

SECTION 404(b)(1) EVALUATION

Mississippi River Mainline Levee Island 8 Seepage Control Project Fulton County, Kentucky

I. PROJECT DESCRIPTION

a. Location. The proposed seepage control project is located along the Mississippi River mainline river levee (MRL) at Island 8, west of the town of Hickman, in Fulton County, Kentucky (Attachment, Figures 1-3).

b. General Description. The proposed project along the MRL at Island 8 begins in the west approximately 2.5 miles north of the Tennessee-Kentucky state line (Figure 1), extends approximately 8.7 miles along the levee (Figure 2), and ends in the east approximately 0.5 miles past the junction with Fish Pond Road (Figure 3). The proposed project action includes installing 121 relief wells landside of the MRL, constructing new drainage ditches, clearing existing drainage ditches, and installing/replacing culverts as needed along roadways to ensure adequate drainage of the water from the relief wells.

Installation of relief wells in a portion of land currently enrolled in the Natural Resources Conservation Service (NRCS) Wetlands Reserve Program (WRP) permanent easement and shown in Figure 1 would require a 50-foot easement from the toe of the levee, extending for approximately 4,000 feet. This area would be cleared of woody vegetation; however, native grasses and forbs would be established once the proposed project construction is complete. This easement would impact approximately 4.6 acres of the WRP land, requiring appropriate compensatory mitigation. Maintaining (mowing) the easement strip is necessary to prevent tree roots from growing into the relief wells and levee and for monitoring of the wells and adjacent areas, as the area between the wells is where problems would occur if the wells do not capture the seepage adequately. A bulldozer or excavator would be used to construct new drainage ditches, clean out existing ditches, and to install/replace culverts as needed. Specialized drill rigs would be used to drill the holes along the levee, and cranes would be used to install the relief wells. Silt fences would be utilized to contain any potential runoff. Vegetation cleared from existing ditches would be removed from the area. Earthen material would be spread on non-wet agricultural fields within a 300-foot right-of-way; no ditches or earthen material would be placed within the WRP acreage.

A total of approximately 73.1 acres would be impacted by the proposed project, including 45.9 acres of non-wet agricultural lands, 1.6 acres of existing ditches that are not classified as wetlands, 10.5 acres of farmed wetlands, 10.5 acres of wooded wetlands, and 4.6 acres of wetlands within the WRP easement. The 4.6 acres of wetlands consisting of bottomland hardwood (BLH) tree saplings and other wetland grasses and forbs within the WRP easement would be impacted by mowing to prevent tree roots from growing into the relief wells and levee. The permanent loss of the wetland vegetation on the 4.6-acre easement would be mitigated according to guidance from NRCS.

A total of approximately 25.6 acres of wetlands would be impacted by the proposed project, including 4.6 acres of wetlands within the WRP easement, 10.5 acres of wooded wetlands, and 10.5

acres of farmed wetlands. Mitigation for project impacts to within the WRP easement and to wooded wetlands was calculated using a ratio of 3:1 for acres of mitigation required to acres of impacts. Mitigation for project impacts to farmed wetlands was calculated at a 1:1 ratio. At the request of the NRCS, mitigation for the loss of the 4.6 acres of mixed wetlands within the WRP easement would be conducted within the existing WRP boundaries. Mitigation would include planting 13.8 acres with bottomland hardwood species. To mitigate for the loss of the 10.5 acres of wetlands and wildlife habitat within the wooded wetlands, approximately 31.5 acres of prior converted cropland would be restored to BLH, or a comparable amount of forested wetland mitigation credits would be purchased from an approved mitigation bank. To mitigate for the loss of the 10.5 acres of farmed wetlands, approximately 10.5 acres of prior converted cropland would be restored to BLH, or a comparable amount of forested wetland mitigation credits would be purchased from an approved mitigation bank.

c. Authority and Purpose. The proposed action is authorized as part of the Flood Control Act of 1928, as amended. The proposed project is needed to address additional seepage control measures not included in the July 1998 final Supplemental EIS, *Mississippi River Mainline Levees Enlargement and Seepage Control*. Seepage that occurs during flood conditions within the Mississippi River need to be controlled in order to assure that the levee system does not fail during a flood event. Continued seepage could eventually lead to a levee failure, which would result in property damage and cause human injuries and/or loss of life.

d. General Description of Dredged and /or Fill Material.

(1) General Characteristics of Fill Material. Most of the ditches to be constructed and those to be cleaned out would have the material placed onto adjacent non-wet or prior converted farmland. The exception is a 1,550-foot shallow ditch to be constructed within a farmed wetland located in the northeastern section of the project area (Figure 1). Fill material within the area proposed for the shallow ditch consists primarily of somewhat poorly drained sand, silt, and clay. The soil base within the project area is no longer frequently flooded, as the MRL separates the project area from river flooding. Water flow from river floodwaters does occur within the project area via seepage under the existing levee. During periods of high water, sands and silts are carried under the levee and cause sand boils to form landside of the levee toe.

(2) Quantity of Material. A total of approximately 1,500 cubic yards (CY) would be excavated to construct the shallow ditch shown in Figure 1. At the landowner's request, the earthen material would be placed onto the adjacent farmland to be used by the landowner.

(3) Source of Material. The fill material would be obtained from existing wet farmland habitat located within the area proposed for the shallow ditch.

e. Description of Proposed Discharge Site.

(1) Location. The proposed 1,550-foot shallow ditch would be constructed within a farmed wetland located south of B/L Station 7/35+00 just east of a curve in the MRL noted on the quad map as French Point (refer to Figure 1). Center point for the ditch is located approximately 36°35'18" N by - 89°19'2"W.

(2) Size. The proposed shallow ditch would be approximately 1,550 feet long, with a top width of approximately 50 feet (1.8 acres). The bottom width would be approximately 20 feet and approximately 3 feet in depth. The earthen material excavated would be placed in the adjacent farmland to be used by the landowner.

(3) Type of Habitat. The area for the proposed shallow ditch is within existing farmed wetlands. Project related equipment is estimated to impact a total of 10.5 acres of existing farmed wetlands to access the site, excavate the shallow ditch, and to place the earthen material onto the adjacent farmland to be used by the landowner.

(4) Timing and Duration of Discharge. Project activities would be conducted during dry or low water periods.

f. Description of Disposal Method. A bulldozer or excavator would be used to remove any existing vegetation from the site and then to excavate the shallow drainage ditch. Vegetation removed would be hauled off from the site, while earthen material would be placed onto the existing farmland to be used by the landowner.

II. FACTUAL DETERMINATION

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The project site is located in the flat, ancient floodplain of the Mississippi River. Elevations range from 290 to 300 feet above mean sea level within the area proposed for the shallow ditch.

(2) Sediment Type. The excavated material would be comprised of silts, clays and sands historically laid down in deposits from the Mississippi River. Since construction of the MRL, deposits have been from seepage under the levee via sand boils.

(3) Dredged and Fill Material Movement. A bulldozer or excavator would be used to construct the shallow drainage ditch and to place the earthen material.

(4) Physical Effects on Benthos. N/A

(5) Other Effects. N/A

(6) Action Taken to Minimize Impacts. Construction will take place during periods of low rainfall and low water stages.

b. Water Circulation, Fluctuation, and Salinity Determination.

(1) Water. No change in water quality is expected due to this action, as project activities would be conducted during dry or low water periods.

(a) Salinity. N/A

(b) Water Chemistry. N/A

- (c) Clarity. N/A
- (d) Color. N/A
- (e) Odor. N/A
- (f) Taste. N/A
- (g) Dissolved Gas Levels. N/A
- (h) Nutrients. N/A
- (i) Eutrophication. N/A
- (j) Others as Appropriate. N/A

(2) Current Patterns and Circulation.

- (a) Current Patterns and Circulation. N/A
- (b) Velocity. N/A
- (c) Stratification. N/A

(d) Hydrologic Regime. Installation of the relief wells and construction of new drainage ditches would affect the existing hydrology landside of the levees by transporting seepage waters from the wells to the newly constructed drainage ditches and to existing ditches and waterways. In addition, cleaning out the existing drainage ditches would facilitate water flow through the ditches, which are connected to other drainage ditches and waterways. No ditch work would occur along the toe of the levee at the WRP site, thus seepage from the relief wells would flow along the natural topography of the land to the WRP site and Fish Pond. No impacts to water quality within the Mississippi River would occur. No significant impacts to water quality would occur as a result of the work.

(3) Normal Water Level Fluctuations. The existing water levels within the project work area are determined by area rainfall and seepage via the existing sand boils.

(4) Salinity Gradients. N/A

(5) Action Taken to Minimize Impacts. Best management practices (BMPs) would be exercised throughout construction to minimize silt and runoff impacts. In addition, project activities would be conducted during dry or low water periods. Storm Water Pollution Prevention Plans (SWPPPs) would be prepared in accordance with good engineering practices emphasizing storm water BMPs and complying with Best Available Technology, Economically Achievable and Best Conventional Pollutant Control Technology. The SWPPP shall identify potential sources of pollution, which may reasonably be expected to affect storm water discharges associated with the construction activity. In addition, the SWPPP shall describe and ensure the implementation of

practices which are to be used to reduce pollutants in storm water discharges associated with the construction activity and to assure compliance with the terms and conditions of this permit.

c. Suspended Particulate/Turbidity Determination.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Sites. No changes are expected, as project activities would be conducted during dry or low water periods as much as practicable.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light Penetration. No changes expected.

(b) Dissolved Oxygen (D.O.). No change to ambient D.O. levels is anticipated.

(c) Toxic Metals and Organics. None found within the proposed project area.

(d) Pathogens. N/A

(e) Aesthetics. Project activities would construct new drainage ditches along the levee road, which would be within the view of the public utilizing the road. Ditch clearing along Ash Logging Road and Highway 653 would likewise be within the view of the public, and would remove existing trees and other vegetation. Ditch construction and clearing in the farmlands would most likely have the same aesthetics as farm equipment working the farmlands.

(f) Others as Appropriate. None noted.

(3) Effects on Biota.

(a) Primary Production. Aquatic vegetation is limited within the existing ditches. The proposed work should have little effect on primary production after the ditch banks become vegetated. As mitigation for the 10.5 acres of impacts to wooded wetlands within existing ditches, approximately 31.5 acres of prior converted non-wet agricultural land would be restored to bottomland hardwoods or a comparable amount of forested wetland mitigation credits will be purchased from an approved mitigation bank. Impacts to farmed wetlands would add 10.5 acres of restored bottomland hardwoods or a comparable amount of forested wetland mitigation credits.

(b) Suspension/Filter Feeders. None noted.

(c) Sight Feeders. Fish species from connected waterways would be found within the existing ditches only during periods of flooding that would allow access to the existing ditches. Construction of the proposed project would be conducted during dry or low water periods. Thus, no significant impacts to fish or other sight feeders would occur.

(4) Actions Taken to Minimize Impacts. Best management practices would be exercised throughout construction to minimize silt and runoff impacts. The project would be conducted during dry or low water periods as much as practicable.

d. Contaminant Determinations. It is not expected that any contaminants would be introduced or translocated due to construction.

e. Aquatic Ecosystems and Organism Determination.

(1) Effects on Plankton. N/A

(2) Effects of Benthos. N/A

(3) Effects on Nekton. Minimal. Nekton present within existing ditches during flooded conditions would be expected to follow receding waters into connected waterways. In addition, the proposed project action would occur during dry or low water periods.

(4) Effects on Aquatic Food Web. N/A.

(5) Effects on Special Aquatic Sites. N/A

(a) Sanctuaries and Aquatic Sites. N/A

(b) Wetlands. A total of approximately 25.6 acres of wetlands would be impacted by the proposed project, including 4.6 acres of mixed wetlands within the WRP easement, 10.5 acres of wooded wetlands, and 10.5 acres of farmed wetlands. At the request of the NRCS, mitigation for the loss of 4.6 acres of wetlands within the WRP would be conducted within the boundaries of the WRP to the fullest extent practical. Mitigation for these impacts would include planting BLH and/or cypress tree species on up to 13.8 acres of existing WRP land adjacent to the project footprint at project expense and as per a restoration plan developed in cooperation with, and approved by NRCS. To mitigate for the loss of the 21.0 acres of wetlands and wildlife habitat within the farmed wetlands and wooded wetlands, approximately 42.0 acres of prior converted cropland would be restored to BLH, or a comparable amount of forested wetland mitigation credits would be purchased from an approved mitigation bank.

(c) Mud Flats. N/A

(d) Vegetated Shallows. N/A.

(e) Riffle and Pool Complexes. N/A

(6) Threatened and Endangered Species. The endangered Indiana bat is known to roost under loose bark of trees and in snags. To avoid impacting the species, tree clearing activities would be avoided during the summer roosting season of April 1 to October 14. The U.S. Fish and Wildlife Service (USFWS) has documented three bald eagle nests riverside of the levee along Island 8, and stated that new or previously unidentified nests may be located in closer proximity. To avoid disturbance to potential nesting eagles, no overstory tree clearing or use of a chainsaw would be conducted within 660 feet of a bald eagle nest during the nesting season from January to July, as per the National Bald Eagle Management Guidelines published by the USFWS in May 2007. By letter dated December 20, 2011, the USFWS concurred with the aforementioned determination, provided the restrictions to avoid impacting the Indiana bat and bald eagle are followed.

(7) Other Wildlife. Impacts of the proposed project action to area wildlife would be the loss of any potential habitat within areas cleared for site preparation, and the temporary displacement of wildlife species from the area caused by project construction.

(8) Actions Taken to Minimize Impacts. The proposed project activities would be conducted during dry or low water periods as much as practicable, thus impact areas will be limited to the extent necessary for construction.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. N/A

(2) Determination of Compliance with Applicable Water Quality Standards. The Kentucky Division of Water, Water Quality Certification Section, issued a waiver (#2012-012-W) for state water quality certification for the proposed project on April 9, 2012.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supply. N/A

(b) Recreational and Commercial Fishing. N/A

(c) Water Related Recreation. N/A

(d) Aesthetics. Project activities would be within the view of the public via the levee road and connecting roadways. For safety reasons, public access may be temporarily restricted or limited during construction activities.

(e) Parks, National Historical Monuments, National Seashore, Wilderness Areas, Research Sites and Similar Preserves. N/A

(g) Determination of Cumulative Effects on the Aquatic Ecosystem. Approximately 25.6 acres of wetlands and 1.6 acres of existing ditches that are not classified as wetlands would be impacted by the proposed project. The existing ditches are normally dry throughout most of the year and contain water only during periods of heavy rain or when high water levels in the Mississippi River cause seepage under the levee. The proposed project action would be conducted during dry periods, which would further minimize impacts to aquatic ecosystems. To mitigate for the loss of wetlands and associated habitat, approximately 42.0 acres of prior converted agricultural land would be restored to bottomland hardwoods or a comparable amount of forested wetland mitigation credits will be purchased from an approved mitigation bank. At the request of the NRCS, mitigation for the loss of the 4.6 acres of mixed wetlands within the WRP easement would be conducted within the existing WRP boundaries. Mitigation would include planting up to 13.8 acres with bottomland hardwood species. The impacts associated with the proposed project activities should not have any significant adverse cumulative effects on the environment in addition to those reported in the 1998 SEIS.

(h) Determination of Secondary Effects on the Aquatic Ecosystem. N/A

III. FINDING OF COMPLIANCE FOR THE ISLAND 8 SEEPAGE CONTROL PROJECT

a. No significant adaptations of the Section 404(b)(1) guidelines were made relative to this evaluation.

b. Without installation of seepage control measures, the integrity of the levee would be compromised. Seepage could undermine the levee and cause it to breach during a flood event.

c. The Kentucky Division of Water, Water Quality Certification Section, issued a waiver (#2012-012-W) for state water quality certification requirement on April 9, 2012.

d. By letter dated December 20, 2011, the USFWS concurred with the aforementioned determination, provided the restrictions to avoid impacting the Indiana bat and bald eagle are followed.

e. The proposed project action is not expected to have any impacts on human health and welfare; the municipal water supply; commercial or sport fishing; plankton communities; fish breeding; spawning; or nursery habitats; or other aquatic organisms. No special aquatic sites are located in the proposed work areas.

f. No significant adverse impacts to aquatic life or terrestrial wildlife, dependent on aquatic ecosystems, are expected.

g. The proposed work would not cause significant adverse impacts on ecosystem diversity, productivity, or stability.

h. No adverse impacts on recreational, aesthetic, or economic values are anticipated.

i. In order to minimize potential environmental impacts, construction activities would be conducted during dry or low water periods.

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ATTACHMENT, FIGURES 1-3

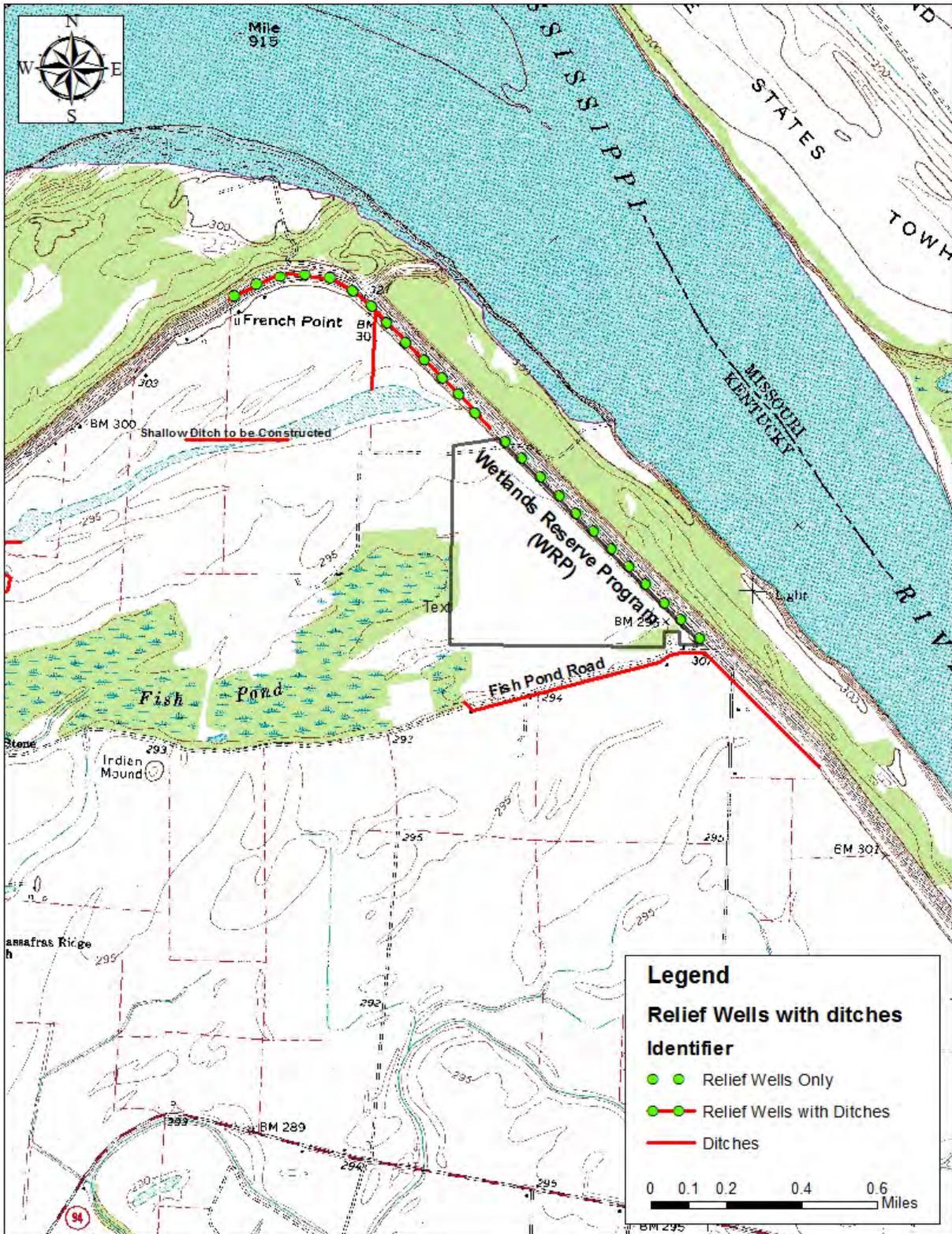


Figure 1. Project Location, Eastern End, Island 8 Seepage Control, Fulton County, Kentucky.

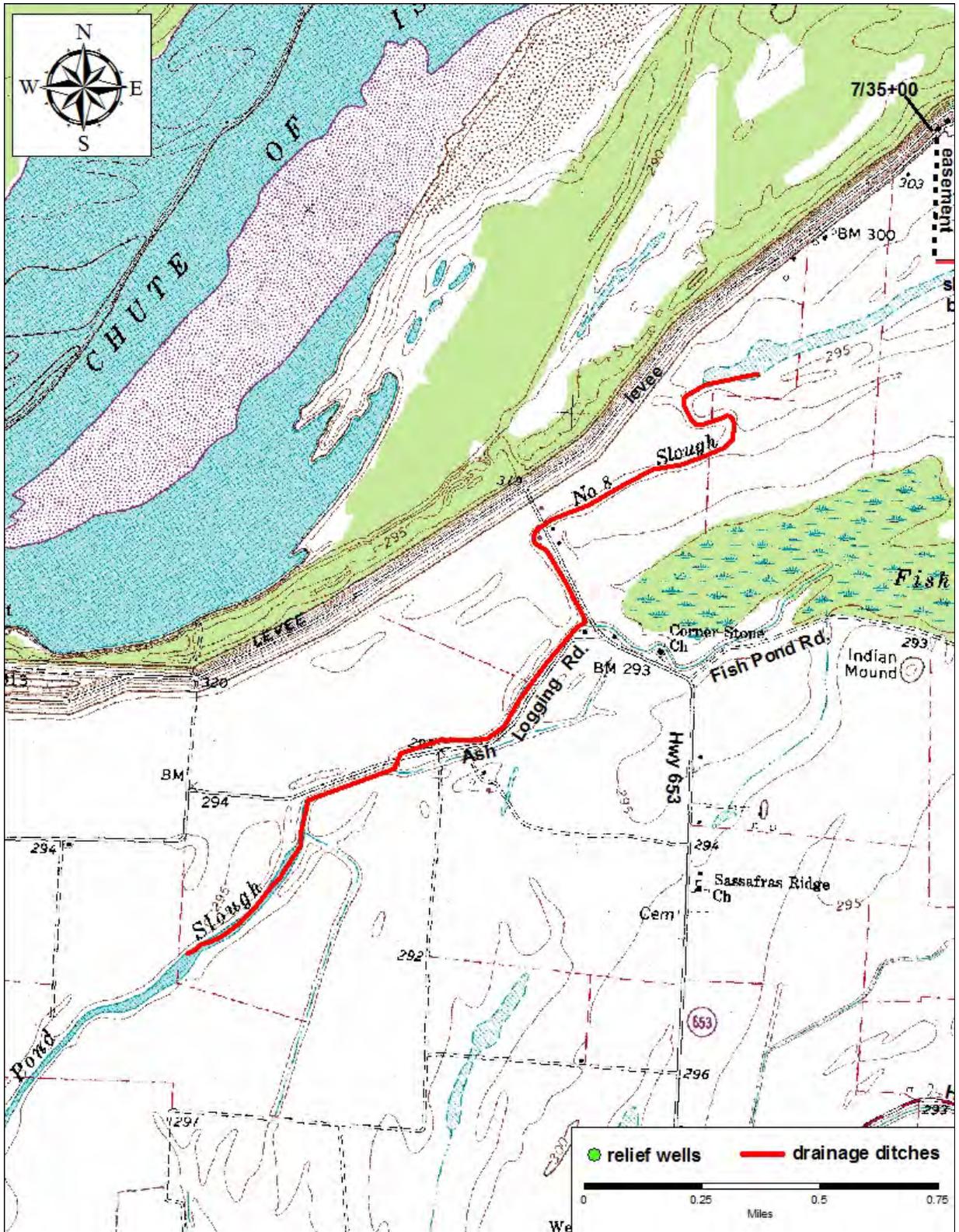


Figure 2. Project Location, Middle Area, Island 8 Seepage Control, Fulton County, Kentucky.

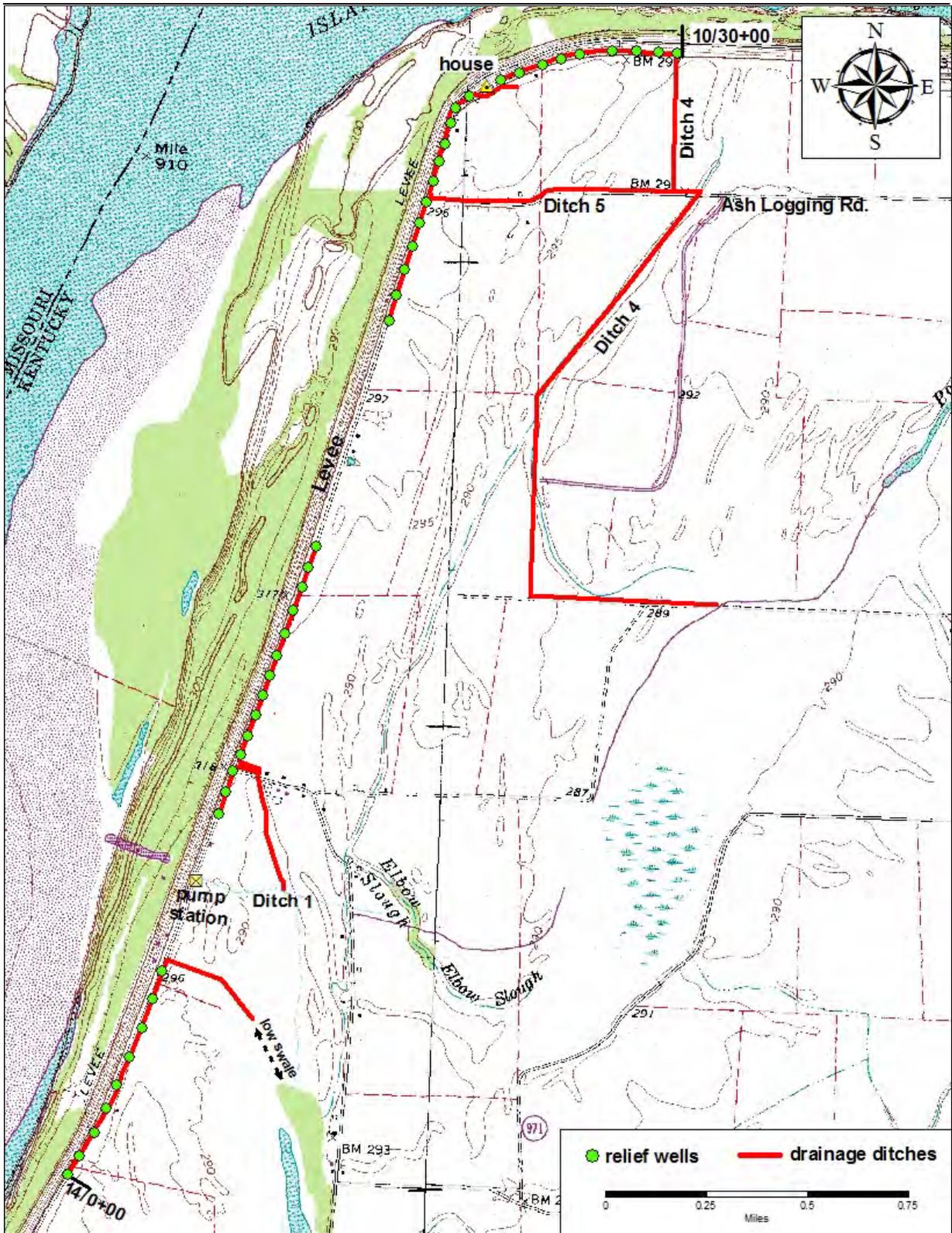


Figure 3. Project Location, Western End, Island 8 Seepage Control, Fulton County, Kentucky.