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): May 9, 2012

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Charleston District, SCDOT US-25 Bridge Replacement Project across Log Creek, SAC 2011-00817-DS

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: South Carolina County/parish/borough: Edgefield County City:
Center coordinates of site (lat/long in degree decimal format): Lat.33.863429 ° **N**, Long 81.986692° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Log Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Savannah River
Name of watershed or Hydrologic Unit Code (HUC): Turkey Creek (03060107-02) to Lower Savannah River Basin-TNW (03060107)

☒ 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: May 9, 2012
☒ Field Determination. Date(s): October 13, 2011 and November 8, 2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

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

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

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

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

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   non-wetland waters: Stream 1: 18.1 LF, Log Creek 266.5 linear feet (length); Stream 1: 3-4 feet, Log Creek 15-20 feet (width) and acres.

   Wetlands: Wetland 1: 0.01 acres, Wetland 2: 0.01 acres. These wetlands are adjacent to Log Creek (RPW) and these wetlands continue outside of the project limits.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual and OHWM.**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):[3] [Including potentially jurisdictional features that upon assessment are NOT waters or wetlands]**

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

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The applicant has identified two linear features within the project limits that have been excavated in uplands for the purpose of drainage of surface water away from US-25. During the field views, no water was observed in either non-jurisdictional linear drainage A or non-jurisdictional drainage B. These features do have bed and bank features, but do not have any evidence of an ordinary high water mark. Nor do they contain evidence of flow. This is based upon the fact that the "channels" were full of leaves (not water stained) and other material (plastic bottles, Styrofoam cups, etc.) that were scattered and not deposited in any wrack lines or piles. A photo of drainage feature A is attached to this Rapanos form. Based upon this lack of evidence of flow, these features were determined to not be jurisdictional.**

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[4] 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: Turkey Creek Watershed (03060107-02): 182,655 **acres**
Drainage area: Log Creek at US-25 bridge approx 17 **square miles**
Average annual rainfall: Based on Edgefield Co Soil Survey 51.87 inches
Average annual snowfall: Based on Edgefield Co Soil Survey 2.6 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW: **Stream 1 flows to Log Creek, Log Creek flows to Turkey Creek,Turkey Creek flows to Stevens Creek, and Stevens Creek flows to Savannah River (TNW).**

Project waters are **20-25** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **15-20** 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: N/A .

[4] 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[5]: **Stream 1 flows to Log Creek, Log Creek flows to Turkey Creek,Turkey Creek flows to Stevens Creek, and Stevens Creek flows to Savannah River (TNW).**

Tributary stream order, if known: Log Creek is a third order stream at US-25 roadway crossing, and Streams 1 is a first order stream.

(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: Log Creek: 15-20 feet, Stream 1: 3-4 feet
Average depth: Log Creek: 1-3 feet, Stream 1: 0.5 feet
Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):

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

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Stream 1 and Log Creek appear to be fairly stable and Log Creek is fairly incised.
Presence of run/riffle/pool complexes. Explain: Abundant riffle/pools present in Log Creek and Stream 1.
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 1-2 %

(c) Flow:

Tributary provides for:**Perennial flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Log Creek is a blue line on the USGS map, has established bed and banks, an ordinary high water mark, and has a perennial flow regime. Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: flow in both Stream 1 and Log Creek is confined within the established bed and banks.

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

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

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

☐ Discontinuous OHWM.[7] Explain: .

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

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

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

(iii) Chemical Characteristics:

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

Explain: Water was fairly clear and no observed pollutants or excessive sediment depositions were noted.

Identify specific pollutants, if known: N/A.

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

☒ Riparian corridor. Characteristics (type, average width): Stream 1 and Log Creek (RPW C) have forested riparian corridors that are well established within the project limits. However, some portions of this riparian corridor contain fenced pasture land. The majority of the riparian corridor is forested and wider than 50 feet on either side of Stream 1 and Log Creek. This area around the US 25 crossing of Log Creek is rural/undeveloped lands.

☒ Wetland fringe. Characteristics: The applicant has identified several wetland areas that are adjacent to Log Creek and are located within this forested riparian corridor. Due to incised stream bed these wetlands are adjacent and do not directly abut Log Creek within the project corridor.

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: Log Creek and unnamed tributary (Stream 1) provide an opportunity for many organisms (aquatic and terrestrial to not only have areas of refuge, but also to provide areas for foraging and rearing of young.

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: Wetland 1: 0.01 acres, Wetland 2: 0.01 acres

Wetland type. Explain: Majority of wetlands delineated are forested.

Wetland quality. Explain: The delineated wetlands do have some areas that are realatively unaffected however , Wetland 1 is within an existing pasture and is affected by grazing.

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

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: Flow between the identified wetlands and Log Creek does occur numerous times throughout the year, on an intermittent basis. Due to the location of these wetland areas to Log Creek, the flow is likely occurring during rainy/wet seasons via overland flow and otherwise may be occurring via shallow sub-surface drainage to Log Creek.

Surface flow is**: Discrete**

Characteristics: As discussed above, there is flow from the tributary to the wetland during rainy/wet season and via shallow sub-surface drainage to Log Creek.

Subsurface flow: **Unknown**. Explain findings: Although no testing occurred due to the alluvial soils between the wetlands and Log Creek and due to Log Creek being incised (elevation 3-6 feet lower than wetland elevation), a shallow sub-surface drainage to Log Creek is likely occurring.

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: Flow between the identified wetlands and Log Creek does occur numerous times throughout the year, on an intermittent basis. Due to the location of these wetland areas to Log Creek, the flow is likely occurring during rainy/wet seasons via overland flow and otherwise may be occurring via shallow sub-surface drainage to Log Creek.

☐ 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: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **20 - 50-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: Majority of wetlands delineated are forested and appear to be free of any visible contaminants or excessive sediments.

Identify specific pollutants, if known: N/A.

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

☒ Riparian buffer. Characteristics (type, average width): Stream 1 and Log Creek (RPW C) have forested riparian corridors that are well established within the project limits. However, some portions of this riparian corridor contain fenced pasture land. The majority of the riparian corridor is forested and wider than 50 feet on either side of Stream 1 and Log Creek. .

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☒ Vegetation type/percent cover. Explain:Majority of delineated are dominated by a mix of maturing hardwood/softwood forests.

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: Wetlands provide an opportunity for many organisms (aquatic and terrestrial to not only have area of refuge, but also to provide areas for foraging and rearing of young.

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

All wetland(s) being considered in the cumulative analysis: 5

Approximately 0.02) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Wetland 1-No	0.01 acres	Wetland 2-No	0.01

Summarize overall biological, chemical and physical functions being performed: Wetland 1 & Wetland 2 are adjacent to Log Creek. However these wetlands are within the riparian corridor of Log Creek and do have a hydrologic connections to Log Creek. Flow between the identified wetlands and Log Creek occurs numerous times throughout the year, on an intermittent basis. This flow is likely occurring during rainy/wet seasons via overland flow and otherwise may be occurring via shallow sub-surface drainage to Log Creek. These wetlands provide an important hydrology source for Log Creek and ultimately the downstream TNW (Savannah River).

Wetlands have been shown to provide floodwater attenuation which reduces peak discharge rate and volume therefore protecting downstream streams and rivers. This attenuation also protects the receiving streams from accelerated erosion and sedimentation associated with stream scour. In addition wetlands have been shown to provide an attenuating function for the maintenance of seasonal and base flows within associated streams and rivers. Wetlands have also been shown to provide water quality improvement to receiving stream through sediment and nutrient retention/uptake. These wetlands provide a sink for nutrient runoff and play an important role in nutrient cycling for nutrients such as nitrogen and phosphorus. Wetlands provide an area were sediments can be captured and prevented from entering receiving streams. Wetlands provide a diverse ecosystem for aquatic and terrestrial species. This diversity in part is provided by the fact that the wetland provides benefits of both terrestrial and aquatic habitats. This is especially important for species that require aquatic habitats for completion of a portion of their life cycle and a terrestrial habitat for another stage. In addition numerous terrestrial species rely upon wetlands such as these, to provide a source of food, shelter, and/or brooding area. Wetlands with a diversity of plant types and water regimes (open water, emergent, scrub/shrub, forest) provide a richer habitat which can be utilized by a larger number of species. This is especially true in the "edge" (ecotone) between aquatic systems and upland systems. In watersheds that contain forested wetlands, such as at this location, it has been shown that the wetlands export a large amount of carbon from the wetland areas. This carbon is critical for downstream aquatic organisms. Especially the macroinvertebrates that utilize the carbon as a food source and which in turn provide the basis for numerous food webs within streams and rivers.

It is based upon these functions that Wetland 1 and Wetland 2 have a significant nexus to Savannah River by providing a substantial contribution to the integrity of the physcial, chemical and biological features of tributaries to Log Creek, Turkey Creek, Stevens Creek and ultimately the Savannah River (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: Wetland 1 & Wetland 2 are adjacent to Log Creek. However these wetlands are within the riparian corridor of Log Creek and do have a hydrologic connections to Log Creek. Flow between the identified wetlands and Log Creek occurs numerous times throughout the year, on an intermittent basis. This flow is likely occurring during rainy/wet seasons via overland flow and otherwise may be occurring via shallow sub-surface drainage to Log Creek. These wetlands provide an important hydrology source for Log Creek and ultimately the downstream TNW (Savannah River).

   Wetlands have been shown to provide floodwater attenuation which reduces peak discharge rate and volume therefore protecting downstream streams and rivers. This attenuation also protects the receiving streams from accelerated erosion and sedimentation associated with stream scour. In addition wetlands have been shown to provide an attenuating function for the maintenance of seasonal and base flows within associated streams and rivers. Wetlands have also been shown to provide water quality improvement to receiving stream through sediment and nutrient retention/uptake. These wetlands provide a sink for nutrient runoff and play an important role in nutrient cycling for nutrients such as nitrogen and phosphorus. Wetlands provide an area were sediments can be captured and prevented from entering receiving streams. Wetlands provide a diverse ecosystem for aquatic and terrestrial species. This diversity in part is provided by the fact that the wetland provides benefits of both terrestrial and aquatic habitats. This is especially important for species that require aquatic habitats for completion of a portion of their life cycle and a terrestrial habitat for another stage. In addition numerous terrestrial species rely upon wetlands such as these, to provide a source of food, shelter, and/or brooding area. Wetlands with a diversity of plant types and water regimes (open water, emergent, scrub/shrub, forest) provide a richer habitat which can be utilized by a larger number of species. This is especially true in the "edge" (ecotone) between aquatic systems and upland systems. In watersheds that contain forested wetlands, such as at this location, it has been shown that the wetlands export a large amount of carbon from the wetland areas. This carbon is critical for downstream aquatic organisms. Especially the macroinvertebrates that utilize the carbon as a food source and which in turn provide the basis for numerous food webs within streams and rivers.

   It is based upon these functions that Wetland 1 and Wetland 2 have a significant nexus to Savannah River by providing a substantial contribution to the integrity of the physcial, chemical and biological features of tributaries to Log Creek, Turkey Creek, Stevens Creek and ultimately the Savannah River (TNW).

4. **Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs:**

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: Log Creek appears as a solid blue line on the USGS map for this area, has a large drainage area (several square miles), and US-25 crosses this stream by a sizable bridge within the project limits. In addition, during the field view, a

perennial flow regime was observed along with established bed and banks, an established ordinary high water mark, as were numerous fish. Therefore the Corps finds that Log Creek is a perennial, Relatively Permanent Water and is jurisdictional. Although Stream 1 does not appear as a solid blue line on the USGS map, during the field view the Corps observed an established bed and bank with an OHWM, and a perennial flow regime. Based on this, the Corps finds that both Stream 1 is a perennial Relatively Permanent Water, and is jurisdictional.

☐ 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.

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

☒ Tributary waters: **Stream 1: 18.1 linear feet, and Log Creek 266.5** linear feet (length); **Stream 1: 3-4 feet and Log Creek 15-20** width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters .

3. Non-RPWs[8] 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: 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 jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland 1: 0.01 acres and Wetland 2: 0.01** 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]

[8] See Footnote # 3.

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

☐ 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): **The applicant has identified two linear features within the project limits that have been excavated in uplands for the purpose of drainage of surface water away from US-25. During the field views, no water was observed in either non-jurisdictional linear drainage A or non-jurisdictional drainage B. These features do have bed and bank features, but do not have any evidence of an ordinary high water mark. Nor do they contain evidence of flow. This is based upon the fact that the "channels" were full of leaves (not water stained) and other material (plastic bottles, Styrofoam cups, etc.) that were scattered and not deposited in any wrack lines or piles. A photo of drainage feature A is attached to this Rapanos form. Based upon this lack of evidence of flow, these features were determined to not be jurisdictional.**

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

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

SECTION IV: DATA SOURCES.

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

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

☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Edgefield, South, South Carolina.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Toccoa, Herndon, & Georgeville soil series.
☒ National wetlands inventory map(s). Cite name: U41 & U42P.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☐ Aerial (Name & Date):(1999) 11187:13.
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): .

5. B. ADDITIONAL COMMENTS TO SUPPORT JD: Provide data and rationale indicating that tributary is perennial:

Log Creek appears as a solid blue line on the USGS map for this area, has a large drainage area (several square miles), and US-25 crosses this stream by a sizable bridge within the project limits. In addition, during the field view, a perennial flow regime was observed along with established bed and banks, an established ordinary high water mark, as were numerous fish. Therefore the Corps finds that Log Creek is a perennial, Relatively Permanent Water and is jurisdictional.
Although Stream 1 does not appear as a solid blue line on the USGS map, during the field view the Corps observed an established bed and bank with an OHWM, and a perennial flow regime. Based on this, the Corps finds that both Stream 1 is a perennial Relatively Permanent Water, and is jurisdictional.

Wetland 1 & Wetland 2 are adjacent to Log Creek. However these wetlands are within the riparian corridor of Log Creek and do have a hydrologic connections to Log Creek. Flow between the identified wetlands and Log Creek occurs numerous times throughout the year, on an intermittent basis. This flow is likely occurring during rainy/wet seasons via overland flow and otherwise may be occurring via shallow sub-surface drainage to Log Creek. These wetlands provide an important hydrology source for Log Creek and ultimately the downstream TNW (Savannah River). Wetlands have been shown to provide floodwater attenuation which reduces peak discharge rate and volume therefore protecting downstream streams and rivers. This attenuation also protects the receiving streams from accelerated erosion and sedimentation associated with stream scour. In addition wetlands have been shown to provide an attenuating function for the maintenance of seasonal and base flows within associated streams and rivers. Wetlands have also been shown to provide water quality improvement to receiving stream through sediment and nutrient retention/uptake. These wetlands provide a sink for nutrient runoff and play an important role in nutrient cycling for nutrients such as nitrogen and phosphorus. Wetlands provide an area were sediments can be captured and prevented from entering receiving streams. Wetlands provide a diverse ecosystem for aquatic and terrestrial species. This diversity in part is provided by the fact that the wetland provides benefits of both terrestrial and aquatic habitats. This is especially important for species that require aquatic habitats for completion of a portion of their life cycle and a terrestrial habitat for another stage. In addition numerous terrestrial species rely upon wetlands such as these, to provide a source of food, shelter, and/or brooding area. Wetlands with a diversity of plant types and water regimes (open water, emergent, scrub/shrub, forest) provide a richer habitat which can be utilized by a larger number of species. This is especially true in the "edge" (ecotone) between aquatic systems and upland systems. In watersheds that contain forested wetlands, such as at this location, it has been shown that the wetlands export a large amount of carbon from the wetland areas. This carbon is critical for downstream aquatic organisms. Especially the macroinvertebrates that utilize the carbon as a food source and which in turn provide the basis for numerous food webs within streams and rivers. It is based upon these functions that Wetland 1 and Wetland 2 have a significant nexus to Savannah River by providing a substantial contribution to the integrity of the physcial, chemical and biological features of tributaries to Log Creek, Turkey Creek, Stevens Creek and ultimately the Savannah River (TNW).

The waters documented on this form include; Relatively Permanent Waters with perennial flow regimens (Stream 1 and Log Creek) and wetlands adjacent to RPW's (Wetland 1 and Wetland 2). Based on guidance in RGL 07-01, perennial RPW's are subject to jurisdiction under the Clean Water Act. Wetlands adjacent to RPW's are also jurisdictional under CWA, when a Significant Nexus to the downstream TNW can be demonstrated. This office performed the required Significant Nexus Determination and on this basis has made the determination that all the waters documented on this form, including all wetlands adjacent to the relevant reach evaluated in the SND, are jurisdictional Waters of the U.S.

The applicant has also identified two linear features within the project limits that have been excavated in uplands for the purpose of drainage of surface water away from US-25. During the field views, no water was observed in either non-jurisdictional linear drainage A or non-jurisdictional drainage B. These features do have bed and bank features, but do not have any evidence of an ordinary high water mark. Nor do they contain evidence of flow. This is based upon the fact that the "channels" were full of leaves (not water stained) and other material (plastic bottles, Styrofoam cups, etc.) that were scattered and not deposited in any wrack lines or piles. A photo of drainage feature A is attached to this Rapanos form. Based upon this lack of evidence of flow, these features were determined to not be jurisdictional.