

**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):**

02/16/2016

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:**

Galveston District-Regulatory Division: USACE Subject No. SWG-2015-00550

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:** Center Street (South) from Approximately 3,100 feet South of Fairmont Parkway to Genoa Red Bluff Road UPIN 14012MF09001

State: Texas County/parish/borough: Harris City: Pasadena

Center coordinates of site (lat/long in degree decimal format): Lat. 29.635957 Long. -95.127701

Universal Transverse Mercator: 294018 m E, 3280339 m N Zone 15N NAD83

Name of nearest waterbody: HCFCD Drainage Unit No. B113-00-00 Tributary 10.46 to Armand Bayou (NHD ComID 127137012)

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: NONE

Name of watershed or HUC: West Galveston Bay Watershed (HUC 12040204)

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: 02/16/2016

Field Determination. Date(s): 12/09/2015

**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 no "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:

Wetlands: Total

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

Elevation of established OHWM (if known):

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

<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.

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

**Area F (0.07 ac), Area G (0.03 ac), and Area H (0.11 ac)** are isolated PEM wetlands that are located outside of the 100-year floodplain. These wetlands extend outside of the subject properties; however, the full extents of these wetlands are visible from aerial photographs and it is likely that there is no hydrologic interconnectivity with any aquatic features in the 100-year floodplain. LIDAR maps indicate that the area excluded from the floodplain is at approximately 22 feet in elevation, indeed above the 100-year floodplain elevation as shown by the National Flood Hazard Maps by FEMA. The nearest water, Armand bayou (above the TNW Armand Bayou) is approximately 0.15 miles north of these areas.

Areas F, G, and H are located in the northeast corner of the western subject property. These areas are freshwater emergent wetland depressions that have formed from an existing agricultural pond. Areas F, G, and H exist entirely within the mapped Lake Charles clay, 0 to 1 percent slopes soil type which is not listed as containing hydric components in Harris County. These areas do not exist within a designated FEMA floodplain (Zone X). Areas F, G, and H are dominated by hydrophytic vegetation including short-bristle horned beak sedge (*Rhynchospora corniculata*), sand spike-rush (*Eleocharis montevidensis*), narrow-leaf cat-tail (*Typha angustifolia*), and common spike-rush (*Eleocharis palustris*). Areas F, G, and H do not appear to have a hydrologic connection to any Waters of the U.S.

Based on the topography and aerial imagery, the majority of the site is level, with gradual sloping north/south towards HCFCD Unit #B113-00-00, tributary 10.46 to Armand Bayou, in the center of the western subject property. The wetlands were identified using the 1987 Manual regional supplement: Atlantic and Gulf Coastal Plain Region, which requires that all three wetland criteria be present under normal circumstances for areas to be determined a wetland. All three wetlands are depressional areas that experience seasonal hydrology during and after rain events, providing the conditions necessary for wetlands to establish. The nearest Water of the U.S. HCFCD Unit #B113-00-00, tributary 10.46 to Armand Bayou, is located approximately 0.14 miles south of Area F, approximately 0.2 miles south of Area G, and approximately 0.23 miles south of Area H. Areas F, G, and H are not located in reasonable close proximity to any Waters of the U.S. The nearest Traditionally Navigable Waters, navigable section of Armand Bayou (TNW) are approximately 2.4 miles southeast of the project area. As such, under normal conditions in the hydrologic cycle, these wetlands would not be anticipated to share surface hydrology with the nearest Waters of the U.S. They are not tidal waters, nor part of a surface water tributary system to interstate water or navigable waters of the U.S. nor are they located "adjacent" (as defined in federal regulations) to any tributary waters; as such, all three wetlands have been determined to be "ISOLATED" as defined in federal regulations (33 CFR 330.2(e)).

"Adjacent" as per Federal regulations 33 CFR 328.3 is defined as "bordering, contiguous or neighboring." Wetlands separated from other Waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands.'" The nearest Waters of the U.S. to the wetlands is HCFCD Unit #B113-00-00 (tributary 10.46 to Armand Bayou). These wetlands do not border nor are they contiguous (abutting) to HCFCD Unit #B113-00-00. The wetlands are not neighboring HCFCD Unit #B113-00-00 as determined by the fact that they are, under normal conditions in the hydrologic cycle, not located in reasonably close proximity to another Water of the U.S. (and are not located in a contiguous or bordering landscape position) that would have shared surface hydrology with another Water of the U.S. during expected high flow (e.g. the 100-year floodplain). Nor is there any known demonstrable species ecological interconnection requiring both the wetlands in question and the nearest Waters of the U.S. to spawn and/or fulfill their life cycle requirements. Areas F, G, and H are physically separated from other Waters of the U.S. by geographic factors that do not allow the exchange of waters, via a confined surface hydrology connection during normal conditions and are not inseparably bound with HCFCD Unit #B113-00-00. "Isolated" waters as defined in 33 CFR 330.2 (e) is: "those non-tidal Waters of the U.S. that are: (1) not part of a surface tributary system to interstate or navigable Waters of the U.S.; and (2) not adjacent to such tributary waterbodies." All three wetlands have been identified as wetlands (aquatic resources) that have been determined to be isolated.

"Waters of the U.S." are defined in 33 CFR 328.3 (a) 1 thru 7 which is addressed in the following. Due to the fact that these wetlands: (1) are not currently used, or were used in the past, nor susceptible to use for interstate or foreign commerce nor subject to the ebb and flow of the daily tide; (2) do not cross interstate or tribal boundaries; (3) the destruction of these wetlands is not expected to affect (i) interstate or foreign travelers for recreational purposes or other purposes or, (ii) fish or shellfish that could be taken and sold in interstate or foreign commerce or (iii) current use or potential use for industrial purposes by industries in interstate commerce; (4) are not impoundments of Waters of the U.S.; (5) are not part of a surface tributary system of (a) (1) through (4); (6) are not part of the territorial seas; and (7) are not adjacent to Waters of the U.S. identified in (a) (1) through (6) these areas (Areas F, G, and H) are not Waters of the U.S.

### 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 Area F 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. Area 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 *Rapans* 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, skip to 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 waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody 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: approximately 1147618.26 acres, HUC 12040204

Drainage area: approximately > 10 acres

Average annual rainfall: 54.65 inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.

Project waters are Pick List river miles from RPW.

Project waters are Pick List aerial (straight) miles from TNW.

Project waters are Pick List aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: Pick List.

Identify flow route to TNW<sup>5</sup>:

Tributary stream order, if known: Pick List

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

Tributary is:

Natural

Artificial (man-made). Explain: n/a

Manipulated (man-altered). Explain:

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

Average width:

Average depth:

Average side slopes:

Primary tributary substrate composition (check all that apply):

Silts

Sands

Concrete

<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.

- Cobbles                       Gravel                       Muck  
 Bedrock                       Vegetation. Type/% cover:  
 Other. Explain: Clay. The majority of this area has 90% clay/loamy clay substrates.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain: n/a.

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope):

(c) Flow:

Tributary provides for:

Estimate average number of flow events in review area/year:

Describe flow regime:

Other information on duration and volume: n/a

Surface flow is:

Characteristics:

Subsurface flow: n/a. Explain findings: n/a.

Dye (or other) test performed:

Tributary has (check all that apply):

- Bed and banks  
 OHWM<sup>6</sup> (check all indicators that apply):
- |  |   |
|--|---|
| <input type="checkbox"/> clear, natural line impressed on the bank | <input type="checkbox"/> the presence of litter and debris          |
| <input type="checkbox"/> changes in the character of soil          | <input type="checkbox"/> destruction of terrestrial vegetation      |
| <input type="checkbox"/> shelving                                  | <input type="checkbox"/> the presence of wrack line                 |
| <input type="checkbox"/> vegetation matted down, bent, or absent   | <input type="checkbox"/> sediment sorting                           |
| <input type="checkbox"/> leaf litter disturbed or washed away      | <input type="checkbox"/> scour                                      |
| <input type="checkbox"/> sediment deposition                       | <input type="checkbox"/> multiple observed or predicted flow events |
| <input type="checkbox"/> water staining                            | <input type="checkbox"/> abrupt change in plant community           |
| <input type="checkbox"/> other (list):                             |   |
| <input type="checkbox"/> 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:
- |  |  |
|--|--|
| <input type="checkbox"/> oil or scum line along shore objects      | <input type="checkbox"/> survey to available datum;                    |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings;                            |
| <input type="checkbox"/> physical markings/characteristics         | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges                              |  |
| <input type="checkbox"/> other (list):                             |  |

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain:

Identify specific pollutants, if known:

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

- Riparian corridor. Characteristics (type, average width):  
 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:**

<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 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.

<sup>7</sup>Ibid.

(a) General Wetland Characteristics:

Properties:

Wetland size: Total

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is

Explain:

Surface flow is: **Not Present**

Characteristics:

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

Dye (or other) test performed:

(c) Area 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 **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from:

Estimate approximate location of wetlands as within the 100-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: Heavily anthropogenically influenced scrub/shrub and forested vegetation.

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: 4

For each wetland, specify the following:

Wetland                      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:
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:

**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:
  - Other non-wetland waters: acres.
- Identify type(s) of waters:

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

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



- Lakes/wetlands:        acres.
- Other non-wetland waters:        acres. List type of aquatic resource:
- Wetlands: 0.21 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/wetlands:        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: Crouch Environmental Services, Inc.
- 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: West Galveston Bay Watershed (HUC 12040204).
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:

**Historical USGS Topographic Maps**

Date	Scale	Quadrangle Names
1919	1" = 980'	7.5' Pasadena and La Porte, Texas
1944	1" = 980'	7.5' Pasadena and La Porte, Texas
1955	1" = 980'	7.5' Pasadena and La Porte, Texas
1967	1" = 980'	7.5' Pasadena and La Porte, Texas
1982	1" = 980'	7.5' Pasadena and La Porte, Texas
1995	1" = 980'	7.5' Pasadena and La Porte, Texas

- USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Harris County, Texas - 1976.
- National wetlands inventory map(s). Cite name: Houston NE, SE, NW, SW, Texas - 1990-1991.
- State/Local wetland inventory map(s):
- FEMA/FIRM maps: Panel Number 48201C0920L, Effective Date 6/18/2007.
- 100-year Floodplain Elevation is: 21 ft AMSL (North American Vertical Datum of 1988)
- Photographs:  Aerial (Name & Date):

**Historical Aerial Photographs**

Date	Scale	Source
1939 B&W	1" = 380'	EDR
1944 B&W	1" = 380'	EDR
1953 B&W	1" = 380'	EDR
1966 B&W	1" = 380'	EDR
1973 B&W	1" = 380'	EDR
1983 IR	1" = 380'	EDR
1989 B&W	1" = 380'	EDR
1995 TC	1" = 380'	EDR
2005 TC	1" = 380'	EDR
2010 TC&IR	1" = 380'	EDR
2012 TC	1" = 380'	EDR
2014 TC	1" = 380'	USDA

B&W: Black and white photograph  
 IR: Infrared photograph  
 TC: True color photograph

- or  Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

**Area F (0.07 ac), Area G (0.03 ac), and Area H (0.11 ac)** are isolated PEM wetlands that are located outside of the 100-year floodplain. These wetlands extend outside of the subject properties; however, the full extents of these wetlands are visible from aerial photographs and it is likely that there is no hydrologic interconnectivity with any aquatic features in the 100-year floodplain. LIDAR maps indicate that the area excluded from the floodplain is at approximately 22 feet in elevation, indeed above the 100-year floodplain elevation as shown by the National Flood Hazard Maps by FEMA. The nearest water, Armand bayou (above the TNW Armand Bayou) is approximately 0.15 miles north of these areas.

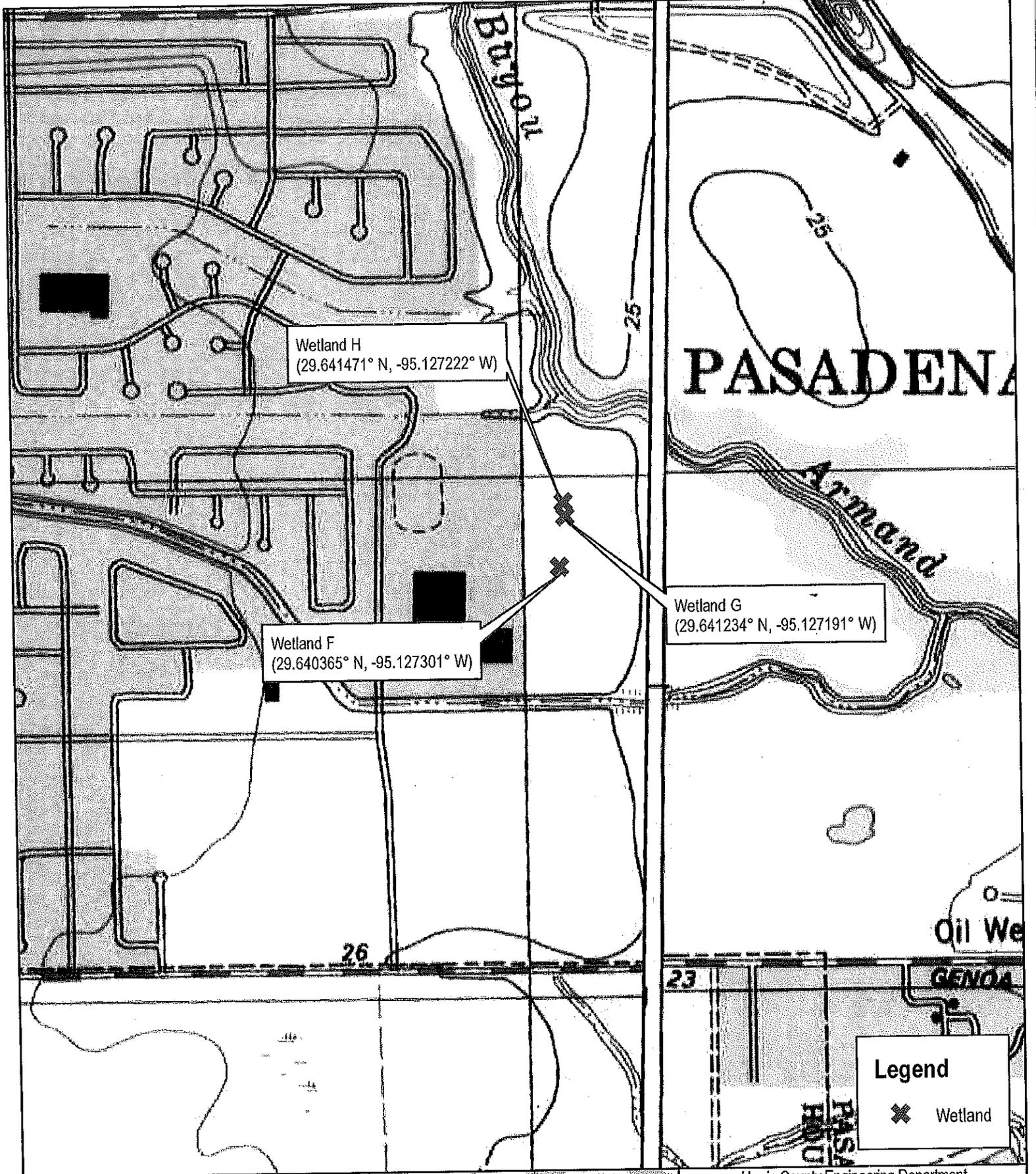
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Based on the topography and aerial imagery, the majority of the site is level, with gradual sloping north/south towards HCFCD Unit #B113-00-00, tributary 10.46 to Armand Bayou, in the center of the western subject property. The wetlands were identified using the 1987 Manual regional supplement: Atlantic and Gulf Coastal Plain Region, which requires that all three wetland criteria be present under normal circumstances for areas to be determined a wetland. All three wetlands are depressional areas that experience seasonal hydrology during and after rain events, providing the conditions necessary for wetlands to establish. The nearest Water of the U.S. HCFCD Unit #B113-00-00, tributary 10.46 to Armand Bayou, is located approximately 0.14 miles south of Area F, approximately 0.2 miles south of Area G, and approximately 0.23 miles south of Area H. Areas F, G, and H are not located in reasonable close proximity to any Waters of the U.S. The nearest Traditionally Navigable Waters, navigable section of Armand Bayou (TNW) are approximately 2.4 miles southeast of the project area. As such, under normal conditions in the hydrologic cycle, these wetlands would not be anticipated to share surface hydrology with the nearest Waters of the U.S. They are not tidal waters, nor part of a surface water tributary system to interstate water or navigable waters of the U.S. nor are they located "adjacent" (as defined in federal regulations) to any tributary waters; as such, all three wetlands have been determined to be "ISOLATED" as defined in federal regulations (33 CFR 330.2(e)).

Table 1. Features Delineated on the Project Site

Area ID	Type	Approximate Area (acres)	Length (feet)	Latitude	Longitude	UTM Zone 15N	
						Northing (meters)	Easting (meters)
Area F	PEM	0.07	NA	29.640365	-95.127301	3280827	294067
Area G	PEM	0.03	NA	29.641234	-95.127191	3280923	294079
Area H	PEM	0.11	NA	29.641471	-95.127222	3280950	294077
<b>Total</b>		<b>0.21</b>					

PEM = Palustrine Emergent Wetland  
 PFO = Palustrine Forested Wetland  
 RPW = Relatively Permanent Water  
 PSS = Palustrine Scrub/scrub Wetland



Wetland H  
 (29.641471° N, -95.127222° W)

Wetland F  
 (29.640365° N, -95.127301° W)

Wetland G  
 (29.641234° N, -95.127191° W)

**Legend**

✕ Wetland

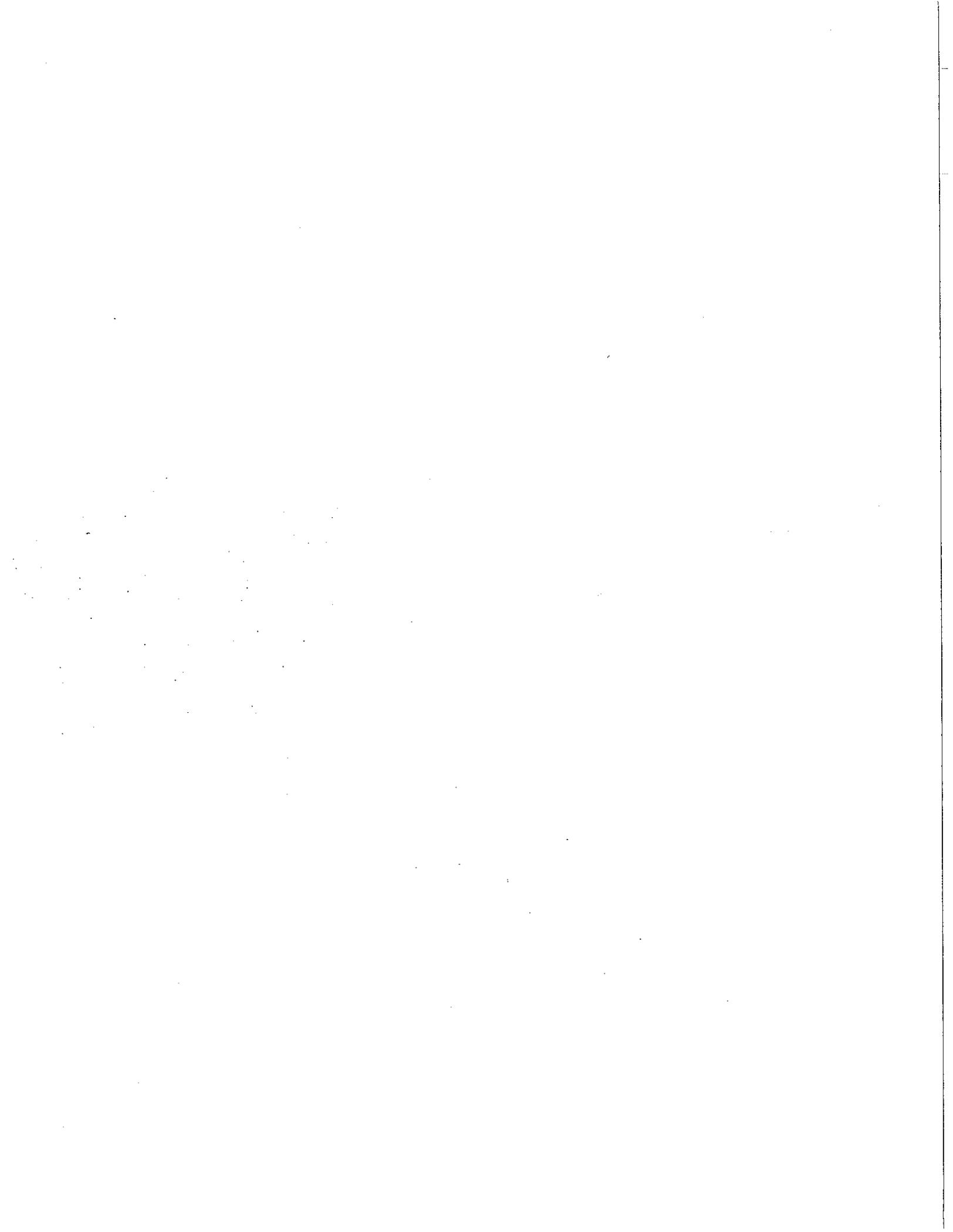
N

0 390 780 Feet

**CROUCH ENVIRONMENTAL SERVICES, INC.**



Harris County Engineering Department  
 Center Street (South) from Approx.  
 3100' South of Fairmont Pkwy to Genoa Red Bluff Rd  
 UPIN 14012MF09001  
 1995 HISTORICAL USGS TOPOGRAPHIC  
 MAP WITH ISOLATED WETLANDS OVERLAY  
 7.5' Pasadena and La Porte, TX Quadrangle  
 Harris County, Texas



**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):**

Completed February 2016

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:**

Galveston District-Regulatory Division: USACE Subject No. SWG-2015-00550

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:** Center Street (South) from Approximately 3,100 feet South of Fairmont Parkway to Genoa Red Bluff Road UPIN 14012MF09001

State: Texas                      County/parish/borough: Harris                      City: Pasadena  
Center coordinates of site (lat/long in degree decimal format): Lat. 29.635957 Long. -95.127701  
Universal Transverse Mercator: 294018 m E, 3280339 m N Zone 15N NAD83

Name of nearest waterbody: HCFCD Drainage Unit No. B113-00-00 Tributary 10.46 to Armand Bayou (NHID ComID 127137012)

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Armand Bayou - Approximately 2.5 river miles downstream from the Project Site.

Name of watershed or HUC: West Galveston Bay Watershed (HUC 12040204)

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: June 2015

Field Determination. Date(s): March 2015

**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]

**I. 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:

Wetlands:            Total

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

Elevation of established OHWM (if known): 13 feet AMSL.

<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).

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:

**Scrub-shrub upland: A-Up**

This upland area is a scrub-shrub upland dominated by vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted due to environmental conditions. Based on historical review of USGS topographic maps, soil surveys, and aerial imagery, the topography of this area is locally convex with 0 to 1 percent slopes exhibiting a southbound declination. This area has a surface elevation of 22 feet above sea level. Vegetation dominantly consists of groundseltree (*Baccharis halimifolia*), and Chinese tallow-tree (*Triadica sebifera*), meeting the criteria for hydrophytic vegetation. This sample point exhibited one indicator of hydric soil, depleted matrix (F3). Hydrologic indicators were not present in this area. Due to the lack of one of the three wetland indicators, this area is considered an upland area. A-Up delineates the upland/wetland boundary of Area A, a palustrine scrub-shrub wetland.

**Herbaceous upland: C-Up**

This upland area is an herbaceous upland dominated by herbaceous vegetation. Based on historical review of USGS topographic maps, soil surveys, and aerial imagery, the topography of this area is locally convex with 0 to 1 percent slopes exhibiting a southbound declination. This area has a surface elevation of 22 feet above sea level. Vegetation dominantly consists of southern dewberry (*Rubus trivialis*) and cherokee sedge (*Carex cherokeensis*), meeting the criteria for hydrophytic vegetation. This sample point exhibited one indicator of hydric soil, redox dark surface (F6). Hydrologic indicators were not present in this area. Due to the lack of one of the three wetland indicators, this area is considered an upland area. C-Up delineates the upland/wetland boundary of Area C, a palustrine emergent wetland.

**Herbaceous upland within PFO wetlands: SB-Up**

This upland area is an herbaceous upland within forested areas, dominated by herbaceous vegetation. Based on historical review of USGS topographic maps, soil surveys, and aerial imagery, the topography of this area is locally convex with 0 to 1 percent slopes exhibiting a northbound declination. This area has a surface elevation of 22 feet above sea level. Vegetation dominantly consists of Bermuda grass (*Cynodon dactylon*), which is typical upland vegetation. This sample point exhibited no indicators of hydric soil. Hydrologic indicators were not present in this area. Due to the lack of all three wetland indicators, SB-Up is considered an upland area and delineates the upland/wetland boundary of Area SB, a palustrine forested wetland.

**Herbaceous upland: Up-1**

This upland area is an herbaceous upland, dominated by herbaceous vegetation. Based on historical review of USGS topographic maps, soil surveys, and aerial imagery, the topography of this area is locally convex with 0 to 1 percent slopes exhibiting a northbound declination. This area has a surface elevation of 22 feet above sea level. Vegetation dominantly consists of Bermuda grass (*Cynodon dactylon*), which is typical upland vegetation. This sample point exhibited no indicators of hydric soil. Hydrologic indicators were not present in this area. Due to the lack of all three wetland indicators, Up-1 is considered an upland area.

**Herbaceous uplands: F-Up, G-Up, H-Up**

These upland areas are dominated by herbaceous vegetation. Based on historical review of USGS topographic maps, soil surveys, and aerial imagery, the topography of this area is locally convex with 0 to 1 percent slopes exhibiting a southbound declination. These areas have a surface elevation of 22 feet above sea level. Hydrologic flow in these areas drains radially. Vegetation dominantly consists of southern dewberry (*Rubus trivialis*), cherokee sedge (*Carex cherokeensis*), groundseltree (*Baccharis halimifolia*), and Chinese tallow-tree (*Triadica sebifera*), meeting the criteria for hydrophytic vegetation. These sample points exhibited no indicators of hydric soil. Hydrologic indicators were not present in these areas. Due to the lack of two of the three wetland indicators, G, F, and H-Up are considered upland areas. These sample points delineate the upland/wetland boundaries of Areas F, G, and H, which are palustrine emergent wetlands.

**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 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:

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

Supporting documentation shall be supported by... (e.g., typically 3 months).



Other. Explain: Clay. The majority of this area has 90% clay/loamy clay substrates.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain: n/a.

Tributary geometry: ~~Pick List~~

Tributary gradient (approximate average slope):

(c) Flow:

Tributary provides for:

Estimate average number of flow events in review area/year:

Describe flow regime:

Other information on duration and volume: n/a

Surface flow is:

Characteristics:

Subsurface flow: n/a. Explain findings: n/a.

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

changes in the character of soil

shelving

vegetation matted down, bent, or absent

leaf litter disturbed or washed away

sediment deposition

water staining

other (list):

Discontinuous OHWM.<sup>7</sup> Explain:

the presence of litter and debris

destruction of terrestrial vegetation

the presence of wrack line

sediment sorting

scour

multiple observed or predicted flow events

abrupt change in plant community

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

High Tide Line indicated by:

oil or scum line along shore objects

fine shell or debris deposits (foreshore)

physical markings/characteristics

tidal gauges

other (list):

Mean High Water Mark indicated by:

survey to available datum;

physical markings;

vegetation lines/changes in vegetation types.

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain:

Identify specific pollutants, if known:

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

Riparian corridor. Characteristics (type, average width):

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:

<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 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. <sup>7</sup>Ibid.

Wetland size: Total  
Wetland type. Explain:

Wetland quality. Explain:  
Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is  
Explain:

Surface flow is: **Not Present**  
Characteristics:

Subsurface flow: **Unknown**. Explain findings:  
 Dye (or other) test performed:

(c) Area 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 **Pick List** river miles from TNW.  
Project waters are **Pick List** aerial (straight) miles from TNW.  
Flow is from:  
Estimate approximate location of wetlands as within the 100-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: Heavily anthropogenically influenced scrub/shrub and forested vegetation.
- 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: 4

For each wetland, specify the following:

Wetland	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:
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:

### 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:
  - Other non-wetland waters: acres.
- Identify type(s) of waters:

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

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

- 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:

**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:      Total

**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:  
 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); Explanation is provided in Section II.B.2.      Total

To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook. 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.  
**9. Prior to assessing and declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.**

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/wetlands: 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/wetlands: 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: Crouch Environmental Services, Inc.  
 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: West Galveston Bay Watershed (HUC 12040204).  
 USGS NHD data.  
 USGS 8 and 12 digit HUC maps.  
 U.S. Geological Survey map(s). Cite scale & quad name:

**Historical USGS Topographic Maps**

Date	Scale	Quadrangle Names
1919	1" = 980'	7.5' Pasadena and La Porte, Texas
1944	1" = 980'	7.5' Pasadena and La Porte, Texas
1955	1" = 980'	7.5' Pasadena and La Porte, Texas
1967	1" = 980'	7.5' Pasadena and La Porte, Texas
1982	1" = 980'	7.5' Pasadena and La Porte, Texas
1995	1" = 980'	7.5' Pasadena and La Porte, Texas

- USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Harris County, Texas - 1976.  
 National wetlands inventory map(s). Cite name: Houston NE, SE, NW, SW, Texas - 1990-1991.  
 State/Local wetland inventory map(s):  
 FEMA/FIRM maps: Panel Number 48201C0920L, Effective Date 6/18/2007.  
 100-year Floodplain Elevation is: 21 ft AMSL (North American Vertical Datum of 1988)  
 Photographs:  Aerial (Name & Date):

**Historical Aerial Photographs**

Date	Scale	Source
1939 B&W	1" = 380'	EDR
1944 B&W	1" = 380'	EDR
1953 B&W	1" = 380'	EDR
1966 B&W	1" = 380'	EDR
1973 B&W	1" = 380'	EDR
1983 IR	1" = 380'	EDR
1989 B&W	1" = 380'	EDR
1995 TC	1" = 380'	EDR
2005 TC	1" = 380'	EDR
2010 TC&IR	1" = 380'	EDR
2012 TC	1" = 380'	EDR
2014 TC	1" = 380'	USDA

B&W: Black and white photograph  
 IR: Infrared photograph  
 TC: True color photograph

or  Other (Name & Date):

- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

... normal the ...  
 ...  
 ...  
 ... or ]

Area ID	Type	Length (feet)	Latitude	Longitude	UTM Zone 15N	
					Northing (meters)	Easting (meters)
A-Up	Scrub-shrub upland	NA	29.63830054	-95.12765673	3280599	294028
C-Up	Herbaceous upland	NA	29.63993909	-95.12730907	3280780	294065
SB-Up	Herbaceous upland within PFO wetlands	NA	29.63780204	-95.12667547	3280542	294122
F-Up	Herbaceous upland	NA	29.64033923	-95.12711093	3280824	294085
G-Up	Herbaceous upland	NA	29.64033923	-95.12711093	3280824	294085
H-Up	Herbaceous upland	NA	29.64134686	-95.12728704	3280936	294070
Up-1	Herbaceous upland	NA	29.63364343	-95.13001660	3280086	293789

PFO = Palustrine Forested Wetland

**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):**

Completed June 2015  
Revised January 2016

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:**

Galveston District-Regulatory Division: USACE Subject No. SWG-2015-00550

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:** Center Street (South) from Approximately 3,100 feet South of Fairmont Parkway to Genoa Red Bluff Road UPIN 14012MF09001

State: Texas                      County/parish/borough: Harris                      City: Pasadena  
Center coordinates of site (lat/long in degree decimal format): Lat. 29.635957 Long. -95.127701  
Universal Transverse Mercator: 294018 m E, 3280339 m N Zone 15N NAD83  
Name of nearest waterbody: HCFCD Drainage Unit No. B113-00-00 Tributary 10.46 to Armand Bayou (NHD ComID 127137012)  
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Armand Bayou - Approximately 2.5 river miles downstream from the Project Site.  
Name of watershed or HUC: West Galveston Bay Watershed (HUC 12040204)  
 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:
- 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: Area SM, HCFCD Drainage Unit No. B113-00-00 (0.03 ac)  
Wetlands: Area A (0.46 ac), Area B (0.10 ac) Area C (0.02 ac), and Area SB (0.25 ac).                      Total 0.83 ac

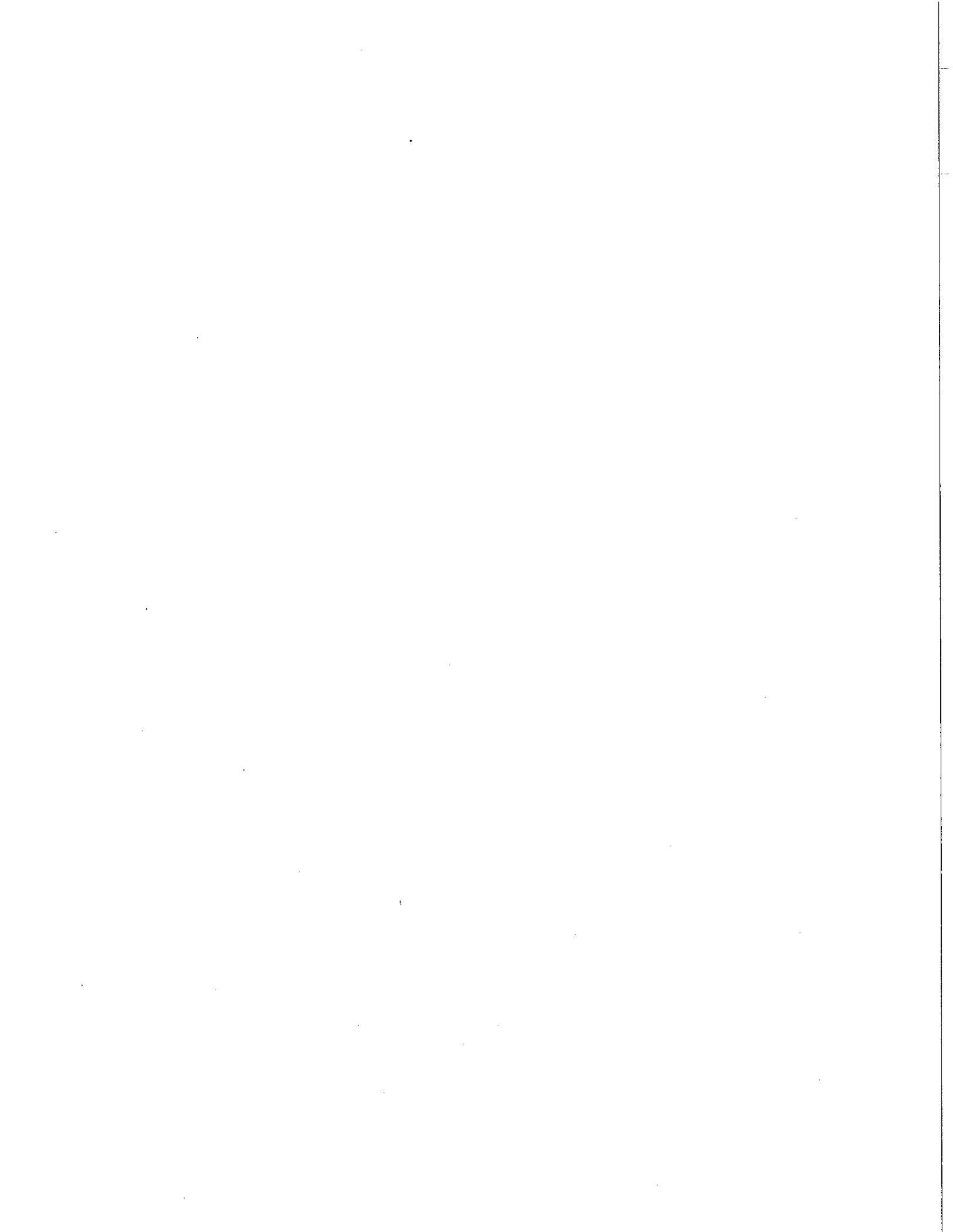
**c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual**

Elevation of established OHWM (if known): 13 feet AMSL.

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

<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).



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

### 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, skip to 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 waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody 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: approximately 1147618.26 acres, HUC 12040204

Drainage area: approximately > 10 acres

Average annual rainfall: 54.65 inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through 1-2 tributaries before entering TNW.

Project waters are 2-5 river miles from TNW.

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

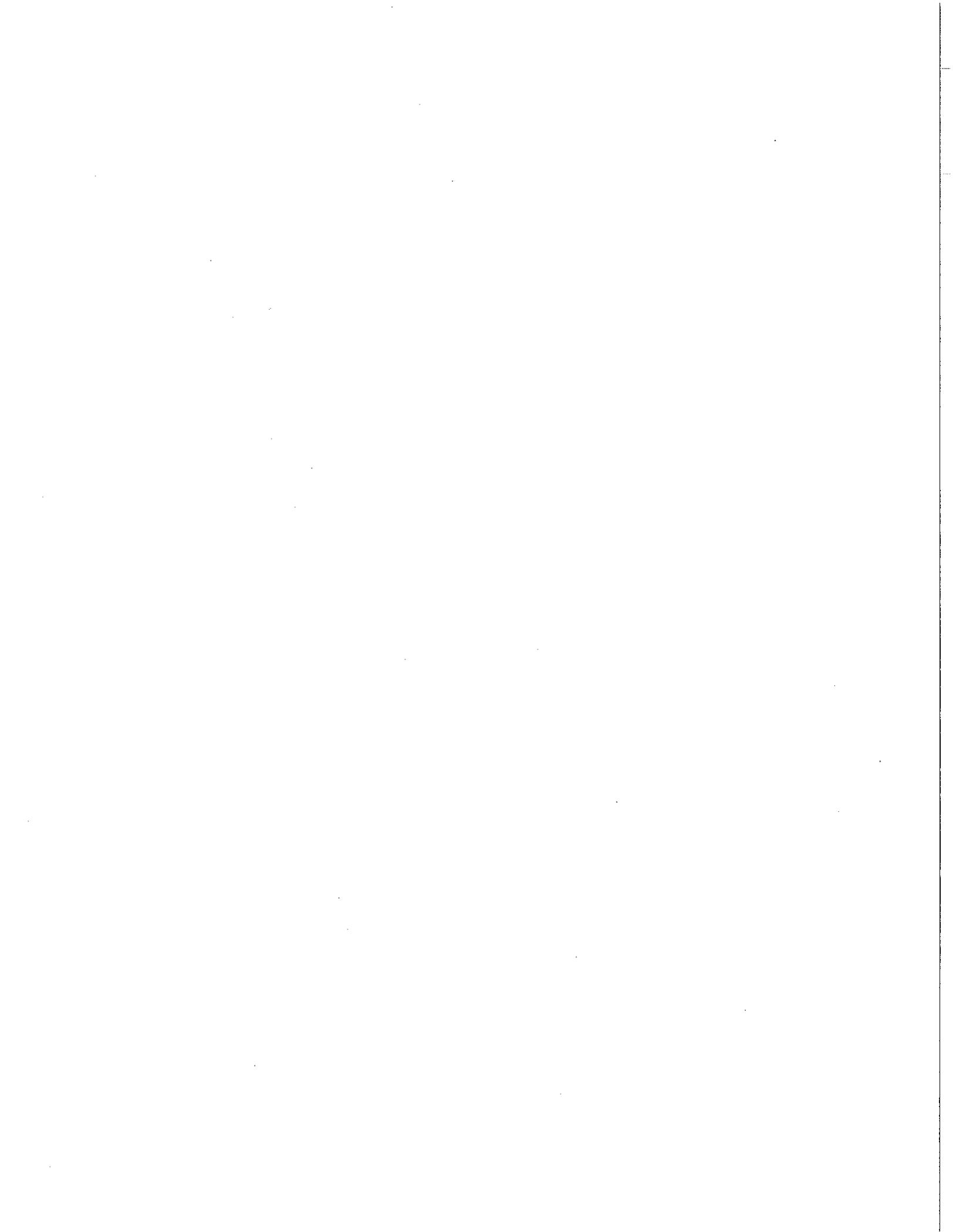
Project waters are 1-2 aerial (straight) miles from TNW.

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

Project waters cross or serve as state boundaries. Explain: Pick List.

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

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



Identify flow route to TNW<sup>5</sup>: Area SM (HCFCD Drainage Unit No. B113-00-00) flows in a southeast direction to reach the nearest TNW.

Tributary stream order, if known: **Pick List**

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

Tributary is:  Natural  
 Artificial (man-made). Explain: n/a  
 Manipulated (man-altered). Explain: Areas SM exhibits trapezoidal forms typical of HCFCD altered drainages in Harris County.

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

Average width: 45 feet,  
Average depth: 15 feet,  
Average side slopes: 3:1 degrees,

Primary tributary substrate composition (check all that apply):

Silts  Sands  Concrete  
 Cobbles  Gravel  Muck  
 Bedrock  Vegetation. Type/% cover:  
 Other. Explain: Clay. The majority of this area has 90% clay/loamy clay substrates.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Area SM (HCFCD Drainage Unit No. B113-00-00) has declining banks. Bank to bed transition was inclined at a 60 degree angle. Area SM was aligned through a forested and herbaceous corridor floodplain and exhibited a cross-section typical of other HCFCD Drainage Units. No evidence of erosion or undercutting was observed.

Presence of run/riffle/pool complexes. Explain: n/a.

Tributary geometry: **Relatively straight**

Tributary gradient (approximate average slope): Area SM = 2-3 %

(c) Flow:

Tributary provides for: **Area SM = Seasonal Flow**

Estimate average number of flow events in review area/year: **Area SM = 11-20**

Describe flow regime: Area SM has a large watershed and is aligned through herbaceous uplands. Low soil infiltration rates, very sticky, very plastic loamy clay and banks, a large watershed, and a deep incision in the landscape likely mean this tributary has a ground water source and flows for more than three months out of the year.

Other information on duration and volume: n/a

Surface flow is: **Area SM = Discrete and Confined**. Characteristics: Area SM has defined OHWM and is confined to its bed due to the man-made cross-section in which it was built. No significant rack lines or drift deposits were observed in any part of Area SM.

Subsurface flow: n/a. Explain findings: n/a.

Dye (or other) test performed:

Tributary has (check all that apply):

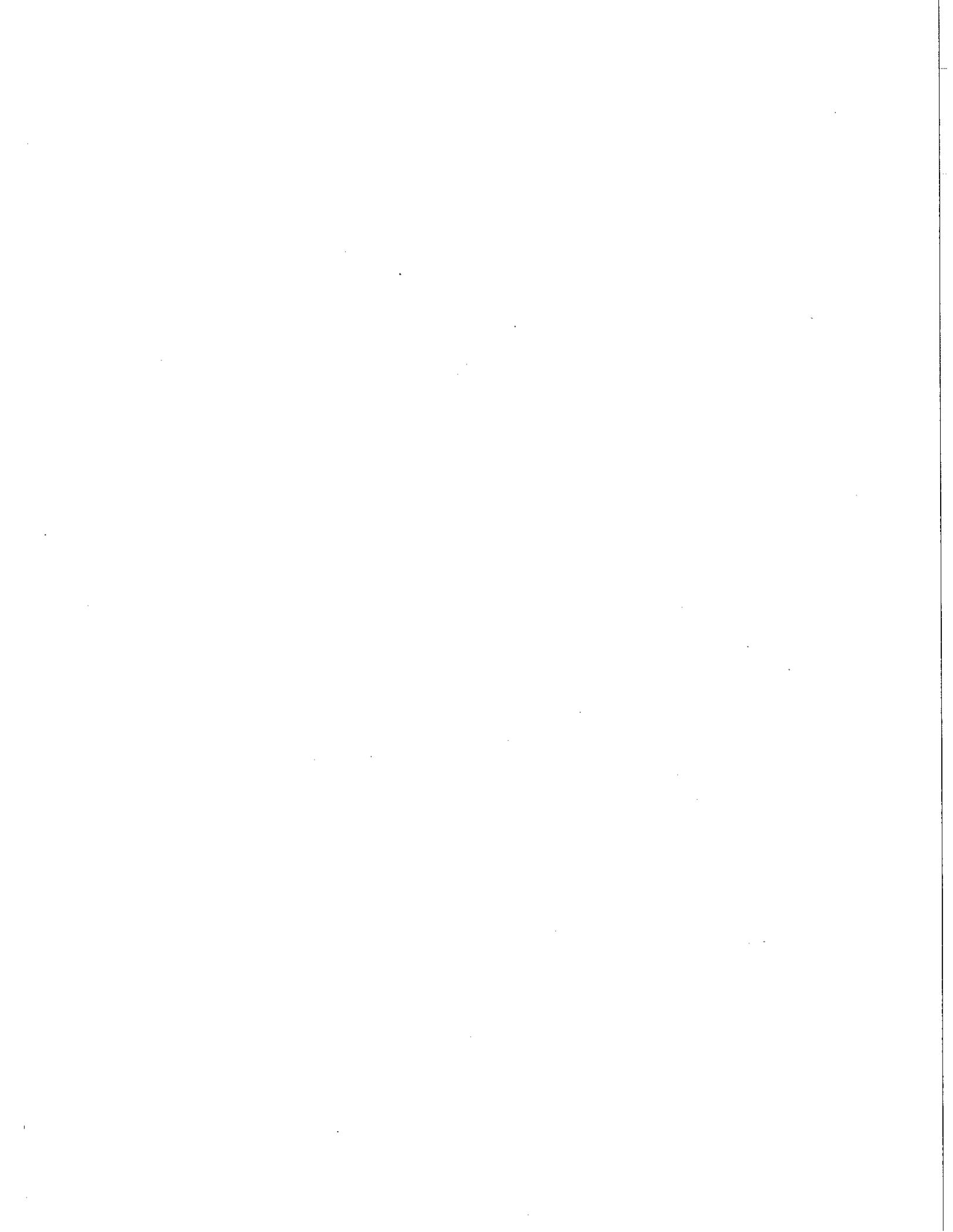
Bed and banks  
 OHWM<sup>6</sup> (check all indicators that apply):  
 clear, natural line impressed on the bank  
 changes in the character of soil  
 shelving  
 vegetation matted down, bent, or absent  
 leaf litter disturbed or washed away  
 sediment deposition  
 water staining  
 other (list):  
 Discontinuous OHWM.<sup>7</sup> Explain:

the presence of litter and debris  
 destruction of terrestrial vegetation  
 the presence of wrack line  
 sediment sorting  
 scour  
 multiple observed or predicted flow events  
 abrupt change in plant community

<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.

<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 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.

<sup>7</sup> Ibid.



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

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> High Tide Line indicated by:   | <input checked="" type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects      | <input type="checkbox"/> survey to available datum;                    |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings;                            |
| <input type="checkbox"/> physical markings/characteristics         | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges                              |  |
| <input type="checkbox"/> other (list):                             |  |

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain:

Identify specific pollutants, if known:

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

- Riparian corridor. Characteristics (type, average width):
- 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: An individual *Masticophis flagellum* was observed along the southern bank of Area SM. Given its depth and observed flow, Area SM would likely maintain habitat for aquatic organisms and terrestrial vertebrates.

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: Area A (0.46 ac), Area C (0.02 ac), Area B (0.10 ac) and Area SB (0.25 ac), Total 0.83 ac  
Wetland type. Explain: Area C and Area B are PEM wetlands that are located in a clearing in an upland scrub/shrub habitat that drains into Area SM. Area SB is a PFO wetland located in a forested upland and drains into Area SM. Area A is a PSS wetland that is located in an scrub/shrub upland that drains into Area SM.

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is **No Flow**. Explain: No channelized ingress or egress was observed in these wetland areas. No abutting wetlands were observed within the subject property. The adjacent wetlands are located within, or connected to another feature that is within the 100-year floodplain and thus a known hydrogeological connection to Area SM exists.

Surface flow is: **Not Present**

Characteristics: Water appears to drain into area SM.

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: Areas A, B, C, and SB are located within the 100-year floodplain.
  - Ecological connection. Explain: .
  - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

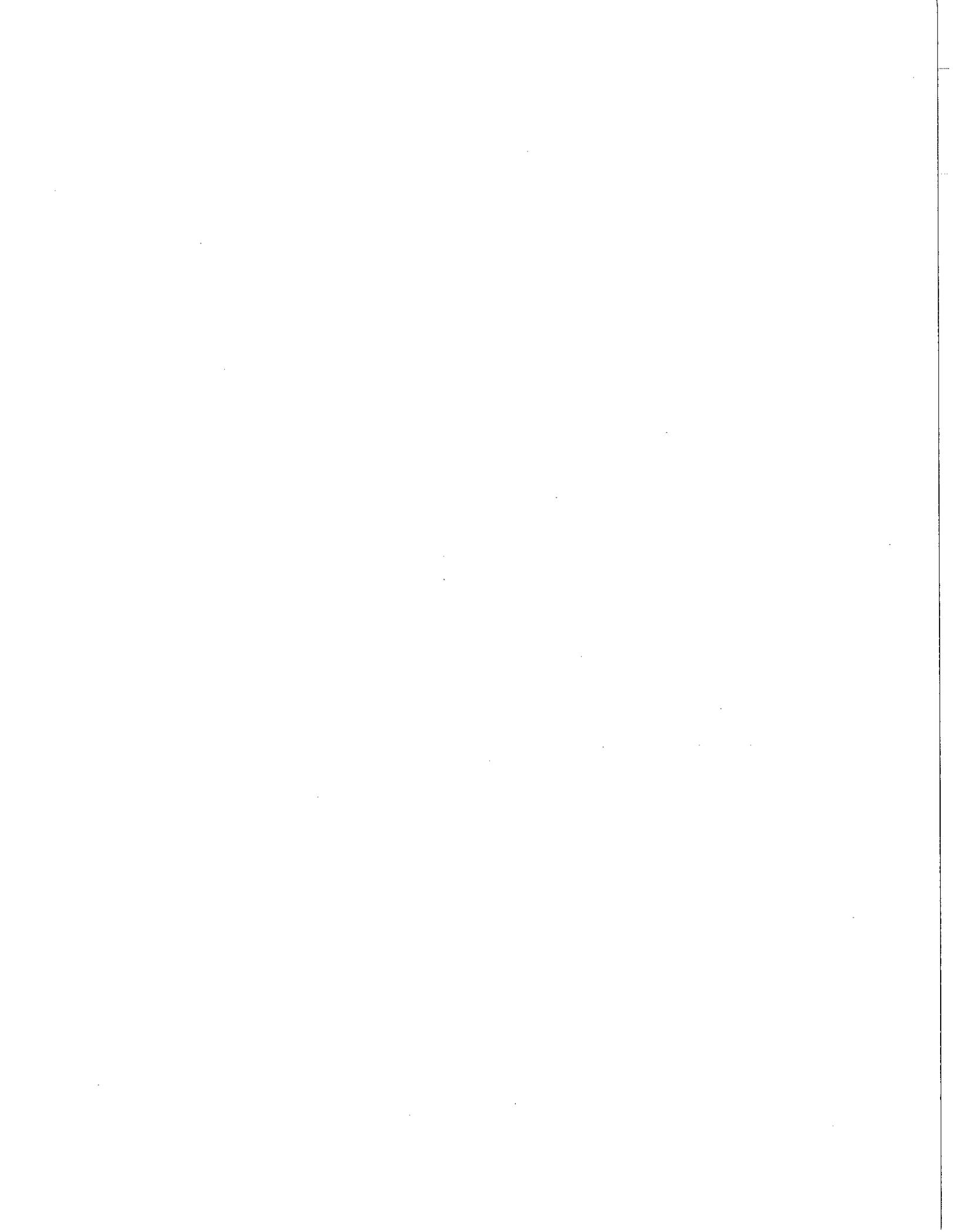
Project waters are **1-2** aerial (straight) miles from TNW.

Flow is from: **Wetland to RPW to TNW**.

Estimate approximate location of wetlands as within the 100-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: Heavily anthropogenically influenced scrub/shrub and forested vegetation.
- 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: 4

For each wetland, specify the following:

<u>Wetland</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
Area A	N	0.46 ac
Area B	N	0.10 ac
Area C	N	0.02 ac
Area SB	N	0.25 ac

Summarize overall biological, chemical and physical functions being performed: Areas A, B, C, and SB perform several functions for Area SM (HCFCD Drainage Unit No. B113-00-00) within the subject property including potential sediment trapping, flow mitigation and alleviation, and low quality habitat. Areas A, B, C, and SB exhibit a known hydrological connection to Area SM through the 100-year floodplain. Areas A, B, C, and SB likely have a potential chemical and biological connection to Area SM.

In combination with Area SM, these wetlands have the capacity to carry pollutants, flood waters, and/or intercept sheet flow from uplands. The wetland would then release water into tributaries gradually, resulting in a more even and consistent flow into a TNW. They can also provide habitat and lifecycle support functions for fish and other species, transfer nutrients and organic carbon downstream, and could have other relationships effecting the physical, chemical, and biological integrity of the downstream TNW.

**C. SIGNIFICANT NEXUS DETERMINATION**

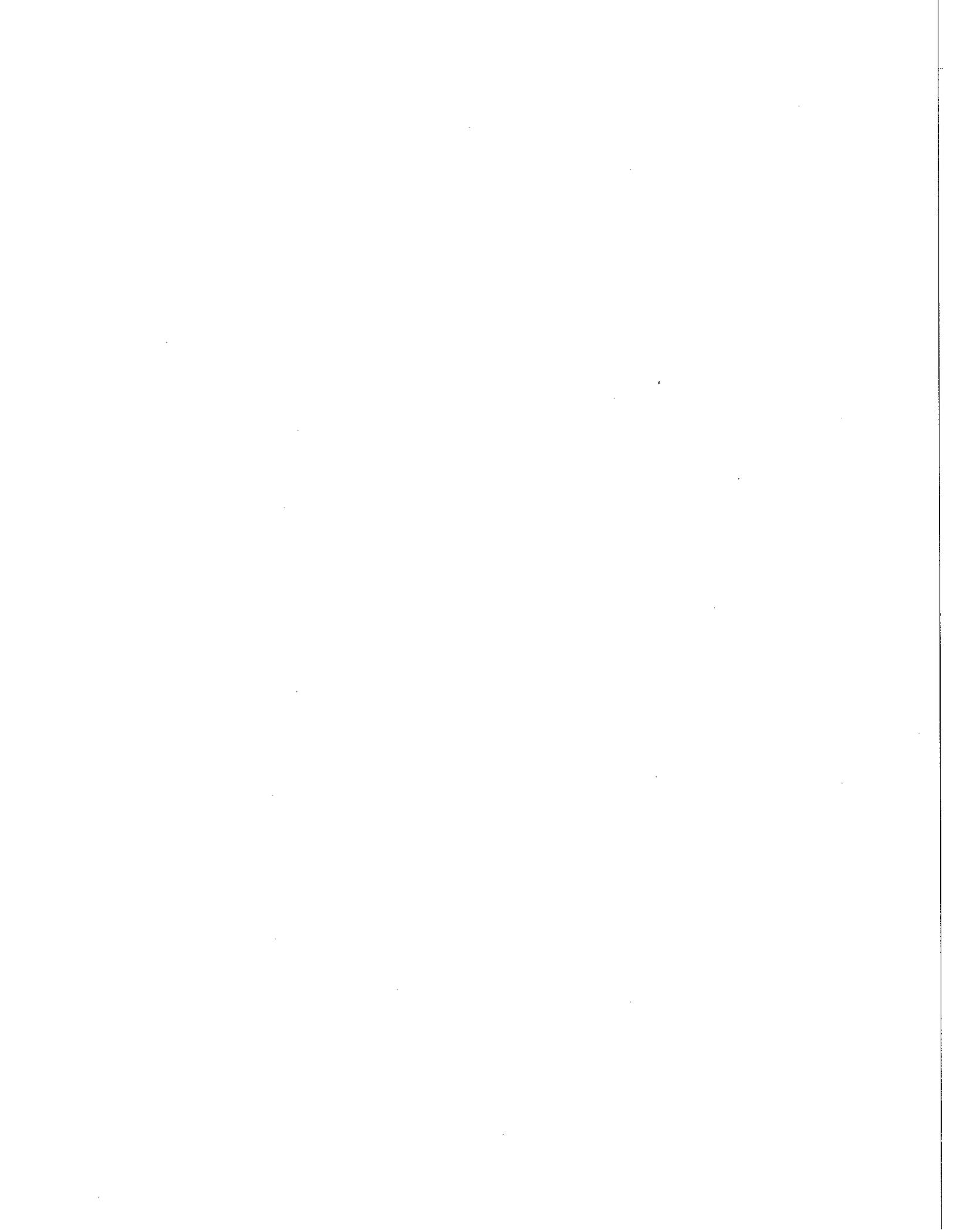
A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following 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: The above named wetlands are anywhere from 50-1,300 feet from Area SM and are situated within scrub/shrub and forested upland communities. The potential for transition of biological, chemical, and physical components between Areas A, B, C, and SB to Area SM exists. Area SM drains directly into a TNW, thus the activities within the wetlands have an indirect effect on the downstream TNW.

**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: Area SM (0.03 ac, HCFCD Drainage Unit No. B113-00-00) would be considered a perennial RPW since it likely receives the majority of its hydrology from groundwater and, given its large drainage basin and width and depth of observed open water, flows for more than three months out of the year. Area SM flows east then north through the subject property before its confluence with Armand Bayou, which becomes a tidally influenced TNW approximately 2.5 miles downstream of the subject property. Since Area SM likely flows more than three months out of the year, receives the majority of its hydrology from ground water, and flows directly into a TNW, it is a jurisdictional RPW within the project area.

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: 160 linear feet 6 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.**

Waterbody 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:

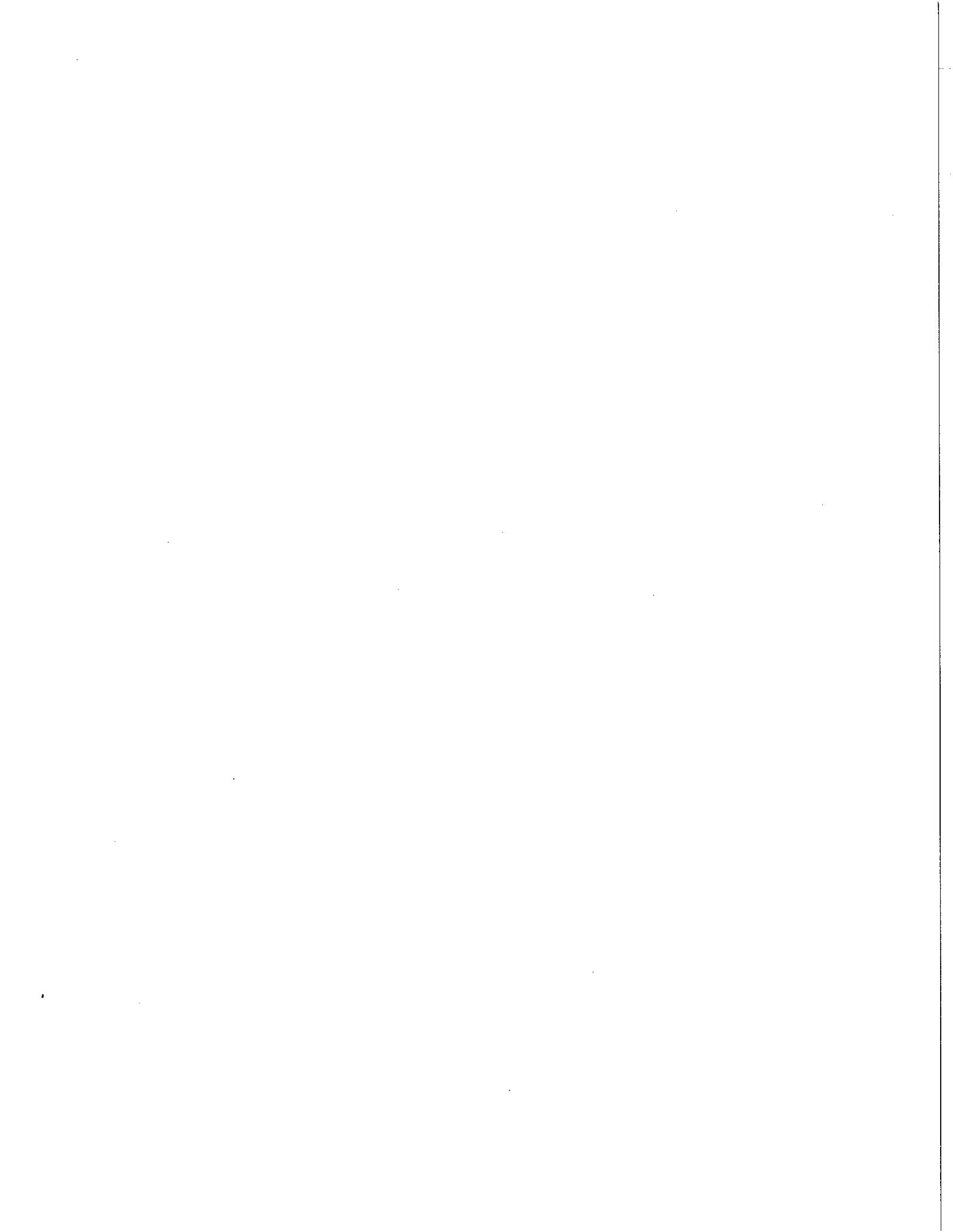
Provide acreage estimates for jurisdictional wetlands in the review area:

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: Area A (0.46 ac), Area B (0.10 ac)  
Area C (0.02 ac), and Area SB (0.25 ac). Total 0.83 ac

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



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:  
 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): Explanation is provided in Section II.B.2.

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/wetlands: \_\_\_\_\_ 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/wetlands: \_\_\_\_\_ acres.  
 Other non-wetland waters: acres. List type of aquatic resource:  
 Wetlands: \_\_\_\_\_ acres.

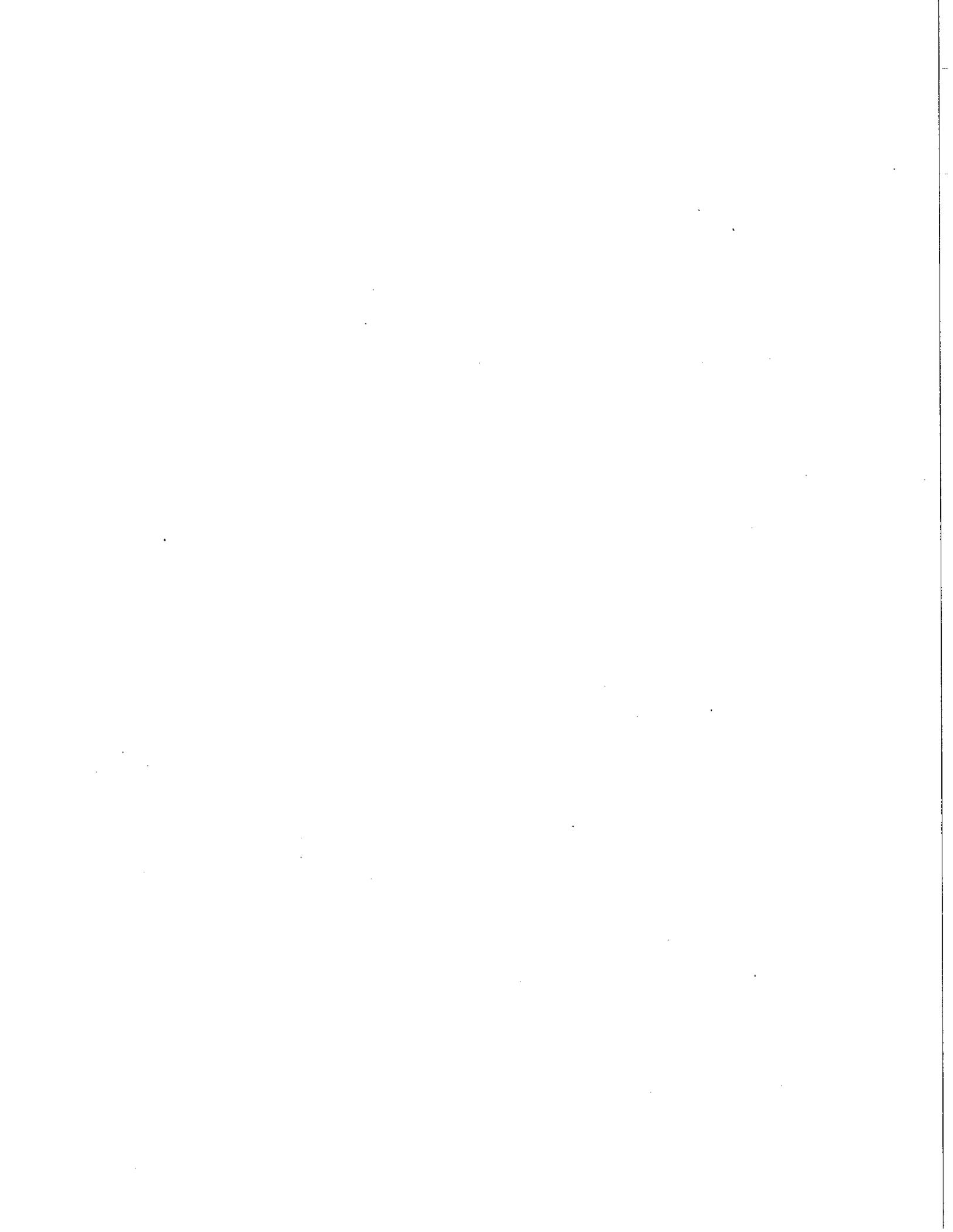
**SECTION IV: DATA SOURCES.**

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: Crouch Environmental Services, Inc.  
 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.

<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.



- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas: West Galveston Bay Watershed (HUC 12040204).
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:

**Historical USGS Topographic Maps**

Date	Scale	Quadrangle Names
1919	1" = 980'	7.5' Pasadena and La Porte, Texas
1944	1" = 980'	7.5' Pasadena and La Porte, Texas
1955	1" = 980'	7.5' Pasadena and La Porte, Texas
1967	1" = 980'	7.5' Pasadena and La Porte, Texas
1982	1" = 980'	7.5' Pasadena and La Porte, Texas
1995	1" = 980'	7.5' Pasadena and La Porte, Texas

- USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Harris County, Texas - 1976.
- National wetlands inventory map(s). Cite name: Houston NE, SE, NW, SW, Texas - 1990-1991.
- State/Local wetland inventory map(s):
- FEMA/FIRM maps: Panel Number 48201C0920L, Effective Date 6/18/2007.
- 100-year Floodplain Elevation is: 21 ft AMSL (North American Vertical Datum of 1988)
- Photographs:  Aerial (Name & Date):

**Historical Aerial Photographs**

Date	Scale	Source
1939 B&W	1" = 380'	EDR
1944 B&W	1" = 380'	EDR
1953 B&W	1" = 380'	EDR
1966 B&W	1" = 380'	EDR
1973 B&W	1" = 380'	EDR
1983 IR	1" = 380'	EDR
1989 B&W	1" = 380'	EDR
1995 TC	1" = 380'	EDR
2005 TC	1" = 380'	EDR
2010 TC&IR	1" = 380'	EDR
2012 TC	1" = 380'	EDR
2014 TC	1" = 380'	USDA

B&W: Black and white photograph  
 IR: Infrared photograph  
 TC: True color photograph

- or  Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
  - Applicable/supporting case law:
  - Applicable/supporting scientific literature:
  - Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

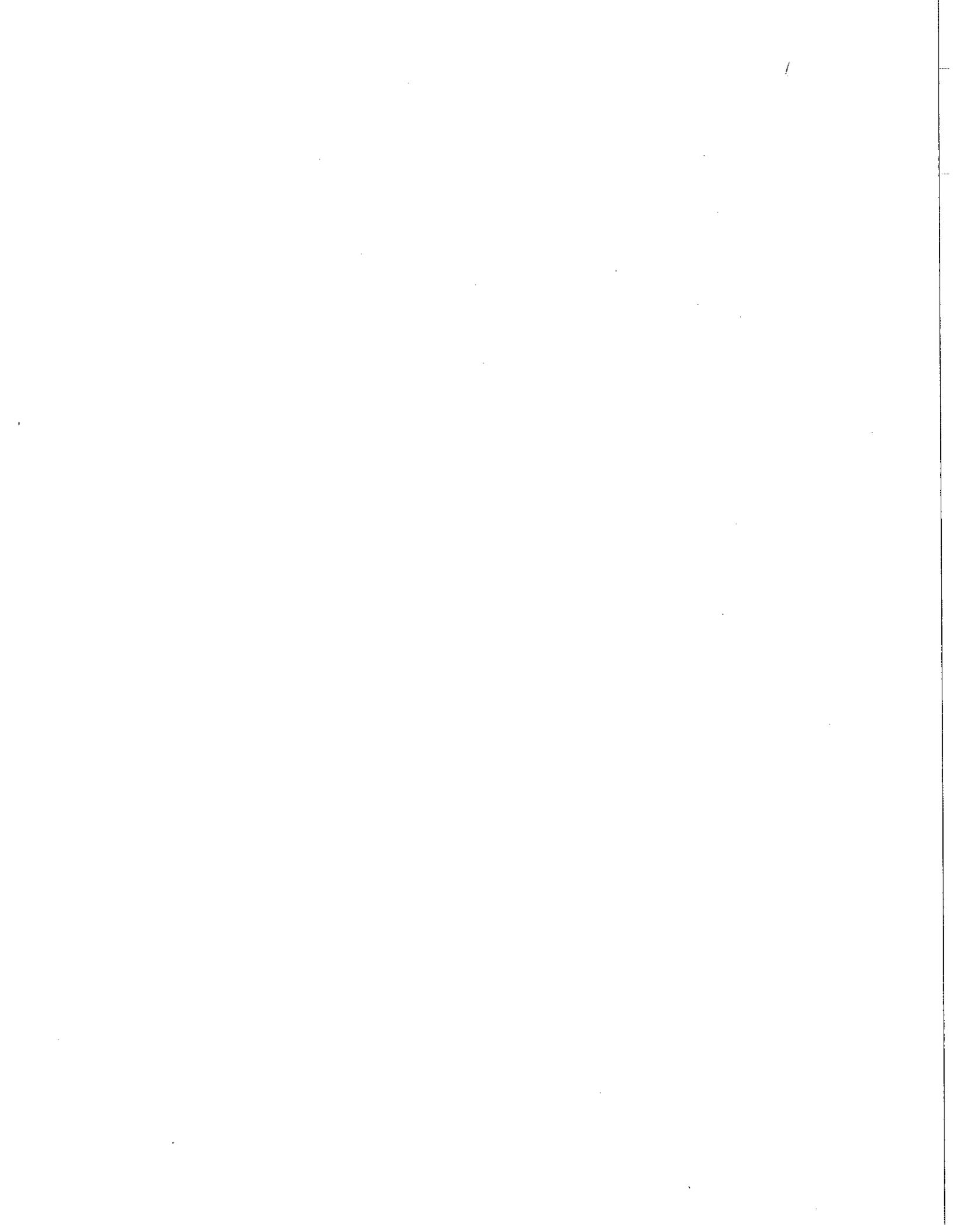


Table 1. Features Delineated on the Project Site

Area ID	Type	Approximate Area (acres)	Length (feet)	Latitude	Longitude	UTM Zone 15N	
						Northing (meters)	Easting (meters)
Area A	PSS	0.46	NA	29.638444	-95.127573	3280615	294036
Area B	PEM	0.10	N/A	29.638141	-95.127893	3280582	294005
Area C	PEM	0.02	NA	29.639793	-95.127279	3280764	294068
Area SB	PFO	0.25	NA	29.637738	-95.127525	3280536	294040
Area SM							
(HCFCD Drainage Unit No. B113-00-00)	RPW	0.03	160	29.638028	-95.127619	3280569	294031
<b>Total</b>		<b>0.86</b>	<b>160</b>				

PEM = Palustrine Emergent Wetland  
PFO = Palustrine Forested Wetland  
RPW = Relatively Permanent Water  
PSS = Palustrine Scrub/scrub Wetland

