DELINEATION OF POTENTIAL SECTION 404 ISSUES

PROPOSED MISSISSISPPI COUNTY-ASTRO SITE MISSISSIPPI COUNTY, ARKANSAS

ENERCON PROJECT NUMBER: NEPA0633

Prepared For:

Mississippi County, Arkansas Economic Development

4701 Memorial Drive Blytheville, Arkansas 72315

Prepared By:

Sharon Davis Biologist

Reviewed By:

Heath Garner, M.S.

Senior Ecologist/Project Manager



1601 Northwest Expressway, Suite 1000 Oklahoma City, Oklahoma 73118

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INTRODUCTION AND OVERVIEW OF FINDINGS

Mississippi County, Arkansas Economic Development (the Client) contracted with Enercon Services, Inc. (ENERCON) of Oklahoma City, Oklahoma to delineate Section 404 wetlands and other waters of the United States (US) within a 670-acre area of delineation located in Mississippi County, Arkansas. A brief summary of our findings is provided below.

- No wetlands or ponds were identified within the area of delineation.
- Five (5) intermittent streams/ditches, seven (7) ephemeral ditches, five (5) agricultural PTO drainages, and one (1) mapped drainage swale were identified in the area of delineation. Although unmapped ephemeral and roadside drainages are not usually jurisdictional waters of the US, the existing US Geological Survey (USGS) mapped intermittent streams will likely be regulated by the Corps under Section 404.

Project Location

The area of delineation is approximately 670 acres in size and located approximately three (3) miles west of the town of Osceola, in Mississippi County, Arkansas (Figure 1). The area of delineation is mapped on USGS topographic quadrangle Keiser, AR (7.5-minute series) (Figure 2). Coordinates for the approximate center of the area of delineation are 35.709100 x - 90.035100 (NAD 83). Legal description of the site is Parts of Sections 28, 29, 32, and 33, Township 13 North, Range 10 East. This part of Mississippi County is primarily characterized by row crop agricultural fields with narrow forested corridors along drainages (Figure 3). The Mississippi River is located across the flood control levee east of the area of delineation. The area of delineation is located in the Upper Ditch No. 40 Watershed (HUC# 080202031205) of the Tyronza River Watershed (HUC# 0802020312).

Ecological Setting

The area of delineation is located in the Northern Holocene Meander Belts subset of the Mississippi Alluvial Plain ecoregion of Arkansas (73a). The Northern Holocene Meander Belts subset is a flat to nearly flat floodplain that contains the meander belts of the present and past courses of the Mississippi River. Point bars, natural levees, swales, and abandoned channels with meander scars and oxbow lakes are characteristic of this ecoregion subset. The Northern Holocene Meander Belts are underlain by Holocene alluvium. Soils on natural levees are relatively coarse-textured, well-drained, and higher than those on levee back slopes and point bars. Natural vegetation varies with site characteristics. Oaks are common in areas with silt or clay loam soils; sandy soils have fewer oaks and more sugarberry, elm, ash, pecan, cottonwood, and sycamore (Woods et al., 2004).



General Site Description

The area of delineation was comprised primarily of precision leveled row-crop agricultural fields. Crops including soybeans, corn, and rice are rotated and irrigated using wells and valley irrigation. The area of delineation is located on a moderately well-drained area of the floodplain of the Mississippi River (located 5 miles east of the site). The town of Osceola is located directly east and sits between the site and a man-made levee that prevents flooding from the Mississippi River. However, hydrology supplied through agricultural ditches and natural drainages allows water to move through the site. The surface run-off (irrigation and rain events) does not provide enough hydrology to create wetland conditions in depression areas within the area of delineation.

Vegetation and Community Types

The area of delineation was comprised of the following community types:

Row Crop Agricultural Field: The majority of this community type was planted in soybeans (*Glycine max*) or corn (*Zea mays*) and had recently been harvested at the time of the site visit (Photograph 1).

<u>Fallow Areas</u>: The majority of this community type is dominated by Johnson grass (*Sorghum halapense*), pigweed (*Amaranthus spinosus*), giant ragweed (*Ambrosia trifida*), and switchcane (*Arundinaria tecta*) with scattered slippery elm (*Ulmus rubra*), and black willow (*Salix nigra*) saplings. This community type is limited to the slopes of drainages within the area of delineation (Photograph 2).

Project Area Soils

The following soil map units are listed for the area of delineation: Sharkey-Steele complex, Tunica silty clay, and Steele Loamy Sand (Figure 4). Spatial data and other information regarding soils were obtained via NRCS Web Soil Survey (WSS) for Mississippi County and the Official Soil Series Description website (NRCS, 2010). All listed map units represent hydric soils or soils with a potential for hydric inclusions (Table 1).

Table 1: Soils Table

SERIES NAME (SYMBOL)	DRAINAGE CLASS	HYDRIC RATING	DESCRIPTION
Sharkey-Steel Complex (Sm)	Poorly- Moderately Drained	Yes	Linear and Concave Slopes, Found on Backswamps, Moderate-High Available Water Capacity
Tunica Silty Clay (Tu) Poorly Drained		Yes	Convex and Concave Slopes, Found on Backswamps, High Available Water Capacity



SERIES NAME	DRAINAGE	HYDRIC	DESCRIPTION
(SYMBOL)	CLASS	RATING	
Steele Loamy Sand (So)	Moderately Well Drained	Yes	Sandy and Clayey River Deposits, Found on Level to Undulating Areas of Flood Plains, Moderate Available Water Capacity

POTENTIAL JURISDICTIONAL WATERS AND WETLANDS EVALUATION

Materials and Methods

ENERCON conducted a level 3, routine wetland delineation as described in the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* (USACE, 2010). Field investigations for the delineation were completed on January 19 of 2016 by H. Garner. ENERCON evaluated the area of delineation for potential Section 404 issues (i.e., wetlands and other waters of the US).

Sample point locations were selected to evaluate those low-lying areas and other areas appearing to have at least some potential for Corps regulation under Section 404 of the CWA. Eighteen (18) sampling point locations were established throughout the area of delineation. These included five (5) wetland sample points where data on vegetation, hydrology, and soils were collected; and thirteen (13) stream sample points where ordinary high water mark (OHWM) and stream flow data was collected at each location (See figure 2).

E. B. Smith's *Keys to the Flora of Arkansas* (1994) was used to confirm certain plant identifications and the North American Digital Flora: National Wetland Plant List Version 3.1 was used to determine the wetland indicator status for the dominant species (Lichvar, R.W. and J.T. Kartesz, 2009; https://wetland_plants.usace.army.mil). Soil pits were dug with a sharpshooter shovel to a depth of approximately 16 to 18 inches, where possible, and soil colors were determined with the aid of Munsell color charts. Soil survey data from Mississippi County (Natural Resources Conservation Service (NRCS) Web Soil Survey) was used to determine map units for the area (Figure 4). Also, the NRCS *National Hydric Soils List* (dated April 2012) was used to assist in the selection of sampling points appearing to have a potential for the occurrence of hydric soils (NRCS, 2012).

Attachment 1 provides representative photographs of onsite features. Attachment 2 of this document provides completed Corps field data forms specific to a total of eighteen (18) sampling point locations.



Findings and Results

Wetlands and Ponds

There were no wetlands or ponds identified within the area of delineation.

Streams and Drainages

Five (5) intermittent streams and seven (7) ephemeral drainages were identified in the area of delineation. An additional six (6) drainages not exhibiting an OHWM (tractor power take-off [PTO] field drains and drainage swales) were also identified within the area of delineation. Table 2 provides a summary of these features.

Table 2: Summary of Streams and Drainages in the Area of Delineation

FEATURE NAME	GENERAL TYPE	MAPPED ON USGS TOPO	PREDICTED JURISDICTIONAL STATUS*	AVERAGE OHWM WIDTH (feet)	LINEAR FEET / ACREAGE WITHIN PROJECT AREA
S1	Intermittent	Yes	Yes	13	2,011 / 0.60
S2	Ephemeral	Yes	Maybe	4	7,518 / 0.69
S 3	Ditch	No	No	3	4,298 / NA
S4	Ditch	No	No	3	4,812 / NA
S5	Ditch	No	No	3	4,777/ NA
S6	Ditch	No	No	3	4,835 / NA
S 7	Ephemeral	No	No	1	1,247 / 0.03
S8	Ephemeral	No	No	1	920 / 0.02
S 9	Intermittent	Yes	Yes	4	2,595 / 0.24
S10	Intermittent	Yes	Yes	13	5,304 / 1.6
S11	Drain	No	No	N/A	486 / NA
S12	Drain	No	No	N/A	1,392 / NA
S13	Intermittent	Yes	Yes	18	1,225 / 0.51
S14	Drain	No	No	N/A	785 / NA
S15	Drain	No	No	N/A	1,180 / NA
S16	Drain	No	No	N/A	1,062 / NA
S17	Drain	No	No	N/A	2,597 / NA
S18	Intermittent	Yes	Maybe	2	2,610 /0.12
	POTENTIALLY JURI	SDICTIONAL STREA	M TOTAL: 18,652 LIN	EAR FEET (3.8 ACRE	S)

^{*}Jurisdictional status is subject to Corps approval.

Intermittent Stream 1 (S1, PT18) is mapped on the USGS topographic quadrangle as an intermittent stream and named Ditch No. 43 (drainage district nomenclature). Approximately 2,011 linear feet (0.60 acres) of this channel was located within the area of delineation. This stream featured an observable ordinary high water mark (OHWM) approximately 13 feet wide



and likely supports relatively permanent water (RPW). Therefore, S1 will likely be regulated by the Corps under Section 404 (Photograph 3).

Intermittent Stream 2 (S2, PT10) is partially mapped (2,561 linear feet) on the USGS topographic quadrangle. However, approximately 7,518 linear feet (0.69 acres) of this channel was located within the area of delineation. This stream featured an observable OHWM approximately 4 feet wide, likely supports relatively permanent water, and has a significant nexus with Ditch No. 44 (S10). Therefore, S2 may be regulated by the Corps under Section 404 (See Photograph 4).

Intermittent Stream 9 (S9, PT8) is mapped on the USGS topographic quadrangle as an intermittent stream. Approximately 2,295 linear feet (0.60 acres) of this channel was located within the area of delineation. This stream featured an observable OHWM approximately 4 feet wide, likely supports relatively permanent water (RPW), and has a significant nexus with Ditch No. 44 (S10). Therefore, S9 will likely be regulated by the Corps under Section 404 (Photograph 5).

Intermittent Stream 10 (S10, PT6 & PT9) is mapped on the USGS topographic quadrangle as an intermittent stream and named Ditch No. 44 (drainage district nomenclature). Approximately 5,304 linear feet (2.8 acres) of this channel was located within the area of delineation. This stream featured an observable OHWM approximately 23 feet wide, supports relatively permanent water (RPW), and has a significant nexus with a traditionally navigable water (TNW; Tyronza River). Therefore, S10 will likely be regulated by the Corps under Section 404 (See Photograph 6).

Intermittent Stream 13 (S13, PT4) is not mapped on the USGS topographic quadrangle. However, approximately 1,225 linear feet (0.34 acres) of this channel was located within the area of delineation. This stream featured an observable OHWM approximately 12 feet wide, likely supports relatively permanent water, and has a significant nexus with Ditch No. 44 (S10). Therefore, S13 will likely be regulated by the Corps under Section 404 (See Photograph 7).

Intermittent Stream 18 (S18, PT1) is mapped on the USGS topographic quadrangle as an intermittent stream. Approximately 2,610 linear feet (0.12 acres) of this channel was located within the area of delineation. This stream featured an observable OHWM approximately 2 feet wide, supports relatively permanent water (RPW), and has a significant nexus with Ditch No. 44 (S10). Therefore, S18 may be regulated by the Corps under Section 404 (See Photograph 8).

Ephemeral Agricultural Drainages (S7, PT 15 & S8, PT14) are not mapped on the USGS topographic quadrangle. These features have an inverted parabolic cross-section, with an OHWM approximately 1 foot. While they can be filled to capacity with surface water after



precipitation events, they do not support relatively permanent water or biotic communities. Furthermore, these drainages were excavated as part of previous farm improvements to promote irrigation drainage and have been maintained, and even cropped since that time. Therefore, these drainage features will not likely be regulated by the Corps under Section 404 (Photograph 9).

Agricultural Irrigation Ditches (S3, PT17; S4, S5, & S6) are not mapped on the USGS topographic quadrangle. While these features did exhibit discernible OHWMs and while they can be filled to capacity with surface water after precipitation events, these ditches were excavated as borrow for field levee road construction and utilized for irrigation water conveyance within each field paddock only. In as such, they do not connect to any other mapped intermittent water except through water control structures associated with irrigation drainage from the field. Therefore, these ditches will not likely be regulated by the Corps under Section 404 (Photograph 10).

Power Take-Off (PTO) Field Drains/Swales (S11, PT2; S12, S14, S15, PT7; S16 & S17) are not mapped on the USGS topographic quadrangle with the exception of S11. S11 is mapped on the USGS topographic quadrangle map, but is currently a shallow drainage swale with no defined channel or discernible OHWM. All other features did not exhibit discernible OHWMs and do not support relatively permanent water or biotic communities. Therefore, these drainages will not likely be regulated by the Corps under Section 404 (Photograph 11& 12).

SUMMARY AND CONCLUSIONS

No wetlands or ponds were located within the area of delineation. Despite the large number of streams and drainages located on the area of delineation, only six (6) streams or stream segments will likely be jurisdiction of the Memphis District of the U.S. Army Corps of Engineers. Any land forming or manipulation of drainage that will fill or re-route streams 1, 2, 9, 10, 13, or 18 will require a preliminary jurisdictional determination and potentially a Section 404 permit from the Corps.

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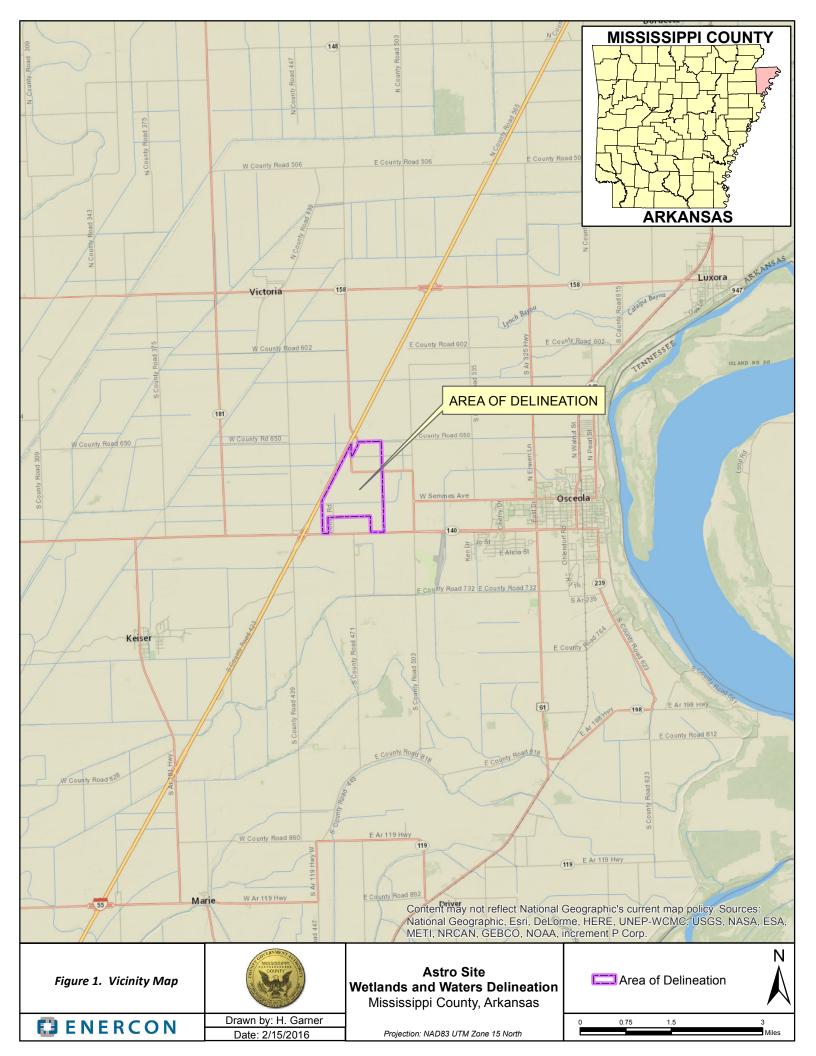
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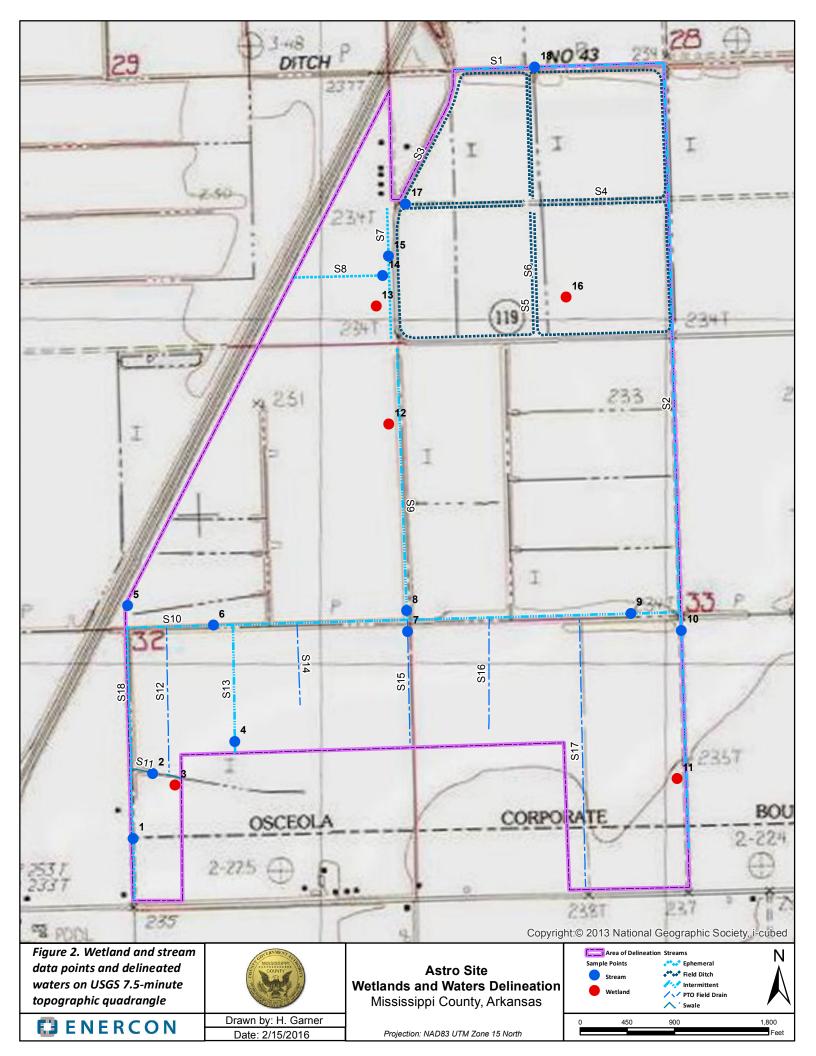


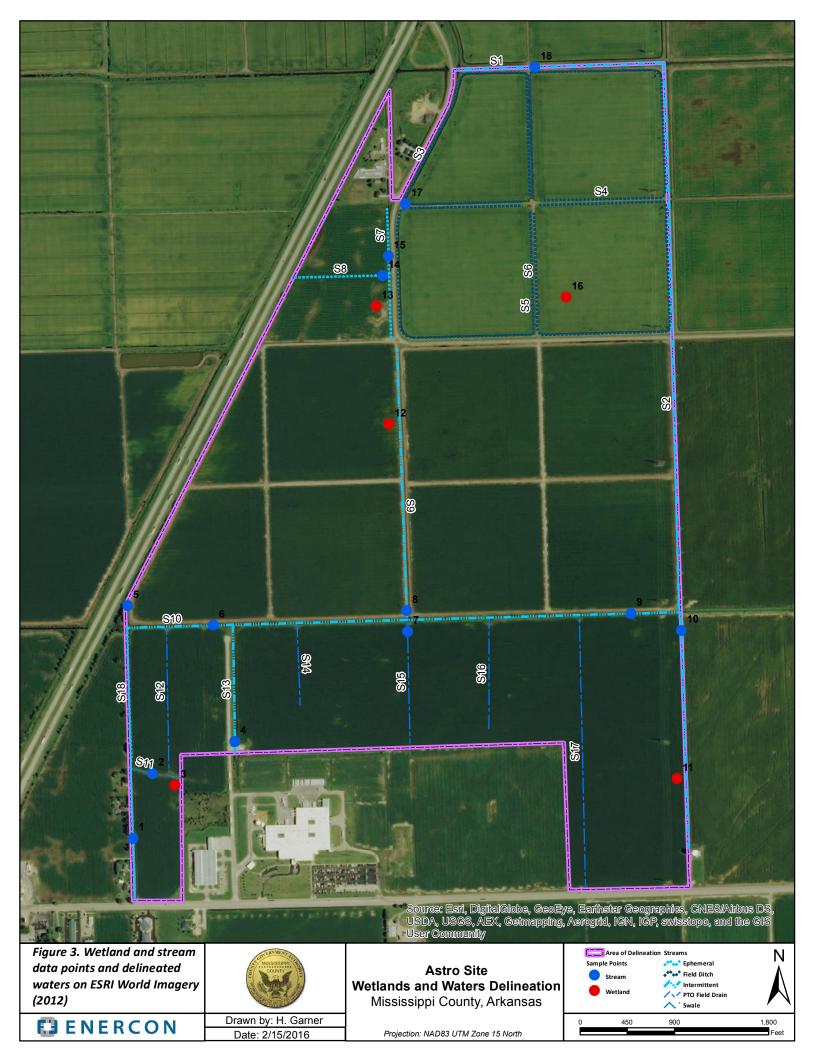
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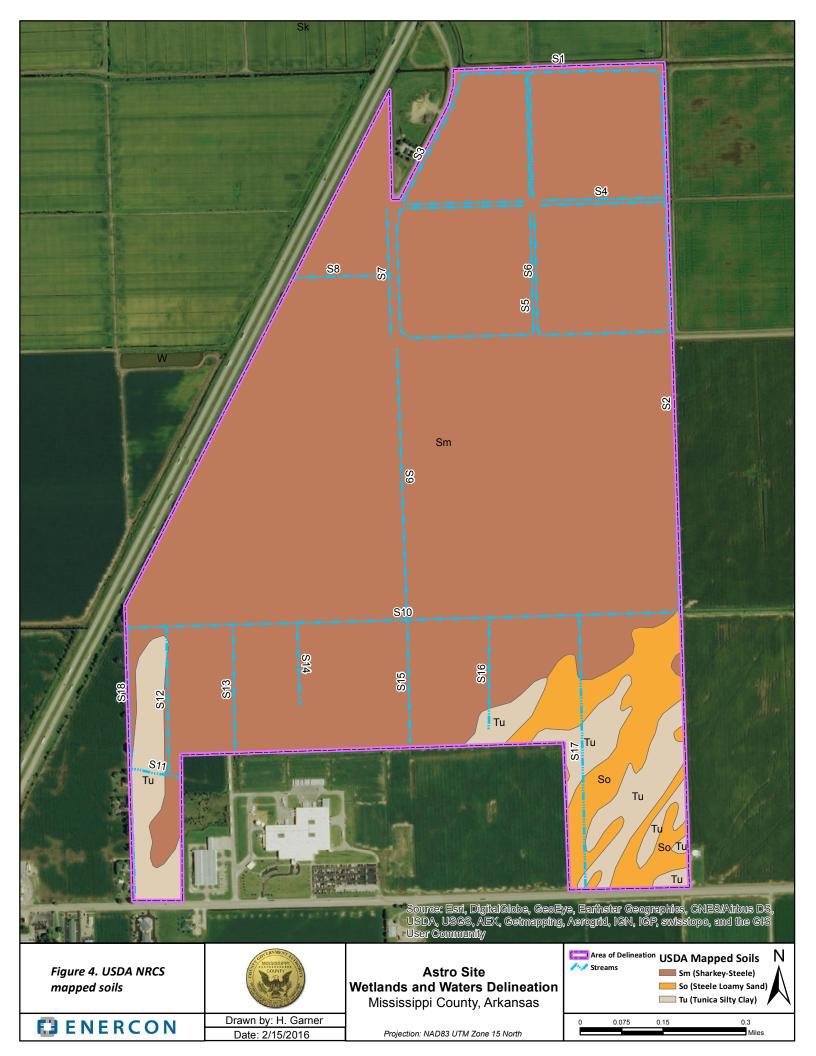
LIST OF PREPARERS

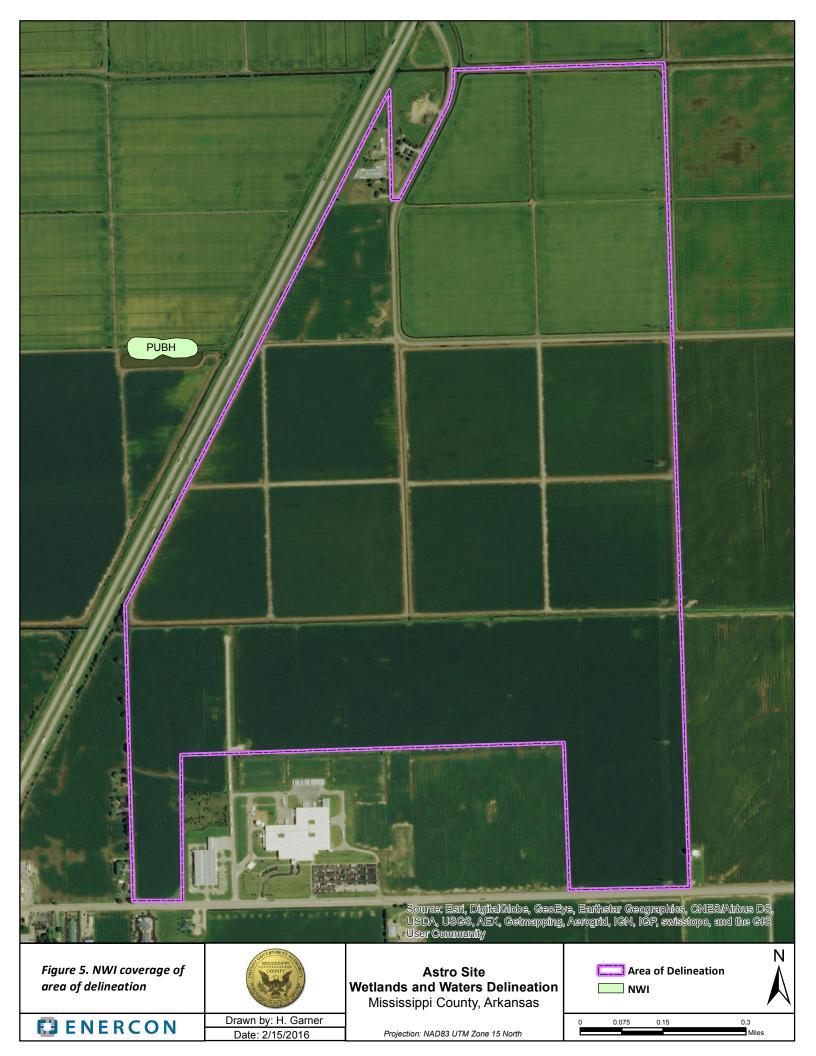
- Heath D. Garner, M.S., Senior Ecologist, Enercon Services, Inc., Oklahoma City, Oklahoma. Mr. Garner holds a B.S. degree in Biology (Wildlife Management) and an M.S. in Biology (Wildlife Ecology). He has 21 years' experience in wetland evaluations, environmental and ecological studies, regulatory compliance, endangered species issues, geographic information systems (GIS), and wildlife management.
- Sharon N. Davis, B.S., Biologist, Enercon Services, Inc., Oklahoma City, Oklahoma. Ms. Davis holds a B.S. degree in Biology (Wildlife Management). She has 2 years of experience in environmental and ecological field studies, endangered species issues and wetland studies.











ATTACHMENT 1: REPRESENTATIVE SITE PHOTOGRAPHS



Photo 1. Precision leveled agricultural landscape dominating the area of delineation



Photo 2. Fallow vegetative cover primarily found along the intermittent stream banks within the area of delineation



 $Photo \ 3. \ Representative \ photograph \ of \ Stream \ 1 \ (S1) \ located \ along \ the \ north \ boundary \ of \ the \ area \ of \ delineation$



Photo 4. Representative photograph of Stream 9 (S9) bisecting the area of delineation (facing north)



Photo 5. Representative photograph of Stream 10 (S10; Ditch No. 44) bisecting the area of delineation (facing west)



Photo 6. Representative photograph of Stream 13 (\$13) within the area of delineation (facing north)



Photo 7. Representative photo of Stream 2 (S2) along the eastern boundary of the area of delineation (facing north)



Photo 8. Representative photo of intersection of Stream 7 and 9 (S7, S8) located in the northwestern corner of the area of delineation (facing west)



Photo 9. Representative photograph of Stream 18 (\$18) along the western boundary of the area of delineation (facing south)



Photo 10. Representative photograph of agricultural ditches 3 (left) & 5 (right) surrounding 0-grade rice fields in the northern portion of the area of delineation (facing east)



Photo 11. Photograph of Stream/swale 11 (S11) located in the southwestern corner of the area of delineation (facing east)



Photo 12. Representative PTO drain within the area of delineation



Photo 13. Representative soils/soils profile and crop residue of wetland sample points 3 and 11 within the area of delineation



Photo 14. Representative soils/soils profile of wetland sample points 12, 13, & 16 within the area of delineation

ATTACHMENT 2: WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION FORM

ATLANTIC AND GULF COASTAL PLAIN REGION

Project/Site: Astro Site		City/Co	ounty: Mississippi			Sam	pling Point:	3
Applicant/Owner:	Mississippi Cou	ınty		State:	AR	Date:		1/19/2016
Investigators:	H.Garner		Section, To	wnship, R	ange:	S32 T13N,	R10E	
Landform (hillside, terra	ace, etc.): t	errace	Local Relie	f (concave	, convex, n	none	% Slope:	0-1
Subregion (LRR or MLRA	LRRO	Lat:	35.7013	Long:		-90.0428	Datum:	NAD83
Soil Map Unit Name:	Sharkey-Steele	Complex			NWI Clas	ssification:	None	
Are climatic/hydrological	conditions on si	te typical for this tin	me of year?	YES 🗹	NO 🗆	(If no, expla	in in Remar	ks.)
Are "normal circumstance	es" present?			YES 🗹	NO \square			
Are VEGETATION \square ,	SOII□ , or I	HYDROLOGY□	significantly distur	bed?				
Are VEGETATION □,	SOII□ , or I	HYDROLOGY□	naturally problema	itic?	(If needed	l, explain any	answers in I	Remarks.)
			• •					
SUMMARY OF FIN	NDINGS - At	tach site map sl	howing samplii	ng point	locations	s, transects	, features,	, etc.
Wetland hydrology preser	nt?	YES 🗆	NO 🔽		Is the S	Sampled Ar	ea within a	Wetland?
Hydrophytic vegetation p	resent?	$_{ m YES}$	NO ☑			YES	NO	
Hydric soil present?		$_{ m YES}$	NO ☑				✓	
Remarks:					•			
No wetland	indicators were	observed						
HYDROLOGY								
Wetland hydrology indi	cators (check al	l that apply):			Secondary	v indicators (n	ninimum of	two required)
Primary indicators (minin						surface soil		-
□ surface water	-	_	fauna (B13)	-		sparsely veg	, ,	
high water t			posits (B15)(LRR	(I)			urface (B8)	
saturation (A	_		en sulfide odor (C1			– drainage par		
water marks	_		d rhizosphere	,		moss trim li		
sediment de		_	ing roots (C3)			dry-season	, ,	C2)
drift deposit	_		e of reduced iron (C4)		crayfish bur		(2)
algal mat or	_	presence	ron reduction	C+)		_ `		rial image (C9)
iron deposit			ed soils (C6)			geomorphic		_
inundation	_		ck surface (C7			shallow aqu	•	2)
	image (B7)		ex surface (C7			FAC-neutra		
	_	other (e.	xpiam m remarks)					DDT II)
water-staine	ed leaves (B9)					_Sphagnum r	noss (D8)(L	KK1,U)
Field Observations:					I			
Surface water present?	YES □	NO ☑	Depth (in.)		l w	Vetland hyd	rology nre	esent?
Water table present?	YES \square	NO ☑	Depth (in.)		1	YES	NO	Serie.
Saturation present?	YES □	NO ☑	Depth (in.)		†		✓	
(includes capillary fringe		110	Depui (iii.)		†	_	_	
Describe recorded data (s		mitoring well aerial	I photo previous ir	enections)	if availabl	۵۰		
Describe recorded data (s	ticam gauge, mo	intornig wen, aeriai	i piloto, previous ii	ispections),	ii avaiiaoi	С.		
Remarks:								
	drology indicato	rs were not observe	d					
wedana ny	arology maleato	is were not observe	·u					

		absolute	dominant	indicator	Dominance Test worksh	eet:
Tree stratum	(plot size: 35' radius)	% cover	species?	status	# of dominant species that	
1				0	are OBL, FACW, or FAC:	0 (A)
2				0		
3				0	Total # of Dominant	
4				0	across all strata:	1 (B)
5				0		
6				0	% of Dominant species that	
		0	= total cover		are OBL, FACW, or FAC:	0.0 (A/B)
	50% t.c. =	0	20% t.c. =	0		_
Sapling stratum	(plot size: 15' radius)				Prevalence Index works	heet:
1				0	Total % cover of:	Multiply by:
2				0	OBL	x 1 =0
3				0	FACW	x 2 = 0
4				0	FAC	x 3 = 0
5				0	FACU 20	x 4 = 80
6				0	UPL	x 5 = 0
		0	= total cover		column total 20	(A) 80 (B)
	50% t.c. =	0	20% t.c. =	0		
Shrub stratum	(plot size: 15' radius)				Prevalence Index =	B/A= 4.00
1				0		
2				0	Hydrophytic Vegetation	
3				0	dominance test	
4				0	prevalence inde	_
5				0	problematic hyd	lrophytic veg^
6				0	(explain)	
			= total cover	_	îndicators of hydric soil and wetlan	
** 1	50% t.c. =	0	20% t.c. =	0	must be present, unless disturbed of	-
Herb stratum	(plot size: 5' radius)	20	**	E. CV	Definitions of Vegetation	
1 Zea mayes		20	<u>Y</u>	FACU	Tree- woody plants (excl. vines) ap	pprox. 20+ ft. tall
2			 -	0	and 3+ in. DBH	20 6
3				0	Sapling- woody plants (excl. vines)) approx. 20+ ft
5				0	tall and <3in. DBH Shrub- woody plants (excl. vines) a	
6				0	3-20 ft. tall	арргох.
		20	= total cover	0	Herb- all herbaceous plants regard	less of size: woody
	50% t.c. =	10	20% t.c. =	4	plants (except vines) <3 ft tall	icss of size, woody
Woody vine strat	um (plot size:35' radius)		2070 t.e. =	-	Woody vines- all woody vines, reg	ardless of height
1	(prot size is radius)			0	woody vines an woody vines, reg	araness of neight
2				0	- Hydrophytic Vegeta	tion Present?
3				0	YES	NO
4				0	▽	
-		0	= total cover		1	
	50% t.c. =	0	20% t.c. =	0		
	erved, list morphological adaptations					
A prevalence of	f wetland vegetation was not ob	servea				

SOIL Sampling Point: 3

Profile Description: (Describe to the depth peopled to decument the indicator or confirm the absence of indicators)

Depth	Matrix	e to the	Redox Feature		nent the n	liuicatoi	r or confirm the absei	ice of indicators)				
(inches)	Color (moist)	%	Color (moist)	%	Type^	Loc°	Texture	Remarks				
2	10 YR 4/3	100	· · · · · · · · · · · · · · · · · · ·				sandy loam	same throughout profile				
10	10 YR 4/3	100			_		sandy loam					
16	10 YR 4/3	100					sandy loam	_				
		-	-			-						
					_							
					_							
	_				_							
^Type: C= 0	Concentration, D=	Depletion	on, RM= Reduced	Matrix	, CS= Co	vered or	Coated Sand Grains					
°Location:	PL= Pore Lining, N	∕I= Matı	r									
_	l Indicators:			_	_							
	histosol (A1)					polyvalu	ie below surface (S8)(LR	RS, T, U)				
	histic epipedon (A2)				thin darl	k surface (S9)(LRR S, T,	U)				
	black histic (A3)					loamy m	nucky mineral (F1)(LRR	O)				
	hydrogen sulfide (A	4)				loamy g	leyed matrix (F2)					
	stratified layers (A5					depleted	l matrix (F3)					
	organic bodies(A6)(redox dark surface (F6)						
	5cm mucky mineral(A	(17)(LRR 1	P, T, U)				l dark surface (F7)					
	muck presence (A8)	()		<u> </u>	•	epressions (F8)						
	1cm muck (A9)(LR				•	0)(LRR U)						
	_depleted below dark	(A11)				l ochric (F11) MLRA 151						
	_thick dark surface (iron-manganese masses (F12)(LRR O, P, T)						
	coast prairie redox (umbric surface (F13)(LRR P, T, U)						
	sandy mucky miner		RR O, S)		<u> </u>	•	hric (F17)(MLRA 151)					
	sandy gleyed matrix	(S4)]		vertic (F18)(MLRA 150					
	sandy redox (S5)					• -	nt floodplain soils (F19)(I					
	stripped matrix (S6)					anomalo	ous bright loamy soils (F2	0)(MLRA 149A, 153C, 153D)				
Ш	dark surface(S7)(LF	RR P, S,	T, U)									
T., 32 4	6 D	TJ	7.11.4.									
Indicators	for Problematic F	•	S011S*:	Г		1	1:141 170	00\/MIDA 152D\				
	1cm muck (A9)(LR				<u>-</u>]		ous bright loamy soils (F2	(MLKA 153B)				
	2cm muck (A10)(Ll reduced vertic (F18		MI DA 150A D)		7		nt material (TF2) llow dark surface (TF12)	(IDD T II)				
	piedmont floodplain				<u>-</u>]		xplain in remarks)	(LKK 1, U)				
		1 80118 (F	(19)(LKK P, S, 1)			other (ex	xpiam in remarks)					
*indicators	of hydrophytic yea	etation	and wetland hydro	logy m	uist he nre	sent un	less disturbed or proble	ematic				
marcators	or nydropnytic veg	ctution	and wettand nyaro	10 <i>5</i>) II	idst oc pre	sont, un	less disturbed of proble	omaric				
Restrictive	Layer (if observe	d):					Hydric Soils Pr	esent?				
Type:	none	,					YES NO					
Depth (in.):	:			_								
Remarks:												
Indicators of	of hydric soil were	not obse	erved									

WETLAND DETERMINATION FORM

ATLANTIC AND GULF COASTAL PLAIN REGION

Project/Site: Astro Site		City/C	ounty: Mississippi			Sam	pling Point:	11
Applicant/Owner:	Mississippi Co	unty		State:	AR	Date:		1/19/2016
Investigators:	H.Garner		Section, To	wnship, R	ange:	S33 T13N,	R10E	
Landform (hillside, terra	ace, etc.):	errace	Local Relie	ef (concave	, convex, r	none	% Slope:	0-1
Subregion (LRR or MLRA	LRRO	Lat:	35.7011	Long:		-90.0266	Datum:	NAD83
Soil Map Unit Name:	Steele Loamy S	Sand			NWI Cla	ssification:	None	
Are climatic/hydrological	conditions on si	te typical for this ti	ime of year?	YES 🗹	NO □	(If no, expla	in in Remar	ks.)
Are "normal circumstance	es" present?			YES 🗹	NO \square			
Are VEGETATION \square ,	SOII□ , or J	HYDROLOGY□	significantly distur	bed? □				
Are VEGETATION □,	SOII□ , or I	HYDROLOGY□	naturally problema	atic?	(If needed	l, explain any	answers in I	Remarks.)
			7.1					
SUMMARY OF FIN	NDINGS - At	tach site map s	howing sampli	ng point	locations	s, transects	, features,	, etc.
Wetland hydrology preser	nt?	YES 🗆	NO 🗹		Is the S	Sampled Ar	ea within a	Wetland?
Hydrophytic vegetation p	resent?	$_{ m YES}$	NO ☑			YES	NO	
Hydric soil present?		$_{ m YES}$	$_{ m NO}$				V	
Remarks:					<u> </u>			
	indicators were	observed						
- 10 110 110								
HYDROLOGY								
Wetland hydrology indi	cators (check a	ll that apply):			Secondary	v indicators (n	ninimum of	two required)
Primary indicators (minin						surface soil		-
surface water			fauna (B13)	-		sparsely veg	, ,	
high water t	_		eposits (B15)(LRR	11)			urface (B8)	
saturation (A	_		en sulfide odor (C1			drainage par		
water marks	_	nyarog		.)		moss trim li		
		_	ed rhizosphere			_	, ,	C2)
	_		ving roots (C3)	C(1)		_dry-season v		(2)
	_	present	ce of reduced iron (C4)		_ crayfish bur	` ′	ial imaga (CO)
			iron reduction			_		ial image (C9)
non deposit	_		ed soils (C6)			_ ~ _ ^	position (D	2)
inundation	_		ick surface (C7			_shallow aqu		
	image (B7)	other (e	explain in remarks)			_FAC-neutra		
water-staine	ed leaves (B9)					_Sphagnum r	noss (D8)(L	RRT,U)
Field Observations:							_	. 0
Surface water present?	YES	NO ☑	Depth (in.)		<u> </u>	Vetland hyd		sent?
Water table present?	YES	NO 🗹	Depth (in.)		_	YES	NO	
Saturation present?	YES \square	NO 🔽	Depth (in.)		<u> </u>		✓	
(includes capillary fringe	e)							
Describe recorded data (s	tream gauge, mo	onitoring well, aeria	al photo, previous ir	rspections),	, if availabl	e:		
Remarks:								
Wetland hy	drology indicato	ors were not observe	ed					

		absolute	dominant	indicator	Dominance Test worksheet:
Tree stratum	(plot size: 35' radius)	% cover	species?	status	# of dominant species that
1				0	are OBL, FACW, or FAC: 0 (A)
2				0	·
3				0	Total # of Dominant
4				0	across all strata: 1 (B)
5				0	·
6				0	% of Dominant species that
		0	= total cover		are OBL, FACW, or FAC: 0.0 (A/B)
	50% t.c. =	0	20% t.c. =	0	
Sapling stratum	(plot size: 15' radius)				Prevalence Index worksheet:
1				0	Total % cover of: Multiply by:
2	_			0	OBL x 1 = 0
3	_			0	FACW x 2 = 0
4	_			0	FAC x 3 = 0
5	_			0	FACU 20 x 4 = 80
6	_			0	UPL $x = 5 = 0$
			= total cover		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
	50% t.c. =	0	20% t.c. =	0	
Shrub stratum	(plot size: 15' radius)				Prevalence Index = $B/A = 4.00$
1				0	
2				0	Hydrophytic Vegetation Indicators:
3				0	dominance test >50%
4				0	prevalence index $\leq 3.0^{\circ}$
5				0	problematic hydrophytic veg^
6				0	(explain)
			= total cover		^indicators of hydric soil and wetland hydrology
	50% t.c. =	0	20% t.c. =	0	must be present, unless disturbed or problematic
Herb stratum	(plot size: 5' radius)				Definitions of Vegetation Strata:
1 Zea mayes		20	<u>Y</u>	FACU	Tree- woody plants (excl. vines) approx. 20+ ft. tall
2				0	and 3+ in. DBH
3				0	Sapling- woody plants (excl. vines) approx. 20+ ft
4				0	tall and <3in. DBH
5				0	Shrub- woody plants (excl. vines) approx.
6		20		0	3-20 ft. tall
	500/ 4		= total cover	4	Herb- all herbaceous plants regardless of size; woody
Woody vino stratu	50% t.c. =	10	20% t.c. =	4	plants (except vines) <3 ft tall
· · ·	ım (plot size:35' radius)			0	Woody vines- all woody vines, regardless of height
1				0	Hydrophytic Vocatation Ducce-49
2				0	Hydrophytic Vegetation Present? YES NO
3				0	YES NO
4		0	= total cover	U	
	50% t.c. =	0	= total cover 20% t.c. =	0	
Ramarka (If alea	rved, list morphological adaptations		20% t.c. =	U	
	wetland vegetation was not ol				

SOIL Sampling Point: 11

Profile Des	cription: (Describ	e to the	depth needed to	docume	nt the i	ndicator	or confirm the	e absence	of indicators)			
Depth	Matrix		Redox Features	S								
(inches)	Color (moist)	%	Color (moist)	%	Type^	Loc°	Texture		Remarks			
2	10 YR 4/3	100					sandy loam					
10	10 YR 4/3	100					sandy loam					
16	10 YR 4/3	100					sandy loam					
^Type: C= C	Concentration, D= I	Depletion	n, RM= Reduced	Matrix,	CS= Co	vered or	Coated Sand Gr	rains				
°Location: F	PL= Pore Lining, M	1= Matr										
Hydric Soil	Indicators:											
	histosol (A1)					polyvalu	e below surface (S8)(LRR S	, T, U)			
	histic epipedon (A2)				thin dark	surface (S9)(LR	R S, T, U)				
	black histic (A3)					loamy m	ucky mineral (F1)(LRR O)				
	hydrogen sulfide (A	4)				loamy gl	eyed matrix (F2)					
	stratified layers (A5)				depleted	matrix (F3)					
	organic bodies(A6)(l	LRR P,T,U	J)			redox dark surface (F6)						
	5cm mucky mineral(A	7)(LRR P,	T, U)			depleted dark surface (F7)						
	muck presence (A8)	(LRR U)				redox de	pressions (F8)					
	1cm muck (A9)(LR	R P, T)				marl (F1	0)(LRR U)					
	depleted below dark	surface ((A11)			depleted ochric (F11) MLRA 151)						
	thick dark surface (A	A 12)				iron-manganese masses (F12)(LRR O, P, T)						
	coast prairie redox (A16)(MLF	RA 150A)			umbric s	urface (F13)(LRF	R P, T, U)				
	sandy mucky minera	al(S1)(LR	RRO, S)			delta och	ric (F17)(MLRA	151)				
	sandy gleyed matrix	(S4)				reduced	vertic (F18)(MLF	RA 150A, 1	50B)			
	sandy redox (S5)					piedmon	t floodplain soils	(F19)(MLF	RA 149A)			
	stripped matrix (S6))				anomalous bright loamy soils (F20)(MLRA 149A, 153C, 153D)						
	dark surface(S7)(LR	RR P, S, T	T, U)									
Indicators f	for Problematic H	lydric S	oils*:									
	1cm muck (A9)(LR	RO)				anomalo	us bright loamy s	oils (F20)(1	MLRA 153B)			
	2cm muck (A10)(LI	RR S)				red parer	nt material (TF2)					
	reduced vertic (F18)	(outside N	MLRA 150A,B)			very shal	low dark surface	(TF12)(LR	.R T, U)			
	piedmont floodplair	soils (F1	9)(LRR P, S, T)			other (ex	plain in remarks)	1				
*indicators	of hydrophytic veg	etation a	and wetland hydro	logy mu	st be pre	sent, unl	ess disturbed or	r problema	ıtic			
Restrictive	Layer (if observe	d):					Hydric So	oils Prese	ent?			
Type:	none			_			YES	NO				
Depth (in.):				_				\checkmark				
Remarks:												
T 11	61 1											
indicators o	f hydric soil were i	not obsei	rved.									

WETLAND DETERMINATION FORM

ATLANTIC AND GULF COASTAL PLAIN REGION

Project/Site: Astro Site		City/(County: Mississippi			Sam	pling Point:	: 12
Applicant/Owner:	Mississippi Co	unty		State:	AR	Date:		1/19/2016
Investigators:	H.Garner		Section, To	wnship, R	ange:	S32 T13N,	R10E	
Landform (hillside, terra	ace, etc.):	terrace	Local Relie	ef (concave	, convex, n	none	% Slope:	0-1
Subregion (LRR or MLRA	LRRO	Lat:	35.7106	Long:		-90.0355	Datum:	NAD83
Soil Map Unit Name:	Sharkey-Steele	Complex			NWI Clas	ssification:	None	
Are climatic/hydrological	conditions on s	ite typical for this	time of year?	YES ☑	NO 🗆	(If no, expla	in in Remar	ks.)
Are "normal circumstance	es" present?			YES 🗹	NO \square			
Are VEGETATION \square ,	SOIL□ , or	HYDROLOGY□	significantly distur	rbed?				
Are VEGETATION \square ,	SOIL \square , or	HYDROLOGY□	naturally problema	atic?	(If needed	l, explain any	answers in I	Remarks.)
SUMMARY OF FIN	NDINGS - A	ttach site map	showing sampli	ng point	locations	s, transects	, features	, etc.
Wetland hydrology preser	nt?	YES □	NO ☑		Is the S	Sampled Ar	<mark>ea within a</mark>	a Wetland?
Hydrophytic vegetation p	resent?	YES 🗹	$_{ m NO}$ \square			YES	NO	
Hydric soil present?		YES 🔽	$_{ m NO}$ \square				✓	
Remarks:								
Two of thre	e wetland indic	ators were observe	d					
HYDROLOGY								
Wetland hydrology indi	cators (check a	ll that apply):			Secondary	y indicators (n	ninimum of	two required)
Primary indicators (minin	num of one requ	iired)				surface soil	cracks (B6)	
□ surface water	er (A1)	☐ aquati	c fauna (B13)	=		sparsely veg	getated	
□ high water t	table (A2)	□ marl d	leposits (B15)(LRR	U)		concave s	urface (B8)	
saturation (A	A3)	hydro	gen sulfide odor (C1	.)		drainage par	tterns (B10)	
□ water marks	s (B1)	oxidiz	ed rhizosphere			moss trim li	nes (B16)	
sediment de	eposits (B2)	□ on li	iving roots (C3)			dry-season v	water table ((C2)
☐ drift deposi	ts (B3)	preser	nce of reduced iron (C4)		crayfish bur	rows (C8)	
algal mat or	crust (B4)	recent	iron reduction			saturation v	isible on aer	rial image (C9)
iron deposit	ts (B5)	☐ in til	lled soils (C6)		~	geomorphic	position (D	2)
inundation	-	thin m	nuck surface (C7			shallow aqu	-	,
☐ on aerial i	image (B7)	other o	(explain in remarks)			FAC-neutra		
water-staine	ed leaves (B9)		,			– Sphagnum r		RRT,U)
	, ,					_ ' ' '	` /\	, ,
Field Observations:	-	-						
Surface water present?	YES □	NO ☑	Depth (in.)		V	Vetland hyd	rology pre	esent?
Water table present?	YES □	NO 🗹	Depth (in.)	1		YES	NO	
Saturation present?	YES \square	NO 🗹	Depth (in.)	-			✓	
(includes capillary fringe	e)			-				
Describe recorded data (s		onitoring well, aeri	al photo, previous in	nspections),	, if availabl	e:		-
`		,	1 /1	1 //				
Remarks:								
Wetland hy	drology indicate	ors were not observ	ved					

		absolute	dominant	indicator	Dominance Test worksheet:
Tree stratum	(plot size: 35' radius)	% cover	species?	status	# of dominant species that
1				0	are OBL, FACW, or FAC: 1 (A)
2				0	
3				0	Total # of Dominant
4				0	across all strata: 1 (B)
5				0	
6				0	% of Dominant species that
		0	= total cover		are OBL, FACW, or FAC: 100.0 (A/B)
	50% t.c. =	0	20% t.c. =	0	
Sapling stratum	(plot size: 15' radius)				Prevalence Index worksheet:
1				0	Total % cover of: Multiply by:
2				0	OBL 20 $x 1 = 20$
3				0	FACW x 2 = 0
4				0	FAC x 3 = 0
5				0	FACU x 4 = 0
6				0	UPL $x = 5 = 0$
		0	= total cover		column total 20 (A) 20 (B)
	50% t.c. =	0	20% t.c. =	0	
Shrub stratum	(plot size: 15' radius)				Prevalence Index = $B/A=$ 1.00
1				0	
2				0	Hydrophytic Vegetation Indicators:
3				0	□ dominance test >50%
4				0	\Box prevalence index $\leq 3.0^{\circ}$
5				0	problematic hydrophytic veg^
6				0	(explain)
		0	= total cover		^indicators of hydric soil and wetland hydrology
	50% t.c. =	0	20% t.c. =	0	must be present, unless disturbed or problematic
Herb stratum	(plot size: 5' radius)				Definitions of Vegetation Strata:
1 Oryza sativa		20	<u>Y</u>	OBL	Tree- woody plants (excl. vines) approx. 20+ ft. tall
2	_			0	and 3+ in. DBH
3	_			0	Sapling- woody plants (excl. vines) approx. 20+ ft
4	_			0	tall and <3in. DBH
5	_			0	Shrub- woody plants (excl. vines) approx.
6	_			0	3-20 ft. tall
		20	= total cover		Herb- all herbaceous plants regardless of size; woody
	50% t.c. =	10	20% t.c. =	4	plants (except vines) <3 ft tall
Woody vine stratu	um (plot size:35' radius)				Woody vines- all woody vines, regardless of height
1	_			0	
2	_			0	Hydrophytic Vegetation Present?
3				0	YES NO
4	_			0	✓ □
		0	= total cover		
	50% t.c. =	0	20% t.c. =	0	
	erved, list morphological adaptations wetland vegetation was not ol				•

SOIL Sampling Point: 12

Profile Des	cription: (Describ	e to the	depth needed to	docun	ent the in	ıdicator	or confirm t	he absence	of indicators)			
Depth	Matrix		Redox Feature	S								
(inches)	Color (moist)	%	Color (moist)	%	Type [^]	Loc°	Texture		Remarks			
2	10 YR 4/3	100					silty clay					
6	10 YR 4/2	90	10 YR 4/6	10	RM	M	silty clay					
10	10 YR 4/3	100					sandy loam					
12									hardpan			
^Type: C= C	Concentration, D=	Depletio	on, RM= Reduced	Matrix	, CS= Cov	ered or	Coated Sand	Grains				
°Location: I	PL= Pore Lining, N	₁= Matr										
	C,											
Hydric Soil	Indicators:											
	histosol (A1)]	polyvalu	e below surface	e (S8)(LRR S	s, T, U)			
	histic epipedon (A2)							, , ,			
	black histic (A3)	,			_	thin dark surface (S9)(LRR S, T, U) loamy mucky mineral (F1)(LRR O)						
	hydrogen sulfide (A	.4)			_	loamy gleyed matrix (F2)						
	stratified layers (A5	-		_	_	depleted matrix (F3)						
	organic bodies(A6)(II)			redox dark surface (F6)						
	5cm mucky mineral(A				1	depleted dark surface (F7)						
	muck presence (A8)			_	•	epressions (F8)	,,					
	1cm muck (A9)(LR	,			marl (F10)(LRR U)							
	depleted below dark	(Δ 11)		_	depleted ochric (F11) MLRA 151)							
	thick dark surface (A	(7111)			-	nganese masses) P T)				
	coast prairie redox (DA 150A)				urface (F13)(LF		J, I , I)				
	sandy mucky miner					nric (F17)(MLR						
	sandy macky miners		KK (0, 5)				vertic (F18)(MI		50D)			
	sandy redox (S5)	(34)					t floodplain soi					
	•					•	•		· ·			
	stripped matrix (S6)		т п			anomaio	us origin toanny	80118 (F20)(N	MLRA 149A, 153C, 153D)			
]	dark surface(S7)(LF	KK P, S,	1, 0)									
T. Jiaakana	fou Ducklanasia I	TI! - C	\a:1a\.									
	for Problematic H	•	oons":		1		1 1 1 1 1	'1 (F20)(MI DA 152D)			
	1cm muck (A9)(LR						us bright loamy		MLKA 153B)			
	2cm muck (A10)(L1		M D + 150 + D)		_	-	nt material (TF2		DT II)			
	reduced vertic (F18				_	-	llow dark surfac		(R T, U)			
	piedmont floodplain	1 SOIIS (F	19)(LRR P, S, T)			other (ex	xplain in remark	is)				
ate: 1:	61 1 1	•							.•			
*indicators	of hydrophytic veg	etation	and wetland hydro	logy m	ust be pre	sent, un	less disturbed	or problem	atic			
	- 40 -											
	ctive Layer (if observed):					Hydric Soils Present?						
Type:	none					YES NO						
Depth (in.):				_			✓	Ш				
D 1					<u> </u>							
Remarks:												
T 12	C1 1' '1		1									
indicators o	f hydric soil were	observe	1									

WETLAND DETERMINATION FORM

ATLANTIC AND GULF COASTAL PLAIN REGION

Project/Site: Astro Site		City/C	County: Mississippi			Sam	pling Point:	: 13
Applicant/Owner:	Mississippi Co	unty		State:	AR	Date:		1/19/2016
Investigators:	H.Garner		Section, To	ownship, R	ange:	S29 T13N,	R10E	
Landform (hillside, terra	ace, etc.):	terrace	Local Relie	ef (concave	, convex, r	none	% Slope:	0-1
Subregion (LRR or MLRA	LRRO	Lat:	35.7137	Long:		-90.0358	Datum:	NAD83
Soil Map Unit Name:	Sharkey-Steele	Complex			NWI Cla	ssification:	None	
Are climatic/hydrological	conditions on s	ite typical for this	time of year?	YES ☑	NO 🗆	(If no, expla	in in Remar	ks.)
Are "normal circumstance	es" present?			YES 🗹	NO □			
Are VEGETATION \square ,	SOII□ , or	HYDROLOGY□	significantly distur	rbed?				
Are VEGETATION □,	SOII□ , or	HYDROLOGY□	naturally problema	atic?	(If needed	l, explain any	answers in I	Remarks.)
			• •			•		
SUMMARY OF FIN	NDINGS - Af	ttach site map :	showing sampli	ng point	locations	s, transects	, features,	, etc.
Wetland hydrology preser	nt?	YES \square	NO 🗹		Is the S	Sampled Ar	<mark>ea within a</mark>	Wetland?
Hydrophytic vegetation p	resent?	$_{ m YES} \ lacksquare$	$_{ m NO}$ \square			YES	NO	
Hydric soil present?		$_{ m YES} \ lacksquare$	$_{ m NO}$ \square				✓	
Remarks:					-			
Two of thre	e wetland indica	ators were observed	d					
	-	•	•					
HYDROLOGY								
Wetland hydrology indi	cators (check a	ll that apply):	•		Secondary	y indicators (n	ninimum of	two required)
Primary indicators (minin						surface soil		-
□ surface water			c fauna (B13)	_		sparsely veg	` ′	
high water t	-		leposits (B15)(LRR	II)			urface (B8)	
saturation (A	_		gen sulfide odor (C1			drainage par		
water marks	_		ed rhizosphere	- /		moss trim li		
sediment de		_	iving roots (C3)			dry-season	` ′	C2)
drift deposit	· · · · · -		nce of reduced iron ((C4)		crayfish bur		(22)
algal mat or	_		iron reduction	(C4)		_		rial image (C9)
iron deposit			lled soils (C6)			geomorphic		_
inundation						_ ~ _ ^	-	2)
	image (B7)		nuck surface (C7			shallow aqu		
	_	other ((explain in remarks)		FAC-neutral test (D5) Sphagnum moss (D8)(LRRT,U)			
water-staine	ed leaves (B9)					_Sphagnum r	noss (D8)(L	RRT,U)
Field Observations:								
Surface water present?	YES □	NO 🗹	Depth (in.)		v	Vetland hyd	ralagy nre	esent?
Water table present?	YES \square	NO ☑	Depth (in.)		Ť	YES	NO	SCIIC.
Saturation present? YES		NO ☑	Depth (in.)				∀	
(includes capillary fringe		NO 🖸	Deptii (iii.)		1		_	
Describe recorded data (s		onitoring well seri	al photo previous it	nenections)	if availahl	۵۰		
Describe recorded data (s	tieam gauge, me	mitoring wen, aen	ai piloto, previous ii	iispections),	, ii avaiiaui	.C.		
Remarks:								
	drology indicate	ors were not observ	zed					
wedana ny	arology maleate	ns were not observ	cu					

		absolute	dominant	indicator	Dominance Test worksheet:
Tree stratum	(plot size: 35' radius)	% cover	species?	status	# of dominant species that
1				0	are OBL, FACW, or FAC:1 (A)
2				0	
3				0	Total # of Dominant
4				0	across all strata: 1 (B)
5				0	
6				0	% of Dominant species that
		0	= total cover		are OBL, FACW, or FAC: 100.0 (A/B)
	50% t.c. =	0	20% t.c. =	0	
Sapling stratum	(plot size: 15' radius)				Prevalence Index worksheet:
1				0	Total % cover of: Multiply by:
2				0	OBL $20 \times 1 = 20$
3				0	FACW x 2 = 0
4				0	FAC x 3 = 0
5				0	FACU x 4 = 0
6				0	UPL $x = 5 = 0$
		0	= total cover		column total 20 (A) 20 (B)
	50% t.c. =	0	20% t.c. =	0	
Shrub stratum	(plot size: 15' radius)				Prevalence Index = $B/A = 1.00$
1				0	
2				0	Hydrophytic Vegetation Indicators:
3				0	dominance test >50%
4				0	\checkmark prevalence index $\leq 3.0^{\circ}$
5			 .	0	problematic hydrophytic veg^
6				0	(explain)
			= total cover	_	^indicators of hydric soil and wetland hydrology
** 1	50% t.c. =	0	20% t.c. =	0	must be present, unless disturbed or problematic
Herb stratum	(plot size: 5' radius)	20	••	ODY	Definitions of Vegetation Strata:
1 Oryza sativa		20	<u>Y</u>	OBL	Tree- woody plants (excl. vines) approx. 20+ ft. tall
2				0	and 3+ in. DBH
3				0	Sapling- woody plants (excl. vines) approx. 20+ ft
4				0	tall and <3in. DBH
5				0	Shrub- woody plants (excl. vines) approx.
6		20	= total cover	0	3-20 ft. tall
	500/ 4			4	Herb- all herbaceous plants regardless of size; woody
Woody vina strat	50% t.c. = um (plot size:35' radius)	10	20% t.c. =	4	plants (except vines) <3 ft tall
1	um (prot size.33 radius)			0	Woody vines- all woody vines, regardless of height
2				0	Hydrophytic Vegetation Present?
3			 -	0	YES NO
4				0	
T		0	= total cover	U	1
	50% t.c. =	0	20% t.c. =	0	
Remarks: (If obse	erved, list morphological adaptations		2070 1.0. —		<u> </u>
	wetland vegetation was obser		n production of	rice)	

SOIL Sampling Point: 13

Depth	Matrix		e depth needed to Redox Feature					,				
(inches)	Color (moist)	%	Color (moist)	s %	Type^	Loc°	Texture	Remarks				
	10 YR 4/3	100	Color (moist)	70	Турс	Loc	silty clay	Kemarks				
2 5	10 YR 4/2	90	10 YR 4/6	10	RM	M	silty clay					
10	10 YR 4/3	100	10 11(4/0	10	KIVI	171	sandy loam					
12	10 111 1/3	100					Suray Tourn	hardpan				
· 	_							Пагаран				
	_											
Type: C= 0	Concentration, D=	Depleti	on, RM= Reduced	Matrix,	CS= Cov	ered or	Coated Sand Grains					
Location: 1	PL= Pore Lining, N	∕I= Matı	r									
Hydric Soi	l Indicators:											
	histosol (A1)					polyvalu	e below surface (S8)(L	RR S, T, U)				
	histic epipedon (A2)				thin dark	surface (S9)(LRR S, 7	r, U)				
	black histic (A3)					loamy mucky mineral (F1)(LRR O)						
	hydrogen sulfide (A	4)				loamy gleyed matrix (F2)						
	stratified layers (A5)		✓		depleted matrix (F3)						
	organic bodies(A6)(U)			redox dark surface (F6)							
	5cm mucky mineral(A	P, T, U)			depleted	dark surface (F7)						
	muck presence (A8)	()			redox de	pressions (F8)						
	1cm muck (A9)(LR				marl (F10)(LRR U)							
	depleted below dark	(A11)			depleted ochric (F11) MLRA 151)							
	thick dark surface (A				iron-mar	nganese masses (F12)(I	LRR O, P, T)					
	coast prairie redox (LRA 150A)			umbric s	urface (F13)(LRR P, T	, U)					
	sandy mucky mineral(S1)(LRR O, S)					delta ochric (F17)(MLRA 151)						
	sandy gleyed matrix	(S4)				reduced vertic (F18)(MLRA 150A, 150B)						
	sandy redox (S5)					piedmon	t floodplain soils (F19)	(MLRA 149A)				
	stripped matrix (S6))				anomalo	us bright loamy soils (F	F20)(MLRA 149A, 153C, 153D)				
	dark surface(S7)(LF	RR P, S,	T, U)									
	for Problematic H	Iydric S	Soils*:	_								
	1cm muck (A9)(LR	RO)				anomalo	us bright loamy soils (I	F20)(MLRA 153B)				
	2cm muck (A10)(Ll	RR S)				red parer	parent material (TF2)					
	reduced vertic (F18)(outside MLRA 150A,B)					very shallow dark surface (TF12)(LRR T, U)						
	piedmont floodplain	n soils (F	(19)(LRR P, S, T)			other (explain in remarks)						
indicators	of hydrophytic veg	etation	and wetland hydro	logy mu	ist be pre	sent, unl	less disturbed or prob	olematic				
	T (*6 1	1\					TT1-2 - C-21 - T)49				
	strictive Layer (if observed):				Hydric Soils Present? YES NO							
Type:	none		_		YES NO							
Depth (in.):				_			Ŭ L					
Remarks:												

WETLAND DETERMINATION FORM

ATLANTIC AND GULF COASTAL PLAIN REGION

Project/Site: Astro Site		City/(County: Mississippi			Sam	pling Point:	: 16
Applicant/Owner:	Mississippi Co	ounty		State:	AR	Date:		1/19/2016
Investigators:	H.Garner		Section, To	ownship, R	ange:	S28 T13N, 1	R10E	
Landform (hillside, terra	ace, etc.):	terrace	Local Relie	ef (concave	, convex, r	none	% Slope:	0-1
Subregion (LRR or MLRA	LRRO	Lat:	35.7138	Long:		-90.0297	Datum:	NAD83
Soil Map Unit Name:	Sharkey-Steele	Complex			NWI Cla	ssification:	None	
Are climatic/hydrological	conditions on s	ite typical for this	time of year?	YES ☑	NO 🗆	(If no, expla	in in Remar	·ks.)
Are "normal circumstance	es" present?			YES 🗹	NO \square			
Are VEGETATION \square ,	SOII□ , or	HYDROLOGY□	significantly distur	rbed?				
Are VEGETATION \square ,	SOII□ , or	HYDROLOGY□	naturally problema	atic?	(If needed	l, explain any	answers in I	Remarks.)
SUMMARY OF FIN	NDINGS - Af	ttach site map	showing sampli	ng point	locations	, transects	, features,	, etc.
Wetland hydrology preser	nt?	YES	NO ☑		Is the S	Sampled Ar	<mark>ea within a</mark>	a Wetland?
Hydrophytic vegetation p	resent?	YES 🗸	$_{ m NO}$ \square			YES	NO	
Hydric soil present?		YES 🗸	$_{ m NO}$ \square				✓	
Remarks:								
Two of thre	e wetland indica	ators were observe	ed					
HYDROLOGY								
Wetland hydrology indi	cators (check a	all that apply):			Secondary	y indicators (n	ninimum of	two required)
Primary indicators (minin	num of one requ	iired)				surface soil	cracks (B6)	
□ surface water	er (A1)	☐ aquati	ic fauna (B13)	_		sparsely veg	getated	
□ high water t	-		deposits (B15)(LRR	U)			urface (B8)	
saturation (A	-		gen sulfide odor (C1			drainage pat	tterns (B10)	
water marks	-		zed rhizosphere	,		moss trim li		
sediment de	1		iving roots (C3)			dry-season v	, ,	C2)
☐ drift deposi	_		nce of reduced iron ((C4)		crayfish bur		- /
algal mat or	-		t iron reduction	/		– •		rial image (C9)
iron deposit			lled soils (C6)		~	eeomorphic		_
inundation	-		nuck surface (C7			shallow aqu	-	
	image (B7)		(explain in remarks)			FAC-neutra		
	ed leaves (B9)				Sphagnum moss (D8)(LRRT,U)			
water stank	a leaves (B))					_ Spilagilaini i	11033 (D0)(L	ART,0)
Field Observations:								
Surface water present?	YES □	NO 🗹	Depth (in.)		v	Vetland hyd	rology pre	esent?
Water table present?	YES	NO ☑	Depth (in.)		İ	YES	NO	,seriet
Saturation present? YES		NO ☑	_	Depth (in.)			✓	
(includes capillary fringe		110	Depth (m.)			_	_	
Describe recorded data (s		onitoring well seri	ial photo, previous i	nenections)	if availahl	۵۰		
Describe recorded data (s	ticam gauge, me	onitoring wen, acri	iai piloto, pievious ii	iispections),	, ii avaiiadi	С.		
Remarks:								
	drology indicate	ors were not observ	ved					
wedana ny	arology maleate	ns were not observ	ved					

Tree stratum (plot size: 35' radius) % cover	= total cover	status 0 0 0 0 0 0 0 0 0 0	# of dominant species that are OBL, FACW, or FAC: 1 (A) Total # of Dominant across all strata: 1 (B) % of Dominant species that are OBL, FACW, or FAC: 100.0 (A/B)
2 3 4 5 6 50% t.c. = 0 Sapling stratum (plot size: 15' radius) 1 2		0 0 0 0	Total # of Dominant across all strata: 1 (B) % of Dominant species that are OBL, FACW, or FAC: 100.0 (A/B)
3		0 0 0 0 0	across all strata: 1 (B) % of Dominant species that are OBL, FACW, or FAC: 100.0 (A/B)
4 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0	across all strata: 1 (B) % of Dominant species that are OBL, FACW, or FAC: 100.0 (A/B)
5		0	% of Dominant species that are OBL, FACW, or FAC: 100.0 (A/B)
6		0	are OBL, FACW, or FAC: 100.0 (A/B)
50% t.c. = 0 Sapling stratum (plot size: 15' radius) 1 2			are OBL, FACW, or FAC: 100.0 (A/B)
Sapling stratum (plot size: 15' radius) 1 2		0	
Sapling stratum (plot size: 15' radius) 1 2	20% t.c. =	0	
1 2			
2			Prevalence Index worksheet:
		0	Total % cover of: Multiply by:
3		0	OBL 20 x 1 = 20
, ³		0	FACW x 2 = 0
4		0	FAC x 3 = 0
5		0	FACU x 4 = 0
6		0	UPL x 5 = 0
0	= total cover		column total 20 (A) 20 (B)
50% t.c. = 0	20% t.c. =	0	-
Shrub stratum (plot size: 15' radius)			Prevalence Index = $B/A = 1.00$
1		0	
2		0	Hydrophytic Vegetation Indicators:
3		0	dominance test >50%
4		0	prevalence index $\leq 3.0^{\circ}$
5		0	problematic hydrophytic veg^
6		0	(explain)
0	= total cover	•	^indicators of hydric soil and wetland hydrology
50% t.c. = 0	20% t.c. =	0	must be present, unless disturbed or problematic
Herb stratum (plot size: 5' radius)	•	ODI	Definitions of Vegetation Strata:
1 Oryza sativa 20	<u>Y</u>	OBL	Tree- woody plants (excl. vines) approx. 20+ ft. tall
2	_	0	and 3+ in. DBH
3	_	0	Sapling- woody plants (excl. vines) approx. 20+ ft
4	_	0	tall and <3in. DBH
5		0	Shrub- woody plants (excl. vines) approx.
6		0	3-20 ft. tall
50% 4.7	= total cover	4	Herb- all herbaceous plants regardless of size; woody
$50\% \text{ t.c.} = \underline{10}$ We only vine stratum (plot size 25' radius)	20% t.c. =	4	plants (except vines) <3 ft tall
Woody vine stratum (plot size:35' radius)		0	Woody vines- all woody vines, regardless of height
1		0	Understand Vegetation Dregent?
2		0	Hydrophytic Vegetation Present?
3		0	$\begin{array}{ccc} \mathbf{YES} & \mathbf{NO} \\ & & \Box \end{array}$
4	- total agyar	0	
500/ to = 0	= total cover	0	
50% t.c. = 0 Remarks: (If observed, list morphological adaptations below)	20% t.c. =	0	

SOIL Sampling Point: 16

Depth (inches)	Matrix Color (moist)		Redox Features	o				
inches		%	Color (moist)	%	Type^	Loc°	Texture	Remarks
)	10 YR 4/3	100	Color (moist)	70	Турс	Loc	silty clay	Kemarks
5	10 YR 4/2	90	10 YR 4/6	10	RM	M	silty clay	
10	10 YR 4/3	100	10 11(4/0	10	TCIVI	111	sandy loam	
12	10 110 1/3	100					Sundy Tourn	hardpan
								<u> </u>
Type: C= (Concentration, D= 1	Depletion	on, RM= Reduced	Matrix,	CS= Cov	vered or	Coated Sand Grains	
• 1	PL= Pore Lining, N	-						
	_							
Iydric Soil	Indicators:							
	histosol (A1)					polyvalu	e below surface (S8)(L	RR S, T, U)
	histic epipedon (A2)				thin dark	surface (S9)(LRR S, 7	Γ, U)
	black histic (A3)					loamy m	ucky mineral (F1)(LRF	(O)
	hydrogen sulfide (A	4)				loamy gl	eyed matrix (F2)	
	stratified layers (A5)		✓		depleted	matrix (F3)	
	organic bodies(A6)(LRR P,T,	U)			redox da	rk surface (F6)	
	5cm mucky mineral(A	7)(LRR l	P, T, U)			depleted	dark surface (F7)	
	muck presence (A8)	(LRR U)			redox de	pressions (F8)	
	1cm muck (A9)(LR	RP,T)				marl (F1	0)(LRR U)	
	depleted below dark	surface	(A11)			depleted	ochric (F11) MLRA 1	51)
	thick dark surface (A	A 12)				iron-man	nganese masses (F12)(I	LRR O, P, T)
	coast prairie redox (A16)(MI	.RA 150A)			umbric s	urface (F13)(LRR P, T	, U)
	sandy mucky minera	al(S1)(L	RR O, S)			delta och	nric (F17)(MLRA 151)	
	sandy gleyed matrix	(S4)				reduced	vertic (F18)(MLRA 15	0A, 150B)
	sandy redox (S5)					piedmon	t floodplain soils (F19)	(MLRA 149A)
	stripped matrix (S6)					anomalo	us bright loamy soils (F	F20)(MLRA 149A, 153C, 153D)
	dark surface(S7)(LF	RR P, S,	T, U)					
	for Problematic H	lydric S	Soils*:					
	1cm muck (A9)(LR	RO)				anomalo	us bright loamy soils (I	F20)(MLRA 153B)
	2cm muck (A10)(LI	RR S)				red parer	nt material (TF2)	
	reduced vertic (F18)	(outside	MLRA 150A,B)			very shal	llow dark surface (TF1	2)(LRR T, U)
	piedmont floodplair	soils (F	19)(LRR P, S, T)			other (ex	plain in remarks)	
indicators	of hydrophytic veg	etation	and wetland hydro	logy mu	ist be pre	sent, unl	less disturbed or prob	olematic
				1				
	Layer (if observe	d):					Hydric Soils I	
'ype:	none			_			YES NO	3
Depth (in.):				_			V	
Remarks:								
Ciliai KS.								

ATTACHMENT 3: STREAM OHWM DATA FORMS

OHW	M Delineation Cover Sheet	Page1 of14
Project: Astro Site	Date: 1/19/2016	
Location: Mississippi County, Arkansas	Investigator(s): H.Garner	
Project Description: Wetland and waters delineation of an agricular	ultural site potentially developed as	s an industrial site.
Describe the river or stream's condition (disturble Channelized irrigation ditches providing agricultures run into Ditch No. 43 or Ditch No. 44 indirectly.	ricultural, storm-water, and roadsid	•
Off-site Information Remotely sensed image(s) acquired? Yes locations of transects, OHWM, and any other feature See Figure 2 in delineation report for aerial	ares of interest on the image(s); describe	
Hydrologic/hydraulic information acquired? below.] Description:	Yes No [If yes, attach informati	ion to datasheet(s) and describe
List and describe any other supporting information Agricultural, roadside, and industrial storm high water conditions.	<u>-</u>	from Ditch No. 44 during
Instructions: Complete one cover sheet and one or more d characteristics of the OHWM along some length of a giver downstream variability in OHWM indicators, stream cond	n stream. Complete enough datasheets to adec	quately document up- and/or

coordinates noted on the datasheet.

Datasheet # PT1		OHW	M Delineation 1	Datasheet	Pa	age <u>2</u> of <u>14</u>
Transect (cross-s some distance; lab						
Sample Point C	oordinates: 35.	7000,-90.0442				
Inverted parabo	lic cross-sectio	n. No discernit	ole OHWM. Se	e photo 9 in de	lineation repor	t appendix A
Break in Slope at		Sharp (> 60°) [Moderate (30-	–60°) ☐ Gent	le (< 30°)	None
Notes/Description	:					
Sediment Textur	e: Estimate perce	entages to describ	e the general sed	iment texture abo	ove and below th	e OHWM
	Clay/Silt	Sand	Gravel	Cobbles	Boulders	Developed Soil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Above OHWM	100					Y
Below OHWM	100					Υ
Notes/Description	:					
Roadside ditch	with mud botto	om.				
Vegetation: Estin	nate absolute per	cent cover to desc	 cribe general veg	 etation characteri	 stics above and l	elow the OHWM
y ogottorion in indicate	Tree (%)	Shrub (%)	Herb (%)	Bare (%)		
Above OHWM	5		50	50		
Below OHWM			5	95		
Notes/Description	•	-	•			
Crop residue o	nly. No establi	shed vegetation	n within drainag	ge or above OH	IWM	
Other Evidence	List/describe on					vous delineation
Other Evidence:	•			· ·	**	•
Mapped on US precipitation ev			s intermittent, b	out actually only	has flow imm	ediately after
precipitation ev	ents (epitemen	ai).				

Datasheet # PT2		OHW	M Delineation	Datasheet		Page 3	of _	<u>14</u> _
Transect (cross-se some distance; lab	_		_					
Sample Point Co	oordinates: 35	.7017,-90.0435						
Inverted shallow appendix A	parabolic cro	ss-section. No	discernible OH	IWM. See phot	o 11 in delinea	ation rep	oort	
Break in Slope at	OHWM:	Sharp (> 60°)	Moderate (30		tle (< 30°)	None		
Notes/Description:				/ I —	· / —	_		
Sediment Texture	 e: Estimate perc	entages to describ	e the general sed	 liment texture abo	ove and below t	he OHW	 M	
	Clay/Silt	Sand	Gravel	Cobbles	Boulders		oped So	oil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizo	ons (Y/	N)
Above OHWM	N/A						N/A	
Below OHWM	N/A						N/A	
Notes/Description:	:							
Agricultural drai	nage swale w	ith mud bottom.	. No channel o	r OHWM.				
Vogatation: Estin								
Vegetation: Estim	Tree (%)	Shrub (%)	Herb (%)			below ii	le On v	/ 1 V1
Above OHWM	0	0	0	0	'			
Below OHWM	0	0	0	0				
Notes/Description:								
Crop residue or		shed vegetation	n within draina	ne No channel	with OHWM			
Orop roolado or	ny. 140 ootaon	onoa vogotatio	ir witiiir aramaş	go. 140 onamoi	with Orivvivi.			
Other Evidence:	List/describe an	y additional field	evidence and/or	lines of reasoning	g used to suppor	t your de	lineatio	n
Mapped on US	GS topographi	c quadrangle a	s intermittent, k	out actually pos	sesses no de	fined ch	annel	or
OHWM. Histori	ically mapped	stream likely bl	ended out thro	ugh grading an	d annual crop	tillage.		

Datasheet # PT4	 _	OHW	M Delineation l	Datasheet	P	age <u>4</u> of <u>14</u>
Transect (cross-se some distance; lab	_		•			
Sample Point Co	oordinates: 35	.7024, -90.0408				
Inverted trapezo	idal cross-sec	tion.				
OHWM estimate	ed at 18 feet. S	See photo 6 in d	elineation repo	rt appendix A		
Break in Slope at	OHWM:	Sharp (> 60°) [Moderate (30-		tle (< 30°) [None
Notes/Description:		Sharp (> 00) E	= 1110 de 1 d te (30	oo / Gen	ine (\ 30) _	Trone
Sediment Texture		entages to describ				
	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100	0.03 – 211111	ZIIIII — ICIII	1 – 100111	>10cm	Y
Below OHWM	100					Y
Notes/Description:		1				<u> </u>
Ditch with mud	bottom. Cowa	ardin Code R4Ul	B3			
Vegetation: Estin	nate absolute per Tree (%)	Shrub (%)	Herb (%)	Bare (%		below the OHWM
Above OHWM	5	Siliuo (70)	90	5)	
Below OHWM			50	50		
Notes/Description:	:					
-						
-						
Other Evidence:		•		ines of reasoning	g used to suppor	t your delineation
Other Evidence: Unmapped on U		•		ines of reasoning	g used to suppor	t your delineation
		•		ines of reasoning	used to suppor	t your delineation
		•		ines of reasoning	used to suppor	t your delineation
		•		ines of reasoning	used to suppor	t your delineation

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length Sample Point Coordinates: 35.7061,-90.0441 Inverted shallow parabolic cross-section. No discernible OHWM. Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) Moderate (30°) Moderat	Datasheet # PT5		OHW	M Delineation	Datasheet	Pa	age <u>5</u> of <u>14</u>
Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) None Notes/Description: Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So (>0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm > 10cm Horizons (Y/N Above OHWM N/A NOTES/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Above OHWM 75 0 0 0 25 Below OHWM 75 0 0 0 25 Below OHWM 75 0 0 0 0 25 Below OHWM 0 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM.				_			
Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) None Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Oeveloped So Horizons (Y/N Above OHWM N/A N/A Below OHWM N/A Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation Not mapped on USGS topographic quadrangle. Drainage associated with 1-55 drainage with season	Sample Point Co	oordinates: 35.	7061,-90.0441				
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So <0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/	Inverted shallow	parabolic cros	ss-section. No	discernible OH	IWM.		
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So 40.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So <0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So 40.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So 40.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So 40.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So 40.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N Above OHWM N/A N/	Ducals in Clare of	OHWM.	Chara (> 60°)	Madagata (20	60°)	41° (< 30°) [- None
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed So < 0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm > 10cm Horizons (Y/N Above OHWM N/A	-		Snarp (> 60)	Moderate (30	–60) Gen	tie (< 30) L	ı None
Clay/Silt Sand Gravel Cobbles Boulders Developed So Above OHWM N/A N/A N/A	T (otes, 2 escription.						
Clay/Silt Sand Gravel Cobbles Boulders Developed So Above OHWM N/A N/A							
Above OHWM N/A Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Notes/Description: Shrub (%) Herb (%) Bare (%) Herb (%) Bare (%) Herb (%)	Sediment Texture	Estimate perc	entages to describ	e the general sed	liment texture abo	ove and below t	he OHWM
Above OHWM N/A Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season		•					Developed Soil
Below OHWM N/A Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.	A1 OTHER		0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	<u> </u>
Notes/Description: Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.							+
Agricultural/Highway drainage swale with mud bottom. No channel or OHWM. Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.							IN/A
Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHW Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 25 Below OHWM 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.	•		swale with mu	d hottom No	channel or OH\	Λ/ Ν /I	
Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.	Agricultural/Fligh	iway diamage	Swale with ma	a bottom. No t		VIVI.	
Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.							
Above OHWM 75 0 0 0 25 Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.	Vegetation: Estin						below the OHWM
Below OHWM 0 0 0 0 0 Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.			Shrub (%)	Herb (%)	·)	
Notes/Description: Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.		75	0	0			
Established vegetation is trees within drainage. No channel with OHWM. Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.			0	0	0		
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation. Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season.	•						
Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season	Established veg	getation is tree:	s within drainag	ge. No channel	with OHWM.		
Not mapped on USGS topographic quadrangle. Drainage associated with I-55 drainage with season							
	Other Evidence:	List/describe any	y additional field	evidence and/or	 lines of reasoning	g used to suppor	t your delineation
	Not mapped on	USGS topogra	aphic quadrand	ale. Drainage a	associated with	I-55 drainage	with season
			-11	,		22 2	

Datasheet # PT6		OHW	M Delineation 1	Datasheet	P	age <u>6</u> of <u>14</u>
Transect (cross-some distance; lab		•				
Sample Point Co	oordinates: 35	.7055,-90.0414				
Inverted trapezo	oidal cross-sec	tion. OHWM e	stimated at 13	feet.		
Break in Slope at		Sharp $(> 60^{\circ})$	Moderate (30	–60°) ☐ Gent	ele (< 30°) _	None
Notes/Description:	:					
Sediment Texture	 • Estimate nerc	entages to describ	 ne the general sed		ve and below t	ne OHWM
Scament Texture	Clay/Silt	Sand	Gravel	Cobbles	Boulders	Developed Soil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Above OHWM	100					Υ
Below OHWM	100					N
Notes/Description:	:					
Agricultural/High	hway drainage	swale with mu	d bottom. No	channel or OHV	VM.	
Vagatation: Estin					ation above and	halow the OHWM
vegetation: Estin	Tree (%)	Shrub (%)	Herb (%)	Bare (%)		below the OHWM
Above OHWM	0	0	95	5	,	
Below OHWM	0	0	25	75		
Notes/Description:		0	23	13		
T (occs) B escription.	•					
Other Evidence:	List/describe an	y additional field	evidence and/or	lines of reasoning	used to suppor	t your delineation
Mapped as inte	rmittent on US	GS topographi	c quadrangle a	nd labeled as D	Ditch No. 44.	
			q			

Datasheet # PT7		OHW	M Delineation 1	Datasheet	I	Page _7_ of _14_
Transect (cross-se some distance; lab	_		_			characteristics over of transect length)
Sample Point Co	oordinates: 35.	7052,-90.0351				
Inverted parabol	ic cross-sectio	n. No discernit	ole OHWM			
iiivoitoa paraboi		110 0.0001111	310 01111111			
Break in Slope at	OHWM:	Sharp (> 60°) [Moderate (30-		le (< 30°)	None
Notes/Description:		Sharp (> 00) 1		oo) Gent	10 (\ 30) E	<u> </u>
Sediment Texture	Clay/Silt	entages to describ Sand	e the general sed Gravel	Cobbles	Boulders	Developed Soil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Above OHWM	NA					NA
Below OHWM	NA					NA
Notes/Description:						
Agricultural/High	nway drainage	swale with mu	d bottom. No d	channel or OHV	VM.	
Vegetation: Estin	ate absolute per	cent cover to desc	 cribe general veg	etation characteri	stics above and	l below the OHWM
	Tree (%)	Shrub (%)	Herb (%)	Bare (%)		
Above OHWM	0	0	95	5		
Below OHWM	0	0	25	75		
Notes/Description:						
Other Evidence:	List/describe any	y additional field	evidence and/or l	ines of reasoning	used to suppor	rt your delineation
Not mapped on	USGS topogra	aphic quadrang	le. PTO gener	ated field drain	age/swale wi	ith no RPW.
		3	3			

Datasheet # PT8		OHW	M Delineation l	Datasheet	Pa	age <u>8</u> of <u>14</u>
Transect (cross-some distance; lab	-		_			
Sample Point Co	oordinates: 35	.7057,-90.0351				
Inverted trapezo	oidal cross-sec	tion. OHWM es	stimated at 10 f	feet.		
Break in Slope at		Sharp (> 60°)	Moderate (30-	–60°) ☐ Gent	le (< 30°) _] None
Notes/Description	:					
 Sediment Texture	 e: Estimate perc	entages to describ	e the general sed	iment texture abo	ve and below the	e OHWM
	Clay/Silt	Sand	Gravel	Cobbles	Boulders	Developed Soil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Above OHWM	100					Y
Below OHWM	100					Υ
Notes/Description	:					
Agricultural/Hig	hway drainage	swale with mu	d bottom. No	channel or OHV	VM.	
Vantations Estim						halaw tha OIW/M
vegetation: Estin	Tree (%)	Shrub (%)	Herb (%)	Bare (%)		below the OHWM
Above OHWM	0	0	95	5	,	
Below OHWM	0	0	25	75		
Notes/Description		0	25	75		
rvotes/ Description	•					
Other Evidence:	List/describe an	y additional field	evidence and/or	ines of reasoning	used to support	your delineation
Mapped as inte				_		•
mapped as inte	illilitelit oli oo	igo topograpili	c quadrarigie.	Significant next	us with Diton i	NO. 44.

Datasheet # PT9		OHW	M Delineation l	Datasheet		Page _9 _ of _ <u>1</u> 4
	el the OHWM a	nd other features	_			characteristics over of transect length)
Sample Point C	oordinates: 35	.7055,-90.0279				
OHWM estimate	ed at 13 feet.					
See photo 5 in o	delineation rep	ort appendix A				
occ prioto c iii c	.ooao op	от арропаж т				
Dragk in Slane at	онум. П	Sharm (> 60°) [Moderate (20	60°) □ Cont	но (< 20°) Г	None
Break in Slope at Notes/Description:		Sharp (> 60°) [■ Moderate (30-	-60°) ∐ Gent	tle (< 30°) L	_ None
r (otes, 2 escription	•					
Sediment Texture	Estimate perc	entages to describ	e the general sed	iment texture abo	ove and below t	the OHWM
	Clay/Silt	Sand	Gravel	Cobbles	Boulders	Developed Soil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Above OHWM	100					Y
Below OHWM	100					Υ
Notes/Description:						
Ditch with mud	bottom. Cowa	ırdin Code R4Ul	B3			
Vegetation: Estin		cent cover to desc		etation characteri	stics above and	l below the OHWM
vegetation: Estim	Tree (%)	Shrub (%)	Herb (%)	Bare (%		i below the Ollwivi
Above OHWM	5	(,,,	90	5	/	
Below OHWM			30	70		
Notes/Description:						
1						
Other Evidence:	List/describe any	y additional field	evidence and/or l	ines of reasoning	used to suppor	rt your delineation
Labeled as Dito	h No. 44 on U	SGS topograph	ic quadrangle			
		1 0 1				

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length) Inverted trapezoidal cross-section. Sample Point Coordinates: 35.7050,-90.0263 OHWM estimated at 2 feet. See photo 7 in delineation report appendix A Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) None Notes/Description: Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM O.05 - 2mm O.05 - 2	Datasheet # PT10		OHW	M Delineation 1	Datasheet	Pa	ge <u>10</u> of <u>1</u> 4
Sample Point Coordinates: 35.7050,-90.0263 OHWM estimated at 2 feet. See photo 7 in delineation report appendix A Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) None Notes/Description: Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Olay/Silt Sand Gravel Cobbles Boulders Developed Soil (< 0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N) Above OHWM 100		_		_			
OHWM estimated at 2 feet. See photo 7 in delineation report appendix A Break in Slope at OHWM:	Inverted trapezo	oidal cross-sec	tion.				
Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) None Notes/Description: Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed Soil <0.05 mm 0.05 - 2mm 1 - 10cm 1 - 10cm Horizons (Y/N) Above OHWM 100 Y Below OHWM 100 Y Notes/Description: Shallow ditch with mud bottom. Cowardin Code R4UB3 Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75	Sample Point Co	oordinates: 35	.7050,-90.0263				
Break in Slope at OHWM: Sharp (> 60°) Moderate (30–60°) Gentle (< 30°) None Notes/Description: Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed Soil (0.05mm) 0.05 - 2mm 1 - 10cm 1 - 10cm Horizons (Y/N) Above OHWM 100 Y Below OHWM 100 Y Notes/Description: Shallow ditch with mud bottom. Cowardin Code R4UB3 Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75	OHWM Astimate	ad at 2 feet. Sc	se photo 7 in de	dineation report	t annendiy Δ		
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed Soil <0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N)	Or IVVIVI Collinate	70 at 2 100t. 00	e prioto i in de	illieation repor	таррепаіх А		
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed Soil <0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N)							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed Soil <0.05mm 0.05 - 2mm 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N)							
Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM Clay/Silt Sand Gravel Cobbles Boulders Developed Soil Horizons (Y/N) Above OHWM 100 Y Below OHWM 100 Y Notes/Description: Shallow ditch with mud bottom. Cowardin Code R4UB3 Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75	Break in Slope at	OHWM:	Sharp (> 60°)	Moderate (30-	-60°) Gent	tle (< 30°) _	None
Clay/Silt Sand Gravel Cobbles Boulders Developed Soil 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N)	Notes/Description:	:					
Clay/Silt Sand Gravel Cobbles Boulders Developed Soil 2mm - 1cm 1 - 10cm >10cm Horizons (Y/N)							
Country Coun	Sediment Texture						
Above OHWM 100 Y Below OHWM 100 Y Notes/Description: Shallow ditch with mud bottom. Cowardin Code R4UB3 Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75		•					*
Notes/Description: Shallow ditch with mud bottom. Cowardin Code R4UB3 Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75	Above OHWM						1
Notes/Description: Shallow ditch with mud bottom. Cowardin Code R4UB3 Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75	Below OHWM	100					Υ
Tree (%) Shrub (%) Herb (%) Bare (%) Above OHWM 90 10 Below OHWM 25 75	Shallow ditch w	ith mud bottom	n. Cowardin Co	ode R4UB3			
Above OHWM 90 10 Below OHWM 25 75	Vegetation: Estin	•					below the OHWM
Below OHWM 25 75	Above OHWM	1100 (70)	Sili ub (70)	1	1	<u>) </u>	
	Notes/Description:	·					
	Other Evidence:	List/describe any	y additional field	evidence and/or l	ines of reasoning	used to suppor	t your delineation
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation							
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation							
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation							
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation							
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation							
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation							

Datasheet # PT14		OHWI	M Delineation l	Datasheet	Pa	age <u>11</u> of <u>14</u>
Transect (cross-s some distance; lab	_		•			
Sample Point C	oordinates: 35.7	7145,-90.0356				
Inverted parabo	lic cross-section	n. OHWM estir	mated at 1 foot	t. See photogra	aph 8 of Appe	endix A.
Break in Slope at	OHWM. D	Sharp (> 60°) [Moderate (20	60°)	la (< 30°) [None
Notes/Description			■ Moderate (50-	–60) Geni	.ie (< 30) ∟] None
Sediment Texture	Clay/Silt	Sand	e tne generai sed Gravel	Cobbles	Boulders	Developed Soil
	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Above OHWM	100					Υ
Below OHWM	100					Υ
Notes/Description	:					
Agricultural/Hig	hway drainage	swale with mud	d bottom. No d	channel or OHV	VM.	
Vegetation: Fstir	nate absolute per	ent cover to desc	rihe general veg	 etation characteri		below the OHWM
vegetation: Estil	Tree (%)	Shrub (%)	Herb (%)	Bare (%)		below the OH WW
Above OHWM	0	0	50	50		
Below OHWM	0	0	10	90		
Notes/Description	:		•			
Crop residue or	nly.					
Other Evidence:	List/describe any	additional field	evidence and/or l	ines of reasoning	used to suppor	t your delineation

Transact (areas s		OHW	OHWM Delineation Datasheet			age <u>12</u> of <u>1</u> 4
some distance; lab			_			naracteristics over f transect length)
Inverted parabo	lic cross-section	on.				
Sample Point C	oordinates: 35	.35.7150,-90.03	354			
OHWM estimate	ed at 1 foot.					
See photo 8 in o	delineation rep	ort appendix A				
Break in Slope at Notes/Description		Sharp (> 60°) [■ Moderate (30–	-60°)	ele (< 30°)	None
Sediment Texture	e: Estimate perc	entages to describ	e the general sedi	ment texture abo	ove and below th	ne OHWM
	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100					N
Below OHWM	100					Υ
Shallow ditch w	ith mud botton	n. Cowardin Co	de R4UB3			
	nate absolute per	cent cover to desc	eribe general vege	tation characteri	stics above and	below the OHWM
Vegetation: Estin	nate absolute per	Shrub (%)	eribe general vege	Bare (%		below the OHWM
Vegetation: Estin						below the OHWM
Vegetation: Estin	Tree (%)		Herb (%)	Bare (%		below the OHWM

Datasheet # PT17		OHW	M Delineation	Datasheet	Pa	age <u>13</u> of <u>14</u>
Transect (cross-some distance; lab	_		_			
Sample Point Co	oordinates: 35.	7164,-90.0348				
Inverted parabol	lic cross-section	n. OHWM esti	mated at 3 feet	t. See photogr	aph 10 of App	endix A.
Break in Slope at	OHWM:	Sharp (> 60°)	Moderate (30	–60°)	tle (< 30°) _	None
Notes/Description:	:					
Sediment Texture	e: Estimate perce	entages to describ	e the general sed	iment texture ab	ove and below the	he OHWM
	Clay/Silt	Sand	Gravel	Cobbles	Boulders	Developed Soil
Above OHWM	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)
Below OHWM	100					Y
Notes/Description:	L.					<u> </u>
Agricultural/High		swale with mu	d bottom. No a	channel or OH\	ΛM.	
r igiroditara, r iigi	ima, aramago					
						-,,,
Vegetation: Estin	nate absolute pero Tree (%)	Shrub (%)	eribe general veg Herb (%)	etation character Bare (%		below the OHWN
Above OHWM	0	0	50	50)	
Below OHWM	0	0	10	90		
Notes/Description:		1 0	10	30		
Crop residue or						
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	<i>y</i> -					
Other Evidence:		additional field	evidence and/or	ines of reasoning		t vour delineation
	·			Ì		•
Not mapped on	USGS topogra	apnic quadrang	ie. Ino nexus I	with Tinvv or ot	ner KPW. EXC	avated porrow

Datasheet # PT18		OHW	Pa	age <u>14</u> of <u>14</u>				
Transect (cross-se some distance; labe		•						
See photo 3 of c	delineation rep	ort.						
Sample Point Co	oordinates: 35	.7199,-90.0305						
Trapazoidal cros	ss-section with	estimated OHV	NM at 13 feet					
Trapazoidai oros	33 SCOUGH WILL	r estimated of the	Will at 10 leet					
Break in Slope at	OHWM:	Sharp (> 60°)	Moderate (30-		de (< 30°)	None		
Notes/Description:								
Sediment Texture	 e: Estimate perc	entages to describ	e the general sed	iment texture abo	ove and below the	he OHWM		
	Clay/Silt	Sand	Gravel	Cobbles	Boulders	Developed Soil		
Above OHWM	<0.05mm	0.05 – 2mm	2mm – 1cm	1 – 10cm	>10cm	Horizons (Y/N)		
Below OHWM	100					N		
Notes/Description:						IN		
mud bottom stre	nate absolute per	cent cover to des				below the OHWM		
A1 OTHER	Tree (%)	Shrub (%)	Herb (%)	Bare (%))			
Above OHWM			100	0				
Below OHWM Notes/Description:			0	100				
Troces, Description.	•							
Other Evidence:	List/describe an	y additional field	evidence and/or l	ines of reasoning	used to suppor	t your delineation		