

**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): February 24, 2020**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Fort Worth District, TxDO TU.S. 377 Relief Route, SWF-2020-00107**

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

State: Texas County/parish/borough: Hood and Johnson Counties City: Cresson  
Center coordinates of site (lat/long in degree decimal format): Lat. 32.535263° N, Long. -97.627030° W.  
Universal Transverse Mercator: 628628.433941, 3598706.237889

Name of nearest waterbody: Fall Creek

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

Name of watershed or Hydrologic Unit Code (HUC): Fall Creek, HUC 12: 120602011301

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: February 21, 2020

Field Determination. Date(s): February 13, 2020

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  
Explain: .

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

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

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

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

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet: 1,707 width (ft) and/or acres.

Wetlands: 1.57 acres.

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

Elevation of established OHWM (if known): .

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

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

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

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

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

**SECTION III: CWA ANALYSIS**

**A. TNWs AND WEILANDS 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 WEILANDS (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: 32,917 acres

Drainage area: 104.53 acres

Average annual rainfall: 36 inches

Average annual snowfall: 0 inches

**(ii) Physical Characteristics:**

**(a) Relationship with TNW:**

Tributary flows directly into TNW.

Tributary flows through 2 tributaries before entering TNW.

Project waters are 10-15 river miles from TNW.

Project waters are 1-2 river miles from RPW.

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

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

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

Identify flow route to TNW<sup>5</sup>: Tributaries and wetlands found on site drain to Fall Creek, which empties into the Brazos River, a Section 10 TNW.

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

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

Tributary stream order, if known:

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

- Tributary is:**  Natural  
 Artificial (man-made). Explain:  
 Manipulated (man-altered). Explain:

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

Average width: 4-10 feet

Average depth: 1-3 feet

Average side slopes: **3:1**.

Primary tributary substrate composition (check all that apply):

- |   |  |                                   |
|---|--|-----------------------------------|
| <input type="checkbox"/> Silts              | <input checked="" type="checkbox"/> Sands          | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles            | <input checked="" type="checkbox"/> Gravel         | <input type="checkbox"/> Muck     |
| <input checked="" type="checkbox"/> Bedrock | <input type="checkbox"/> Vegetation. Type/% cover: |                                   |
| <input type="checkbox"/> Other. Explain:    |  |                                   |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: All tributaries on site are considered intermittent, as all are influenced by groundwater. Banks are stable and well vegetated..

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): 2-5 %

(c) Flow:

Tributary provides for: **Intermittent but not seasonal flow**

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

Describe flow regime: Intermittent.

Other information on duration and volume: There are 73.3 rainy days annually in Cresson, which is about average compared to other places in Texas.

Surface flow is: **Confined** Characteristics:

Subsurface flow: **Yes** Explain findings:

Dye (or other) test performed:

Tributary has (check all that apply):

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Bed and banks  |  |
| <input checked="" type="checkbox"/> OHWM <sup>6</sup> (check all indicators that apply): |  |
| <input checked="" 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 checked="" type="checkbox"/> destruction of terrestrial vegetation      |
| <input checked="" type="checkbox"/> shelving   | <input type="checkbox"/> the presence of wrack line                            |
| <input checked="" type="checkbox"/> vegetation matted down, bent, or absent              | <input type="checkbox"/> sediment sorting                                      |
| <input type="checkbox"/> leaf litter disturbed or washed away                            | <input checked="" type="checkbox"/> scour                                      |
| <input checked="" type="checkbox"/> sediment deposition                                  | <input checked="" 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):

- |  |  |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by:              | <input 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: Water is clear, and while influenced by groundwater and overland sheet flow, is confined once it has drained into the tributary.

Identify specific pollutants, if known:

<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.

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

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

Wetland fringe. Characteristics: S-2 has an emergent wetland fringe, identified as W-2, that occurs outside of the OHWM within the toe of the slope..

Habitat for:

Federally Listed species. Explain findings: .

Fish/spawn areas. Explain findings: .

Other environmentally-sensitive species. Explain findings: .

Aquatic/wildlife diversity. Explain findings: .

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

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: Three emergent wetlands totaling 1.57 acres

Wetland type. Explain: Palustrine Emergent wetlands.

Wetland quality. Explain: Low quality.

Project wetlands cross or serve as state boundaries. Explain: No.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow** Explain: .

Surface flow is: **Confined**

Characteristics: Wetlands are located just outside of the OHWM of the tributaries and exist due to short banks and shallow bedrock.

Subsurface flow: **Yes** Explain findings: Groundwater infiltration occurs throughout the project area.

Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain: .

Ecological connection. Explain: .

Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

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

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

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

Estimate approximate location of wetland as within the **500-year or greater** 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: Water is clear, algae is present.

Identify specific pollutants, if known: N/A.

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

Riparian buffer. Characteristics (type, average width): .

Vegetation type/percent cover. Explain: Wetland 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: **3**

Approximately ( 1.57 ) 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>
Y	0.02		
Y	0.09		
Y	1.17		

Summarize overall biological, chemical and physical functions being performed: All three wetlands occur just outside the OHWM of their respective streams, where water overtops the banks and becomes ponded within the shallow floodplains. These aquatic features provide biological functions as habitat for amphibians and invertebrates, as well as mammals. The vegetation detritus provides the basis of a food web that supports the wildlife community downstream. The aquatic features provide for the nutrient and chemical uptake of the waters that percolate into soils. This nutrient and chemical uptake provides for a reduced nutrient/chemical loading in the downstream waters.

### 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: **1,707** linear feet width (ft).  
 Other non-wetland waters: acres.  
Identify type(s) of waters: .

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

- 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: **The wetlands were observed as connecting to the tributaries directly, with no land area between the wetlands and streams.**  
 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: **1.57** 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: acres.

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

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

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

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

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

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

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

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

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

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

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

**Identify water body and summarize rationale supporting determination:**

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

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

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

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

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

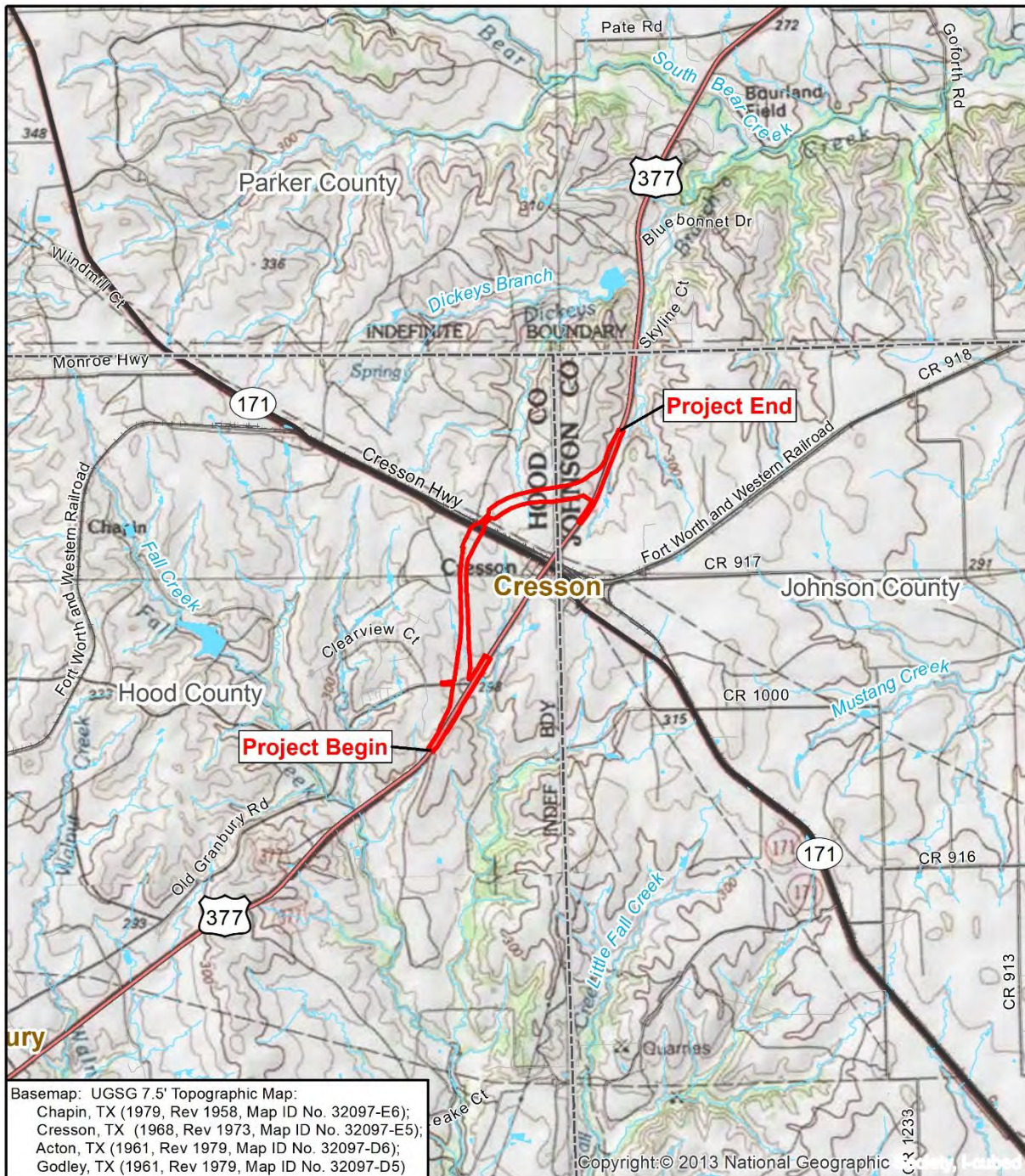
- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

**SECTION IV: DATA SOURCES.**

**A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below): SEE ATTACHED INFORMATION**

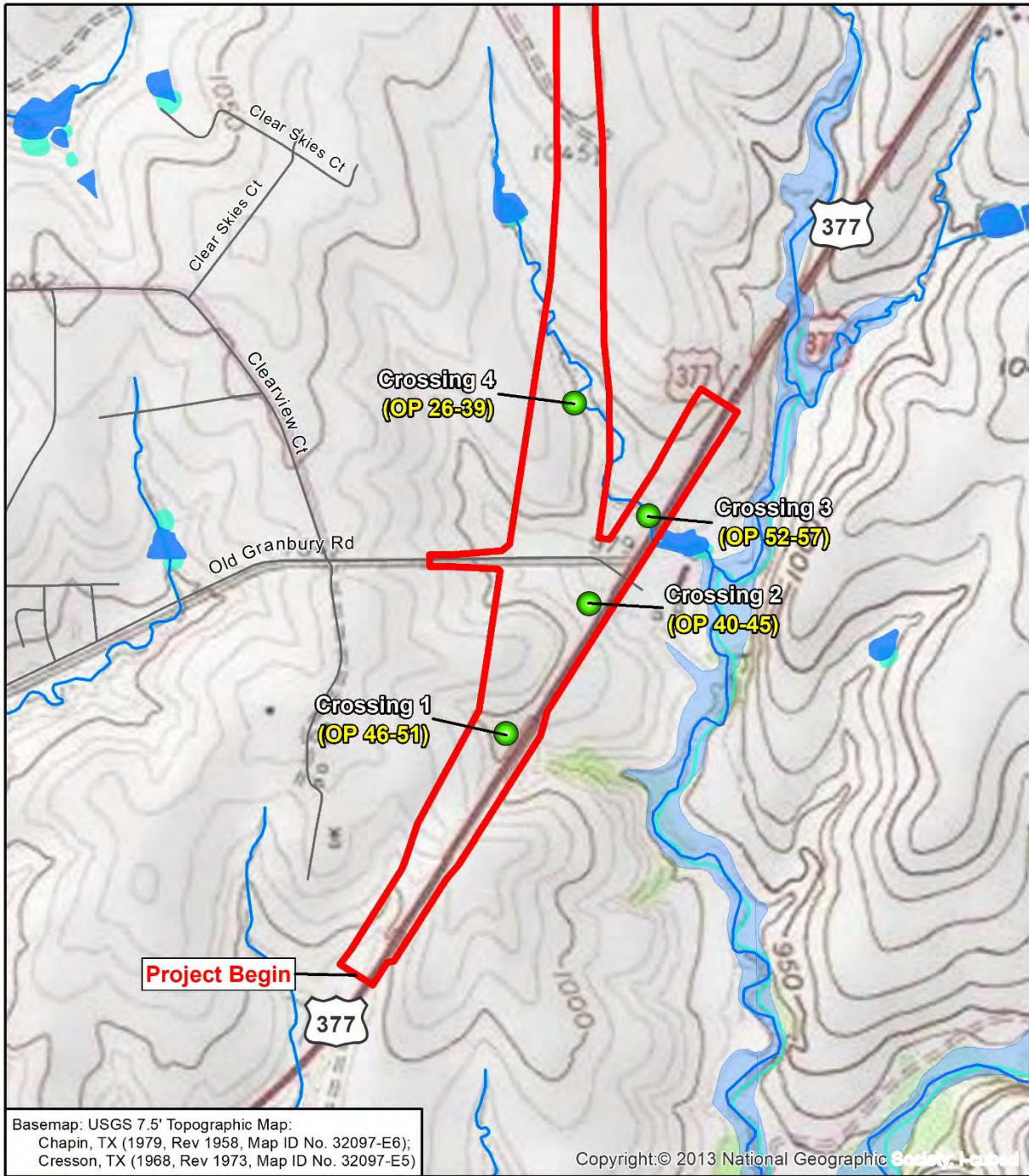
- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: .
- USDA Natural Resources Conservation Service Soil Survey. Citation: .
- National wetlands inventory map(s). Cite name: .
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: .
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): .  
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:**

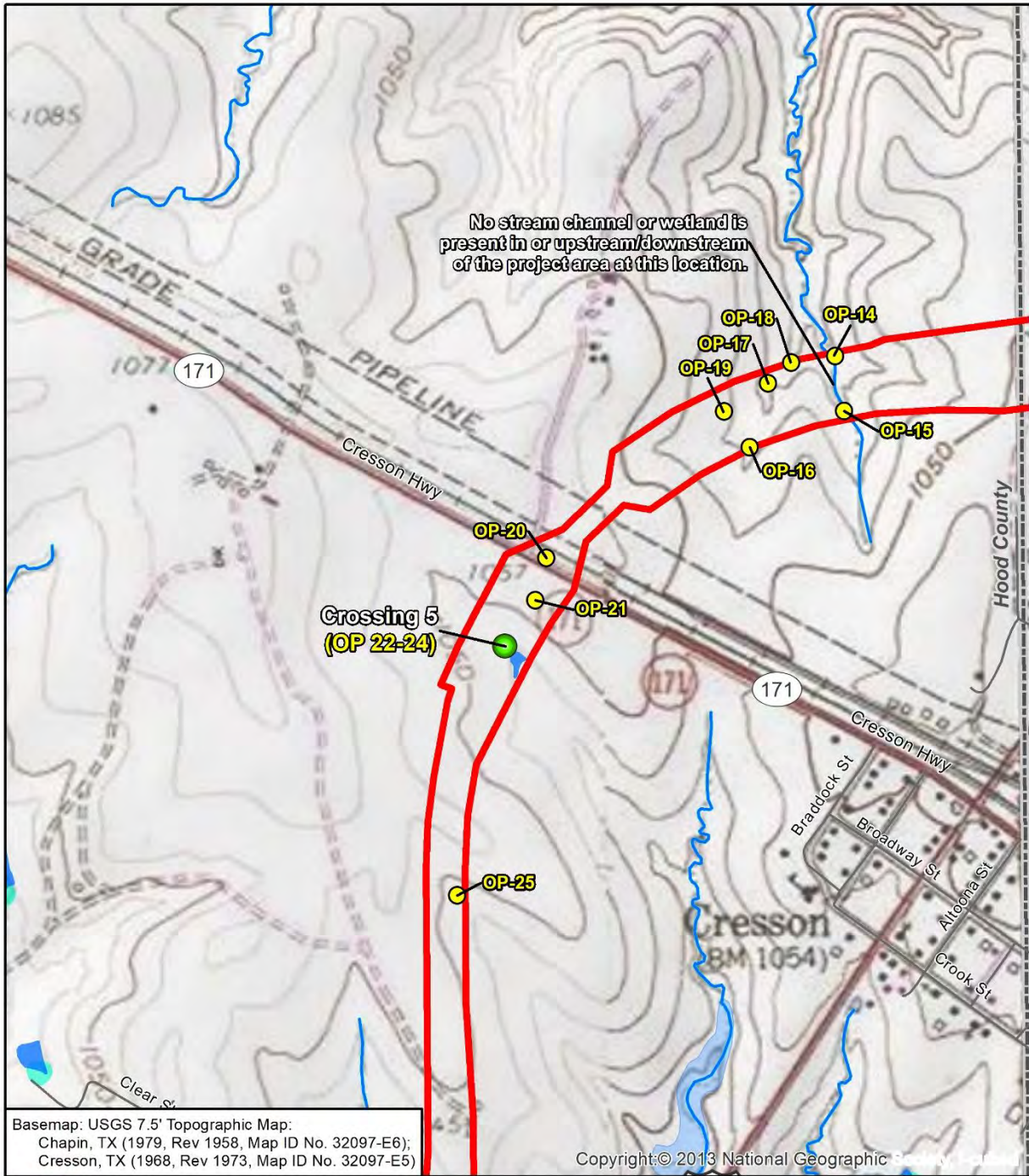


**Figure 3**  
 Project Location on  
 Topographic Base Map  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs 0080-11-001, 0080-12-001

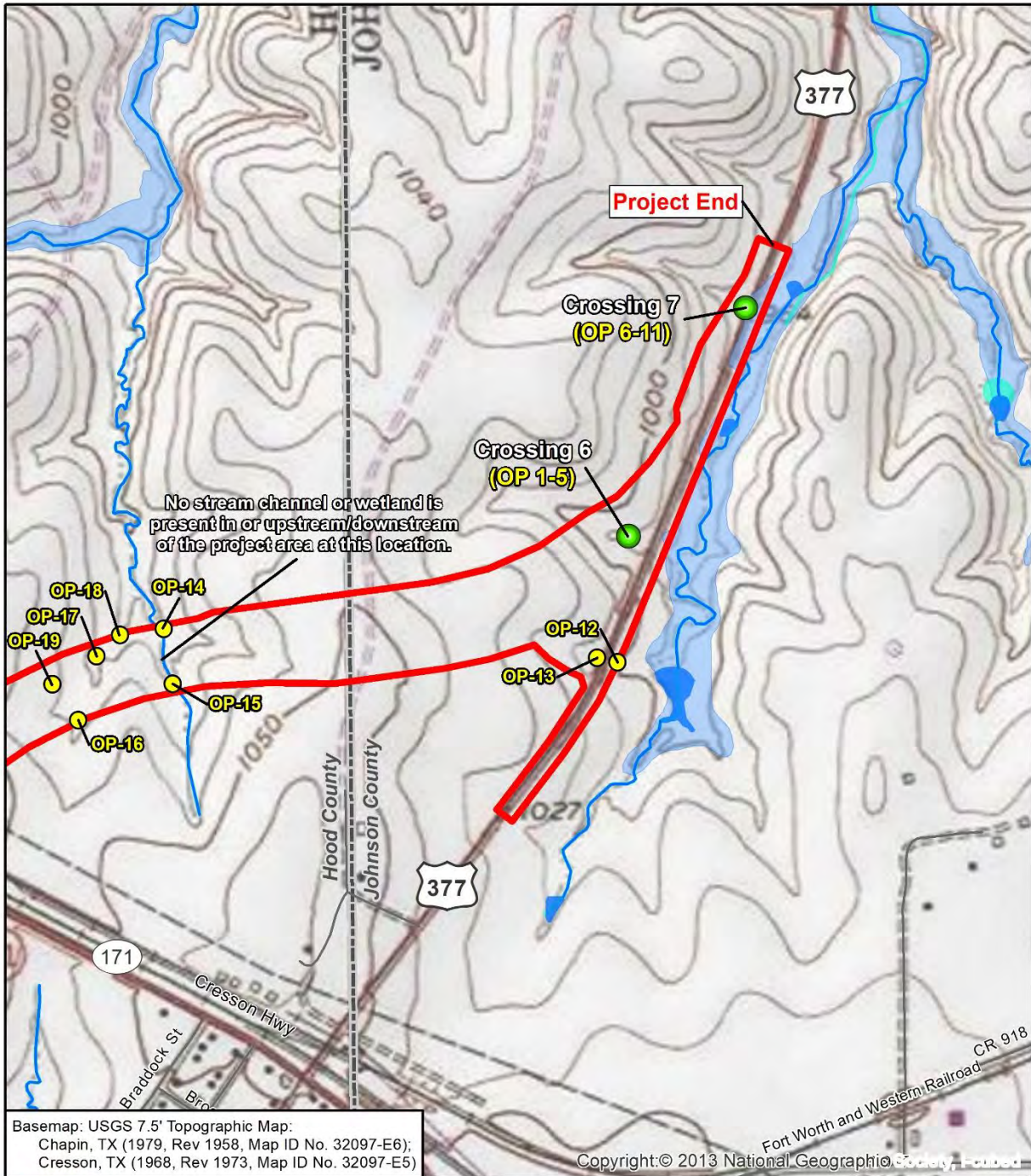




<ul style="list-style-type: none"> <li><span style="color: red; font-weight: bold;">▭</span> Project Area</li> <li><span style="color: blue;">~</span> River/Stream (NHD)</li> <li><span style="color: blue;">⊕</span> Lake/Pond (NHD)</li> <li><span style="color: cyan;">⊕</span> National Wetland Inventory Feature (NWI)</li> <li><span style="color: lightblue;">⊕</span> 100-year Floodplain (FEMA)</li> <li><span style="color: yellow;">●</span> Observation Point (#)</li> <li><span style="color: green;">●</span> Delineated Water Feature Crossing (#)</li> </ul>	<p>1:12,000</p> <p>Feet</p> <p>0 250 500 1,000</p>	<p style="text-align: center;"><b>Figure 4.1</b>  <b>Water Resources</b>        Background Information on        Topographic Base Map        US 377 Relief Route        Hood and Johnson Counties, Texas        CSJs: 0080-11-001 and 0080-12-001</p>
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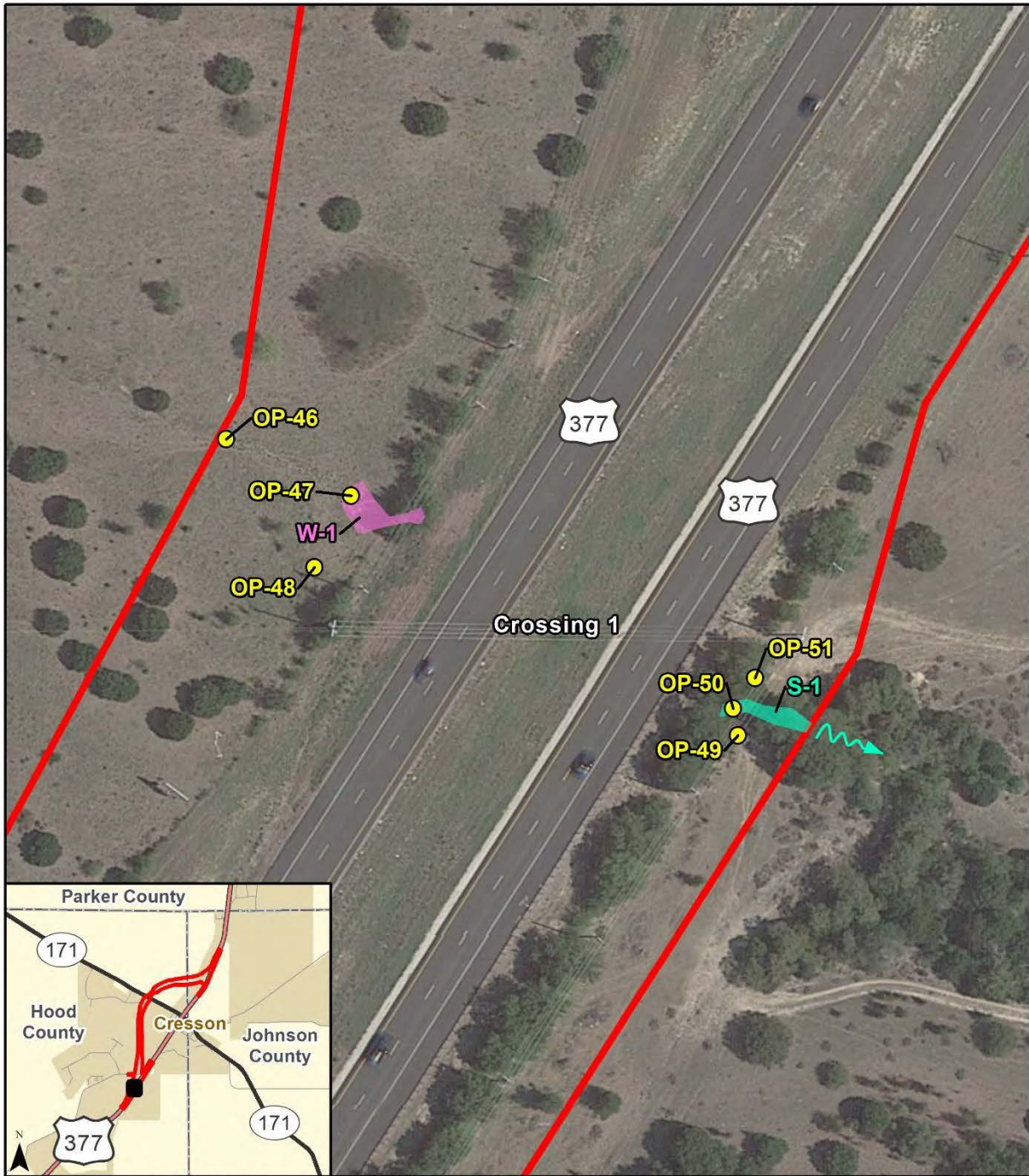
<ul style="list-style-type: none"> <li><span style="border: 2px solid red; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Project Area</li> <li><span style="color: blue; font-size: 2em; margin-right: 5px;">~</span> River/Stream (NHD)</li> <li><span style="color: blue; font-size: 2em; margin-right: 5px;">⊕</span> Lake/Pond (NHD)</li> <li><span style="color: cyan; font-size: 2em; margin-right: 5px;">~</span> National Wetland Inventory Feature (NWI)</li> <li><span style="color: lightblue; font-size: 2em; margin-right: 5px;">~</span> 100-year Floodplain (FEMA)</li> <li><span style="color: yellow; font-size: 1.5em; margin-right: 5px;">●</span> Observation Point (#)</li> <li><span style="color: green; font-size: 1.5em; margin-right: 5px;">●</span> Delineated Water Feature Crossing (#)</li> </ul>	<p>1:12,000</p> <p>0 250 500 1,000</p> <p>Feet</p>	<p><b>Figure 4.2</b>        Water Resources        Background Information on        Topographic Base Map        US 377 Relief Route        Hood and Johnson Counties, Texas        CSJs: 0080-11-001 and 0080-12-001</p>
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- Project Area
- ~ River/Stream (NHD)
- ⊕ Lake/Pond (NHD)
- ~ National Wetland Inventory Feature (NWI)
- ~ 100-year Floodplain (FEMA)
- Observation Point (#)
- Delineated Water Feature Crossing (#)



**Figure 4.3**  
 Water Resources  
 Background Information on  
 Topographic Base Map  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001 and 0080-12-001



Basemap: Texas Imagery Service 2018

- Project Area
- ~ Intermittent Stream
- ~ Palustrine Emergent Wetland (PEM)
- Observation Point (#)

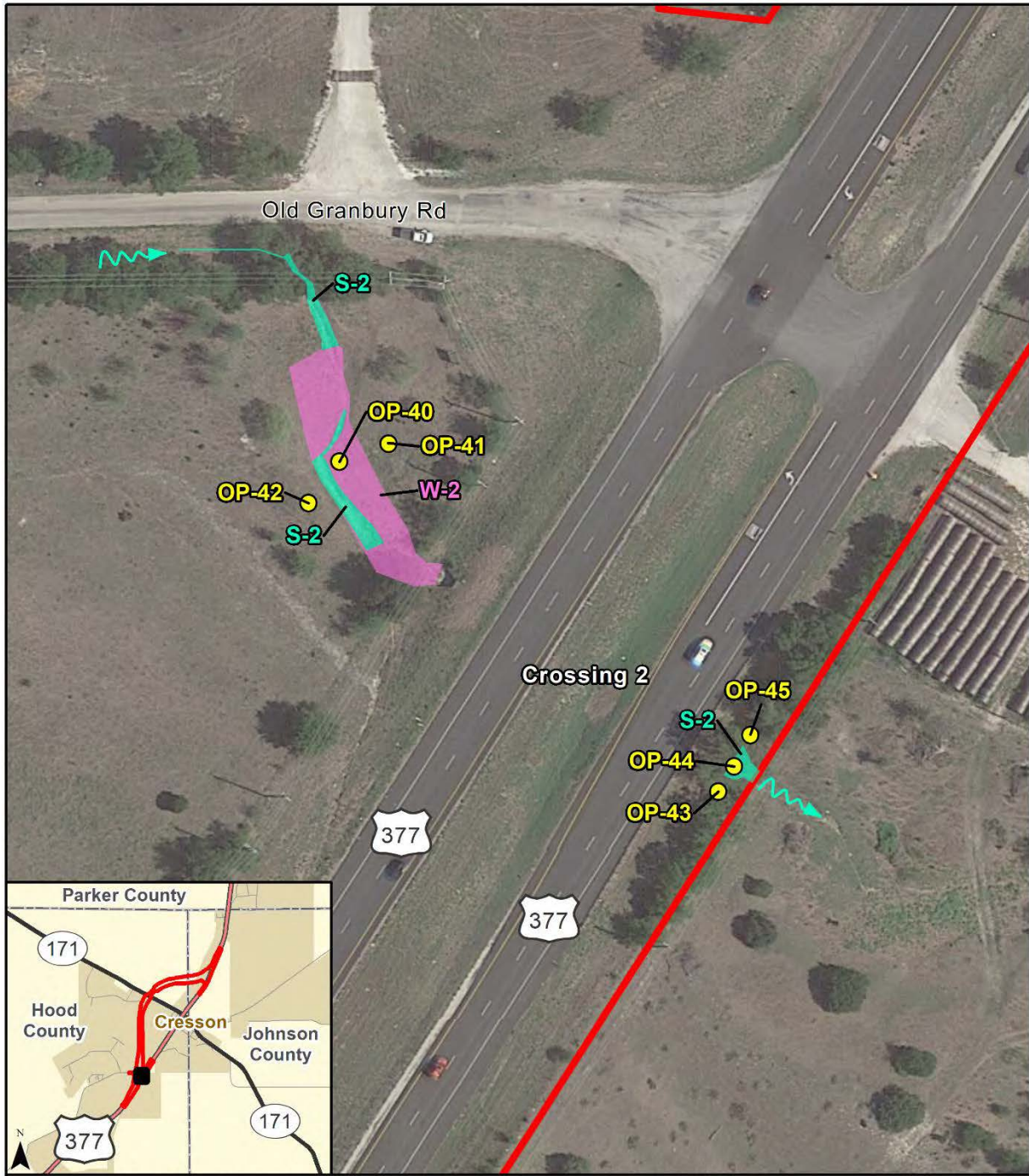


1:1,200

Feet



Figure 6.1  
 Delineated Water Features  
 at Crossing 1  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001, 0080-12-001



Basemap: Texas Imagery Service 2018

- Project Area
- ~ Intermittent Stream
- ~ Palustrine Emergent Wetland (PEM)
- Observation Point (#)

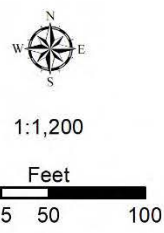
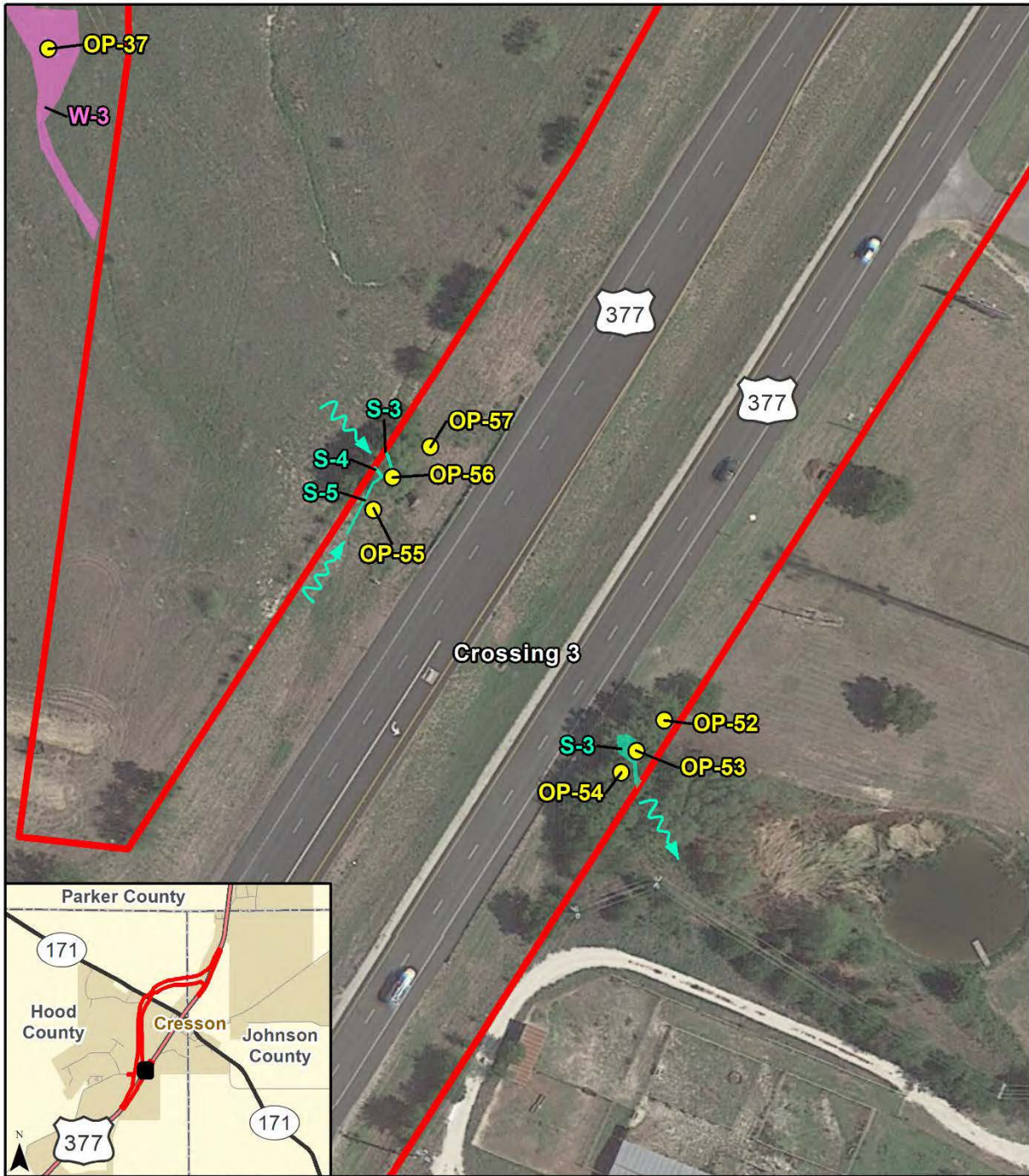


Figure 6.2  
 Delineated Water Features  
 at Crossing 2  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001, 0080-12-001



Basemap: Texas Imagery Service 2018

- Project Area
- ~ Intermittent Stream
- ~ Palustrine Emergent Wetland (PEM)
- Observation Point (#)



1:1,200

Feet

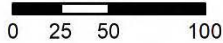
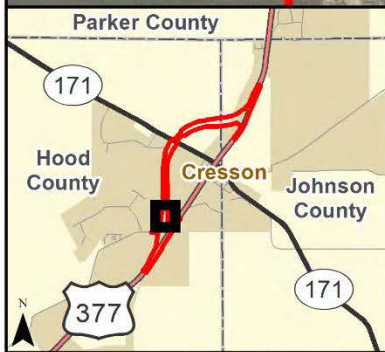
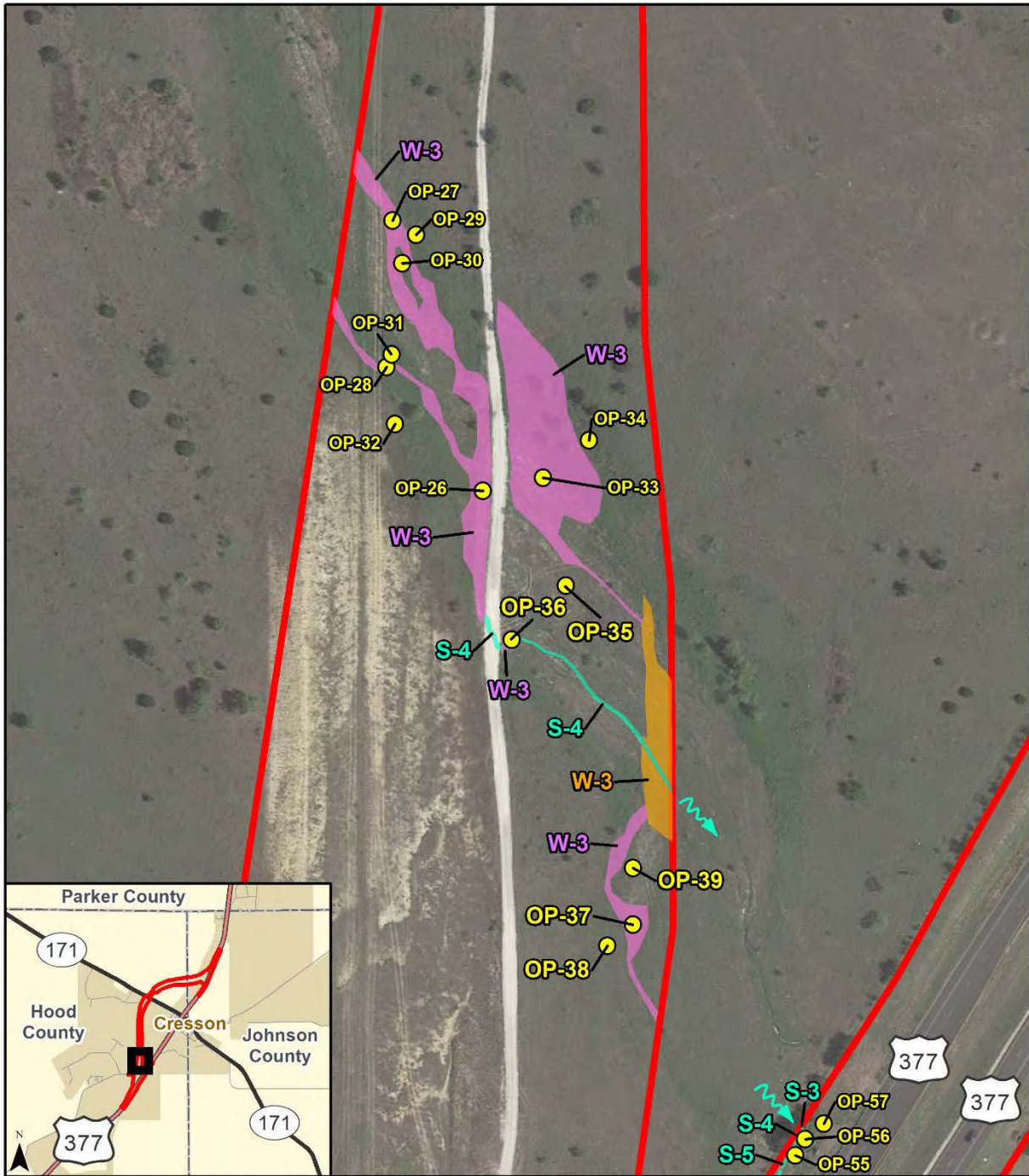


Figure 6.3  
 Delineated Water Features  
 at Crossing 3  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001, 0080-12-001



Basemap: Texas Imagery Service 2018

- Project Area
- ~ Intermittent Stream
- ~ Palustrine Emergent Wetland (PEM)
- ~ Palustrine Emergent Wetland (Disturbed)
- Observation Point (#)



1:2,400

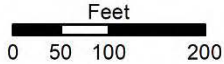
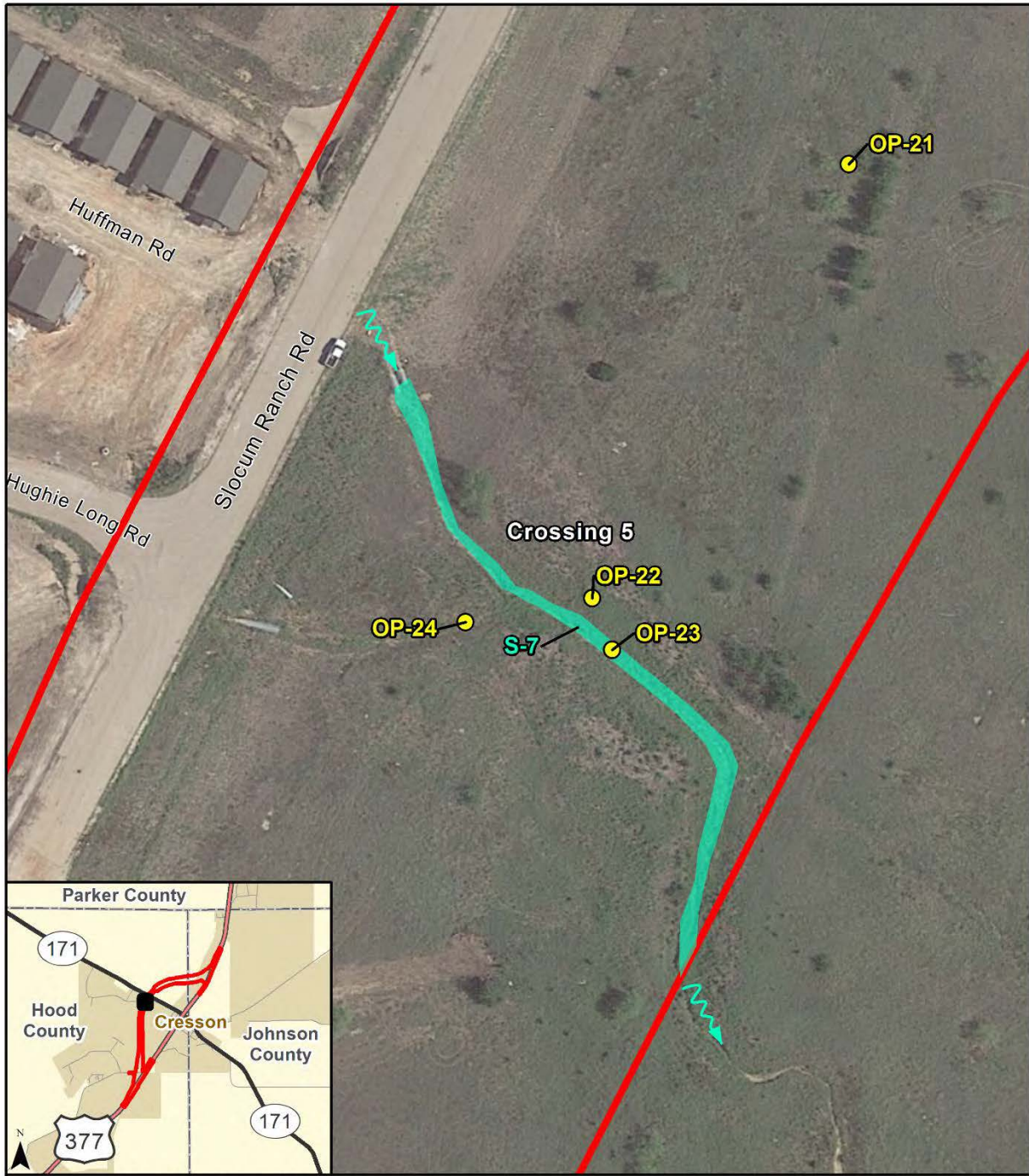


Figure 6.4  
Delineated Water Features  
at Crossing 4  
US 377 Relief Route  
Hood and Johnson Counties, Texas  
CSJs: 0080-11-001, 0080-12-001

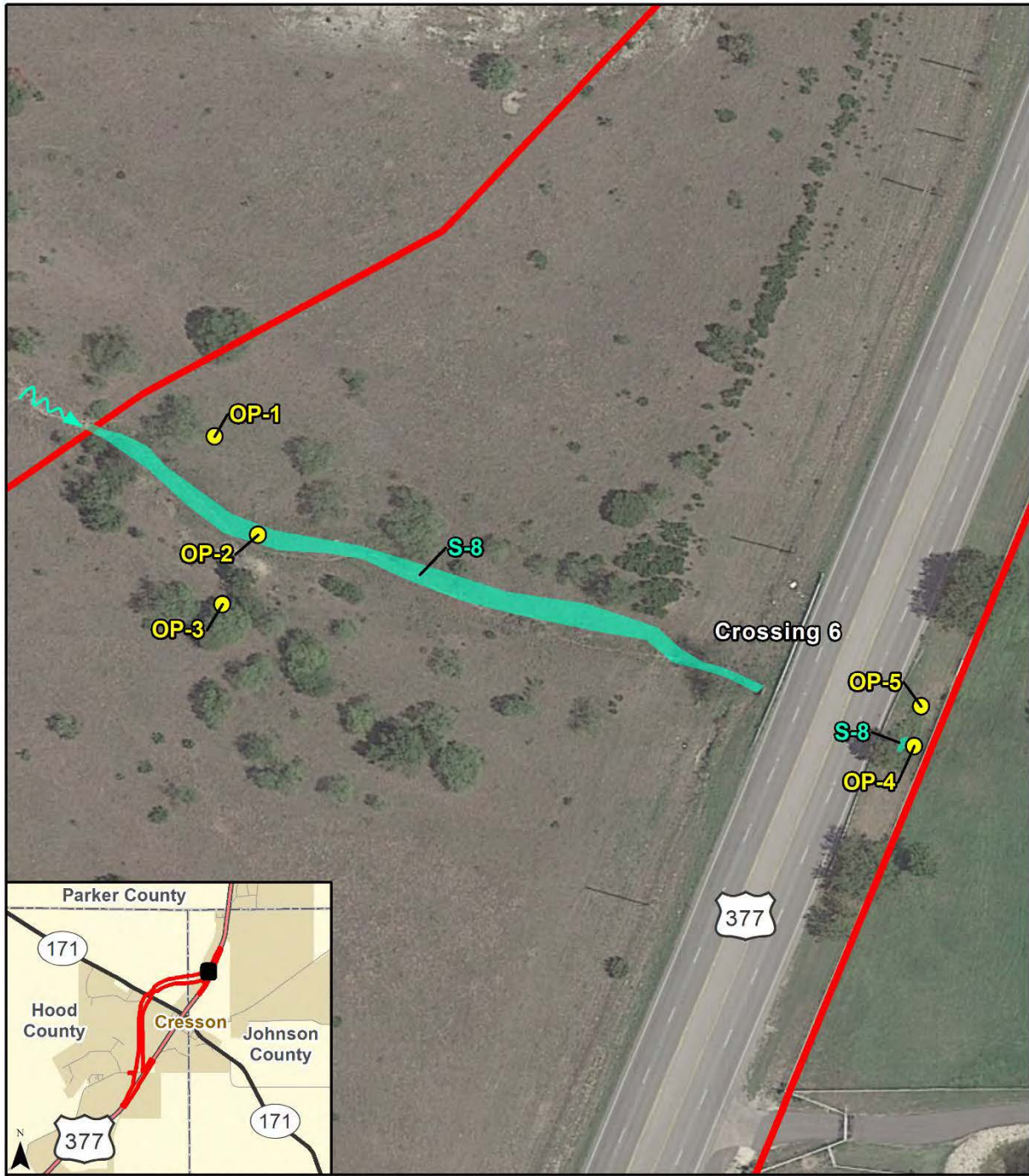


Basemap: Texas Imagery Service 2018



Figure 6.5  
 Delineated Water Features  
 at Crossing 5  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001, 0080-12-001





Basemap: Texas Imagery Service 2018

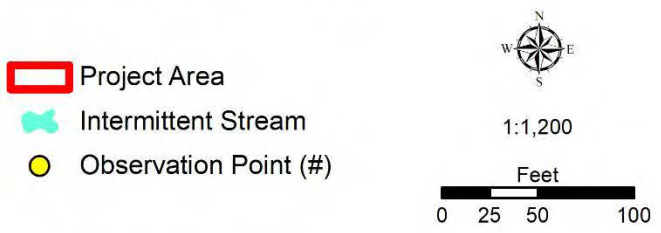


Figure 6.6  
 Delineated Water Features  
 at Crossing 6  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001, 0080-12-001



Basemap: Texas Imagery Service 2018



Figure 6.7  
 Delineated Water Features  
 at Crossing 7  
 US 377 Relief Route  
 Hood and Johnson Counties, Texas  
 CSJs: 0080-11-001, 0080-12-001