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): November 16, 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 1 of 1; SAC 2015-01798 Denmark-Olar PD-12 School

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: South Carolina County/parish/borough: **Bamberg** City: **Denmark**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3282° N**, Long. **81.1228° W**.
Universal Transverse Mercator: **NAD83**
Name of nearest waterbody: **unnamed tributary to Hays Mill Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **South Fork Edisto River**
Name of watershed or Hydrologic Unit Code (HUC): **03050204 South Fork Edisto River**
☒ 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: **September 20, 2016**
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

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

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

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

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [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: linear feet: width (ft) and/or **Pond 1= 0.514** acres.
   Wetlands: **Wetland A= 0.454** acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**, **Pick List**, **Pick List**
   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: **The project area includes one non-jurisdictional linear conveyance (NJLC-1) (264 linear feet), which drains surface run-off into Pond 1. There are also three grass swales, Grass Swale 1 (264 linear feet) is located on the central**

[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.

portion of the site and connects to NJLC-1, Grass Swale 2 (921) is located on the eastern portion of the site and drains into Wetland A, and Grass Swale 3 (493), which is on the southeastern portion of the site and drains surface flow into the non-jurisdictional upland dug pond. The non-jurisdictional linear conveyance and grass swales do not have an ordinary high water mark and show no signs of relatively permanent flow. The site also has a non jurisdictinal upland dug pond (0.0025 acre). Based on submitted and available information, including historial aerial imagery from March of 1989, these features are non-jurisdictional and are not waters of the United States.

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: **212,608 acres ;**
Drainage area: **276.7 acres**
Average annual rainfall: **47.33** inches
Average annual snowfall: **0.9** inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW.

Project waters are **30 (or more)** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **30 (or more)** aerial (straight) miles from TNW.

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

Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: **unamed tributary to Hays Mill Creek to South Fork Edisto River**.
Tributary stream order, if known: **First**.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The tributary was not observed in the field. However, after reviewing current and historic aerial imagery, topographic maps, LiDAR, National Wetlands Inventory (NWI) maps, and soil survey maps, it was determined that a portion of the unnamed tributary to Hays Mill Creek is a natural meandering tributary, but a portion of the tributary which parallels State Road S-5-121 appears to have been mechanically altered and straightened**.

Tributary properties with respect to top of bank (estimate):
Average width: **The tributary was not observed in the field. However, after reviewing the best available information (i.e. aerial photography, topo maps, NWI maps, and soil survey information), it was determined that the average width of the tributary is approximately 2-4** feet
Average depth: **The tributary was not observed in the field. However, after reviewing the best available information (i.e. aerial photography, topo maps, NWI maps, and soil survey information), it was determined that the average depth of the tributary is approximately 1-2** feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☒ Other. Explain: **Unable to observe in the field. However, based on the current NRCS Soil Survey for Bamberg County, the soil associated with the tributary and abutting wetlands primarily consists of McColl loam: 0 to 6 inches, very dark gray (10YR 3/1) loam; 6 to 9 inches, dark grayish brown (10YR 4/2) sandy clay loam; 9 to 13 inches, light brownish gray (2.5Y 6/2) clay; 13 to 23 inches, 60 percent light brownish gray (2.5Y 6/2) clay. McColl loam and McColl sandy loam is listed by the NRCS as a hydric soil in Bamberg County. The McColl series consists of poorly drained, slowly permeable soils that are shallow or moderately deep to a fragipan and very deep to bedrock**.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Aerial imagery depict vegetation along bamks. which run through adjoining wetlands, suggesting fairly stable banks.
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering. Tributary is fairly straight while paralleling State Road S-5-121**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Perennial flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: **It appears this off-site tributary is likely perennial, based on available resources. Standing water is present in multiple orthoimagery layers (2015 NAIP, 2011 NAIP, 2006 Aerials). The unnamed tributary is depicted on the Bamberg County USGS topographic map as a dashed blue line stream, with adjoining wetlands depicted along the fringe of the stream system. The (10/31/2015 verision) EPA Waters Data v1.7 KMZ layer for Google Earth depicts a blue line stream, with roughly the same extent as the USGS topographic map. Additionally, the Bamberg County 2ft Contours Data Layer (from USDA) appears to depict a distinct drainage feature along the same location as the USGS and EPA layers. The Bamberg County NRCS Soil Survey from 1966 depicts this tributary as an intermittent stream that flows from Hays Mill Creek into what is now the off-site wetland connected by a culvert. The Bamberg County NWI Map depicts a freshwater forested wetland along the entire length of the unnamed tributary, on both sides.** .
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **It appears to flow within channelized bed and banks of tributary under normal climatic conditions** .

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

Tributary has (check all that apply):
☒ Bed and banks

[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.

☒ 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): **It appears this off-site tributary is likely perennial, based on available resources. Standing water is present in multiple orthoimagery layers (2015 NAIP, 2011 NAIP, 2006 Aerials). The unnamed tributary is depicted on the Bamberg County USGS topographic map as a dashed blue line stream, with adjoining wetlands depicted along the fringe of the stream system. The (10/31/2015 verision) EPA Waters Data v1.7 KMZ layer for Google Earth depicts a blue line stream, with roughly the same extent as the USGS topographic map. Additionally, the Bamberg County 2ft Contours Data Layer (from USDA) appears to depict a distinct drainage feature along the same location as the USGS and EPA layers. The Bamberg County NRCS Soil Survey from 1966 depicts this tributary as an intermittent stream that flows from Hays Mill Creek into what is now the off-site wetland connected by a culvert. The Bamberg County NWI Map depicts a freshwater forested wetland along the entire length of the unnamed tributary, on both sides.**

☐ 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):	

(iii) Chemical Characteristics:

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

Explain: .

Identify specific pollutants, if known: **This tributary is situated in a mixed landscape with agriculture, large tracts of intact forest, timber operations, and residential developments surrounding the site. It is likely that this tributary receives non-point source nutrient runoff from the surrounding roadways and agricultural fields. Additionally, this tributary likely receives increased sediments from eroded areas in the surrounding landscape during large precipitaton events. Seasonal tributaries can experience substantial subsurface and hyporheic flow, which filters, transforms, and retains pollutants, reducing downstream impacts to other aquatic resources and TNWs**.

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

☒ Riparian corridor. Characteristics (type, average width): **According to the Bamberg NWI, the wetland which abuts the unnamed tributary is a seasonally-flooded palustrine forest (PFO1C). Plant species often observed in these types of wetland ecosystems include FACW plants such as Acer negundo, Acer rubrum, Boehmeria cylindrica and OBL species such as Carex lacustris and other sedges and rushes**.

☒ Wetland fringe. Characteristics: **The Bamberg County NWI Map depicts a freshwater forested wetland along the entire length of the unnamed tributary, on both sides, and the USGS topographic map depicts a wetland fringe along the tributary. Based on these resources, and 2015 NAIP orthoimagery, it appears that a forested wetland fringe may occur along the entire length of the tributary, with a width ranging from 50-300 feet on either side**.

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: **This unnamed tributary likely provides an opportunity for aquatic and terrestrial to have an area of refuge, 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: **0.454** acres

Wetland type. Explain: **Palustrine**.

[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.

Wetland quality. Explain: **This wetland is disturbed, and exists on the grounds of a public elementary school, and may be significantly disturbed. There is a non-jurisdictional linear feature and a grass swale that drain into the wetland and pond complex. The wetland is directly connected to Jurisdictional Pond 1, and drains through a culvert into a large wetland system and unnamed tributary off-site**.

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

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain:**Flow is from wetland to tributary, and is probably ephemeral, with water flowing from the wetland to tributary during wetter months and after heavy precipitation events**.

Surface flow is**: Discrete and confined**

Characteristics: **Wetland A is connected by a culvert to an off-site, north/northeast to an unamed perennial tributary, which flows into Hays Mill Creek**.

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

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: **Wetland A is connected by a culvert to an off-site, north/northeast to an unamed perennial tributary, which flows into Hays Mill Creek**.

☒ Ecological connection. Explain: **Wetland A is connected by a culvert to an off-site, north/northeast to an unamed perennial tributary, which flows into Hays Mill Creek. Based on available in-office resources, it appears this off-site tributary is perennial.** .

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

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

Estimate approximate location of wetland as within the **Pick List** 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: **According to the South Carolina Department of Health and Environmental Control's (SCDHEC) Watershed Water Quality Assessment (WWQA), there is low potential for growth in this watershed. The watershed occupies 212,608 acres of the Upper and Lower Coastal Plain regions of South Carolina. Land use/land cover in the watershed includes: 40.2% agricultural land, 32.7% forested land, 21.7% forested wetland (swamp), 4.6% urban land, 0.5% water, and 0.3% nonforested wetland (marsh).**.

Identify specific pollutants, if known: **This wetland system is situated in a mixed landscape with agriculture, large tracts of intact forest, timber operations, and residential developments surrounding the site. It is likely that this wetland complex receives non-point source nutrient runoff from the surrounding roadways and agricultural fields. Additionally, it likely receives increased sediments from eroded areas in the surrounding landscape during large precipitaton events. Wetlands can potentially remove a large percentage of nitrate and other nutrient runoff from surrounding upland areas, reducing the impacts to abutting stream systems (Hanson et al., 1994)**.

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

☒ Riparian buffer. Characteristics (type, average width): **The Bamberg County NWI Map depicts a freshwater forested wetland along the entire length of the unnamed tributary, on both sides, and the USGS topographic map depicts a wetland fringe along the tributary. Based on these resources, and 2015 NAIP orthoimagery, it appears that a forested wetland fringe may occur along the entire length of the tributary, with a width ranging from 50-300 feet on either side**.

☒ Vegetation type/percent cover. Explain: **According to the Bamberg NWI, the wetland which abuts the unnamed tributary is a seasonally-flooded palustrine forest (PFO1C). Plant species often observed in these types of wetland ecoystems include FACW plants such as Acer negundo, Acer rubrum, Boehmeria cylindrica and OBL species such as Carex lacustris and other sedges and rushes**.

☐ Habitat for:

☐ Federally Listed species. Explain findings: .

☒ Fish/spawn areas. Explain findings: **Wetlands provide habitat and breeding grounds for aquatic and semiaquatic organisms**.

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: **Wetlands provide habitat for wildlife in the area**.

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

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (**0.454**) 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 A (N)		**0.454**		

Summarize overall biological, chemical and physical functions being performed: **The on-site and off-site wetlands and tributaries evaluated in this significant nexus determination (SND) are collectively performing valuable biological, chemical, and physical wetland functions. Wetland A and the off-site wetlands provide breeding grounds and shelter for aquatic species, foraging areas for wetland dependent species, and spawing for species that inhabit the main channel as adults. These wetlands also provide dissolved organic carbon to Hays Mill Creek, resulting in the nourishment of the downstream food web. Evaluated collectively, these wetlands provide important functions of removal of excess nutrient runoff from the surrounding suburban, agricultural, and silvicultural lands. These wetlands reduced nitrogen and phosphorus loading downstream, and likely help prevent oxygen depletion that can result from eutrophication. These wetlands also collectively perform flow maintenance functions, including retaining runoff inflow and storing flood water temporarily. This unnamed blue-line tributary flows into Hays Mill Creek, which flows into the Edisto River. Based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the TNW, it has been determined that there is a signficant nexus between the wetland and downstream TNW**.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **The on-site and off-site wetlands and tributaries evaluated in this significant nexus determination (SND) are collectively performing valuable biological, chemical, and physical wetland functions. Wetland A and the off-site wetlands provide breeding grounds and shelter for aquatic species, foraging areas for wetland dependent species, and spawing for species that inhabit the main channel as adults. These wetlands also provide dissolved organic carbon to Hays Mill Creek,**

resulting in the nourishment of the downstream food web. Evaluated collectively, these wetlands provide important functions of removal of excess nutrient runoff from the surrounding suburban, agricultural, and silvicultural lands. These wetlands reduced nitrogen and phosphorus loading downstream, and likely help prevent oxygen depletion that can result from eutrophication. These wetlands also collectively perform flow maintenance functions, including retaining runoff inflow and storing flood water temporarily. This unnamed blue-line tributary flows into Hays Mill Creek, which flows into the Edisto River. Based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the TNW, it has been determined that there is a signficant nexus between the wetland and downstream TNW.

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs:
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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: **The unnamed tributary is depicted on the Bamberg County USGS topographic map as a dashed blue line stream, with adjoining wetlands depicted along the fringe of the stream system. The (10/31/2015 verision) EPA Waters Data v1.7 KMZ layer for Google Earth depicts a blue line stream, with roughly the same extent as the USGS topographic map. Additionally, the Bamberg County 2ft Contours Data Layer (from USDA) appears to depict a distinct drainage feature along the same location as the USGS and EPA layers. The Bamberg County NRCS Soil Survey from 1966 depicts this tributary as an intermittent stream that flows from Hays Mill Creek into what is now the off-site wetland connected by a culvert. The Bamberg County NWI Map depicts a freshwater forested wetland along the entire length of the unnamed tributary, on both sides. This unnamed blue-line tributary flows into Hays Mill Creek, which flows into the Edisto River, which in turn flows into the Atlantic Ocean.** .

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

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[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.

[8]See Footnote # 3.

☒ 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: **0.454** 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).

Explain: Jurisdictional Pond 1 is 0.514 acres. The impoundment appears to have been constructed over jurisdictional palustrine wetlands, which historically appears to be directly connected to the wetland complex that is bisected by a culvert. The pond appears to be built over Lynchyburg fine sandy loam (somewhat poorly drained) soil, 0 to 2 percent slopes. The wetland is considered to be jurisdictional based on Significant Nexus Determination described above.

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.

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 project area includes one non-jurisdictional linear conveyance (NJLC-1) (264 linear feet), which drains surface run-off into Pond 1. There are also three grass swales, Grass Swale 1 (264 linear feet) is located on the central portion of the site and connects to NJLC-1, Grass Swale 2 (921) is located on the eastern portion of the site and drains into Wetland A, and Grass Swale 3 (493), which is on the southeastern portion of the site and drains surface flow into the non-jurisdictional upland dug pond. The non-jurisdictional linear conveyance and grass swales do not have an ordinary high water mark and show no signs of relatively permanent flow. The site also has a non jurisdictinal upland dug pond (0.0025 acre). Based on submitted and available information, including historial aerial imagery from March of 1989, these features are non-jurisdictional and are not waters of the United States.**

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).

[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.*

☐ 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: **S&ME**.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☒ Office concurs with data sheets/delineation report. This office concurs with the conclusions of the datasheets.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☒ Corps navigable waters' study: **1977 Navigability Study**.
☒ U.S. Geological Survey Hydrologic Atlas: **HA 730-G, 1990**.
  ☐ USGS NHD data.
  ☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24,000 Bamberg**.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **Bamberg County Soil Survey (4) Lynchyburg fine sandy loam, Nankin loamy sand, Norfolk sand**.
☒ National wetlands inventory map(s). Cite name: **Bamberg County NWI**.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **Bamberg 1999 Aerial Index 11292:81. 2015 National Agriculture Imagery Program orthoimagery Bamberg County SC 047 009**.
  or ☒ Other (Name & Date): **Photographs 1-10, of 10. Dated November 2015. Submitted by the consultant**.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: **Hanson, Gay C., Peter M. Groffman, and Arthur J. Gold. "Denitrification in riparian wetlands receiving high and low groundwater nitrate inputs." Journal of environmental quality 23.5 (1994): 917-922.**.
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The aquatic resources documented on this form include one adjacent jurisdictional wetland and an impoundment of a Water of the United States. A significatn nexus determination was performed. Based on the documentation provided in Section III, C of this form, the nexus is significant. The wetland and pond documented are jurisdictional Waters of the United States and are under jurisdiction of the Clean Water Act.