

**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): 5/18/2020**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:** Galveston District, SWG-2013-00223, Resource Environmental Solutions, Wetland WA4

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: Texas County/Parish: Liberty City:  
Center coordinates of site (lat/long in degree decimal format, NAD-83): Lat. See Table° N, Long. ° W;  
Universal Transverse Mercator: UTM: , N., E.,NAD: 83  
Name of nearest water body: Cow Island Bayou  
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Lake Anahuac  
Name of watershed or Hydrologic Unit Code (HUC): Lower Trinity - 12030203  
 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: 4/10/2020  
 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):<sup>1</sup>**

- TNWs, including territorial seas
- Wetlands adjacent to TNWs
- Relatively permanent waters<sup>2</sup> (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: linear feet: width (ft) and/or acres  
Wetlands: **113.71** acres

**c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual.**

Elevation of established OHWM (if known):

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.  
Explain:

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> 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).

<sup>3</sup> Supporting documentation is presented in Section III.F.

### SECTION III: CWA ANALYSIS

#### A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW:

Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is “adjacent”:

#### B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, fill out Section III.D.2 and Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the water body<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the water body has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: **527247.1 acres**

Drainage area: **Pick List**

Average annual rainfall: **57.11 inches**

Average annual snowfall: **0.1 inches**

(ii) **Physical Characteristics:**

(a) **Relationship with TNW:**

Tributary flows directly into TNW.

Tributary flows through **2** tributaries before entering TNW.

Project waters are **10-15** river miles from TNW.

Project waters are **1 (or less)** river miles from RPW.

Project waters are **5-10** aerial (straight) miles from TNW.

Project waters are **1 (or less)** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW<sup>5</sup>: **Cow Island Bayou flows into Turtle Bayou, which flows directly into Lake Anahuac, the nearest downstream TNW.**

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: **1**

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

**Tributary is:**  Natural  
 Artificial (man-made). Explain:  
 Manipulated (man-altered). Explain: **The bayou has been deepened with excavated material deposited on both sides of the bayou.**

**Tributary properties with respect to top of bank (estimate):**

Average width: **20** 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: **Fairly stable. Tributary has riparian buffer on both sides in some areas.**

Presence of run/riffle/pool complexes. Explain: **None**

Tributary geometry: **Meandering**

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:

Other information on duration and volume: **Tributary is relatively permanent and appears to have perennial flow.**

Surface flow is: **Confined**. Characteristics:

Subsurface flow: **Unknown**. Explain findings:

Dye (or other) test performed:

Tributary has (check all that apply):

Bed and banks  
 OHWM<sup>6</sup> (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.<sup>7</sup> 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: **Water is generally discolored, carries agricultural runoff**

Identify specific pollutants, if known: **Pollutants are unknown**

<sup>6</sup>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 water body'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.

<sup>7</sup>Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width): **100**
- Wetland fringe. Characteristics:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: **113.71** acres

Wetland type. Explain: **Herbaceous**

Wetland quality. Explain: **medium**

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain: **Water flows to tributary during high rainfall events associated with the 100-year floodplain.**

Surface flow is: **Discrete**

Characteristics:

Subsurface flow: **Unknown**. Explain findings:

- Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- Directly abutting
- Not directly abutting
  - Discrete wetland hydrologic connection. Explain:
  - Ecological connection. Explain:
  - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **10-15** river miles from TNW.

Project waters are **5-10** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain: **herbaceous , 100 percent cover**
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **25-30**

Approximately **(844.2)** acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
No	195	No	2.5
No	12.9	No	2.8
No	4.1	No	124
No	3.6	No	3.8

No 49.7 ; Yes 32; No 3.7; No 1.9; No 2.6; No 2.2; No 4.4; No 36.6; No 42.7; No 39.8; No 6.3; No 64.8;  
 No 5.6; No 35.8; Yes 3.2; Yes 1.4; Yes 2.1; Yes 1.4; Yes 2.7; Yes 10.1; Yes 23.5; Yes 123

Summarize overall biological, chemical and physical functions being performed: **These type of similarly situated wetlands within this relevant reach of Cow Island Bayou and Turtle Bayou provide important functions associated with chemical, (removing pollutants), physical (stabilizing) and biological (habitat for aquatic species) that are connected to the downstream Lake Anahuac, which is a traditional navigable water (TNW). These wetlands provide important filtration to aid in the elimination and treatment of bacteria as well as thermal and chemical pollutants. The system also retains flood waters and reduces overbank flooding downstream, thereby decreasing the velocity and amount of water flowing downstream into Lake Anahuac (irrigation, municipal and industrial water supply for the surrounding area). Retaining flood waters also reduces scouring and the loss of property as well as preserving the physical attributes of the downstream TNW. Cow Island Bayou and Turtle Bayou also likely support aquatic organisms and the adjacent wetlands provide species habitat, shelter from predators and produce nutrients and detritus as a food source for downstream organisms.**

**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:
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: **This relevant reach of includes Cow Island Bayou and Turtle Bayou as a third order stream and their approximate 957.9 acres of similarly situated wetlands (within this mapped flood plain that are abutting and neighboring) . They have perrenial flowing waters (relatively permanent water ways) . Most of these adjacent wetlands are forested. Cow Island Bayou flows into Turtle Bayou which flows into Lake Anahuac, the downstream TNW. There are three adjacent herbaceous wetland polygons on the project site that total 113.7-acres and 30 similiarly situated adjacent wetlands along the relevant reach that total approximately 844.2 acres. Of the approximate 957.9 acres of**

adjacent wetlands (including the 113.7-acres of wetlands on the project site) being evaluated along this relevant reach, approximately 199.4 acres are abutting the relevant reach of Cow Island Bayou and Turtle Bayou as well as approximately 758.5 acres that are neighboring (within the anticipated high flow) this relevant reach. The wetlands are located from 0 to 8 aerial miles and from 0 to 10 river miles from Lake Anahuac, the nearest TNW. Cow Island Bayou flows into Turtle Bayou which flows into Lake Anahuac, the nearest downstream TNW. The waters in these aquatic systems is commonly used for the irrigation of agricultural crops as well in use for municipal and industrial water supply.

The Corps did find evidence/data to support the statement that these waters (this relevant reach of Cow Island Bayou and Turtle Bayou as well as all similarly situated adjacent wetlands within this relevant reach) provide important filtration properties directly related to the chemical integrity of the downstream TNW, located from 0 to 10 river miles downstream. There is a direct surface hydrologic connection between the subject tributary and the abutting wetlands and the downstream TNW, Lake Anahuac. The approximate 957.9 acres of adjacent wetlands provide important filtration to aid in the elimination and treatment of bacteria in the downstream TNW. They also serve to aid in the reduction of thermal and other chemical pollutants flowing into Lake Anahuac. The wetlands are situated in a rural area that is farmed or forest that is timbered. The wetlands trap sediment and pollutants from timber and agricultural operations and prevent them from entering the TNW. The aquatic resources within this relevant reach provide important sequestering and fixation effects associated with the maintaining the chemical integrity of the downstream TNW.

Within this relevant reach of Cow Island Bayou and Turtle Bayou, there are approximately 957.9 acres of similarly situated (mostly forested) abutting or neighboring wetlands. The TNW, Lake Anahuac, is approximately 10 river miles downstream of the project site and is a major source of irrigation and industrial water for the surrounding area. Lake Anahuac also supplies municipal water for the surrounding area. The retention of water and retardation of overbank flooding associated with adjacent wetlands is vital to maintain and protect the physical integrity of the downstream TNW. The effects of removing approximately 957.9 acres of floodplain (abutting and neighboring) forested wetlands would increase the velocity and flow into Lake Anahuac, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW and potentially result in deleterious impacts to the water control structure located between Lake Anahuac and Trinity Bay. Increased flow will increase "out of bank" flooding and scouring, resulting in loss of property and the physical attributes of the TNW. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubstantial effects that are inseparably bound to maintain the physical integrity of the downstream TNW. There are no known species found in this review area that require the aquatic resources of Cow Island Bayou and Turtle Bayou's adjacent wetlands and the waters of the TNW to fulfill their life cycle requirements. Cow Island Bayou and Turtle Bayou are RPWs and have a direct hydrologic connection with the TNW; as such, it is likely to have aquatic organisms that use both features (TNW and waters in this reach). It is highly feasible that species of fishes and/or invertebrates utilize Cow Island Bayou and Turtle Bayou for portions of their life cycles; but there is insufficient evidence to identify specific species that requires both the aquatic resources within this relevant reach of Cow Island Bayou and Turtle Bayou and the waters of the TNW to fulfill life cycle requirements. The abutting and neighboring wetlands aid in providing species habitat, shelter from predators, and detritus and nutrients as a food source. Therefore, it is the Corps' conclusion, that the aquatic resources within this relevant reach of Cow Island Bayou and Turtle Bayou, although speculative, provide more than an important effect on the biological integrity of the downstream TNW.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 10.8-mile relevant reach of Cow Island Bayou and Turtle Bayou and their 957.9 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstantial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Lake Anahuac).

**D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):**

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

TNWs: linear feet width (ft), Or, acres.  
 Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:  
 Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

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:

**3. Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- Water body that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters:        linear feet        width (ft).  
 Other non-wetland waters:        acres

Identify type(s) of waters:

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.  
 Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:  
  
 Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area:        acres

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: 113.7 acres

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area:        acres

**7. Impoundments of jurisdictional waters.<sup>9</sup>**

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):<sup>10</sup>**

- 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:

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup> 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.

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: **Resource Environmental Solutions**
- 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:
  - USGS NHD data
  - USGS 8 and 12 digit HUC maps
- Galveston District’s Approved List of Navigable Waters
- U.S. Geological Survey map(s). Cite scale & quad name: **1993 Shiloh, Tex. Quadrangle Map; d 1994 Whites Bayou, Tex. Quadrangle Map**
- USDA Natural Resources Conservation Service Soil Survey. Citation:
- National wetlands inventory map(s). Cite name: **Online USFWS NWI Mapper**
- State/Local wetland inventory map(s):
- FEMA/FIRM maps: **4829C0625D and 48291C0650D dated 1/19/2018**
- 100-year Floodplain Elevation is:            (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): **Google Earth 2015, 2017, 2018, and Digital Globe 12/19/2019**  
or  Other (Name & Date):
- Previous determination(s). File no. and date of response letter: **SWG 2013-00223 dated January 28, 2015**
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

**B. ADDITIONAL COMMENTS TO SUPPORT JD:** This relevant reach of includes Cow Island Bayou and Turtle Bayou as a third order stream and their approximate 957.9 acres of similarly situated wetlands (within this mapped flood plain that are abutting and neighboring) . They have perennial flowing waters (relatively permanent water ways) . Most of these adjacent wetlands are forested. Cow Island Bayou flows into Turtle Bayou which flows into Lake Anahuac, the downstream TNW.

There are three adjacent herbaceous wetland polygons on the project site that total 113.7-acres and 30 similarly situated adjacent wetlands along the relevant reach that total approximately 844.2 acres. Of the approximate 957.9 acres of adjacent wetlands (including the 113.7-acres of wetlands on the project site) being evaluated along this relevant reach, approximately 199.4 acres are abutting the relevant reach of Cow Island Bayou and Turtle Bayou as well as approximately 758.5 acres that are neighboring (within the anticipated high flow) this relevant reach. The wetlands are located from 0 to 8 aerial miles and from 0 to 10 river miles from Lake Anahuac, the nearest TNW. Cow



Island Bayou flows into Turtle Bayou which flows into Lake Anahuac, the nearest downstream TNW. The waters in these aquatic systems is commonly used for the irrigation of agricultural crops as well in use for municipal and industrial water supply.

The Corps did find evidence/data to support the statement that these waters (this relevant reach of Cow Island Bayou and Turtle Bayou as well as all similarly situated adjacent wetlands within this relevant reach) provide important filtration properties directly related to the chemical integrity of the downstream TNW, located from 0 to 10 river miles downstream. There is a direct surface hydrologic connection between the subject tributary and the abutting wetlands and the downstream TNW, Lake Anahuac. The approximate 957.9 acres of adjacent wetlands provide important filtration to aid in the elimination and treatment of bacteria in the downstream TNW. They also serve to aid in the reduction of thermal and other chemical pollutants flowing into Lake Anahuac. The wetlands are situated in a rural area that is farmed or forest that is timbered. The wetlands trap sediment and pollutants from timber and agricultural operations and prevent them from entering the TNW. The aquatic resources within this relevant reach provide important sequestering and fixation effects associated with the maintaining the chemical integrity of the downstream TNW.

Within this relevant reach of Cow Island Bayou and Turtle Bayou, there are approximately 957.9 acres of similarly situated (mostly forested) abutting or neighboring wetlands. The TNW, Lake Anahuac, is approximately 10 river miles downstream of the project site and is a major source of irrigation and industrial water for the surrounding area. Lake Anahuac also supplies municipal water for the surrounding area. The retention of water and retardation of overbank flooding associated with adjacent wetlands is vital to maintain and protect the physical integrity of the downstream TNW. The effects of removing approximately 957.9 acres of floodplain (abutting and neighboring) forested wetlands would increase the velocity and flow into Lake Anahuac, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW and potentially result in deleterious impacts to the water control structure located between Lake Anahuac and Trinity Bay. Increased flow will increase "out of bank" flooding and scouring, resulting in loss of property and the physical attributes of the TNW. Therefore, the aquatic resources within this relevant reach provide more than speculative or insubstantial effects that are inseparably bound to maintain the physical integrity of the downstream TNW.

There are no known species found in this review area that require the aquatic resources of Cow Island Bayou and Turtle Bayou's adjacent wetlands and the waters of the TNW to fulfill their life cycle requirements. Cow Island Bayou and Turtle Bayou are RPWs and have a direct hydrologic connection with the TNW; as such, it is likely to have aquatic organisms that use both features (TNW and waters in this reach). It is highly feasible that species of fishes and/or invertebrates utilize Cow Island Bayou and Turtle Bayou for portions of their life cycles; but there is insufficient evidence to identify specific species that requires both the aquatic resources within this relevant reach of Cow Island Bayou and Turtle Bayou and the waters of the TNW to fulfill life cycle requirements. The abutting and neighboring wetlands aid in providing species habitat, shelter from predators, and detritus and nutrients as a food source. Therefore, it is the Corps' conclusion, that the aquatic resources within this relevant reach of Cow Island Bayou and Turtle Bayou, although speculative, provide more than an important effect on the biological integrity of the downstream TNW.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 10.8-mile relevant reach of Cow Island Bayou and Turtle Bayou and their 957.9 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstantial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Lake Anahuac).

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 10.8-mile relevant reach of Cow Island Bayou and Turtle Bayou and their 957.9 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstantial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Lake Anahuac).

TABLE 1:

Wetland	Acres	Latitude	Longitude	Distance in miles to WoUS (Cow Island Bayou)
WA4	41.6	29.935173	-94.631986	0.07
WA5	70.5	29.930795	-94.625539	0.53
WA6	1.5	29.933284	-94.624937	0.47