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): JAN 13 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:MVN 2015-01893-SQ

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State:LA County/parish/borough: Livingston City:
Center coordinates of site (lat/long in degree decimal format): Lat. 30.57245° N, Long. 90.92281° W.
Universal Transverse Mercator:
Name of nearest waterbody: Beaver Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Beaver Creek/Amite River
Name of watershed or Hydrologic Unit Code (HUC): 8070202 Amite
☒ 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: November 30, 2015
☐ 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 acres.
      Wetlands: 1 acres.

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

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[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.

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: 1890 **square miles**
   Drainage area: 1365 **acres**
   Average annual rainfall: 60+ inches
   Average annual snowfall: inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **2-5** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **2-5** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: no .

   Identify flow route to TNW[5]: wetland to tributary to Beaver Creek to Amite River.
   Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

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

Tributary is:
- ☐ Natural
- ☐ Artificial (man-made). Explain:
- ☒ Manipulated (man-altered). Explain: offsite tributary is channelized.

Tributary properties with respect to top of bank (estimate):
Average width: 8-10 feet
Average depth: 5 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

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

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: maintained, eroding in places, but stable.
Presence of run/riffle/pool complexes. Explain: none.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Stormwater flow during and after events, groundwater flow to dry between events.
Other information on duration and volume: duration decreased and volume increased by surrounding development and channelization.

Surface flow is: **Discrete and confined.** Characteristics: within channel except for excessive events.

Subsurface flow: **Pick List.** Explain findings: not determined at this time.
- ☐ 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):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Water not present or water clear, watershed partly developed, partly agricultural/wooded.
Identify specific pollutants, if known: Organic matter, nutrients from cattle, silty sediments, oil and grease from roads, fertilizer and pesticides from yards.

---

[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.

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

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☒ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☒ Aquatic/wildlife diversity. Explain findings: channel provides habitat for invertebrates, amphibians, reptiles, birds and mammals.

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:23acres

Wetland type. Explain:Forested.

Wetland quality. Explain:not determined at this time.

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

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: During periods of saturation, stormwater and groundwater will flow from wetland to tributary.

Surface flow is**: Discrete**

Characteristics: overland sheetflow during and after events, plus groundwater during periods of high water table.

Subsurface flow: **Pick List**. Explain findings: not determined at this time.

- ☐ 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 **2-5** river miles from TNW.

Project waters are **2-5** 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: wetland not inundated at time of inspection.

Identify specific pollutants, if known: silt sediments, organic matter, oil and grease from roads, nutrients from cattle, fertilizers and pesticides from yards.

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

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:Bottom land hardwoods/ 100% cover.
- ☒ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☒ Aquatic/wildlife diversity. Explain findings:wetland supports amphibians, reptiles, birds, mammals.

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

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

Approximately (78) 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)
y	23	y	1.5
y	10	y	3.5
y	40		

Summarize overall biological, chemical and physical functions being performed: Floodwater storage, pollution and sediment retention, wildlife habitat, carbon/nutrient contribution to downstream systems.

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: This significant nexus determination applies to the unnamed tributary to Beaver Creek, its adjacent wetlands, and similarly situated wetlands. The wetland onsite is part of a larger wetland adjacent to an unnamed tributary (non-RPW) of Beaver Creek (RPW and TNW). The unnamed tributary has been channelized, thereby increasing flow rates and enhancing the ability of the tributary to carry sediments and particulates to Beaver Creek. In spite of increased flow rates due to work conducted on the tributary, the associated wetland system holds water back from the tributary, thereby directly affecting the integrity of the tributary and Beaver Creek in a more positive respect. Indicators on the project site, including sediment deposits and drainage patterns, demonstrate that sediments and pollutants are suspended in the water column at the point where the water exits the wetland. During relatively low flow periods, a portion of sediments and other pollutants will be assimilated by the tributary and associated wetlands. During relatively higher flows, a portion of the pollutants will be re-disturbed and additional pollutants will be contributed to the tributary system. Pollutants in excess of the assimilative capacity of the tributary and associated wetands will eventually reach Beaver Creek. Likewise, a portion of the pollutants in excess of the assimiative capacity of upper Beaver Creek will eventually reach the TNW portion of Beaver Creek. The contributions of wetlands and upstream waters to the physical, chemical, and biological integrity of downstream waters is well documented in the literature (see references below).The tributary and associated wetlands in the subject watershed can impact the TNW adversely or beneficially. Thus, the nexus determination has two components. To the extent that the wetland, similarly situated wetlands, and the tributary can withhold sediments, pollutants, carbon, and floodwater, this system collectively has a significant positive effect on the integrity of the TNW. Where portions of the system have been disturbed or removed, including channelization and clearing for development, the tributary and associated wetlands will have less beneficial effects on the TNW due to reduced system functionality. Similarly, events that exceed the assimilitive capacity of the system will have marked negative and/or positive effects on the downstream system. Thus, the tributary, associated wetlands, and similarly situated wetlands have a significant nexus with the TNW. Additional remarks can be found below in Section IV B.

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: 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: Wetland not separated from RPW by berm, levee, or other construction.

   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: 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: **1** acres.

[8]See Footnote # 3.

7. **Impoundments of jurisdictional waters.**[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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

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):
- ☐ 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: .

---

[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.***

☐ 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:Watson, LA.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation:NRCS Web Soil Survey.
☐ National wetlands inventory map(s). Cite name:
☐ State/Local wetland inventory map(s):
☐ FEMA/FIRM maps:
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):1998 IR, 2004 IR, 2008 IR, 2010 IR, 2014 true color.
  or ☒ Other (Name & Date):LIDAR.
☒ Previous determination(s). File no. and date of response letter:MVN 2007-00931-SQ.
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☒ Other information (please specify): USDA NRCS National Water and Climate Center Web Page.

Alexander, R.B., E.W. Boyer, R.A. Smith, G.E. Schwartz, and R.B. Moore, 2007. The Role of Headwater Streams in Downstream Water Quality. Journal of the American Water Resources Association 43. DOI: 10.1111/j.1752-1688.2007.00005.x.

Kappiella, Karen, and Lisa Fraley-McNeat. 2007. The Importance of Protecting Vulnerable Streams and Wetlands at the Local Level. Wetlands and Watersheds Article #6. Center for Watershed Protection. Elliot City, Maryland, for Office of Wetlands, Oceans, and Watersheds. U.S. Environmental Protection, Washington, D.C.

Meyer, Judy et al. 2003. Where Rivers are Born: The Scientific Imperative for Defending Small Streams and Wetlands. Sierra Club.

Mitsch, W.J., J.W. Day Jr, J.W. Gilliam, P.M. Groffman, D.L. Hey, G.W. Randall, and N. Wang, 2001. Reducing Nitrogen Loading to the Gulf of Mexico From the Mississippi River Basin: Strategies to Counter a Persistent Ecological Problem. Bioscience 51:373-388.

North Carolina Division of Water Quality (NCDWQ). 2006. The Ecological and Water Quality Value of Headwater Wetlands in North Carolina. North Carolina Division of Water Quality. Raleigh, North Carolina.

Saksa, Philip; Xu, Yi Jun; Stich, Richard Date: 2013 Hydrologic influence on sediment transport of low-gradient, forested headwater streams in central Louisiana In: Guldin, James M., ed. 2013. Proceedings of the 15th biennial southern silvicultural research conference. e-Gen. Tech. Rep. SRS-GTR-175. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 551-558. Station ID: Paper (invited, offered, keynote)-SRS-175

Tracie-Lynn Nadeau & Mark Cable Rains, Hydrological Connectivity Between Headwater Streams and Downstream Waters: How Science Can Inform Policy, 43(1) J. AM. WATER RESOURCES ASS'N 118–133 (2007)

Wipfli, M.S., J.S. Richardson, and R.J. Naiman, 2007. Ecological Linkages Between Headwaters and Downstream Ecosystems: Transport of Organic Matter, Invertebrates, and Wood Down Headwater Channels. Journal of the American Water Resources Association 43, DOI: 10.1111/j.1752-1688.2007.00007.x.

Zimmerman, R.J. and J.M. Nance, 2001. Effects of Hypoxia on the Shrimp Fishery of Louisiana and Texas. Coastal and Estuarine Sciences 58:293-310

B. ADDITIONAL COMMENTS TO SUPPORT JD: The unnamed tributary and wetland partly on the property, along with similarly situated wetlands, have a significant nexus with the downstream TNW. This wetland is adjacent to the unnamed tributary of Beaver Creek (RPW and TNW). The presence of sediment deposits in the wetland demonstrates four functions accruing in the wetland that will affect the water quality of the TNW: floodwater storage, sediment retention, pollution retention, and organic carbon transport.

In order for sediment deposits to be present in a wetland, flows from adjacent uplands and within the wetland itself were substantial enough to suspend silt and clay particles. This would also substantiate suspension of organic particulates within the size ranges that can be readily transported to downstream waters. Additionally, the presence of sediment deposits in the wetland substantiate inundation in the wetland. The

duration is long enough for silt and clay sediments and organic carbon to fall out of suspension and to be sequestered by the wetland. This would also substantiate flood storage in the wetland, which would directly affect the functionality of the unnamed trubutary and downstream waters, based on general flow charactistics and potential assimilative capacities of all.

MVN observed wood ducks in inundated portions of wetlands on the property. Woodpeckers and other birds, other wildlife trails, deer tracks, rabbit droppings, and raccoon tracks were observed traversing uplands and wetlands on the property. Wading birds were observed feeding in Harrels Lateral downstream from the property. The wetland and the unnamed tributary would provide organic matter to food webs in Beaver Creek and downstream waters. This is based on the observation of organic matter that would provide carbon to the system as well as food and substrate for aquatic insects in the wetland and Harrel's lateral during periods of inundation. Aquatic insects supported by the wetland and Harrels lateral would provide food for fish in downstream waters.

During relatively high flows, some of these sediments would remain suspended in the water column long enough to reach Beaver Creek. Therefore, it is beyond speculation that sediments are both sequestered from and released to the unnamed tributary and all downstream waters. Observed sediment loading demonstrates a more than insubstantial or speculative impact on the integrity of waters downstream of the wetland, including the TNW.

As stated earlier, the mere presence of these sediments in the water column and sediment deposits in the wetland substantiates functions accruing in the wetland with direct consequences for the integrity of the TNW. As stated earlier, these functions include sediment retention, pollution retention, carbon transport, and floodwater storage. In a parish averaging 60+ inches of precipitation per year, with events of 0.1" or greater occurring, on average, 69 days per year, saturation and flow from the wetland commonly occur on this site.

BASE BEARING: N 88°39'15"W (REF. #1)
FLOOD ZONE: "X" BASE FLOOD ELEVATION: N/A
F.E.M.A. F.I.R.M. PANEL NO. 220113 0125 E DATE: 4/03/12

DRAWN BY:	CTM
CREW CHIEF:	BAS
TECHNICIAN:	CTM
CHECKED BY:	
CHECKED BY:	

A WETLANDS INVESTIGATION WAS NOT REQUESTED AND IS NOT A PART OF THIS SURVEY.

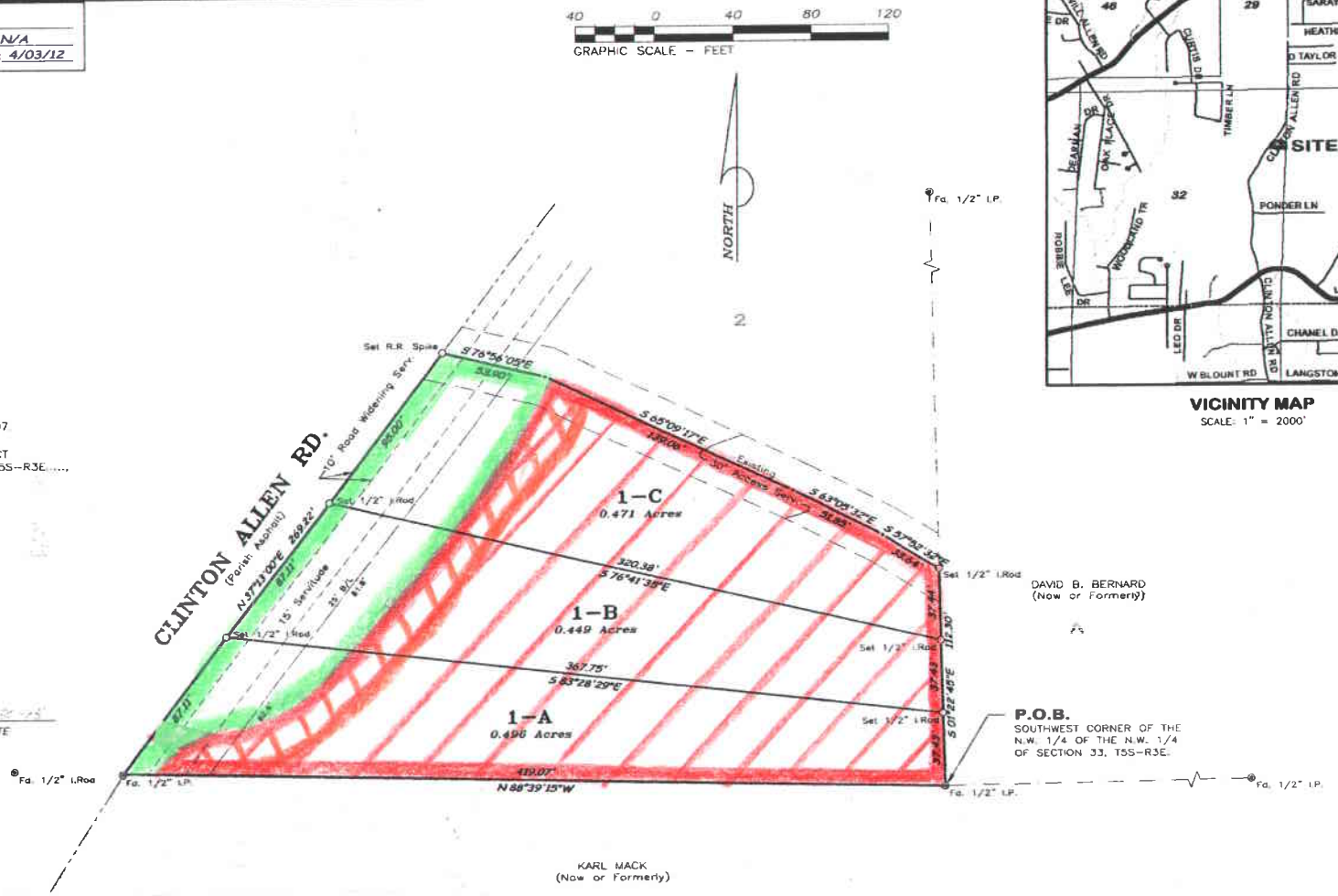
TOTAL NO. ACRES: 1.420 Acres
TOTAL NO. LOTS: 3
COUNCIL DISTRICT: 2
SET BACKS: FRONT – 25'
REAR – 20'
SIDELINES – 5'

REFERENCE:

1. FINAL PLAT OF THE HAVENS LOCATED IN SECTION 32 & 33, T5S–R3E..., BY ALVIN FAIRBURN, JR., P.L.S., DATED 2–9–2007.
2. MAP SHOWING THE SURVEY OF 10.47 ACRE TRACT INTO TRACTS A & B, LOCATED IN SECTION 33, T5S–R3E..... BY R.L. BENNETT, R.L.S., DATED 9–23–1994.

APPROVED:
LIVINGSTON PARISH COUNCIL

SAM DIGIROLAMO, PLANNING DIRECTOR — DATE



VICINITY MAP
SCALE: 1" = 2000'

THIS SURVEY WAS PREPARED AND FOR THE EXCLUSI
WATSON PROPERTI
THIS FIRM WAS NOT CONTRAC TITLE ABSTRACT OF THE PRO AWARE THAT SERVITUDES SHO REFERENCE DATA AND THAT OR RESTRICTIONS, EITHER VIS THE SUBJECT PROPERTY.

CERTIFICATION:

THIS IS TO CERTIFY THAT REVISED STATUTES 33:5051 A THE SUBDIVISION OF LAND. Th OF PRACTICE FOR BOUNDARY INTENT TO SUBDIVIDE THE TRA

THIS CERTIFICATION IS SPE FOR THE REQUIRED SUBDIVISI THIRD PARTIES UNLESS THE P REFLECT SAME.

BRETT J. MARTIN
PROFESSIONAL LAND SURVEYOR
REG. # 5135
McLIN TAYLOR, INC.

7/25/15
DATE

USACE
FSV / IH Date: 11-25-2015
Botanist: William Nethery
Requestor: Thomas Watson
MVN– 2015-01893-SQ
- NON-WETLAND
- WETLAND
- Unauthorized Activity

U.S. ARMY CORPS OF ENGINEERS
APPROVED
JURISDICTIONAL DETERMINATION

MAP SHOWING SURVEY & DIVISION
OF
Lot 1
of The Havens
INTO
Lots 1–A, 1–B & 1–C
LOCATED IN SECTION 32, T 5 S–R 3 E
GREENSBURG LAND DISTRICT
LIVINGSTON PARISH, LOUISIANA
FOR
WATSON PROPERTIES OF LOUISIANA, L.L.C.

McLin Taylor, Inc.
Engineering and Land Surveying
26339 FROST ROAD LIVINGSTON, LA. 70754 (225)686-1444

2151286