	3	C/G, S, S/C, O
S281	WA	4	19, 20	Unnamed Tributary to Little Chartiers Creek	Ephemeral	4	C/G, S, O

¹ WA-Washington

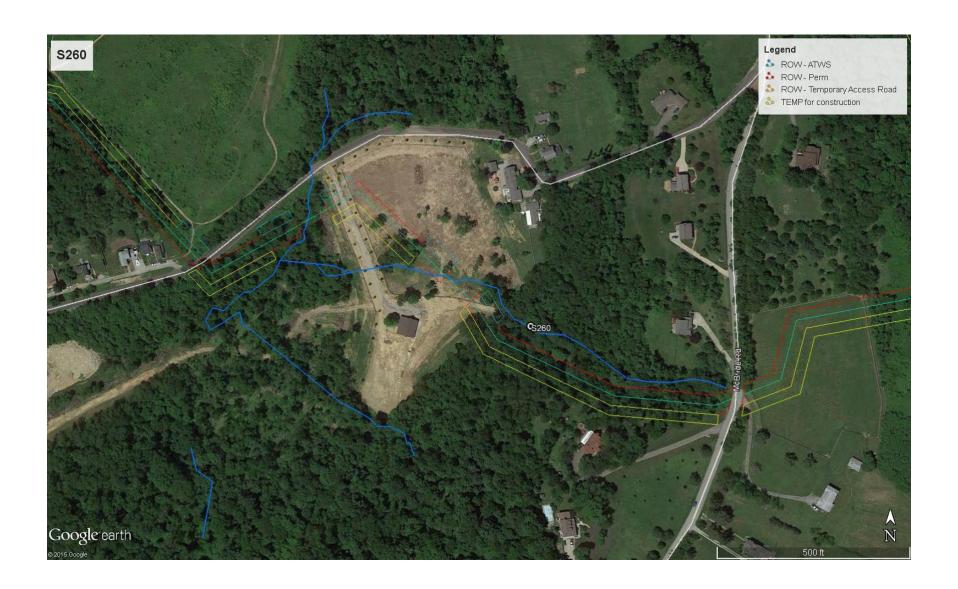
 $^{^2}$ B – Boulder, C/G – Cobble/Gravel, S – Sand, S/C – Silt/Clay, O – Organic

References

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31, Washington, D.C. 131 pp.
- Environmental Laboratory. 1987. United States Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS. 100 pp.
- Munsell Color. 2009. Munsell Soil Color Chart. MacBeth Division of Kollmorgen Instruments Corporation. Baltimore, MD. 27 pp.
- Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (09/13/2012)
- United States Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Vicksburg, MS. 182 pp.

ATTACHMENT A FIGURES













ATTACHMENT B PHOTOGRAPHIC RECORD

Company:Sunoco Logistics, L.P.Project:Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 1 **Direction:** S

Comments: Wetland W201

vegetation.



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 2 Direction: N

Comments: Upland vegetation adjacent to wetland W201.

Company:Sunoco Logistics, L.P.Project:Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/21/2014

Photo No.: 3
Direction: S

Comments: Wetland W204

vegetation.



Photographer: N. Grosse **Date:** 5/21/2014

Photo No.: 4
Direction: SW

Comments: Upland vegetation adjacent to wetland W204.

Company: Sunoco Logistics, L.P.
Project: Pennsylvania Pipeline Project

Photographer:

Date:

Photo No.: 5

Direction:

Comments: Stream S250

upstream

PHOTO NOT AVAILABLE

Photographer:

Date:

Photo No.: 6

Direction:

Comments: Stream S250

downstream

PHOTO NOT AVAILABLE

Company:Sunoco Logistics, L.P.Project:Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 7
Direction: E
Comments: Stream S260

upstream



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 8
Direction: W

Comments: Stream S260

Company: Sunoco Logistics, L.P.
Project: Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 9
Direction: W

Comments: Stream S269

upstream.



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 10 Direction: E

Comments: Stream S269

Company:Sunoco Logistics, L.P.Project:Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 11
Direction: N

Comments: Stream S270

upstream.



Photographer: N. Grosse **Date:** 5/19/2014

Photo No.: 12 Direction: S

Comments: Stream S270

Company: Sunoco Logistics, L.P.
Project: Pennsylvania Pipeline Project



Photographer: N. Grosse
Date: 5/19/2014
Photo No.: 13
Direction: N

Comments: Stream S271

upstream.



Photographer: N. Grosse **Date:** 5/19/2014 **Photo No.:** 14

Direction: S

Comments: Stream S271

Company: Sunoco Logistics, L.P.
Project: Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/20/2014 **Photo No.:** 15

Direction: NE **Comments:** Stream S279

upstream.



Photographer: N. Grosse **Date:** 5/20/2014

Photo No.: 16 **Direction:** SW

Comments: Stream S279

Company: Sunoco Logistics, L.P.
Project: Pennsylvania Pipeline Project



Photographer: N. Grosse
Date: 5/20/2014
Photo No.: 17
Direction: E

Comments: Stream S280

upstream.



Photographer: N. Grosse **Date:** 5/20/2014

Photo No.: 18
Direction: W

Comments: Stream S280

Company: Sunoco Logistics, L.P.
Project: Pennsylvania Pipeline Project



Photographer: N. Grosse **Date:** 5/20/2014

Photo No.: 19 **Direction:** E

Comments: Stream S281

upstream.



Photographer: N. Grosse **Date:** 5/20/2014

Photo No.: 20 Direction: W

Comments: Stream S281

ATTACHMENT C AQUATIC RESOURCE DATA FORMS

WETLAND DETERMINATION DATA FORM	– Eastern Mountains and Piedmont Region					
Project/Site: MARZNEA FAST City/C	County: Wasutratus Sampling Date: 5/19/2014					
Applicant/Owner: Suna Logg 51265	State: PA Sampling Point: W201-Le					
Investigator(s): Per Garen Secti						
Landform (hillslope, terrace, etc.): Htuscoft Local rel						
Landrollin (milisiope, terrace, etc.).	Slope (%): C					
Subregion (LRR or MLRA): LPL N Lat: 40.234176						
Soil Map Unit Name: FA- FUNDAQUENTS; LOAMY	NWI classification:(ff^					
Are climatic / hydrologic conditions on the site typical for this time of year?	∕es _X No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significantly distur	rbed? Are "Normal Circumstances" present? Yes X No					
Are Vegetation, Soil, or Hydrology 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.					
	point roodions, aunosois, important routures, etc.					
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area					
Hydric Soil Present? Yes No	within a Wetland? Yes No					
Wetland Hydrology Present? Yes X No						
Remarks: Stell ANEI IN FLOOPPLAIN						
Jen Mach 4						
LIVEROLOGY						
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)					
	, , ,					
★ High Water Table (A2) ★ Hydrogen Sulfide Od						
✓ Saturation (A3) Oxidized Rhizospher						
Water Marks (B1) Presence of Reduced	· · · ·					
	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)					
Aquatic Fauna (B13)	FAC-Neutral Test (D5)					
Field Observations:	a					
Surface Water Present? Yes X No Depth (inches): 4	1,1					
Water Table Present? Yes Y No Depth (inches): 1"	(h)					
Saturation Present? Yes V No Depth (inches): 141	(hcc Wetland Hydrology Present? Yes No					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:					
Description						
Remarks: Seep acen in Non-worky acen						
See also in randaca						

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

Sampling Point: W201-wd

		ninant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover Spe	ecies? 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 That Are OBL, FACW, or FAC: (A/B)
5,			That Are OBL, FACW, or FAC: (A/B)
6			Prevalence Index worksheet:
7			COURS DAY THE STANKE SHOWN SANCE STORE THE RESIDENCE S
		tal Cover	Total % Cover of: Multiply by:
50% of total cover:			OBL species x 1 =
	20 % 01 total	COVEI	FACW species IV x 2 = Z8
Sapling/Shrub Stratum (Plot size:)			
1.,			FAC species x 3 =
2,			FACU species x4=
			UPL species x 5 =
3			Column Totals: 95 (A)
4			Column Totals() (A)
5			Prevalence Index = B/A = \.\(\frac{1}{6}\frac{9}{3}\)
and the second s			
6			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			
9			± 2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 ¹
		tal Cover	4 - Morphological Adaptations (Provide supporting
50% of total cover:	20% of tota	cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)			
1. RAPHINCHEUS SIEIERATUS	60	Y OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Juntus FFFusus		N FACU	¹ Indicators of hydric soil and wetland hydrology must
3. MENTER SEZERIA	<u> </u>	M FACW_	be present, unless disturbed or problematic.
4. ERWISETUM ARVENSE	. 1	N FAL	
1121			Definitions of Four Vegetation Strata:
5			Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
6			more in diameter at breast height (DBH), regardless of
7			height,
8,			Sapling/Shrub - Woody plants, excluding vines, less
9,			than 3 in. DBH and greater than or equal to 3.28 ft (1
10			m) tall.
11.			1
116	95 = To		Herb – All herbaceous (non-woody) plants, regardless
tue tue		tal Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of tota	l cover:[1	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)			height.
1,			
2			
3			
4			
			Hydrophytic
5			Vegetation Yes No
	= To	tal Cover	Present? Tes NO
50% of total cover:	20% of tota	l cover:	
Remarks: (Include photo numbers here or on a separate	sheet)		
Tremands. (melade prioto nambero nero or on a separate	5.1001.7		

Profile Description: (Describe to the de	oth needed to document the indicator or confirm	the absence of indicators.)
Depth Matrix	Redox Features	
(inches) Color (moist) %	Color (moist) % Type¹ Loc²	Texture Remarks
D-12 104 2/1 100	N/A	Sil Mucky
3 		
	=Reduced Matrix, MS=Masked Sand Grains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:	D 1 0 1 (DD	Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2) Black Histic (A3)	Polyvalue Below Surface (S8) (MLRA 147,Thin Dark Surface (S9) (MLRA 147, 148)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	(MLRA 147, 148) Piedmont Floodplain Soils (F19)
Stratified Lavers (A5)	Depleted Matrix (F3)	(MLRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark Surface (F6)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Other (Explain in Remarks)
X Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,	
MLRA 147, 148)	MLRA 136)	31-12-1-1
Sandy Gleyed Matrix (S4) Sandy Redox (S5)	Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14)	³ Indicators of hydrophytic vegetation and 8) wetland hydrology must be present,
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 147	
Restrictive Layer (if observed):		, amos distarbed of problematio.
Type:		
Depth (inches):		Hydric Soil Present? Yes No
Remarks:		
	6 14	
Spins area in	fleud plan	
/		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MANZNER FAST City	County: VASUM 6,70- Sampling Date: 5/19/104
Applicant/Owner: Sunow Logist7215	State: PD Sampling Point: v201- up
Investigator(s): Sec	tion, Township, Range: North Strashne
Landform (hillslope, terrace, etc.): VALLE! FLOOPILARY Local re	
Subregion (LRR or MLRA): UL N Lat: 40, 231,055	
Soil Map Unit Name: FA - FLYNMANENTS, LOAM!	NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distr	1 Section Control of the Control of
Are Vegetation, Soil, or Hydrology naturally probler	matic? (If needed, explain any answers in Remarks.)
	impling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks:	Is the Sampled Area within a Wetland? Yes No
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 O	
	eres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduce	ed Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduct	ion in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface	(C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	emarks) 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 No Depth (inches):	
Water Table Present? Yes No Depth (inches):	Y Y
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	revious inspections), if available:
Remarks:	
NO ENPICATORS OF HYDOLOG	as Observes
'	

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

Sampling Point: 670 - 4

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: CAMPO)		Species?		Number of Dominant Species
1. FRAXZNUS AMERICANA	70	W	FACU	That Are OBL, FACW, or FAC: (A)
2		10		
				Total Number of Dominant Species Across All Strata: (B)
3			-	Species Across All Strata: (B)
4				Percent of Dominant Species 12
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				
				Prevalence Index worksheet:
7			·	Total % Cover of: Multiply by:
		= Total Cov		OBL species() x 1 =
50% of total cover:	20% of	total cover:		Obligation of the obligation o
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 = 3o
1				FAC species x 3 =
lay firm				FACU species x 4 = 7 40
2				UPL species
3				
4				Column Totals:(B)(B)
5				
				Prevalence Index = B/A = 3.43
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				
0-,		= Total Cov	0.5	3 - Prevalence Index is ≤3,01
500/ -54-4-1				4 - Morphological Adaptations (Provide supporting
50% of total cover:	20% 01	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	۵.			Problematic Hydrophytic Vegetation¹ (Explain)
1. VERSESTA ALTERNICOLIA	<u> 30 · </u>	<u> </u>	FAL	Troblematio Tryanophytic Vogetation (Explain)
2. TRZFOLIUM REPENS	70	W	FACU	
3. ALLANZA PETROLATA		iol	FACH	¹ Indicators of hydric soil and wetland hydrology must
	- (0			be present, unless disturbed or problematic.
4. Contain morniplum	15	. <u> </u>	FALW	Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
560				more in diameter at breast height (DBH), regardless of height.
7,-				neight.
8				Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11,				Mark All barbassaya (asa wasaka) alaata sagardlaga
		= Total Cov		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
500 5111 110				of size, and woody plants less than 3.20 it tail.
50% of total cover: <u> </u>	20% 01	total cover		Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1,				
2				
			.00	
3,				
4				Hydrophytic
5				Vegetation
		= Total Cov	er	Present? Yes No _/ \
50% of total cover:				
Remarks: (Include photo numbers here or on a separate	sneet.)			
I .				

^	$\overline{}$	
•	"	

Sampling Point: WWW

Profile Description: (Describe to the de	pth needed to docume	nt the indicator	or confirm	the absenc	e of indicators.)
Depth Matrix	Redox F	eatures			
(inches) Color (moist) %	Color (moist)	<u>%</u> Type ¹	Loc ²	Texture_	Remarks
0-89 10 Nr 3/4 100				sil	<u></u>
[· · · · · · · · · · · · · · · · · · ·		:		*
					· ·
) 	-				· ·
					·
A					*
1Type: C-Concentration D-Depletion Dt	EDadward Matrix MC-	Manhad Cand Ca		2,	Di D. III ALAM
¹ Type: C=Concentration, D=Depletion, RN Hydric Soil Indicators:	i=Reduced Matrix, MS=	wasked Sand Gr	ains.		PL=Pore Lining, M=Matrix.
_ ·	D-10 ()	·			cators for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S	,	41 DA 44-		2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)		w Surface (S8) (N		148)	Coast Prairie Redox (A16)
Black Histic (A3) Hydrogen Sulfide (A4)	Inin Dark Suna	ace (S9) (MLRA 1 Matrix (E2)	147, 148)		(MLRA 147, 148) Piedmont Floodplain Soils (F19)
Stratified Layers (A5)	Loarny Gleyed			_	(MLRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark Su	, ,			Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Dark				Other (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depress			_	(
Sandy Mucky Mineral (S1) (LRR N,		e Masses (F12) (LRR N,		
MLRA 147, 148)	MLRA 136)	, , ,			
Sandy Gleyed Matrix (S4)	Umbric Surface	(F13) (MLRA 1 3	6, 122)	31n	dicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Flood	iplain Soils (F19)	(MLRA 14	8) v	vetland hydrology must be present,
Stripped Matrix (S6)	Red Parent Mar	terial (F21) (MLR	A 127, 147	') u	inless disturbed or problematic.
Restrictive Layer (if observed):					
Type:					V
Depth (inches):				Hydric So	il Present? Yes No
Remarks:					***

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: Maranet Fast City/County: Sampling Date: 57 W14 WASELLAL TON Applicant/Owner: Sunne Lag151115 Sampling Point: 6204-641 Investigator(s): ______ | M______ | Lugard ___ Section, Township, Range: Not Link Ham Local relief (concave, convex, none): _______ Landform (hillslope, terrace, etc.): Utlaks570 Lat: 40.235592 Long: -80.087871 Subregion (LRR or MLRA) Soil Map Unit Name: ______ Called La NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Is the Sampled Area Yes _____ No _____ Hydric Soil Present? Yes No. within a Wetland? Wetland Hydrology Present? Remarks: **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) Sparsely Vegetated Concave Surface (B8) ★ High Water Table (A2) ___ Drainage Patterns (B10) ___ Hydrogen Sulfide Odor (C1) X Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) ___ Dry-Season Water Table (C2) ___ Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) 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: No _____ Depth (inches):_ Surface Water Present? No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes Saturation Present? ✓ No ____ Depth (inches): Suffice (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

Sampling Point: L204- well

	Absolute	Dominant I	ndicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:) 1		Species?		Number of Dominant Species \(\) That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant Species Across All Strata: (B)
4	.——			Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
7				Prevalence Index worksheet;
13.		Total Cove	er	Total % Cover of:Multiply by:
50% of total cover:				OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 = x
2				FACU species x 4 =
3				UPL species x 5 =
4.				Column Totals: \(\lambda \mathcal{V} \) (A) \(\lambda \frac{7\psi \mathcal{V}}{\square} \) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7		-		1 - Rapid Test for Hydrophytic Vegetation
8		====		2 - Dominance Test is >50%
9		-		<u></u> 3 - Prevalence Index is ≤3.0¹
F00/ - 5 (-1-1-1		= Total Cove		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20% 01	total cover		data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	0.0	¥	Ka	Problematic Hydrophytic Vegetation ¹ (Explain)
1. INIATIENS CAPENSES	10	-yv	FALW FALW	
2. Juveus Effaisus	-10	N		¹ Indicators of hydric soil and wetland hydrology must
	5	-N	FAC	be present, unless disturbed or problematic.
4. CANYX STATETA			OBL	Definitions of Four Vegetation Strata:
5			-	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7			-	height.
8		-		Sapling/Shrub - Woody plants, excluding vines, less
9,	-	-		than 3 in. DBH and greater than or equal to 3.28 ft (1
10	-	: :		m) tall.
11,	Liss			Herb – All herbaceous (non-woody) plants, regardless
60		= Total Cove		of size, and woody plants less than 3.28 ft tall.
50% of total cover:) Woody Vine Stratum (Plot size:)	20% 01	total cover:		Woody vine – All woody vines greater than 3.28 ft in height.
1=	÷		$\overline{}$	
2,	-)2		
3	-			
4		-		Hydrophytic
5				Vegetation No.
		= Total Cove		Present? Yes No
50% of total cover:		total cover:		
Remarks: (Include photo numbers here or on a separate s	heet.)			

DepthMatrix	Redox F	eatures			
inches) Color (moist) %	Color (moist)	% Type ¹	_Loc ²	Texture	Remarks
D-12 1041 3/2 100	·			Sic	
	·				
	·				
			-		
	·			·	
	÷				
			-	1	
Type: C=Concentration, D=Depletion, RM	=Reduced Matrix MS=N	Masked Sand Gra	aine	21 ocation: Pt =Pr	ore Lining, M=Matrix.
ydric Soil Indicators:	reduced Wattix, WO-W	idanca dana di	airio.	Indicators	for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S	7)			Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Below		ILRA 147. 1		: Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface				-RA 147, 148)
Hydrogen Sulfide (A4)	Loamy Gleyed N		,		nont Floodplain Soils (F19)
Stratified Layers (A5)	Depleted Matrix	(F3)			_RA 136, 147)
_ 2 cm Muck (A10) (LRR N)	Redox Dark Surf			Very S	Shallow Dark Surface (TF12)
_ Depleted Below Dark Surface (A11)	Depleted Dark S			Other	(Explain in Remarks)
_ Thick Dark Surface (A12)	Redox Depression				
_ Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganese	Masses (F12) (LRR N,		
MLRA 147, 148)	MLRA 136)	(E40) (EE BA 40		3	
Sandy Gleyed Matrix (S4) Sandy Redox (S5)	Umbric Surface				ors of hydrophytic vegetation and
Stripped Matrix (S6)	Piedmont Floods Red Parent Mate				d hydrology must be present, disturbed or problematic.
Restrictive Layer (if observed):	Ned Palent Wate	511a1 (1 2 1) (WILK	A 127, 147)	unless	disturbed of problematic.
Type:					. /
Depth (inches):			İ	Hydric Soil Pres	
				Hydric Soil Pres	sent? Yes <u>//</u> No
demarks:					

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: MALINER FAST City/County: WASHINGTON Sampling Date: 5/1/2017 Applicant/Owner: June (1675720) Sampling Point: WM Investigator(s): Pri GUFF Section, Township, Range: NATZNEUM Landform (hillslope, terrace, etc.): \(\text{\textit{TLUS (000 to terrace}} \) \(\text{Local relief (concave, convex, none): } \(\text{\text{Convex}} \text{\text{Slope (%): } } \) \(\text{If the concave is the convex of the concave is the convex of the concave is the convex of the concave is the conca Subregion (LRR or MLRA): 1211 Lat: (0.235127 Long: -80.087769 Soil Map Unit Name: ____ CALLONA SELT LOAM NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation _____, Soil _____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes _____ No__ is the Sampled Area Hydric Soil Present? within a Wetland? Yes _____ No ___ Wetland Hydrology Present? Yes ____ __ No_ Remarks: **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) ___ Sparsely Vegetated Concave Surface (B8) Surface Water (A1) ___ True Aquatic Plants (B14) ___ Hydrogen Sulfide Odor (C1) __ High Water Table (A2) Drainage Patterns (B10) Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Moss Trim Lines (B16) ___ Water Marks (B1) Presence of Reduced Iron (C4) ___ Dry-Season Water Table (C2) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) ___ Crayfish Burrows (C8) __ Drift Deposits (B3) ___ 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: Yes _____ No ____ Depth (inches):___ Surface Water Present? Water Table Present? Yes No Depth (inches): Yes _____ No ____ Depth (inches):_____ Saturation Present? Wetland Hydrology Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No hyllology inflicators observed

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

Sampling Point: 6204 - 4

22 20 5	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)	- C.	Species?	4	Number of Dominant Species
1. Prumus SCIOTENE	10		FALL	That Are OBL, FACW, or FAC:(A)
2. Acta Facetlasum	10	_ N	FACE	Total Number of Deminent
3.				Total Number of Dominant Species Across All Strata: (B)
3			-	Opedies Adioss All Otrata.
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				
7.				Prevalence Index worksheet:
	70	= Total Cov		Total % Cover of: Multiply by:
50% of total cover:				OBL species x1 =
	20 % 01	total cover.		FACW species x 2 =
Sapling/Shrub Stratum (Plot size:)	21	,)		
1. Anous ALLEGHENTERSTS	- 57	<u> </u>	FACH	FAC species x 3 =
2. LONZCHAR TALTANZCO	(0	Ν_	FALL	FACU species x 4 = Y w =
3				UPL species x 5 =
				Column Totals: (A) (B)
4				1
5		_		Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				I I
				= 2 - Dominance Test is >50%
9,	- 11/	-	-	3 - Prevalence Index is ≤3.01
		= Total Cov		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20% of	total cover	:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)				
1. SOLLOAGO CANDOFNETS	15	N	FALU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. USA MULTZFLURA	10	N	Friu	
	10			¹ Indicators of hydric soil and wetland hydrology must
3. HESPERIS MATHURALIS		<u> </u>	FALL	be present, unless disturbed or problematic.
4	_			Definitions of Four Vegetation Strata:
5				
6		-		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
		-		more in diameter at breast height (DBH), regardless of
7,				height.
8				Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11		-	,	Heath All hosh consus (non wondy) plants, regardless
112	76	= Total Cov		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
500/ -51-1-1				of size, and woody plants loss than 6.20 it tall.
50% of total cover:	20% 01	f total cover		Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1,		137		
2				
3	_	11		
4		70		Hydrophytic
5	_	01		Vegetation
		= Total Co	ver	Present? Yes No
50% of total cover:				
Remarks: (Include photo numbers here or on a separate	s sileet.)			
1				
1				

Sampling Point: WW-4

Depth	ription: (Describe t Matrix			x Feature:			n the absence	or indicators.)
(inches)	Color (moist)	%	Color (moist)	% <u>Feature:</u>	_Type ¹	_Loc ²	Texture	Remarks
0-4	10411	100	NA				SC	1
4-12	10 44 4/4	85	TOYA 7/4	[0		<u> </u>		dishibed how soils
1 10	10 12 114	0)		-	_		-96	
			10404/6	5_	<u></u>	\underline{m}	36	1
				75				
		07======					. 	:
								
			-					
		· :		-			·	OF-
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				-			<u> </u>	
		Parameter III.	100014000011		_			
	ncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gr	ins.		=Pore Lining, M=Matrix.
Hydric Soil II			5 . 5 .					itors for Problematic Hydric Soils ³ :
Histosol (• •		Dark Surface		(00) (1)			cm Muck (A10) (MLRA 147)
Histic Epi Black His	ipedon (A2)		Polyvalue Be				, 148) C	oast Prairie Redox (A16)
	n Sulfide (A4)		Thin Dark Su Loamy Gleye			47, 148)		(MLRA 147, 148) iedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Mat		r <i>z)</i>		— r	(MLRA 136, 147)
	ck (A10) (LRR N)		Redox Dark \$		6)		V	ery Shallow Dark Surface (TF12)
	Below Dark Surface	(A11)	Depleted Dar					ther (Explain in Remarks)
	rk Surface (A12)	. ,	Redox Depre					()
Sandy Mr	ucky Mineral (S1) (L	RR N,	Iron-Mangane			RR N,		
	147, 148)		MLRA 130	6)				
	leyed Matrix (S4)		Umbric Surfa					cators of hydrophytic vegetation and
	edox (S5)		Piedmont Flo					tland hydrology must be present,
	Matrix (S6)		Red Parent M	faterial (F.	21) (MLR	4 127, 147	7) uni	ess disturbed or problematic.
	ayer (if observed):							
								\checkmark
Depth (incl	hes):						Hydric Soil	Present? Yes / No
							**	
Remarks:								
Remarks:								
Remarks:								
Remarks:								
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Surveyors: Pat Green, Born	Fickwahl Date: 5/20/13	Resource ID Number: \$250
Project: Mariner Integrity	State: PA	County: Washingfon
Photo Number (s):	%	J
,		
Flow Direction: $\frac{\mathcal{G}\mathcal{W}}{\mathcal{W}}$	Bank Width: feet	Water Width: feet
High Water Depth:fe		Turbidity:
Flow Regime: [] Perennial	[X] Intermittent [] Ephemeral []	Flowing Ditch [] Dry/Stagnant Ditch
Sinuosity: Fea	iatures:	
[X] Low [] Riffles [] Sand/Mud Bar [] F	Run/Glide
[] Medium [Pools [] Gravel Bar [] E	3raided
[] High [] Rapids [] Aquatic Vegetation [] C	Other
Substrate:	Bank Substrate:	Floodplain Width:
[] Bedrock%	Height: Left Right	Left Right
[] Boulder% [] Cobble/Gravel%	[] Bedrock [] [] Boulder []	[] <10 feet [] [] <25 feet []
[] Sand%	[] Gravel []	[] <50 feet []
[] Silt/Clay%	[] Sand []	[] <100 feet []
[] Organic%	[] Silt/Clay [] [] Organic []	[] >100 feet []
[] Shrub Species: [] Herbaceous Species:		
Wildlife Observed/Notes:		
Sketch:	26.9	
S	6 150	

Surveyors: P. Green, N. Project: Marine East Photo Number (s): 2972,	## State: PA Canopy Cover: 100 c	Resource ID Number: 5260 County: Washington
Flow Direction: High Water Depth:	Bank Width: 2 feet feet Water Depth: 2 feet	Water Width:/ feet Turbidity:
Flow Regime: [] Perennia	al [] Intermittent 📈 Ephemeral	[] Flowing Ditch [] Dry/Stagnant Ditch
[] Low	Features: [] Riffles	[] Braided
Substrate: [] Bedrock% [×] Boulder _2_, % [] Cobble/Gravel% [] Sand% [] Silt/Clay% [X] Organic _30_%	Bank Substrate: Height: Left Right [] Bedrock [] [] Boulder [] [] Gravel [] [] Sand [] [] Silt/Clay [] [] Organic []	Floodplain Width: Left Right [] <10 feet [] [] <25 feet [] [] <50 feet [] [] <100 feet [] [] >100 feet []
Species: [] Herbaceous	pry Elm, Black Cherry	
Wildlife Observed/Notes:		
	Ĭ.	
Sketch:		
g		

Surveyors: P. Gieen, N. Giosse, R. Project: Mariner East Photo Number (s): 2990, 2991	State: PA	Resource ID Number: S269 County: Washington
		Water Width: feet Turbidity: Flowing Ditch [] Dry/Stagnant Ditch
Sinuosity: Feature [] Low [] Riff [] Medium [] Poo		Run/Glide Braided
Substrate: [] Bedrock% [] Boulder% [X] Cobble/Gravel 75 % [X] Sand 20 % [] Silt/Clay% [] Organic 5 %	Bank Substrate: Height: Left Right [] Bedrock [] [] Boulder [] [] Gravel [] [] Sand [] [] Silt/Clay [] [] Organic []	Floodplain Width: Left Right [] <10 feet [] [] <25 feet [] [] <50 feet [] [] <100 feet [] [] >100 feet []
Species: [] Herbaceous	Hiflorg, Salix spp	
Wildlife Observed/Notes:		
Sketch:		

Surveyors: P. Green, N. Grosse, R. Cornish Date: 5/19/14 Resource ID Number: 5270 Project: Marcher East State: PA County:
Flow Direction: Bank Width: feet
Flow Regime: [] Perennial [] Intermittent [] Ephemeral [] Flowing Ditch [] Dry/Stagnant Ditch
Sinuosity: Features: [] Low
Substrate: Floodplain Width: [] Bedrock% Height: Left Right Left Right Right [] Boulder% [] Bedrock [] [] <10 feet []
Dominant Vegetation: [] Forested Species: [M Shrub Species: Species: [M Herbaceous Species:
Species:
Sketch:

Surveyors: P. Gre	en + N.Gras	see Date:5/19/14	Resource ID Number: S271 County:
Project: Mariku	r East	State: PA	County:
Photo Number (s): _	2996, 2997	Canopy Cover: 85 %	
High Water Depth:	feet	Water Depth: 3" feet	Water Width: _2 feet Turbidity: [] Flowing Ditch [] Dry/Stagnant Ditch
Sinuosity: [] Low [] Medium [] High	Features:	es []Sand/Mud Bar [s []Gravel Bar [
Substrate: [] Bedrock% [] Boulder% [] Cobble/Gravel {	<u>80</u> %	Bank Substrate: Height: Left Right [] Bedrock [] [] Boulder [] [] Gravel [] [] Sand [] [] Silt/Clay [] [] Organic []	Floodplain Width: Left Right [] <10 feet [] [] <25 feet [] [] <50 feet [] [] <100 feet [] [] >100 feet []
Dominant Vegetation [X] Forested Species: [X] Shrub Species: [I] Herbaceous Species:	on: Box Alder Multiflora	American Elm rose, Wild Grape	
Wildlife Observed/N	Notes:		
Sketch:			

Surveyors: P. Green + N. Grosse Date: 5/20/14 Resource ID Number: 5279 Project: Mariner East State: PA County: Photo Number (s): 30/6, 31/7 Canopy Cover: 100%				
Flow Direction: 5W Bank Width: 3 feet Water Width: / feet High Water Depth: feet Water Depth: feet Turbidity:				
Flow Regime: [] Perennial [] Intermittent [X Ephemeral [] Flowing Ditch [] Dry/Stagnant Ditch Sinuosity: Features: [] Low [] Riffles [] Sand/Mud Bar [] Run/Glide [] Medium [] Pools [] Gravel Bar [] Braided [] High [] Rapids [] Aquatic Vegetation [] Other				
Substrate: Floodplain Width: [] Bedrock% Height: Left Right Left Right Right [] Boulder% [] Bedrock [] [] <10 feet []				
Dominant Vegetation: [X] Forested Species: france, seroting, [X] Shrub Species: Multiflara rose, Rubrus see. Tartarin-honeysackle [] Herbaceous Species:				
Wildlife Observed/Notes:				
Sketch:				

Surveyors: P. Green + N. Grosse Date: \$\frac{5\2014}{2014}\$ Resource ID Number: \$\frac{5280}{280}\$ Project: Mexico Earl State: \$\frac{700}{2018}\$ County: \$\frac{3018}{200}\$ Canopy Cover: \$\frac{100}{200}\$%				
Flow Direction: Bank Width: feet				
Flow Regime: [] Perennial [] Intermittent [] Ephemeral [] Flowing Ditch [] Dry/Stagnant Ditch				
Sinuosity: Features: [] Low				
Substrate: Floodplain Width: [] Bedrock% Height: Left Right Left Right [] Boulder% [] Bedrock [] [] <10 feet []				
Dominant Vegetation: [X] Forested Species: [X] Shrub Species: [] Herbaceous Species: Species:				
Wildlife Observed/Notes:				
Sketch:				

Surveyors: P. Gneen	+ N. Grosse	Date: _5/20/14	Resource ID Number:
			County:
Photo Number (s): 3020	<u>3021</u> Can	opy Cover: 100 %	
High Water Depth:	_ feet Water De	epth: <u>1"</u> feet	Water Width: feet Turbidity:] Flowing Ditch [] Dry/Stagnant Ditch
	Features: [] Riffles [] S [] Pools [] G	and/Mud Bar [] ravel Bar []	
Substrate: [] Bedrock% [] Boulder% [] Cobble/Gravel Zo % [] Sand \leq % [] Silt/Clay% [] Organic $\frac{75}{8}$			Floodplain Width: Left Right [] <10 feet [] [] <25 feet [] [] <50 feet [] [] <100 feet [] [] >100 feet []
Dominant Vegetation: [X] Forested Species: [] Shrub Species: [] Herbaceous Species:	rican Elm,		7, White Ah
Wildlife Observed/Notes:			
Sketch:			