DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

MAR 19 2014

REPLY TO
ATTENTION OF

Operations Division
Surveillance and Enforcement Section

Mr. Leonard McCauley
G.E.C. Inc.
9357 Interline Avenue
Baton Rouge, Louisiana

Exhibit CC. Dow Louisiana Operations West Jurisdictional Determination & Wetlands Delineation Report

Dear Mr. McCauley:

Reference is made to your request, on behalf of Baton Rouge Area Chamber of Commerce, for a U.S. Army Corps of Engineers' (Corps) jurisdictional determination on property located in Sections 9, 10, 51, 61, 85, 86, and 87, Township 9 South, Range 12 East, Iberville Parish, Louisiana (enclosed map). Specifically, this property is identified as an 885-acre tract on and west of LA Highway 1 and south of LA Highway 1148.

Based on review of recent maps, aerial photography, soils data, and information provided with your request, we have determined that this property is not in a wetland subject to Corps' jurisdiction. However, a Department of the Army permit under Section 404 of the Clean Water Act will be required if you propose to deposit dredged or fill material into other waters of the US on the property (shown in blue on the map).

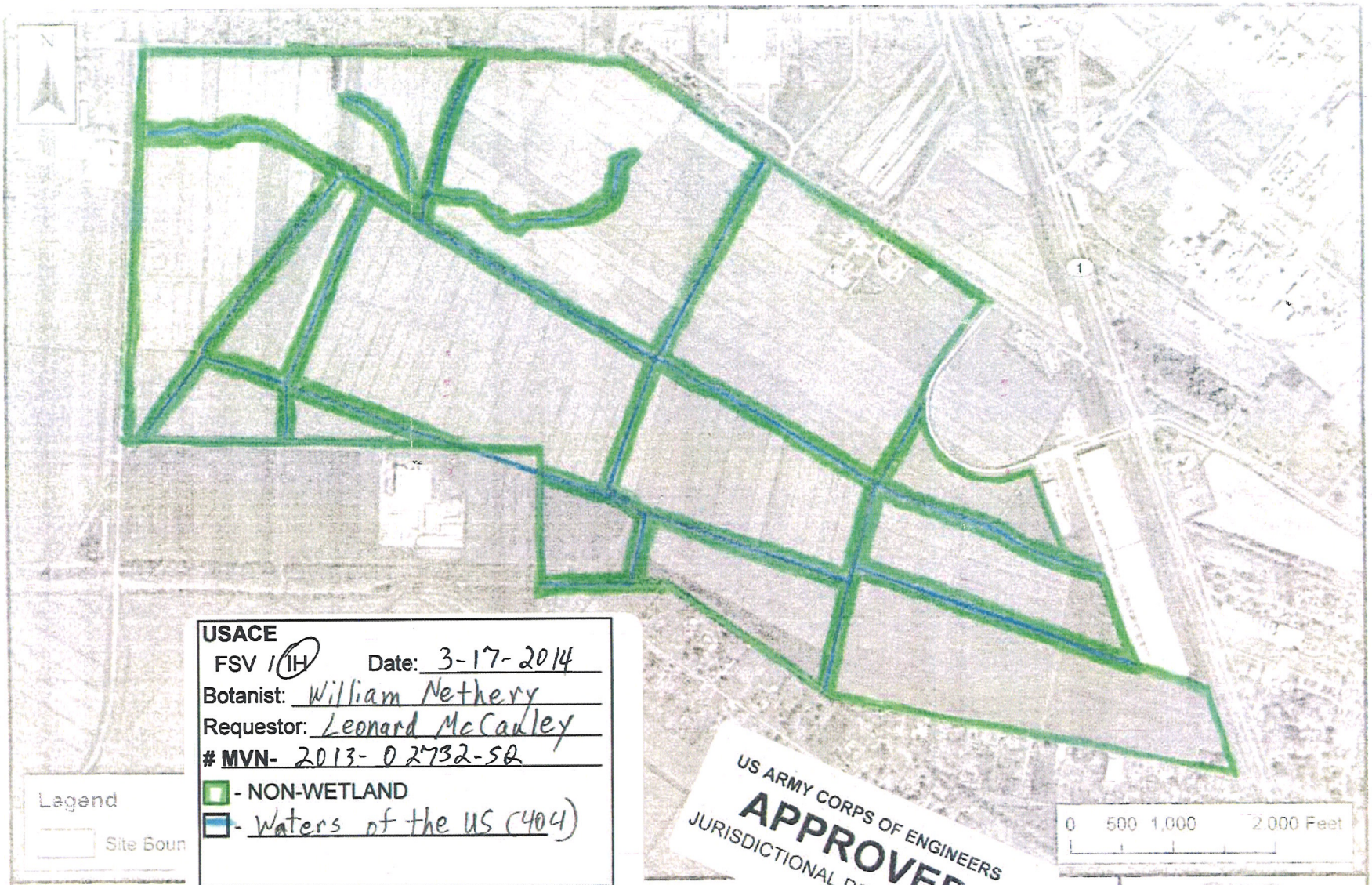
You and your client are advised that this approved jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision prior to the expiration date or the District Commander has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.

Should there be any questions concerning these matters, please contact Mr. Bill Nethery at (504) 862-1267 and reference our Account No. MVN 2013-02732-SQ. If you have specific questions regarding the permit process or permit applications, please contact our Central Evaluation Section at (504) 862-1581. The New Orleans District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please complete the survey on our web site at http://per2.nwp.usace.army.mil/survey.html.

Sincerely,

for Martin S. Mayer
Chief, Regulatory Branch

Enclosure



SITE VICINITY

885 Acre Dow Site
Plaquemine, Louisiana

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:MVN 2013-02732-SQ

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State:LA County/parish/borough: Iberville Parish City:
Center coordinates of site (lat/long in degree decimal format): Lat. 30.315062° N, Long. 91.261956° W.
Universal Transverse Mercator:
Name of nearest waterbody: unnamed conveyances/
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Bayou Choctaw/ICWW
Name of watershed or Hydrologic Unit Code (HUC): 8070300
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: March 13, 2014
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 33,530 linear feet: width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☒ Artificial (man-made). Explain: Drainage canals for agriculture, etc.
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 10 feet
Average depth: 2 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Maintained, vegetated banks, stable.
Presence of run/riffle/pool complexes. Explain: no.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-2 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: storm runoff during drier periods with negligible flow between events. Groundwater/stormwater combined during wetter periods of saturation and high water table.
Other information on duration and volume: Increased flow, decreased duration due to ag conveyances.

Surface flow is: **Discrete and confined.** Characteristics: Usually flows within banks, remaining inundated during seasonal rainy, saturated periods.

Subsurface flow: **Pick List**. Explain findings: not measured.
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☐ changes in the character of soil	☒ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☒ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: not observed in field.
Identify specific pollutants, if known: typical agriculture, fertilizers, pesticides, clay, silts.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:Conveyances in the project area have replaced the natural drainage of the area and concentrated flow into channels to drain ag fields more quickly. Accelerated drainage has increased flow rates and decreased duration during relatively dry periods; however, conveyances stay inundated seasonally during rainy periods of saturation and high water table. Flow is very sluggish during periods of high water downstream. Conveyances on the property empty immediately into Wilberts Canal, an RPW that is a TNW in its lower reaches as it flows toward the GIWW/Bayou Choctaw. These tributary conveyances in agricultural areas are known to carry silt and clay sediments and organic material from the fields in addition to nutrients and pesticide residues. Given the limited assimilitive capacities within these conveyances, the pollutants would readily stay suspended in the water collumn throughout the conveyance system on the property and into Wilberts Canal. This RPW would, in turn, deliver sedimants, organic matter, pesticide residue, and nutrients directly to the GIWW/Bayou Choctaw, a TNW. Given the agricultural nature of most of the watershed, the significant impact to the downstream TNW would be negative, for the most part. The enhanced drainage features and loss of much of the natural floodwater storage capacity in the overall watershed allow floodwaters to reach the downstream system faster than the natural condition Flow from this watershed in combination with many other similar watersheds in the region, will exceed the downstream storage capacity. The contributions of wetlands and upstream waters to the physical, chemical, and biological integrity of downstream waters is well documented in the literature (see references below). Conversely, the removal of natural wetlands and other floodplain functions from the system that result from conversion to agriculture has significant deleterious effects on the chemical, physical and biological integrity of the downstream systems. While organic matter and other inputs from the watershed may in part support downstream biota, it is more likely that excessive nutrients and BOD from organic matter will stress the downstream aquatic ecosystems.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☒ Interstate isolated waters. Explain: .
- ☒ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☒ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☒ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☒ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☒ Corps navigable waters' study: .
- ☒ U.S. Geological Survey Hydrologic Atlas: .

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[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Leonard McCauley for Baton Rouge Area Chamber	File Number: MVN 2013-02732-SQ	Date: MAR 19 2014
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

GEC
Gulf Engineers & Consultants

G.E.C., Inc.
8282 Interline Avenue
Baton Rouge, Louisiana 70806
(225) 612-3000 Fax (225) 612-3015
Verdi Adam, P.E., President
Stephen Spohrer, P.E., Chief Operating Officer

ENR TOP 500 DESIGN FIRMS

October 31, 2013

U.S. Army Engineer District, New Orleans
Regulatory Branch
ATTN: Martin Mayer
7400 Leake Avenue
New Orleans, Louisiana 70118

RE: Wetland Delineation Report
Dow Louisiana Operations West, 885-Acre Tract
Iberville Parish, Plaquemine, Louisiana

Dear Mr. Mayer:

On behalf of the Baton Rouge Area Chamber, G.E.C., Inc. (GEC) is pleased to forward one copy of the ***Wetland Delineation Report, Dow Louisiana Operations West, 885-Acre Tract, Iberville Parish, Plaquemine, Louisiana***. The enclosed document presents the habitat data gathered and a delineation of the wetland habitats within the study area.

GEC is requesting an **Approved Jurisdictional Determination** on behalf of the Baton Rouge Area Chamber.

Thank you for your attention in this project. If you have any comments or require additional information, please do not hesitate to contact me at (225) 612-4175 or lmccauley@gecinc.com.

Sincerely,

Leonard McCauley

Enclosures

November 2013

WETLAND DELINEATION REPORT
DOW LOUISIANA OPERATIONS WEST
885 – ACRE TRACT
IBERVILLE PARISH,
PLAQUEMINE, LOUISIANA

Prepared for:

Dow Louisiana Operations West
21255 LA Hwy 1 South
Plaquemine, Louisiana 70764-0105

Prepared by:

Gulf Engineers & Consultants
Baton Rouge, Louisiana

WETLAND DELINEATION REPORT
DOW LOUISIANA OPERATIONS WEST
885 – ACRE TRACT
IBERVILLE PARISH,
PLAQUEMINE, LOUISIANA

GEC Project No.: 0013.2122013.007

Prepared by

Gulf Engineers & Consultants
8282 Goodwood Boulevard
Baton Rouge, Louisiana 70806
Phone – 225/612-3000

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WETLAND DELINEATION REPORT
DOW LOUISIANA OPERATIONS WEST
885 – ACRE TRACT
IBERVILLE PARISH,
PLAQUEMINE, LOUISIANA

INTRODUCTION

G.E.C., Inc. (GEC) recently conducted a wetland delineation for Dow Louisiana Operations West in Iberville Parish, Louisiana (Figure 1). Access to the property was through the use of Industrial Boulevard and LA Hwy 1148 to the north of the property as well as Homestead Drive to the south of the property (Figure 2). The project area consists of agricultural land currently in production of sugar cane. The purpose of this delineation was to determine the wetland boundaries within the approximately 885-acre tract.

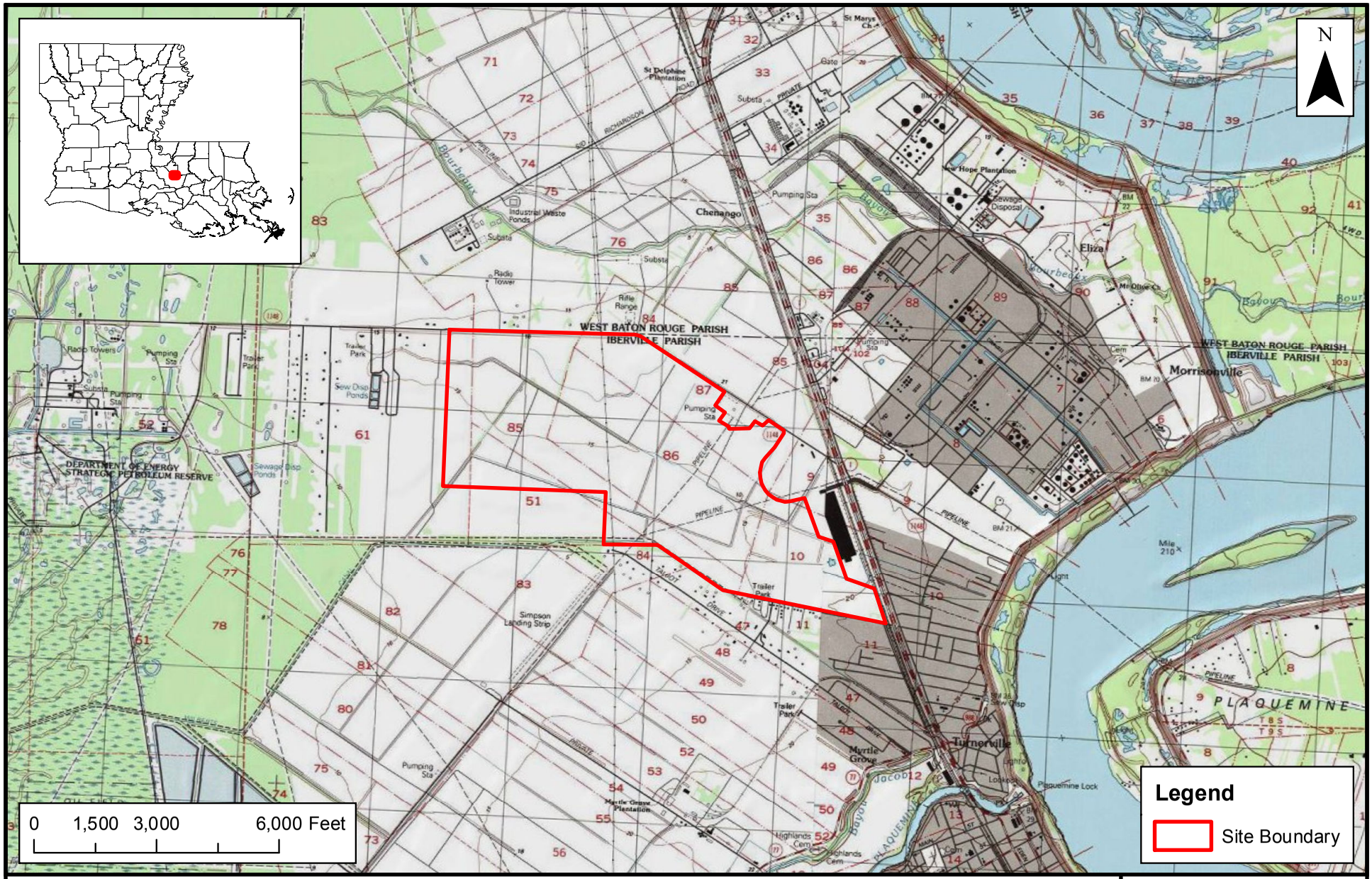
METHODOLOGY

GEC conducted the wetland delineation in accordance with Section D, Subsection 2 of Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual as well as the Atlantic and Gulf Coastal Plains Regional Supplement. Aerial photography, Natural Resources Conservation Service (NRCS) Iberville Parish soil survey map, and U.S. Geological Survey (USGS) topographic quadrangle maps were reviewed prior to the initiation of field work to identify the potential extent of wetlands present on the subject property.

Routine Wetland Delineation Data Forms (Appendix A), as approved by Headquarters, U.S. Army Corps of Engineers (USACE) 10/08, were completed for various vegetative communities encountered within the project area. These data forms contain sufficient information regarding the presence or absence of hydric soils, hydrophytic vegetation, and wetland hydrology, to support the demarcation of a wetland boundary. The location of each sample plot along with mapped wetlands and other waters are shown in figures 3, 3A1, 3A2, 3B1, 3B2, 3C1, and 3C2.

Dominant vegetation was recorded on the data forms along with the indicator status as listed in the *National List of Plant Species Occurring in Wetlands (Region 2)* released by USACE in May 2012 (Release No. 12-005). Once dominant vegetation was recorded and evaluated, if more than 50 percent of the dominant vegetation had an indicator status of FAC, FACW, or OBL or the prevalence index was ≤ 3.0, the hydrophytic vegetation criterion was met.

A soil pit was excavated to a depth of approximately 18 inches at each sample plot. The pit remained open for at least 15 minutes to allow the pit to fill with water, if present. Soils were sampled along the exposed stratum. Information recorded on the data forms included soil colors (hue, value, and chroma as per the 1992 revised edition of the Munsell Color Chart), size, color, abundance, and depth of mottles, as well as soil texture. Soil texture was determined using the "texture by feel" analysis. Figure 4 depicts the soils mapped by the NRCS within the project area.



SITE LOCATION

885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI USA Topo Maps

Figure: 1
Date: October 2013
Scale: 1:40,000
Source: GEC/USGS
Map ID: 13.2122013.007-3105

SITE VICINITY

885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

Figure: 2
Date: October 2013
Scale: 1:16,000
Source: GEC/ESRI
Map ID: 13.2122013.007-3105

Legend

Sample Plots

- Upland
- Wetland
- Site Boundary
- Wetlands - 10.0 acres

WETLAND MAPBOOK

885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3
Date: October 2013
Scale: 1:16,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105

Legend

Sample Plots
- Upland
- Wetland
- Site Boundary

Wetlands - 10.0 acres

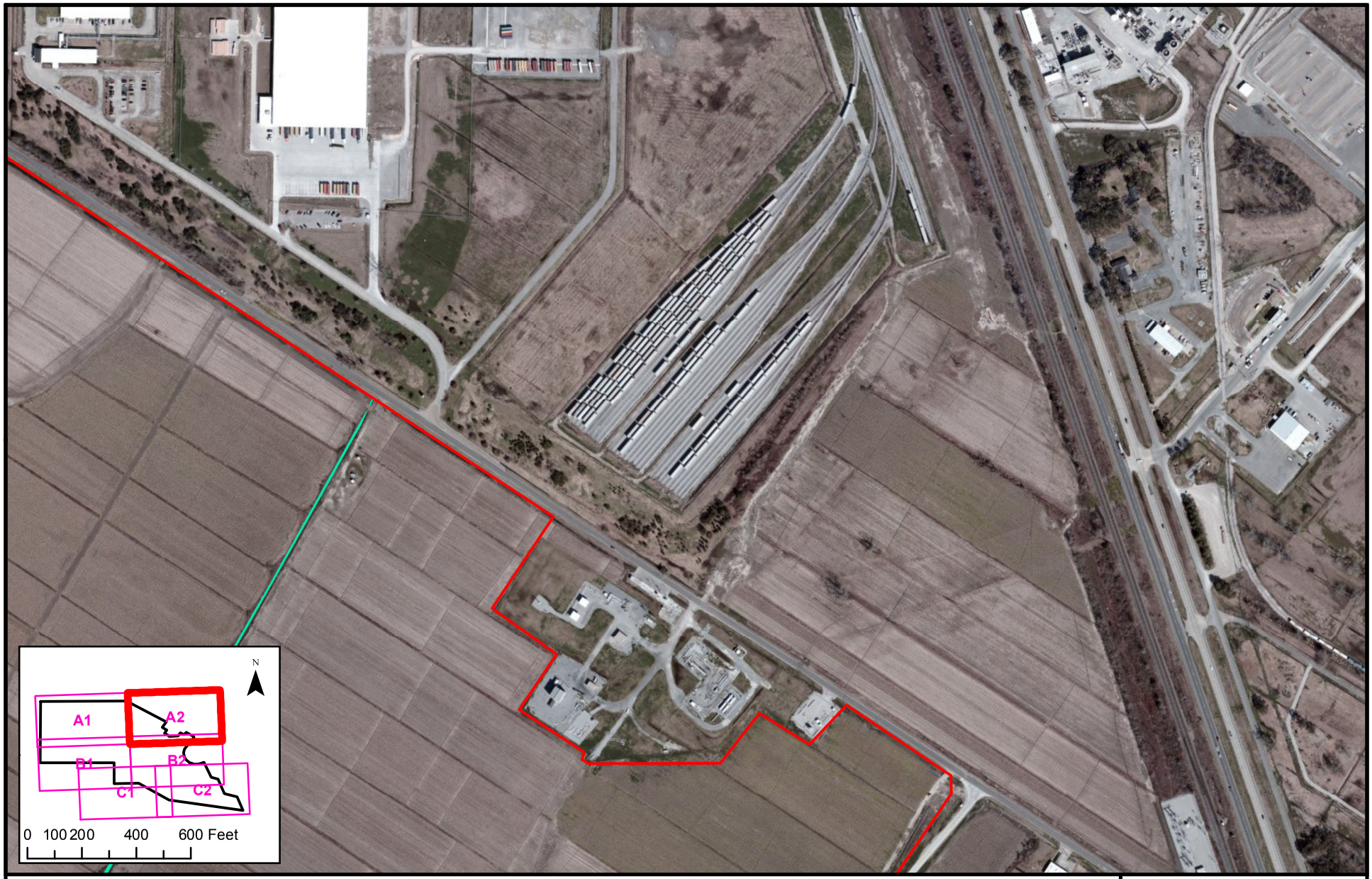
WETLAND MAPBOOK

Page A1
885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3A1
Date: October 2013
Scale: 1:6,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105



Legend

Sample Plots
- Upland
- Wetland
- Site Boundary

Wetlands - 10.0 acres

WETLAND MAPBOOK

Page A2
885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3A2
Date: October 2013
Scale: 1:6,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105

Legend

Sample Plots
- Upland
- Wetland
- Site Boundary

Wetlands - 10.0 acres

WETLAND MAPBOOK

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885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3B1
Date: October 2013
Scale: 1:6,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105

Legend

Sample Plots
- Upland
- Wetland
- Site Boundary

Wetlands - 10.0 acres

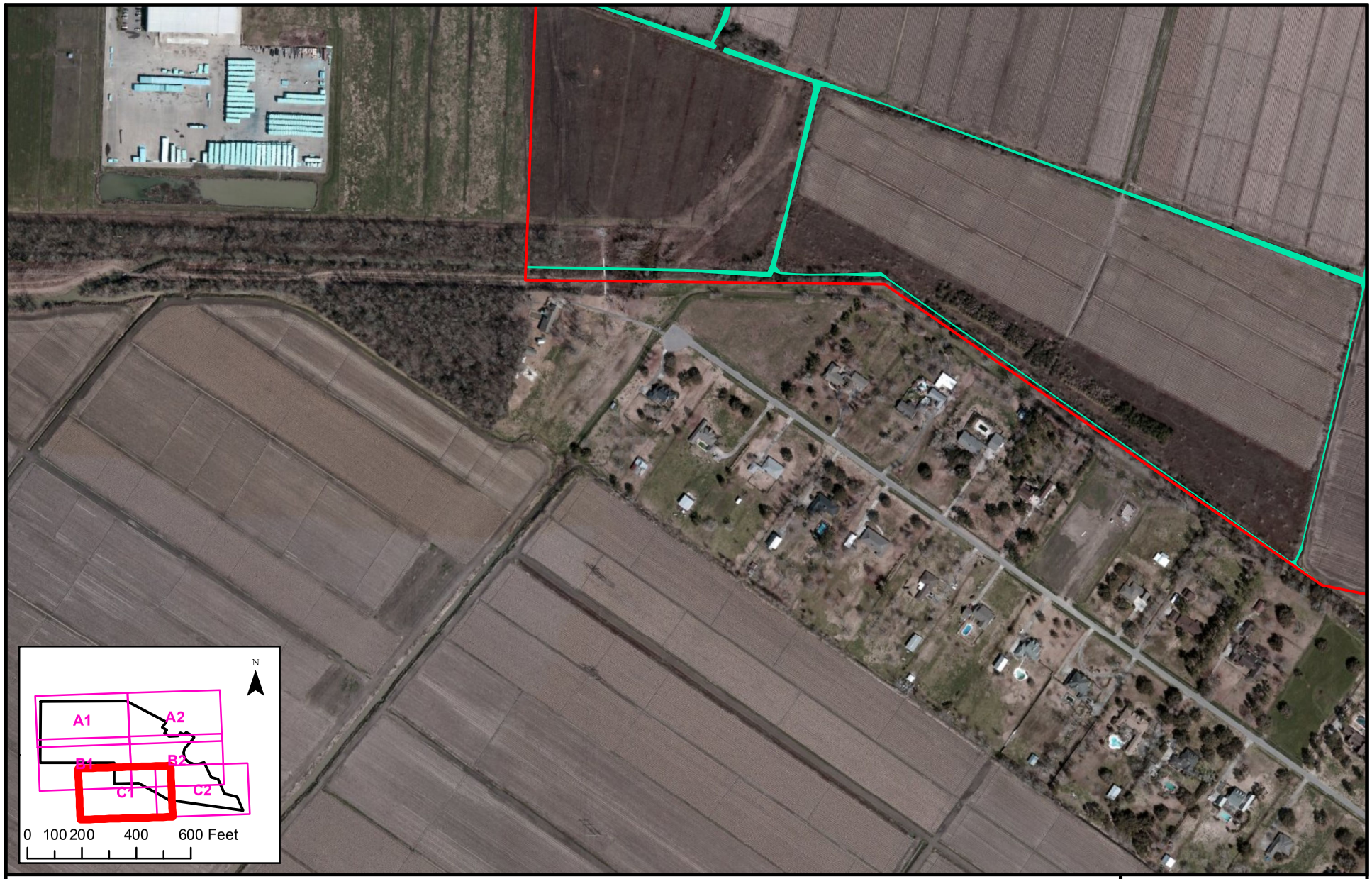
WETLAND MAPBOOK

Page B2
885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3B2
Date: October 2013
Scale: 1:6,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105



Legend

Sample Plots
- Upland
- Wetland
- Site Boundary

Wetlands - 10.0 acres

WETLAND MAPBOOK

Page C1
885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3C1
Date: October 2013
Scale: 1:6,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105

Legend

Sample Plots

- Upland
- Wetland
- Site Boundary
- Wetlands - 10.0 acres

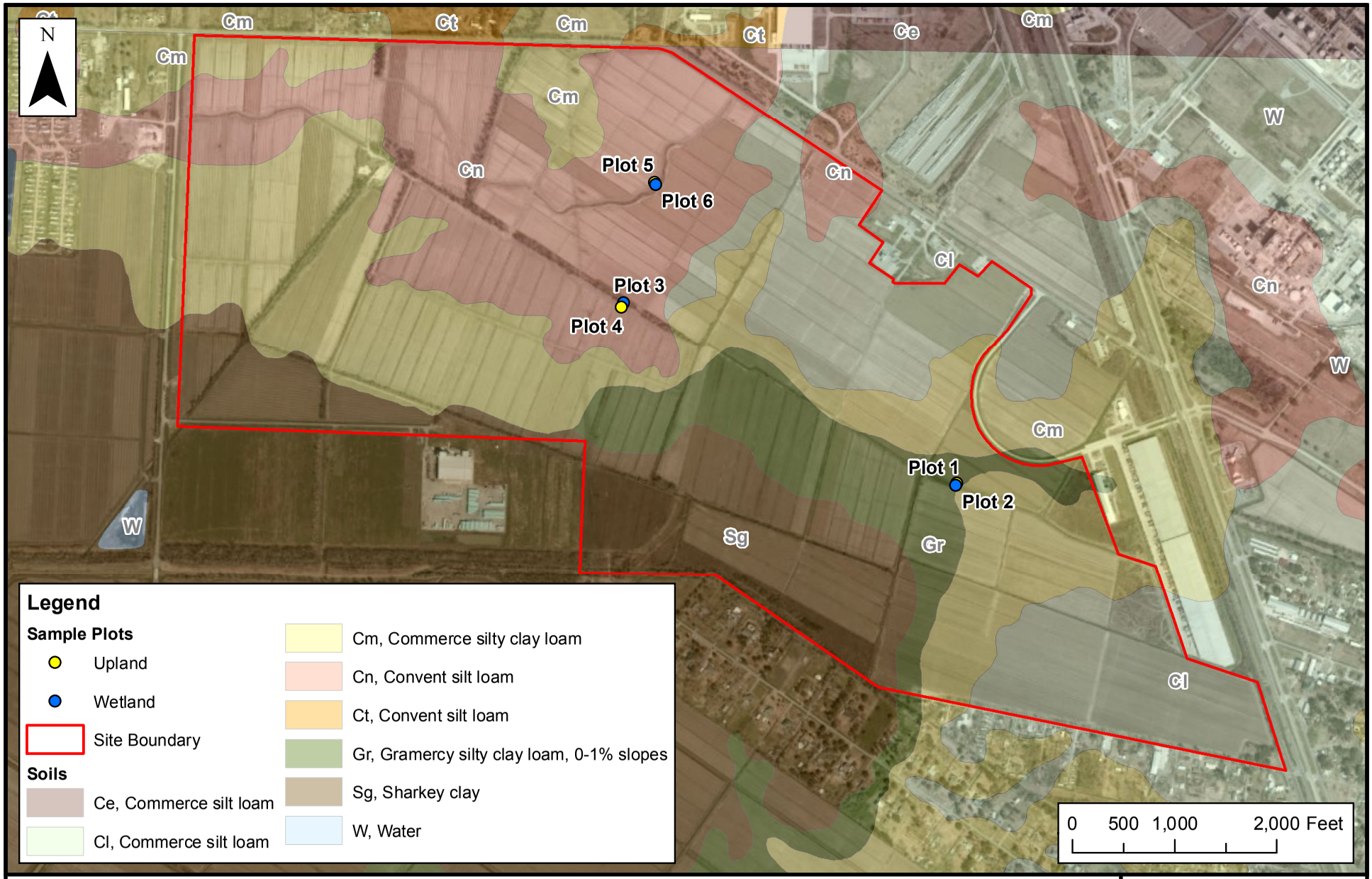
WETLAND MAPBOOK

Page C2
885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 3C2
Date: October 2013
Scale: 1:6,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105



SOIL MAP

885 Acre Dow Site
Plaquemine, Louisiana

Data Source: ESRI Basemap World Imagery

GEC

Figure: 4
Date: October 2013
Scale: 1:16,000
Source: GEC/ESRI/NRCS
Map ID: 13.2122013.007-3105

Wetland hydrology indicators were also recorded at each sample plot as per the USACE requirements. If at least one primary or two secondary hydrology indicators were present, the sample plot was classified as having wetland hydrology.

Photographs were taken at each sample plot where a data form was completed. These photographs show a representative soil profile, as well as overviews in the cardinal directions of the sample plot (Appendix B).

RESULTS

The following subsections provide descriptions of each of the sites identified during the field survey. Descriptions of vegetation, soil characteristics, and hydrology indicators at each sample plot recorded are provided

Sample Plot - 1: Sample Plot 1 is located on the edge of an agricultural field currently planted in sugar cane (figures 3B2 and 3C2). The tree and sapling/shrub stratum are absent within this plot. The herbaceous stratum is dominated by sugar cane (*Saccharum officinarum*), tievine (*Ipomoea cordatotriloba*), and cypress-vine (*Ipomoea quamoclit*). The woody vine stratum is also absent from this plot. The hydrophytic vegetation criterion is not met within this sample plot.

The soil series mapped at this plot is the Gramercy silty clay loam. This series is not listed on the National Hydric Soils list or the Louisiana Hydric Soils list. The hydric soils criterion is met at this plot due to the presence of a depleted matrix. Primary indicators of hydrology as well as secondary indicators of hydrology were lacking within this plot. It is GEC's opinion that this sample plot is not within a wetland, based on the lack of hydric vegetation, hydric soils, and wetland hydrology within the plot (see Data Form Plot - 1).

Sample Plot - 2: Sample Plot 2 is located within a wetland ditch coming from off the property on the east side (figures 3B2 and 3C2). The ditch is well maintained and looks to have been recontoured within the recent past. The tree and sapling/shrub stratum are absent from this plot while the herbaceous stratum is dominated by delta arrowhead (*Sagittaria platyphylla*). The woody vine stratum is also absent from this plot. The hydrophytic vegetation criterion is met within this sample plot.

The soil series mapped at this plot is the Gramercy silty clay loam. This series is not listed on the National Hydric Soils list or the Louisiana Hydric Soils list. Field investigations concluded that the hydric soils criterion is met within this plot based on the presence of a depleted matrix. Primary indicators of wetland hydrology include surface water (A1), saturation (A3), drift deposits (B3), and aquatic fauna (B13). Secondary indicators include a positive FAC-neutral test (D5). The hydrology criterion is met at this plot. It is GEC's opinion that this sample plot is within a wetland, based on the presence of hydric vegetation, hydric soils, and hydrology indicators within the plot (see Data Form Plot - 2).

Sample Plot - 3: Sample Plot 3 is located in the basin of a poorly maintained agriculture ditch with mature trees on both banks (figures 3A1 and 3B1). The tree and sapling/shrub stratum is dominated by sugarberry (*Celtis laevigata*). Raven-foot sedge (*Carex crus-corvi*), and nimblewill (*Muhlenbergia schreberi*) dominate the herbaceous stratum along the banks while trumpet

creeper (*Campsis radicans*), and Chinaroot (*Smilax hispida*) dominate the woody vine stratum. The hydrophytic vegetation criterion is met within this sample plot.

The soil series mapped at this plot is the Convent silt loam. This series is listed on the National Hydric Soils list and the Louisiana Hydric Soils list. Field investigations concluded that the hydric soils criterion is met within this plot based on the presence of a depleted matrix. Primary indicators of wetland hydrology include water marks (B1), drift deposits (B3), and water-stained leaves (B9) while secondary indicators include sparsely vegetated concave surface (B8), crayfish burrows (C8), and a positive FAC neutral test (D5). The hydrology criterion is met at this plot. It is GEC's opinion that this sample plot is within a wetland, based on the presence of hydric vegetation, hydric soils, and hydrology indicators within the plot (see Data Form Plot - 3).

Sample Plot - 4: Sample Plot 4 is located on the edge of an agriculture field between the field and the adjacent wetland ditch (figures 3A1 and 3B1). The tree and sapling/shrub stratum are absent from this plot while the herbaceous stratum is dominated by hooded windmill grass (*Chloris cucullata*). The woody vine stratum is absent from this plot. The hydrophytic vegetation criterion is not met within this sample plot.

The soil series mapped at this plot is the Convent silt loam. This series is listed on the National Hydric Soils list and the Louisiana Hydric Soils list. Field investigations concluded that the hydric soils criterion is met within this plot based on the presence of a depleted matrix. Primary and secondary indicators of wetland hydrology were lacking at this site. The hydrology criterion is not met at this plot. It is GEC's opinion that this sample plot is not within a wetland, based on the lack of hydric vegetation, and wetland hydrology found within the plot (see Data Form Plot - 4).

Sample Plot - 5: Sample Plot 5 is located on the edge of an agricultural field used for sugar cane (Figure 3A1). The tree stratum as well as the sapling/shrub stratum are absent from this plot. Bermuda grass (*Cynodon dactylon*), and hooded windmill grass dominate the herbaceous stratum. The woody vine stratum is also absent from this plot. The hydrophytic vegetation criterion is not met within this sample plot.

The soil series mapped at this plot is the Convent silt loam. This series is listed on the National Hydric Soils list and the Louisiana Hydric Soils list. Field investigations concluded that the hydric soils criterion is not met within this plot based on the lack of hydric soil indicators. Primary and secondary indicators of wetland hydrology were lacking within this plot. The hydrology criterion is not met at this plot. It is GEC's opinion that this sample plot is not within a wetland, based on the lack of hydric vegetation, hydric soils, and wetland hydrology found within the plot (see Data Form Plot - 5).

Sample Plot - 6: Sample Plot 6 is located within a sparsely vegetated swale between two agricultural fields currently planted in sugar cane (Figure 3A1). The tree stratum as well as the sapling/shrub stratum are absent from this plot. Curlytop knotweed (*Polygonum lapathifolium*), and lizards tail (*Saururus cernuus*) dominate the herbaceous stratum. The woody vine stratum is also absent from this plot. The hydrophytic vegetation criterion is met within this sample plot.

The soil series mapped at this plot is the Convent silt loam. This series is listed on the National Hydric Soils list and the Louisiana Hydric Soils list. Field investigations concluded that the hydric

soils criterion is met within this plot based on the presence of a depleted matrix. Primary indicators of wetland hydrology include saturation (A3), water marks (B1), inundation visible on aerial imagery (B7), and aquatic fauna (B13) while secondary indicators of wetland hydrology include a positive FAC-neutral test (D5). Inundation was identified using Google Earth in 2013 and 2011. The hydrology criterion is met at this plot. It is GEC's opinion that this sample plot is within a wetland, based on the presence of hydric vegetation, hydric soils, and wetland hydrology found within the plot (see Data Form Plot - 6).

CONCLUSIONS

During the field investigation of the approximately 885-acre site in Plaquemine, Louisiana, GEC mapped two wetland areas including one vegetated swale of approximately 0.4 acres and a complex of agricultural ditches of approximately 9.6 acres within the project area. In addition to the wetlands identified within the agriculture ditches, the ditch bank slopes themselves identified as non-wetland riparian areas which encompassed approximately 9.9 acres within the project area. All of the agricultural ditches mapped either contained flowing water at the time of survey or there was sufficient evidence to suggest that the area remains inundated or saturated for significant periods during the year. The remainder of the project area consists of non-wetland agricultural fields, upland scrub/shrub, and agricultural roads totaling approximately 865 acres

Although GEC uses the same criteria and methodology as that of the USACE, due to the degree of subjectivity associated with studies of this type, there may be some degree of variance in the demarcation of the wetland boundary. Consequently, GEC's opinion may not necessarily reflect that of the USACE, nor does it relieve our client of any legal obligations to verify the wetland findings, consult with the USACE, and possibly obtain a Department of the Army permit prior to performing any dredging, filling and/or construction operations in Waters of the United States, including wetlands.

Appendix A

DATA FORMS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 885 Acre Dow Wetland City/County: Plaquemine/Iberville Parish Sampling Date: 17 Oct 2013

Applicant/Owner: Dow Louisiana Operations West State: LA Sampling Point: Plot 1

Investigator(s): J. Avant Section, Township, Range: T09S R12E 86

Landform (hillslope, terrace, etc.): Agriculture Field Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 30.31143 Long: -91.255469 Datum: NAD 1983

Soil Map Unit Name: Gramercy silty clay loam 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 ✔ 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 within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Plot taken on the edge of a recently planted cane field

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Plot 1

Tree Stratum (Plot size: 30 ft rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft rad.)			
1. Saccharum officinarum	15	yes	UPL
2. Ipomoea cordatotriloba	10	yes	FACU
3. Ipomoea quamoclit	10	yes	FACU
4. Sorghum halepense	5	no	FACU
5. Urochloa ramosa	3	no	FACU
6. Phyllanthus urinaria	2	no	FAC
7. Cynodon dactylon	1	no	FACU
8. Cyperus rotundus	1	no	FAC
9. Coelorachis cylindrica	1	no	FAC
10.			
11.			
12.			
	48 = Total Cover		
50% of total cover: 24	20% of total cover: 9.6		
Woody Vine Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Plot 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/1	98	5 YR 5/8	2	C	PL	C	
12-18	10 YR 4/1	97	7.5 YR 4/4	3	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None seen

Depth (inches): NA

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 885 Acre Dow Wetland City/County: Plaquemine/Iberville Parish Sampling Date: 17 Oct 2013

Applicant/Owner: Dow Louisiana Operations West State: LA Sampling Point: Plot 2

Investigator(s): J. Avant Section, Township, Range: T09S R12E 86

Landform (hillslope, terrace, etc.): Ditch basin Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR or MLRA): LRR O Lat: 30.311371 Long: -91.255491 Datum: NAD 1983

Soil Map Unit Name: Gramercy silty clay loam 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 ✔ 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 within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Plot taken in a ditch basin with flow and obligate vegetation within.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ✔ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 0-4
Water Table Present?	Yes ✔	No _____	Depth (inches): Surface
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): Surface

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Plot 2

Tree Stratum (Plot size: 30 ft rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft rad.)			
1. Sagittaria platyphylla	80	yes	OBL
2. Saururus cernuus	7	no	OBL
3. Caperonia palustris	2	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	89 = Total Cover		
50% of total cover: 44.5	20% of total cover: 17.8		
Woody Vine Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Plot 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					C	
2-18	GLEY 1 5/N	98	7.5 YR 3/2	2	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None seen

Depth (inches): NA

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 885 Acre Dow Wetland City/County: Plaquemine/Iberville Parish Sampling Date: 17 Oct 2013

Applicant/Owner: Dow Louisiana Operations West State: LA Sampling Point: Plot 3

Investigator(s): J. Avant Section, Township, Range: T09S R12E 86

Landform (hillslope, terrace, etc.): Agriculture Ditch Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR or MLRA): LRR O Lat: 30.315938 Long: -91.266 Datum: NAD 1983

Soil Map Unit Name: Convent silt loam 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 ✔ 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 within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:
Plot taken in a poorly maintained drainage ditch.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✔ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✔ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✔ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Plot 3

Tree Stratum (Plot size: 30 ft rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Celtis laevigata	80	yes	FACW
2. Quercus nigra	3	no	FAC
3. Salix nigra	3	no	OBL
4.			
5.			
6.			
7.			
8.			
	86 = Total Cover		
50% of total cover: 43	20% of total cover: 17.2		
Sapling/Shrub Stratum (Plot size: 30 ft rad.)			
1. Celtis laevigata	15	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 30 ft rad.)			
1. Carex crus-corvi	15	yes	OBL
2. Muhlenbergia schreberi	7	yes	FAC
3. Campsis radicans	5	no	FAC
4. Arundinaria gigantea	3	no	FACW
5. Toxicodendron radicans	1	no	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	31 = Total Cover		
50% of total cover: 15.5	20% of total cover: 6.2		
Woody Vine Stratum (Plot size: 30 ft rad.)			
1. Campsis radicans	5	yes	FAC
2. Smilax hispida	3	yes	FAC
3.			
4.			
5.			
	8 = Total Cover		
50% of total cover: 4	20% of total cover: 1.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (If observed, list morphological adaptations below).

Vegetation taken only on the edges, most of this area is a sparsely vegetated concave surface

SOIL

Sampling Point: Plot 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/2	100					C	
3-18	10 YR 4/1	90	5 YR 3/4	10	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None seen

Depth (inches): NA

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 885 Acre Dow Wetland City/County: Plaquemine/Iberville Parish Sampling Date: 19 Oct 2013

Applicant/Owner: Dow Louisiana Operations West State: LA Sampling Point: Plot 4

Investigator(s): J. Avant Section, Township, Range: T09S R12E 86

Landform (hillslope, terrace, etc.): Agriculture Field Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 30.315823 Long: -91.266063 Datum: NAD 1983

Soil Map Unit Name: Convent silt loam 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 ✔ 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 within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Plot taken on the edge of a cane field

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Plot 4

Tree Stratum (Plot size: 30 ft rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft rad.)			
1. Chloris cucullata	50	yes	FACU
2. Cynodon dactylon	15	no	UPL
3. Coelorachis cylindrica	15	no	FAC
4. Echinochloa colona	7	no	FACW
5. Phyllanthus urinaria	5	no	FAC
6. Sorghum halepense	3	no	FACU
7. Acmella repens	2	no	FACW
8. Setaria pumila	1	no	FAC
9. Digitaria ciliaris	1	no	FACU
10.			
11.			
12.			
	99 = Total Cover		
50% of total cover: 49.5	20% of total cover: 19.8		
Woody Vine Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Plot 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/1	100					ZC	
12-18	10 YR 4/2	97	5 YR 4/4	3	C	PL	ZC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None seen

Depth (inches): NA

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 885 Acre Dow Wetland City/County: Plaquemine/Iberville Parish Sampling Date: 19 Oct 2013

Applicant/Owner: Dow Louisiana Operations West State: LA Sampling Point: Plot 5

Investigator(s): J. Avant Section, Township, Range: T09S R12E 87

Landform (hillslope, terrace, etc.): Agriculture Field Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 30.319203 Long: -91.265179 Datum: NAD 1983

Soil Map Unit Name: Convent silt loam 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 ✔ 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 within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Plot taken on the edge of an agriculture field used for cane production

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Plot 5

Tree Stratum (Plot size: 30 ft rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft rad.)			
1. Cynodon dactylon	70	yes	FACU
2. Chloris cucullata	25	yes	FACU
3. Sorghum halepense	10	no	FACU
4. Setaria pumila	7	no	FAC
5. Ipomoea cordatotriloba	5	no	FACU
6. Caperonia palustris	1	no	FACW
7. Eleusine indica	1	no	FACU
8.			
9.			
10.			
11.			
12.			
	119 = Total Cover		
50% of total cover: 59.5	20% of total cover: 23.8		
Woody Vine Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Plot 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/2	100					ZC	
5-18	10 YR 5/4	98	10 YR 5/2	2	D	M	ZC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None seen

Depth (inches): NA

Hydric Soil Present? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 885 Acre Dow Wetland City/County: Plaquemine/Iberville Parish Sampling Date: 19 Oct 2013

Applicant/Owner: Dow Louisiana Operations West State: LA Sampling Point: Plot 6

Investigator(s): J. Avant Section, Township, Range: T09S R12E 87

Landform (hillslope, terrace, etc.): Agriculture Field Local relief (concave, convex, none): Depression Slope (%): 1-2

Subregion (LRR or MLRA): LRR O Lat: 30.319138 Long: -91.26514 Datum: NAD 1983

Soil Map Unit Name: Convent silt loam 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 ✔ 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 within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Plot taken in a contoured swale between agriculture fields

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ✔ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✔ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ✔ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 10-18

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Inundation visible using Google Earth in 2013 and 2011.

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

Sampling Point: Plot 6

Tree Stratum (Plot size: 30 ft rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft rad.)			
1. Polygonum lapathifolium	30	yes	FACW
2. Saururus cernuus	15	yes	OBL
3. Caperonia palustris	10	no	FACW
4. Boehmeria cylindrica	7	no	FACW
5. Iris ssp.	7	no	
6. Cyperus elegans	5	no	FACW
7. Acmella repens	5	no	FACW
8. Ammannia latifolia	3	no	OBL
9. Caperonia palustris	3	no	FACW
10.			
11.			
12.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30 ft rad.)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Plot 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/2	100					C	
2-8	10 YR 4/1	95	7.5 YR 5/8	5	C	M	C	
8-18	10 YR 4/1	98	7.5 YR 4/4	2	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None seen

Depth (inches): NA

Hydric Soil Present? Yes ✔ No ___

Remarks:

Appendix B

PHOTOGRAPHS

Photograph 1. Soil Profile Observed at Plot 1

Photograph 2. Overview of the Habitat Observed at Plot 1, Facing North

Photograph 3. Overview of the Habitat Observed at Plot 1, Facing East

Photograph 4. Overview of the Habitat Observed at Plot 1, Facing South

Photograph 5. Overview of the Habitat Observed at Plot 1, Facing West

Photograph 6. Soil Profile Observed at Plot 2

Photograph 7. Overview of the Habitat Observed at Plot 2, Facing Upstream

Photograph 8. Overview of the Habitat Observed at Plot 2, Facing Across

Photograph 9. Overview of the Habitat Observed at Plot 2, Facing Downstream

Photograph 10. Soil Profile Observed at Plot 3

Photograph 11. Overview of the Habitat Observed at Plot 3, Facing North

Photograph 12. Overview of the Habitat Observed at Plot 3, Facing East

Photograph 13. Overview of the Habitat Observed at Plot 3, Facing South

Photograph 14. Overview of the Habitat Observed at Plot 3, Facing West

Photograph 15. Soil Profile Observed at Plot 4

Photograph 16. Overview of the Habitat Observed at Plot 4, Facing North

Photograph 17. Overview of the Habitat Observed at Plot 4, Facing East

Photograph 18. Overview of the Habitat Observed at Plot 4, Facing South

Photograph 19. Overview of the Habitat Observed at Plot 4, Facing West

Photograph 20. Soil Profile Observed at Plot 5

Photograph 21. Overview of the Habitat Observed at Plot 5, Facing North

Photograph 22. Overview of the Habitat Observed at Plot 5, Facing East

Photograph 23. Overview of the Habitat Observed at Plot 5, Facing South

Photograph 24. Overview of the Habitat Observed at Plot 5, Facing West

Photograph 25. Soil Profile Observed at Plot 6

Photograph 27. Overview of the Habitat Observed at Plot 6, Facing North

Photograph 28. Overview of the Habitat Observed at Plot 6, Facing East

Photograph 29. Overview of the Habitat Observed at Plot 6, Facing South

Photograph 30. Overview of the Habitat Observed at Plot 6, Facing West