

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): 02/14/2023

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: SWG-2022-00141, Pine Trails

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Texas County/parish/borough: Harris City: Houston
Center coordinates of site (lat/long in degree decimal format): Lat. 29.810697 N Long. -95.193708 W *See table below for centroids of each portion of the Project Area.

Table 1: Coordinates of Project Area Portions

Project Area	Latitude	Longitude
Western Portion	29.811482	-95.203954
Eastern Portion	29.812310	-95.185095
Southern Portion	29.805434	-95.196686

Universal Transverse Mercator: 15R, 273749.04 m E, 3307721.56 m N

Name of nearest waterbody: Sulphur Gully

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Greens Bayou

Name of watershed or Hydrologic Unit Code (HUC): Buffalo-San Jacinto Watershed HUC8: 12040104

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: 01/25/2023

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 and are not** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (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: Sulphur Gully (878.65 linear feet, 20 feet width, 0.33 acre);

Big Gulch (5,487.35 linear feet, 13 feet width; 2.02 acres);

WC 1 (295.51 linear feet, 18 feet width, 0.10 ac)

TOTAL: 6,661.51 linear feet and/or 2.45 acres.

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

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

Wetlands: WET 4 (0.02 ac)
WET 5 (0.02 ac)
WET 6 (0.01 ac)
TOTAL: 0.05 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):³

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:
Three palustrine emergent (PEM) wetlands (WET 1 – 0.03 acre; WET 2 – 0.02 acres; WET 3 – 0.05 acre) were observed within the Project Area boundaries. These features are located entirely outside the FEMA floodway and 100-year floodplain zones. Features WET 1 through WET 3 are located in shallow depressions within a utility easement. Dominant vegetation within these wetlands include opposite spotflower (*Acmella repens*), blue waterhyssop (*Bacopa caroliniana*), and alligatorweed (*Alternanthera philoxeroides*).

Features WET 1 through WET 3 are located 480 feet or greater from the nearest WOTUS, Sulphur Gully (P109-00-00). Sulphur Gully is a perennial tributary to Greens Bayou, a Traditionally Navigable Water and WOTUS, and is therefore a Relatively Permanent Water (RPW). As such, these wetlands do not border nor are they contiguous (abutting) to a WOTUS. Additionally, WET 1 through WET 3 are not located reasonably close to another WOTUS. Due to distance between these wetlands and Sulphur Gully and their location outside of the FEMA floodplain, it can be inferred that these wetlands would not share surface hydrology and/or convey pollutants to Sulphur Gully under normal conditions in the hydrologic cycle. Based on field observations and desktop review, features WET 1, WET 2, and WET 3 do not meet the definition of “WOTUS” or “adjacent”.

“WOTUS” is defined in 33 CFR 328.3(a) as: (1) the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; (2) tributaries to (a)(1) waters; (3) lakes and ponds, and impoundments of an (a)(1) or (a)(2) water; and (4) adjacent wetlands.

Per 33 CFR 328.3(c)(1), “adjacent” is defined as wetlands that: (i) abut a WOTUS; (ii) are inundated by flooding from a WOTUS; (iii) are physically separated from WOTUS only by a natural berm, bank, dune, or similar natural feature; or (iv) are physically separated from WOTUS only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrologic surface connection between the wetland(s) and WOTUS.

Features WET 1 through WET 3 are not tidally influenced, nor are they part of a surface water tributary system to interstate of navigable WOTUS; therefore, these features are determined to be “isolated” as defined in 33 CFR 330.2(e). “Isolated” waters are defined as non-tidal features that are (1) not part of a surface tributary system to interstate or navigable WOTUS and (2) not adjacent to such tributary waterbodies. Therefore, features WET 1 through WET 3 would likely be considered isolated and non-jurisdictional.

WB 1 (0.21 acre) is a man-made pond excavated circa 2009 that is likely a borrow pit that was excavated to develop the berm along Big Gulch. As such, WB 1 does not meet the definition of “WOTUS.”

D1 through D5 (184.85 linear feet, 47.53 linear feet, 48.66 linear feet, 512.32 linear feet, and 293.93 linear feet, respectively) are man-made, upland-cut drainage ditches that likely function as stormwater conveyance ditches to drain adjacent impermeable surfaces, including residential, commercial, and roadway developments. Per the 2008 Rapanos Guidance, the agencies generally will not assert jurisdiction over ditches (including roadside ditches) excavated in and wholly draining only uplands that do not carry a relatively permanent flow of water. D6 (220.24 linear feet) is a man-made concrete-lined ephemeral ditch that conveys water from a wastewater treatment plant into WC 1 (an intermittent stream) through a culvert. The elevation of the D6 channel bottom is higher than the OHWM of WC 1. As such, D6 does not meet the definition of a “WOTUS.” These features would likely be considered non-jurisdictional.

WC 2 (154.06 linear feet) and WC 3 (73.57 linear feet) are short, narrow, ephemeral streams flowing into Sulphur Gully, an RPW and (a)(2) water. These streams are located on the high bank of Sulphur Gully within erosional gullies likely formed by the movement of high water flow during heavy rain events along undulating microtopography toward Sulphur Gully. Sulphur Gully contributes surface water flow directly to Greens Bayou, a TNW, approximately 0.5 mile from the southwestern terminus of the Project Area. The National Wetlands Inventory (NWI) does not identify any wetlands abutting or adjacent to WC 2 or WC 3 streams. WC 2 and WC 3 streams only flow during heavy rain events as overland sheetflow moves across the landscape toward Sulphur Gully. Based on this NWI data and the site visits conducted on December 7 and 8, 2021 and January 5, 2022, there is no evidence that these streams have more than speculative or insubstantial effect on the chemical, physical, or biological integrity of the downstream TNW located 0.5 mile downstream. Therefore, WC 2 and WC 3 do not meet the definition of a “WOTUS.”

³ 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, 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 waterbody⁴ 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: 212 Square miles
Drainage area: 212 Square miles
Average annual rainfall: 51.84 inches
Average annual snowfall: 0.00 inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

- Tributary flows directly into TNW.
- Tributary flows through tributaries before entering TNW.

Project waters are 1-2 river miles from TNW.
Project waters are 1 (or less) river miles from RPW.
Project waters are 1 (or less) 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 TNW⁵: Sulphur Gully flows west directly into Greens Bayou, the closest TNW.

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

⁵ 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: Sulphur Gully is a 1st order stream along its entire length, ending at its confluence with Greens Bayou, a 3rd order stream.

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

Tributary is: Natural
 Artificial (man-made). Explain: .
 Manipulated (man-altered). Explain: Sulphur Gully is a naturally occurring stream, as evidenced by its presence on the oldest available imagery and topographic maps and meandering channel. The stream has been manipulated (channeled, impacted by human development) as shown on various historical images. WC 1 is a natural, manipulated stream, as evidenced by its meandering channel and persistence on historical aerial imagery within human development. It drains water from D6 to Sulphur Gully.

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

Average width: **20; 18 feet**

Average depth: **3 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: **Clay.**

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

Presence of run/riffle/pool complexes. Explain: Sulphur Gully has relatively stable banks with some shelving and erosion in areas with rip rap. This features consists of 15 percent riffles at an observed depth of 5 inches and 85 percent runs at an observed depth of 3 feet. WC 1 consists of 5 percent riffles at an observed depth of 6 inches, 5 percent pools at an observed depth of 36 inches, and 90 percent runs at an observed depth of 20 inches.

Tributary geometry: Meandering

Tributary gradient (approximate average slope): 5 %

(c) Flow:

Tributary provides for: **Perennial**

Estimate average number of flow events in review area/year: **20 or greater**

Describe flow regime: Sulphur Gully is a perennial stream as evidenced by a lack of vegetation within the channel, numerous observed flow events according to stream gauge data, defined bed and bank throughout its reach within the Project Area, presence within an active floodplain, and observed aquatic fauna. WC 1 is an intermittent stream, as evidenced by a lack of vegetation within the channel and semi-permanent source of water flow (water treatment facility).

Other information on duration and volume: .

Surface flow is: **Discrete.**

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

Dye (or other) test performed: .

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):
 Discontinuous OHWM.⁷ Explain: .

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

High Tide Line indicated by: Mean High Water Mark indicated by:

⁶A 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.

⁷Ibid.

- | | |
|--|--|
| <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: **Within Sulphur Gully, observed water was turbid and murky brown in color. A strong treated water odor was present in the water and substrate. A large amount of garbage and other anthropogenic debris is present within the stream, including a collapsed bridge (Thrasher Road), shopping carts, tires, etc. Within WC 1, the water was turbid and murky brown in color. Some household garbage was observed.**

Identify specific pollutants, if known: .

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

- Riparian corridor. Characteristics (type, average width): **10 ft.**
- Wetland fringe. Characteristics: .
- Habitat for:
 - Federally Listed species. Explain findings: .
 - Fish/spawn areas. Explain findings: **Redbreast sunfish (*Lepomis auratus*) and mosquito fish (*Gambusia spp.*) were observed.**
 - 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: 0.05 acres

Wetland type. Explain: **PEM wetlands (WET 4 – 0.02 acre, WET 5 – 0.02 acre, and WET 6 – 0.01 acre)**

are located abutting or adjacent to Sulphur Gully.

Wetland quality. Explain: WET 4 directly abuts Sulphur Gully and consisted of obligate wetland vegetation; as such, appears to be optimal wetland quality. WET 5 and WET 6 were observed within forested areas and appeared to contain anthropogenic debris and consisted mostly of facultative vegetation; as such, appears to be of poor wetland quality.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral**. Explain: **Based upon historical aerial and topographic maps, water likely only flows from WET 4, WET 5, and/or WET 6 to Sulphur Gully during heavy rain events.**

Surface flow is: **Discrete**

Characteristics: **During heavy rain events, the floodway likely extends past the banks of Sulphur Gully.**

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

Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting. Explain: WET 4 directly abuts Sulphur Gully as it is located immediately next to the OHWM of the stream.

Not directly abutting

Discrete wetland hydrologic connection. Explain: WET 5 and WET 6 are located on the high flood mark but above the OHWM of Sulphur Gully.

Ecological connection. Explain: .

Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **1-2** river miles from TNW.

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

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

Estimate approximate location of wetland as within the **Floodway**.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **Surrounding area is urban and runoff from rain drains into these features.**

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: **WET 4 through WET 6 are characterized by species including Coco yam (*Colocasia esculenta*) and green flatsedge (*Cyperus virens*).**
- 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: **3 within Project Area; 6 abutting; 2 adjacent**
Approximately (720) 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>
WET 4	Y	0.02	
WET 5	N	0.02	
WET 6	N	0.01	
Abutting NWI			
Features	Y	10.30	
Adjacent NWI			
Features	N	8.48	

Summarize overall biological, chemical and physical functions being performed: **Sulphur Gully, a 1st order stream is an RPW that flows directly into Greens Bayou, a TNW and 3rd order stream. Due to their proximity and direct connectivity to a TNW, it can be inferred that Sulphur Gully significantly affects the chemical, physical, and biological integrity of Greens Bayou. Aquatic resources and NWI features that directly abut and/or are adjacent to the RPWs likely function, in conjunction with the RPWs, to filter out pollutants prior to reaching Greens Bayou. As such, abutting and/or are adjacent features would likely display similar significance to Greens Bayou as the RPWs.**

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: **WC 2**

(154.06 linear feet) and WC 3 (73.57 linear feet) are short, narrow, ephemeral 1st order streams flowing into Sulphur Gully, an RPW and (a)(2) WOTUS. These streams are located on the high bank of Sulphur Gully within erosional gullies caused by the movement of floodwaters toward Sulphur Gully. Sulphur Gully contributes surface water flow directly to Greens Bayou, a TNW, approximately 0.5 mile from the southwestern terminus of the Project Area. The National Wetlands Inventory (NWI) does not identify any wetlands abutting or adjacent these streams. These streams only flow during heavy rain events as overland sheetflow moves across the landscape toward Sulphur Gully. Based on this NWI data and the site visits conducted on December 7 and 8, 2021 and January 5, 2022, there is no evidence that these streams have more than speculative or insubstantial effect on the chemical, physical, or biological integrity of the downstream TNW located 0.5 mile downstream. Therefore, WC 2 and WC 3 do not meet the definition of a “WOTUS.”

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: **WET 4, WET 5, and WET 6 are PEM wetlands located within the floodway of Sulphur Gully, which is located 0.75-river-miles from Greens Bayou, a TNW and (a)(1) WOTUS. Sulphur Gully is a manipulated stream with a perennial flow regime and contributes surface water flow directly to Greens Bayou; therefore, Sulphur Gully is an RPW and (a)(2) WOTUS. NWI wetlands are mapped directly abutting and adjacent to Sulphur Gully, within the floodplain. WET 4 through WET 6 are likely inundated by floodwater within Sulphur Gully flowing to Greens Bayou during storm events and thus have the capacity to carry pollutants and flood waters to Greens Bayou; provide habitat and lifecycle functions for fish and other species present in Greens Bayou; transfer nutrients and organic carbon that support downstream foodwebs within Greens Bayou; and contribute to the physical, chemical, and biological integrity of Greens Bayou.**

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:
 Sulphur Gully (878.65 linear feet; 0.33 acre) is a natural stream with a perennial flow regime, as evidenced by historical aerial imagery and stream gauge data collected by Harris County Flood Control District. It contributes surface water flow directly to Greens Bayou, a TNW. Water within Sulphur Gully flows year-round and this stream supports fish and other wildlife, including aquatic invertebrates and vertebrate species including turtles and birds. Big Gulch (5,487.35 linear feet; 2.02 acres) is a manipulated stream with a perennial flow regime, as evidenced by historical aerial imagery and stream gauge data collected by Harris County Flood Control District. It contributes surface water flow directly to Greens Bayou, a TNW. Water within Big Gulch flows year-round and this stream supports fish and other wildlife, including aquatic invertebrates and vertebrate species including turtles and birds.

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:

WC 1 (295.51 linear feet) displays an intermittent flow regime, as evidenced by the lack of vegetation within the channel and semi-permanent source of water flow. Because the water source is highly dependent on the functioning of the water treatment plant and/or heavy rainfall, this stream likely does not flow year-round but does flow seasonally. .

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

Tributary waters: **Sulphur Gully (878.65 linear feet, 20 feet width);
 Big Gulch (5,487.35 linear feet, 13 feet width);
 WC 1 (295.51 linear feet, 18 feet width)
 TOTAL: 6,661.51 linear feet**

Other non-wetland waters: acres.

Identify type(s) of waters: **Two perennial streams (Sulphur Gully and Big Gulch) and one intermittent stream (WC 1).**

3. **Non-RPWs⁸ 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.

⁸See Footnote # 3.

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: **WET 4 (0.02 acre) is a PEM wetland directly abutting Sulphur Gully, 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: **0.02** 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: **WET 5 (0.02 acre); WET 6 (0.01 acre); TOTAL: 0.03** 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.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from “waters of the U.S.,” or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain: .
- Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .
- Wetlands: acres.

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

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

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: **WC 2 (154.06 linear feet) and WC 3 (73.57 linear feet) are short, narrow, ephemeral streams flowing into Sulphur Gully, an RPW and (a)(2) water. These streams are located on the high bank of Sulphur Gully within erosional gullies likely formed by the movement of high water flow during heavy rain events along undulating microtopography toward Sulphur Gully. Sulphur Gully contributes surface water flow directly to Greens Bayou, a TNW, approximately 0.5 mile from the southwestern terminus of the Project Area. The NWI does not identify any wetlands abutting or adjacent to WC 2 or WC 3 streams. WC 2 and WC 3 streams only flow during heavy rain events as overland sheetflow moves across the landscape toward Sulphur Gully. Based on this NWI data and the site visits conducted on December 7 and 8, 2021 and January 5, 2022, there is no evidence that these streams have more than speculative or insubstantial effect on the chemical, physical, or biological integrity of the downstream TNW located 0.5 mile downstream. Therefore, WC 2 and WC 3 do not meet the definition of a “WOTUS.”**
- Other: (explain, if not covered above): **Features WET 1 through WET 3 (0.03 acre, 0.02 acre, 0.05 acre, respectively) are not tidally influenced, nor are they part of a surface water tributary system to interstate of navigable WOTUS; therefore, these features are determined to be “isolated” as defined in 33 CFR 330.2(e). “Isolated” waters are defined as non-tidal features that are (1) not part of a surface tributary system to interstate or navigable WOTUS and (2) not adjacent to such tributary waterbodies. Therefore, features WET 1 through WET 3 would likely be considered isolated and non-jurisdictional. WB 1 (0.21 acre) is a man-made pond excavated circa 2009 that is likely a borrow pit that was excavated to develop the berm constructed along Big Gulch As such, WB 1 does not meet the definition of “WOTUS.” D1 through D5 (184.84 linear feet, 47.53 linear feet, 48.66 linear feet, 512.32 linear feet, and 293.93 linear feet, respectively) are man-made, upland-cut drainage ditches that likely function as stormwater conveyance ditches to drain adjacent impermeable surfaces, including residential, commercial, and roadway developments. Per the 2008 Rapanos Guidance, the agencies generally will not assert jurisdiction over ditches (including roadside ditches) excavated in and wholly draining only uplands that do not carry a relatively permanent flow of water. D6 (220.24 linear feet) is a man-made concrete-lined ephemeral ditch that conveys water from a wastewater treatment plant into WC 1 (an intermittent stream) through a culvert. The elevation of the D6 channel bottom is higher than the OHWM of WC 1. As such, D6 does not meet the definition of a “WOTUS.” These features would likely be considered non jurisdictional.**

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: **WB 1 (0.21 acre).**
- Other non-wetland waters: **1,307.53 linear feet.** List type of aquatic resource: **D1 through D5 are ephemeral upland-cut drainage ditches. D6 is a man-made concrete-lined ephemeral feature that conveys water from a wastewater treatment plant into WC 1 through a culvert. The elevation of the channel bottom is higher than the OHWM of WC 1..**
- 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): **WC 2 (154.06 linear feet, 2 ft width); WC 3 (73.57 linear feet, 4 ft width).**
- Lakes/ponds:
- Other non-wetland waters: linear feet. List type of aquatic resource:
- Wetlands: **WET 1 (0.03 acre); WET 2 (0.02 acre); WET 3 (0.05 acre).**

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: Waters of the United States Report, January 2022.
- 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. 2018 USGS NHD, Harris County
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 7.5-minute Jacinto City, Texas USGS Quad: 1916, 1920, 1932, 1947, 1955, 1967, 1982, 1995, 2010, 2016, 2019.

- USDA Natural Resources Conservation Service Soil Survey. Citation: 2021 NRCS Soil Survey Data from <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- National wetlands inventory map(s). Cite name: 2021 National Wetlands Inventory (NWI) Data.
- State/Local wetland inventory map(s):
- FEMA/FIRM maps: FEMA FIRM (Panel Numbers 48201C0705M, 48201C0710M, 48201C0715M, and 48201C0720M, all effective: 01/06/2017).
- 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): 1944, 1953, 1966, 1972, 1978, 1989, 1995, 2004, 2008, 2012, 2018
or Other (Name & Date): Field visit photographs taken on December 7 and 8, 2021 and January 5, 2022.
- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify): USACE Antecedent Precipitation Tool (APT)..

B. ADDITIONAL COMMENTS TO SUPPORT JD: The APT was used to determine conditions within the Project Area. This tool pulled data from three surrounding gauges and determined that the conditions within the Project Area were **drier than normal** during the site visits on December 7 and 8, 2021 and January 5, 2022, relative to the rolling 30-year period of those dates.

It is Hollaway's professional judgment that the two perennial streams (Sulphur Gully and Big Gulch), one intermittent stream (WC 1), and three PEM wetlands (WET 4, WET 5, and WET 6) are likely jurisdictional under the CWA and impacts to these features will require a permit from the USACE. The two ephemeral streams (WC 2 and WC 3), five upland-cut drainage ditches (D1 through D5), one concrete-lined drainage ditch (D6), one waterbody (WB 1), and three PEM wetlands (WET 1, WET 2, and WET 3) are likely non-jurisdictional under the CWA and impacts to these features will not require a permit from the USACE.

Sulphur Gully and Big Gulch are perennial tributaries of Greens Bayou, a TNW and, therefore, are RPWs and (a)(2) WOTUS. WC 1 is an indirect intermittent tributary to Greens Bayou, a TNW; therefore, this feature is also an (a)(2) WOTUS. These features are likely jurisdictional.

WET 4 through WET 6 are PEM wetlands that abut or are located adjacent to Sulphur Gully, an (a)(2) WOTUS. As discussed in the Significant Nexus Evaluation, these features in conjunction with the relevant reach of Sulphur Gully contribute to the physical, chemical, and biological integrity of Greens Bayou and therefore display a significant nexus with Greens Bayou. These features are likely jurisdictional.

Features WET 1 through WET 3 are located 480 feet or greater from the nearest WOTUS, Sulphur Gully. Sulphur Gully is a perennial tributary to Greens Bayou, a Traditionally Navigable Water and WOTUS, and is therefore an RPW. As such, these wetlands do not border nor are they contiguous (abutting) to a WOTUS. Additionally, WET 1 through WET 3 are not located reasonably close to another WOTUS. Due to distance between these wetlands and Sulphur Gully and their location outside of the FEMA floodplain, it can be inferred that these wetlands would not share surface hydrology and/or convey pollutants to Sulphur Gully under normal conditions in the hydrologic cycle. Based on field observations and desktop review, features WET 1, WET 2, and WET 3 do not meet the definition of "WOTUS" or "adjacent" and are likely non-jurisdictional.

WB 1 (0.21 acre) is a man-made pond excavated circa 2009 that is likely a borrow pit that was excavated to develop the berm along Big Gulch. As such, WB 1 does not meet the definition of "WOTUS."

WC 2 and WC 3 are short, narrow, ephemeral streams flowing into Sulphur Gully, an RPW and (a)(2) WOTUS. These streams are located on the high bank of Sulphur Gully within erosional gullies caused by the movement of floodwaters toward Sulphur Gully. Based on NWI data and the site visits conducted on December 7 and 8, 2021 and January 5, 2022, there is no evidence that these streams have more than speculative or insubstantial effect on the chemical, physical, or biological integrity of the downstream TNW located 0.5 mile downstream. Therefore, WC 2 and WC 3 do not meet the definition of a "WOTUS" and are likely non-jurisdictional.

D1 through D5 are man-made, upland-cut drainage ditches that likely function as stormwater conveyance ditches to drain adjacent impermeable surfaces, including residential, commercial, and roadway developments. Per the 2008 Rapanos Guidance, the agencies generally will not assert jurisdiction over ditches (including roadside ditches) excavated in and wholly draining only uplands that do not carry a relatively permanent flow of water. D6 is a man-made concrete-lined ephemeral ditch that conveys water from a wastewater treatment plant into WC 1 (an intermittent stream) through a culvert. The elevation of the D6 channel bottom is higher than the OHWM of WC 1. As such, D6 does not meet the definition of a "WOTUS." These features are likely non-jurisdictional.

Table 1: Summary of Aquatic Features Delineated within the Project Area

Feature Name*	Feature Type**	Latitude	Longitude	Potentially Jurisdictional	Length (feet [ft])	Size (ac)
Sulphur Gully	Perennial stream	29.81268955	-95.20413635	Yes	878.65	0.33
Big Gulch	Perennial stream	29.80946436	-95.18581511	Yes	5,487.35	2.02
WC 1	Intermittent stream	29.8123875	-95.20349617	Yes	295.51	0.10
WC 2	Erosional gully	29.81189091	-95.20433953	No	154.06	-
WC 3	Erosional gully	29.81013789	-95.20572618	No	73.57	-
WB 1	PUB waterbody	29.81704922	-95.18471835	No	-	0.21
WET 1	PEM Wetland	29.8109392	-95.20293307	No	-	0.03
WET 2	PEM wetland	29.81135109	-95.20287508	No	-	0.02
WET 3	PEM wetland	29.81068568	-95.20318981	No	-	0.05
WET 4	PEM wetland	29.8131731	-95.20436369	Yes	-	0.02
WET 5	PEM wetland	29.81373206	-95.20431523	Yes	-	0.02
WET 6	PEM wetland	29.81204882	-95.20437859	Yes	-	0.01
D1	Upland-cut drainage ditch	29.81208607	-95.20274556	No	184.85	-
D2	Upland-cut drainage ditch	29.81209959	-95.20261573	No	47.53	-
D3	Upland-cut drainage ditch	29.81217013	-95.20417711	No	48.66	-
D4	Upland-cut drainage ditch	29.81218381	-95.20381514	No	512.32	-
D5	Upland-cut drainage ditch	29.80681029	-95.18853124	No	293.93	-
D6	Concrete-lined drainage ditch	29.81246589	-95.20268213	No	220.24	-
Total Potentially Jurisdictional Aquatic Features					6,661.51	2.50
Total Potentially Non-jurisdictional Aquatic Features					1,535.16	0.31
Total					8,196.67	2.81

*WC – Watercourse; WB – Waterbody; WET – Wetland; D – Ditch

**PUB - Palustrine Unconsolidated Bottom; PEM – Palustrine Emergent Wetland.