DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

REPLY TO ATTENTION OF:
Regional Planning and Environmental Division North
Environmental Compliance Section (CEMVP-PD-C)

10 December 2019

RE: Sainte Genevieve Levee System No. 2 PL 84-99

Dear Sir or Madam:

We are providing for your review a Draft Environmental Assessment (EA) and unsigned Finding of No Significant Impact for the Sainte Genevieve Levee System No. 2, which incurred levee damages during the spring flood event of 2019. Please note that the Finding of No Significant Impact is unsigned. This document will be signed into effect only after having carefully considered comments received as a result of this public review.

An electronic copy of the EA and unsigned FONSI can be obtained from the St. Louis District's website at

http://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/DRAFTEASteGen2PL849910Dec2019.pdf

Several levees throughout the St. Louis District were damaged during the spring flooding in 2017. The Sainte Genevieve County Levee District No. 2 (LD) has requested assistance under Public Law 84-99, which provides repair assistance for flood damaged levees active in the USACE Rehabilitation and Inspection Program. We are in the process of preparing plans and specifications and completing all necessary documentation including environmental compliance documents.

We invite your comments related to the content of the environmental assessment. Please address your comments or questions to Dr. Teri Allen of the Environmental Compliance Section (CEMVP-PD-C), at telephone number (314) 331-8084, or e-mail at Teri.C.Allen@usace.army.mil. Please respond by close of business on Friday, 10 January 2020, in order to have your comments considered.

Thank you,

TC Allen

Teri C Allen
Chief, Environmental Compliance Section

DRAFT ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT

LEVEE REPAIR (PL 84-99)

STE. GENEVIEVE COUNTY LEVEE DISTRICT NO. 2
STE. GENEVIEVE COUNTY, MISSOURI
RANDOLPH COUNTY, ILLINOIS
MISSISSIPPI RIVER, MILES 122 to 113

DECEMBER 2019

Regional Planning and Environmental Division North
Environmental Compliance Section
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis Missouri 63103-2833

US Army Corps of Engineers®
REGIONAL PLANNING & ENVIRONMENTAL NORTH
ST. PAUL•ROCK ISLAND•ST. LOUIS

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1. INTRODUCTION

This document is an Environmental Assessment (EA) with an attached unsigned Finding of No Significant Impact (FONSI) for levee repairs to the Sainte Genevieve Levee System No. 2. The purpose of this EA is to evaluate potential environmental impacts of proposed levee repairs, determine if the environmental impacts rise to the level of significant, and to serve as a record of interagency coordination for the emergency rehabilitation actions.

1.1. Project Authorization

Emergency actions undertaken by USACE to repair flood control works damaged or destroyed by flooding are authorized by Public Law 84-99, as amended by Section 206 of the Flood Control Act of 1962 (hereafter referred to as PL 84-99). USACE regulations covering these and other emergency rehabilitation activities are contained in the Rehabilitation Code 910-300 of ER 500-1-1 (33 C.F.R. 203). The Code states that actions taken to *restore facilities to pre-disaster conditions* under PL 84-99 will not be construed to be either major federal actions or as having significant effects. However, the effect of rehabilitation on the environment must be considered. This includes the effects of construction on endangered species (PL 93-205 and Appendix B of ER 1105-2-50) and archeological and historic properties (Chapter 3 of ER 1105-2-50). Since the Sainte Genevieve No. 2 Levee System is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99.

1.2. PL 84-99 Levee Repairs - Emergency Provision for Environmental Compliance

On 4 October 2019, a Memorandum for Record was signed by MAJ John Miller, Deputy Commander, giving approval to complete PL 84-99 Levee Repairs, resulting from 2019 flooding, using the emergency provisions of Engineering Regulations (ER) 500-1-1, Emergency Employment of Army and Other Resources Civil Emergency Management Program; ER 200-2-2 Procedures for Implementing the National Environmental Policy Act (NEPA); and 33 CFR Part 325.2(e)(4) and 36 CFR Part 800.12 (b)(2), Protection of Historic Properties.

These levee repairs are considered to be emergency actions because of the following:

a. The need to complete construction of levee repairs as soon as possible and prior to additional flooding or inundation.

b. The risk of economic loss from additional flooding of communities along rivers within the St. Louis District, their tributaries, and adjacent agricultural lands.

Neither the implementation of the Emergency Action provision within ER 200-2-2, nor the use of a categorical exclusion, exempts the action from compliance with any other Federal law (e.g.,

Endangered Species Act, Fish and Wildlife Coordination Act, Bald and Golden Eagle Protection Act, National Historic Preservation Act, Clean Water Act, etc.). All environmental evaluation, coordination, consultation, and compliance including acquiring any necessary permits will be completed concurrent with, or following, the emergency repairs (Attachment A).

1.3. Project Location and Scope

The The Sainte Genevieve Levee System No. 2 is a non-federally constructed and locally operated and maintained levee system. The nonfederal sponsor is the Sainte Genevieve County Levee District No. 2. The Sainte Genevieve Levee System No. 2 is adjacent to the right descending bank of the Mississippi River from approximately river mile 122 to mile 113 above the confluence with the Ohio River (Figure 1). It is located about 63 miles south of St. Louis, Missouri, in Sainte Genevieve County, Missouri, and a small portion of the levee district is located in Randolph County, Illinois, due to the shifting channel of the Mississippi River (Figure 2). The northern flank of the levee borders Sainte Genevieve No.3 Levee System near South Gabouri Creek and the south flank shares a border with the Kaskaskia Island Levee System (Figures 1-2). The leveed area provides flood risk reduction to approximately 7,859 acres used primarily for agricultural land, as well as a few residences, and four miles of rail line. The levee system was designed for a 7% (15-year frequency) chance exceedance flood with two feet of freeboard.

1.4. Project Purpose and Need

The Sainte Genevieve Levee System No. 2 sustained damages as a result of high water events during the spring of 2019. The purpose of this federal action is to restore the level of flood protection to that which existed prior to the 2019 flood events. There is a need for repairs, because flood damages reduced flood protection (from 15-year frequency flood protection to less than 2-year frequency flood protection) provided by the levee, making the district vulnerable to frequent flooding. Without federal involvement through the PL 84-99 program, it is unlikely that the Sainte Genevieve County Levee District No. 2 has the financial ability to restore the level of protection according to Corps of Engineers standards.

1.5. Damage Description

The damages to the Sainte Genevieve Levee System No. 2 sustained from the high water events and the methods by which these damage types are typically repaired are described in Table 1.

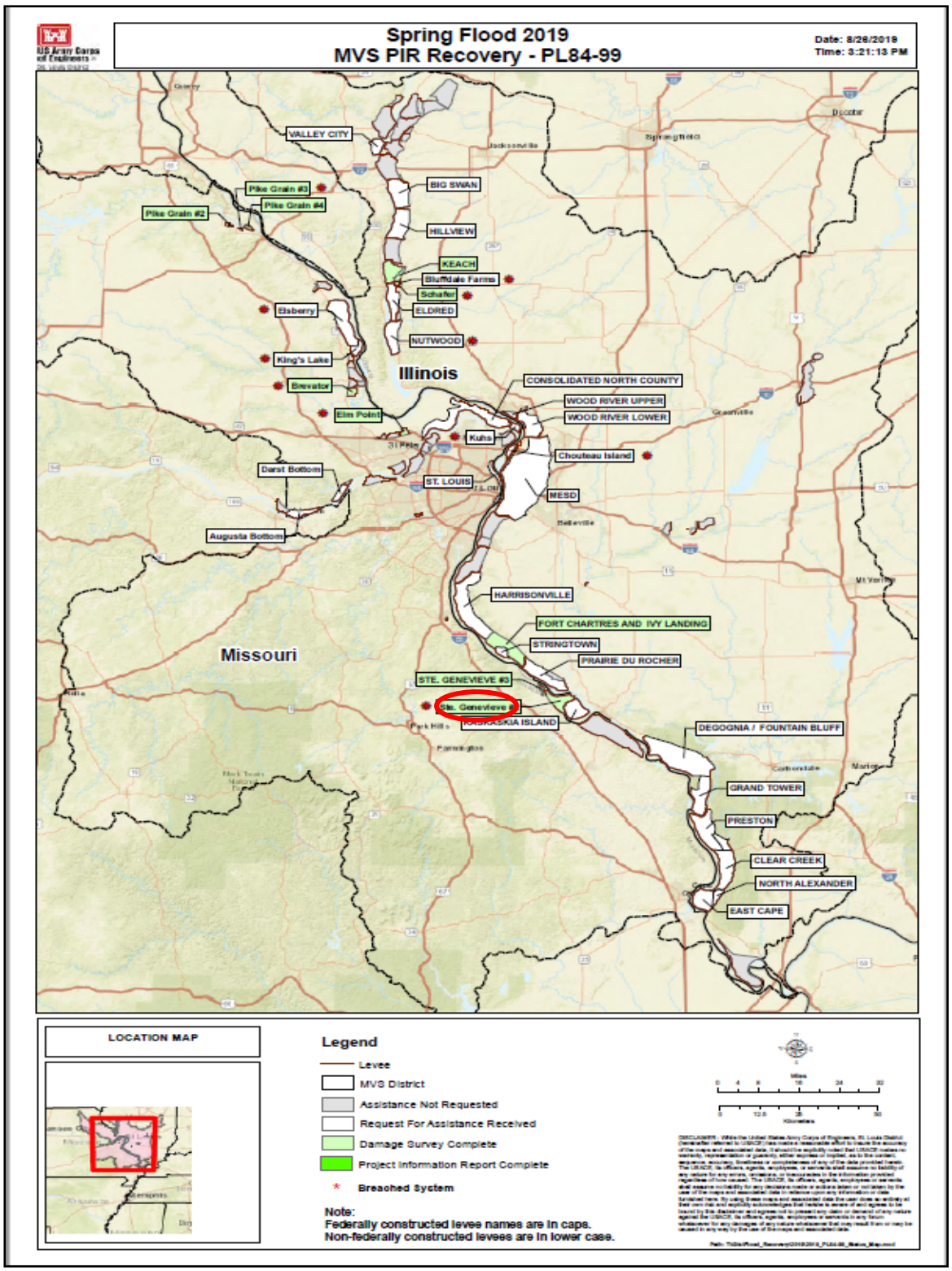

Figure 1. General Location Map of the Sainte Genevieve Levee System No. 2.

Figure 2. Overview of the Sainte Genevieve Levee System No. 2, located in Sainte Genevieve County, MO, and Randolph County, IL.

Table 1. Description of typical flood-related levee damage and the methods by which these damage types are typically repaired.

Damage Type	Damage Description	Typical Repair Method
Breach	A rupture, break, or gap in the levee system, measured in yards^3.	Stripping, preparing, placing embankment, and compacting in lifts.
Erosion Type III	Major erosion greater than 18 inches deep, measured in yards^3.	Stripping, preparing, placing embankment, and compacting in lifts.
Erosion Type II	Moderate erosion between 12 and 18 inches deep, measured in yards^3.	Stripping, disking, filling, and compacting.
Erosion Type I	Wave wash / minor erosion less than 12 inches deep, measured in linear feet.	Disking and compacting.

1.5.2. List of Damages at Sainte Genevieve Levee System No. 2

The Sainte Genevieve Levee System No. 2 suffered a variety of damage types, including two breaches (one with the scour hole extending through an adjacent stream), as well as Erosion Types I, II, and III. The damages are described by type and damage area in Table 2.

TABLE 2. DESCRIPTION OF 2019 FLOOD-RELATED DAMAGES AND LOCATIONS AT SAINTE GENEVIEVE LEVEE SYSTEM NO. 2.

LOCATION	Damage Type	Damage Description
DAMAGE AREA 1	Erosion Type I	Length is 8,105 feet; average width is 25 feet; depth is <12”; located leveeside.
DAMAGE AREA 2	Erosion Type I	Length is 2,395 feet; average width is 15 feet; depth is <12”; located leveeside.
DAMAGE AREA 3	Erosion Type I	Length is 16,508 feet; average width is 35 feet; depth is <12”; located leveeside.
DAMAGE AREA 4	Erosion Type III	Length is 30 feet; width averages 13 feet; depth is >18”; located leveeside.
DAMAGE AREA 5	Erosion Type III	Length is 230 feet; width averages 20 feet; depth is >18”; located leveeside.
DAMAGE AREA 6	Erosion Type III	Length is 120 feet; width averages 15 feet; depth is >18”; located leveeside.
DAMAGE AREA 7	Erosion Type III	Length is 20 feet; width averages 15 feet; depth is >18”; located leveeside and crown of levee.
DAMAGE AREA 8	Erosion Type III	Length is 20 feet; width averages 15 feet; depth is >18”; located leveeside and crown of levee.
DAMAGE AREA 9	Erosion Type II	Length is 60 feet; width averages 48 feet; depth is >12” to <18”; located leveeside and crown of levee.
DAMAGE AREA 10	Breach #1	Length is 240’. The scour hole extends 120’ from the leveed side levee toe, and 14’ from the unprotected side levee toe. The scour extends southwest into a ramp from the levee, and through an existing creek on the unprotected side. The creek limits the space for reestablishing a foundation for the replacement levee section. The scour damage to the creek bottom may affect its stability, potentially incising and expanding to affect the levee section.
DAMAGE AREA 11	Breach #2	Length is 155’. The scour hole that extends 50’ from the leveed side levee toe. The precise depth of the scour hole was not determined.

Figure 3 shows Damage Area 1. Figure 4 shows Damage Area 2. Figure 5 shows Damage Areas 3-7. Figure 6 shows Damage Areas 8-11.

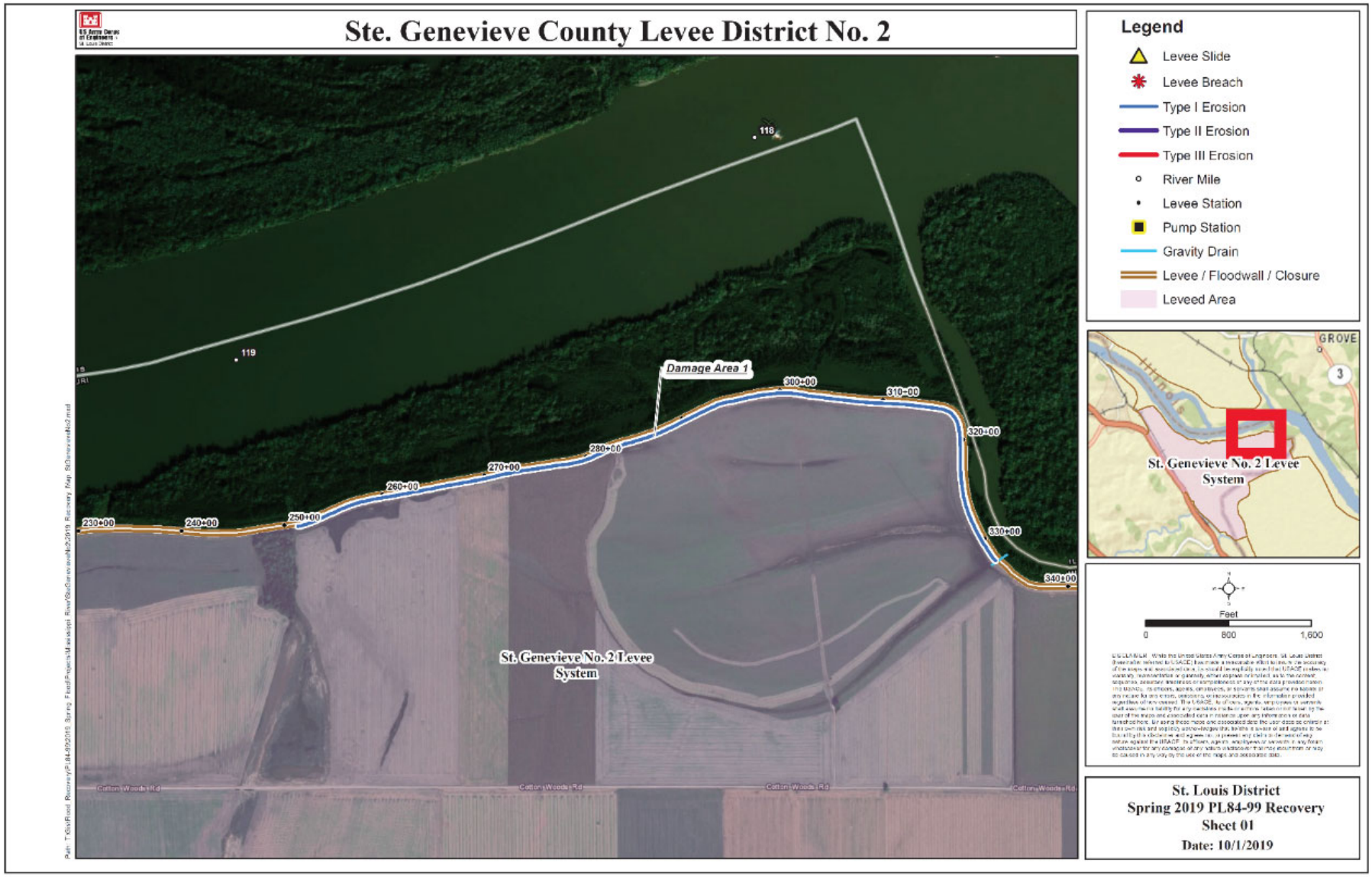

Figure 3. Sainte Genevieve Levee System No. 2 Damage Area 1.

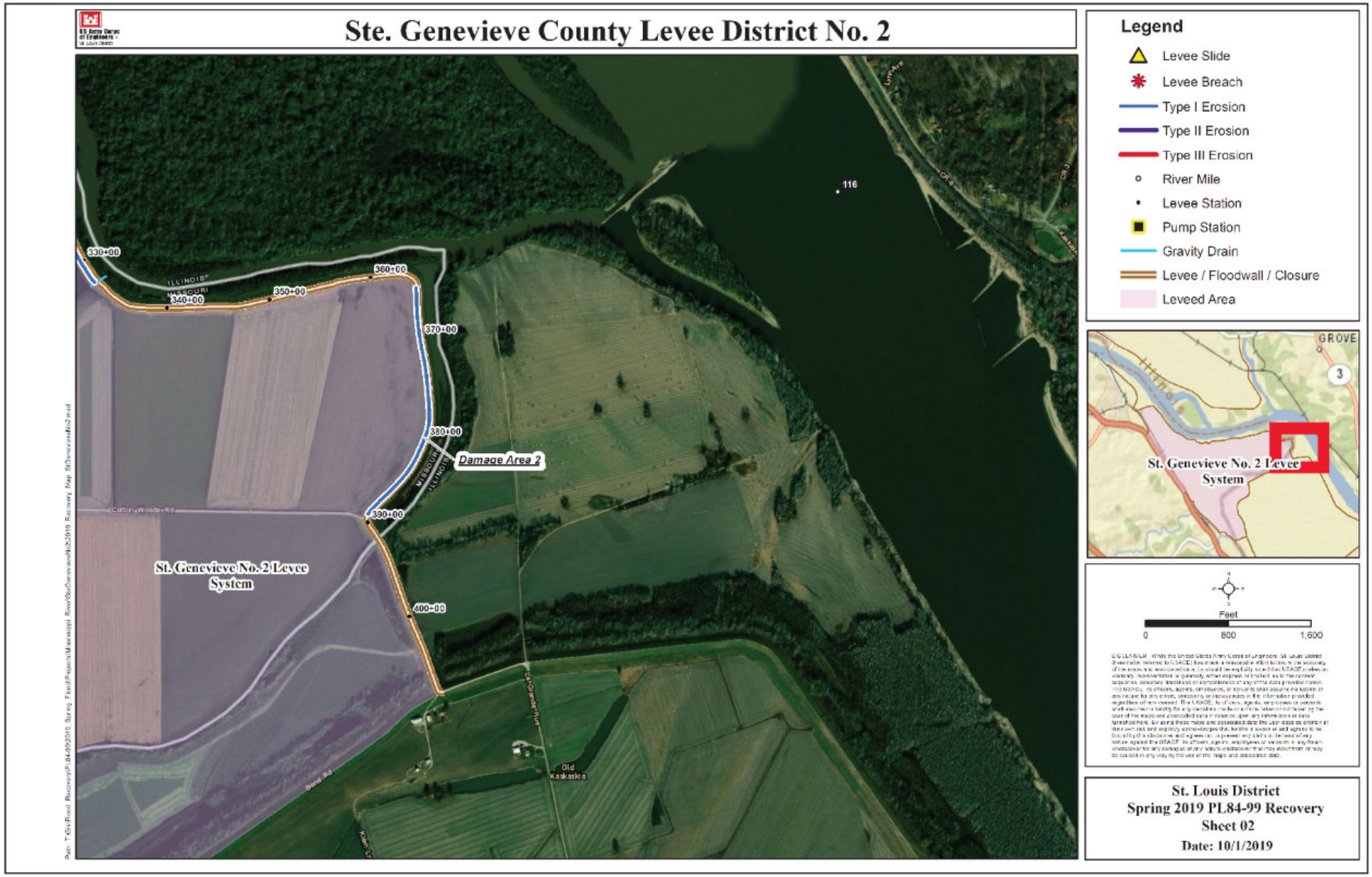

Figure 4. Sainte Genevieve Levee System No. 2 Damage Area 2.

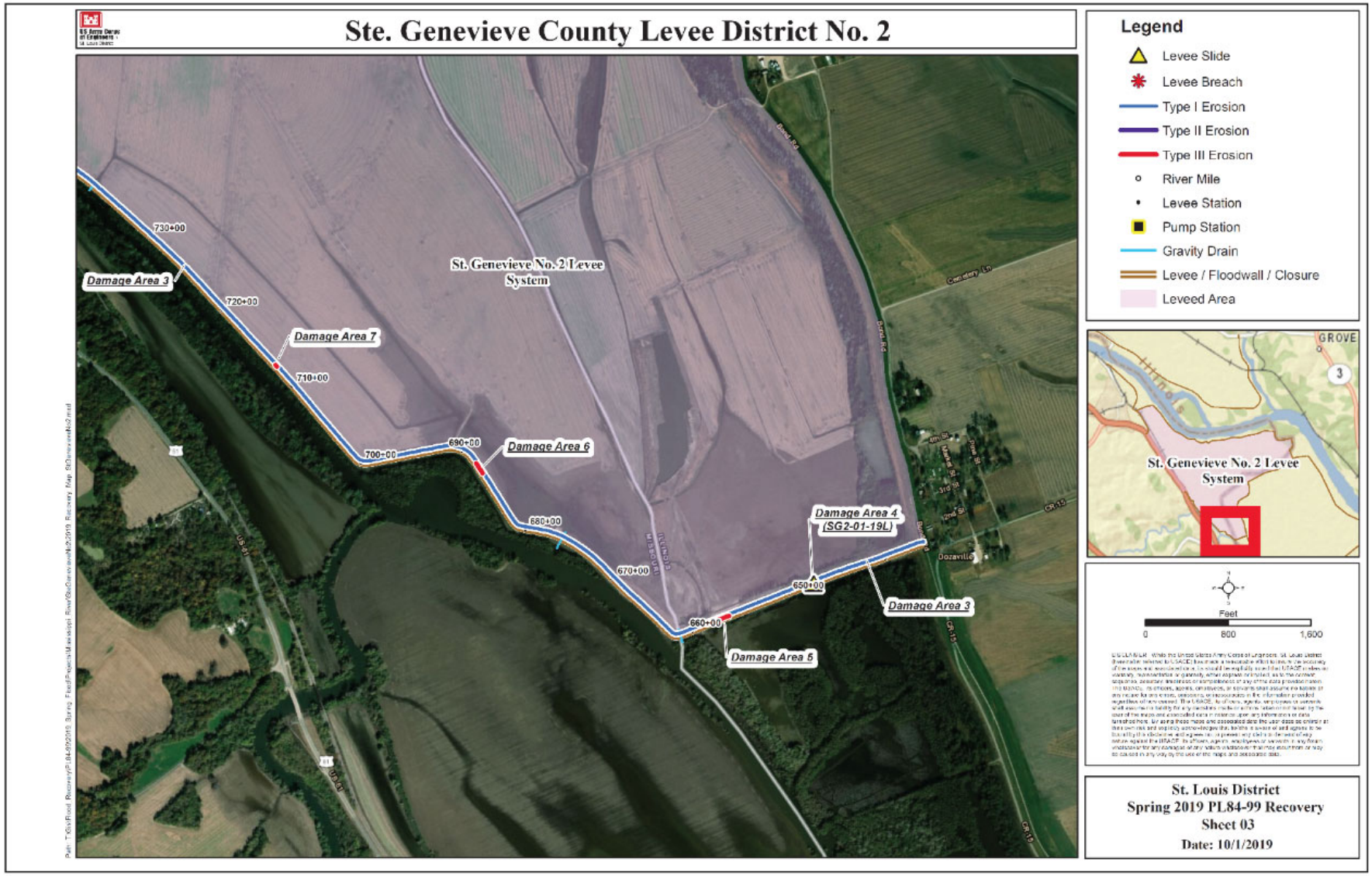

Figure 5. Sainte Genevieve Levee System No. 2 Damage Areas 3-7.

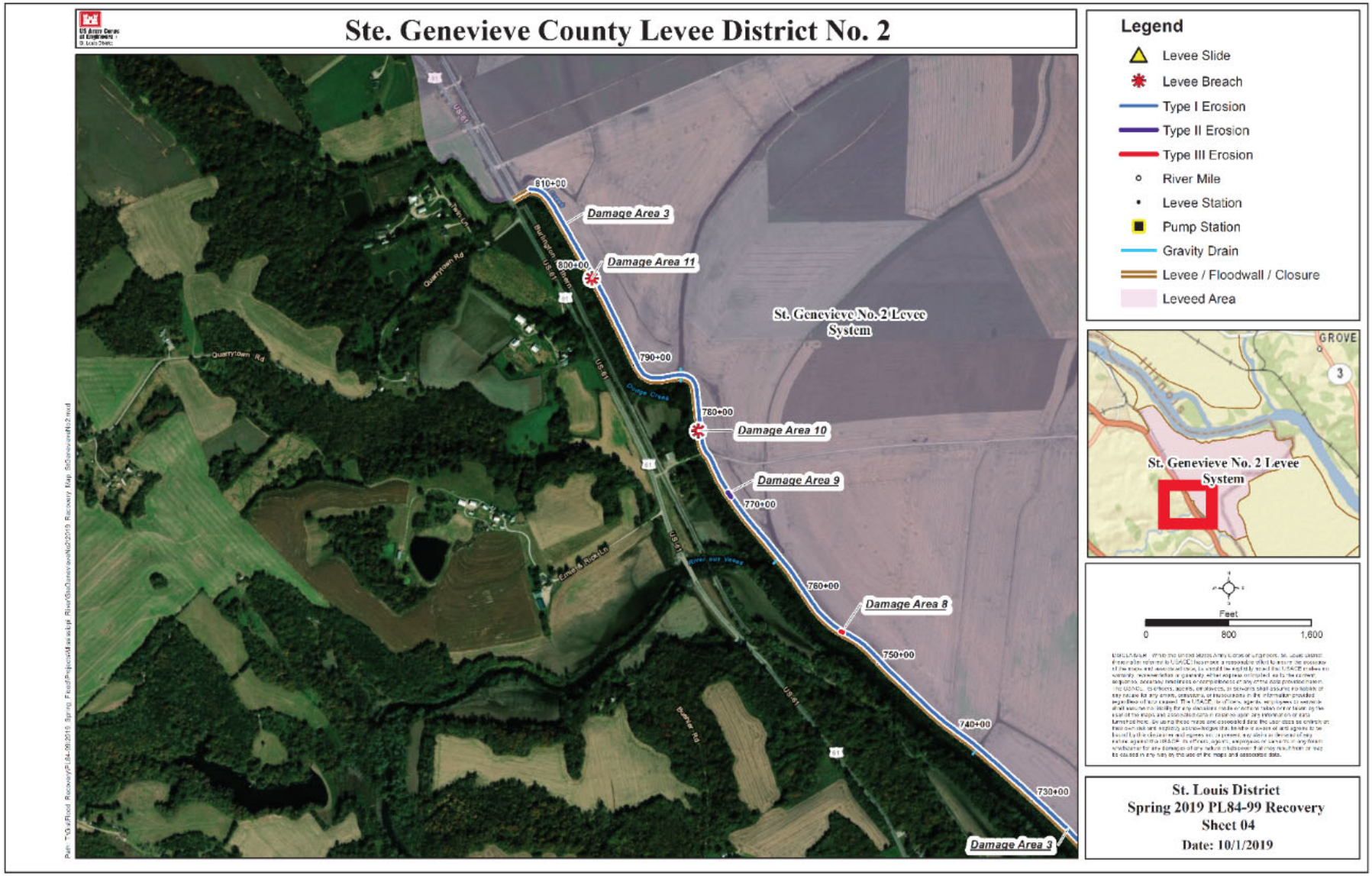

Figure 6. Sainte Genevieve Levee System No. 2 Damage Areas 8-11.

2. PROJECT ALTERNATIVES CONSIDERED

This section describes and compares the alternatives based on their geotechnical, engineering design, economic, and environmental impact and achievement of project objectives for the damaged Sainte Genevieve Levee System No. 2. NEPA requires that in analyzing alternatives to a proposed action, a federal agency must consider an alternative of "No Action." Likewise, Section 73 of the WRDA of 1974 (PL 93-251) requires federal agencies to give consideration to nonstructural measures to reduce or prevent flood damage.

2.1. Alternative 1 - No Action (Future Without Project)

Under the No Action Alternative, the federal government would not repair the damages to Sainte Genevieve Levee System No. 2. It is possible that the Levee District would make repairs without federal assistance. Environmental impacts of repairs made by the Levee District would be similar to the tentatively selected alternative, except that the repair duration may differ and the environmental protections may be reduced. However, due to the uncertainty of the Levee District making all necessary repairs, **the environmental impacts of allowing the damage to remain unrepaired are regarded as the No Action Alternative**. This would presumably perpetuate a state of reduced levee structural integrity. The levee would be susceptible to further erosion at the damaged sites. The current damages would decrease flood protection, thereby increasing risks to individuals, structures, businesses, and agricultural activities within the leveed area.

2.2. Alternative 2 - Nonstructural Measures

Section 73 of the WRDA of 1974 (PL 93-251) requires federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. Nonstructural measures reduce flood damages without significantly altering the nature or extent of flooding. Damage reduction from nonstructural measures is accomplished by changing the land use within the floodplains, or by accommodating existing uses to the flood hazard. Examples include flood proofing, relocation of structures such as levees, flood warning and preparedness systems, and regulation of floodplain uses. A flood warning system would do little to reduce structural and agricultural damages. Flood proofing or relocation is not desirable to the Sainte Genevieve County Levee District No. 2, because it would result in loss of numerous acres of agricultural land, and the present land owners desire to continue agricultural use.

Under PL 84-99, the Corps has the authority to pursue a non-structural alternative only if the project sponsor requests such an alternative.

> *"There is hereby authorized an emergency fund to be expended in preparation for emergency response to any natural disaster, in flood fighting and rescue operations, or*

> *in the repair or restoration of any flood control work threatened or destroyed by flood, including the strengthening, raising, extending, or other modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the work for flood control, or in implementation of* ***nonstructural alternatives to the repair or restoration of such flood control work if requested by the non-federal sponsor.****"*

Additionally, ER 500-1-1, dated 30 September 2001, states that:

> *"Under PL 84-99, the Chief of Engineers is authorized,* ***when requested by the non-Federal public sponsor****, to implement nonstructural alternatives (NSA's) to the rehabilitation, repair, or restoration of flood control works damaged by floods or coastal storms. The option of implementing an NSA project (NSAP) in lieu of a structural repair or restoration is available only to non-Federal public sponsors of flood control works (FCW's) eligible for Rehabilitation Assistance in accordance with this regulation, and* ***only upon the written request of such non-Federal public sponsors****.* ***The principal purposes of an NSAP are for floodplain restoration, provision or restoration of floodways; and/or reduction of future flood damages and associated (FCW) repair costs****. [NOTE: Habitat restoration is recognized as being a significant benefit that can be achieved with an NSAP, and may be a significant component of an NSAP,* ***but is not considered to be a principal purpose under this authority****.]*

The Genevieve County Levee District No. 2 declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further analysis in this EA.

2.3. Alternative 3 – Structural Repair of Levees with Federal Assistance

Under this alternative, at the request of the Sainte Genevieve County Levee District No. 2, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Sainte Genevieve Levee System No. 2 is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99. The Structural Repair alternative restores the levee system to the pre-event condition and is fully supported and desired by the Sponsor.

2.4. Tentatively Selected Plan - Structural Repair of Levee Segment with Federal Assistance

Alternative 3, structural repair of the existing levee system to pre-flood condition, is the Tentatively Selected Plan. A team including members of the St. Louis District's Engineering Design Branch and Geotechnical Engineering Branch were involved with developing the most economical and efficient design for repair.

Repairs – Repairs for the Sainte Genevieve Levee System No. 2 would consists of restoring protection along the previous alignment versus establishing a new alignment in the areas of the breaches. Structural repair would reconstruct the levee to pre-flood grade at the location of the erosion. Specifically, the damaged areas of the Sainte Genevieve No. 2 Levee System levee would be reconstructed with suitable semi-compacted impervious material until the original slope and grade of the levee is attained. In areas where filling is required or breached areas, impervious borrow material and pervious sand would be added to the repair sites to restore the areas to pre-flood grade. All repair areas would then be reseeded when conditions are suitable for grass germination to prevent or minimize erosion. Specific damage repairs include the following:

- Erosion Type I damages would be repaired by regrading the eroded areas using embankment material from adjacent undamaged levee sections, and then compacted. After compaction, the repaired areas would be seeded by spreading seed, fertilizer, and mulch on the disturbed areas. The areas would be watered as needed. This is the recommended repair method for Areas 1, 2, and 3. Figure 7 shows the typical repair design for Erosion Type I damages. This is the recommended repair method for Areas 1, 2, and 3.

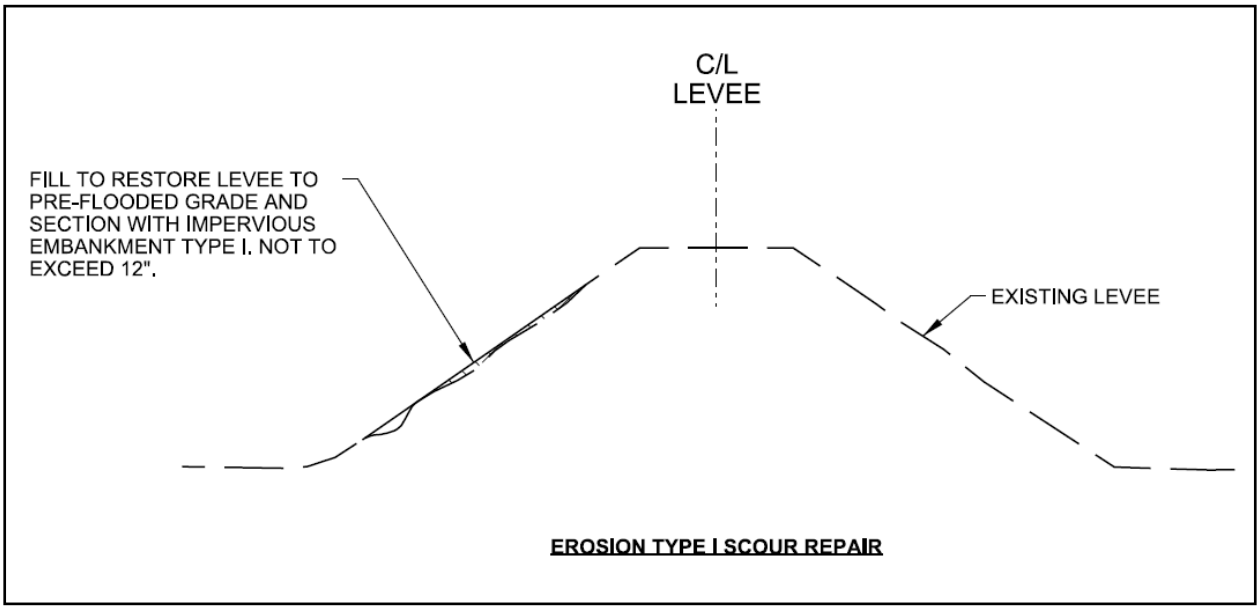

Figure 7. Typical section for Erosion Type I repair.

- Erosion Type II damages would be repaired by filling in the eroded areas using embankment material from designated borrow area(s). Material would be excavated from approved borrow sites, hauled to the damaged locations, placed in the eroded areas, and then compacted. After compaction, the repaired areas would be seeded by spreading seed, fertilizer, and mulch on the disturbed areas. The areas would be watered as needed. This is the recommended repair method for Area 9 (Figures 8-9).

Figure 8. Example of Erosion Type II at the Sainte Genevieve Levee System No. 2.

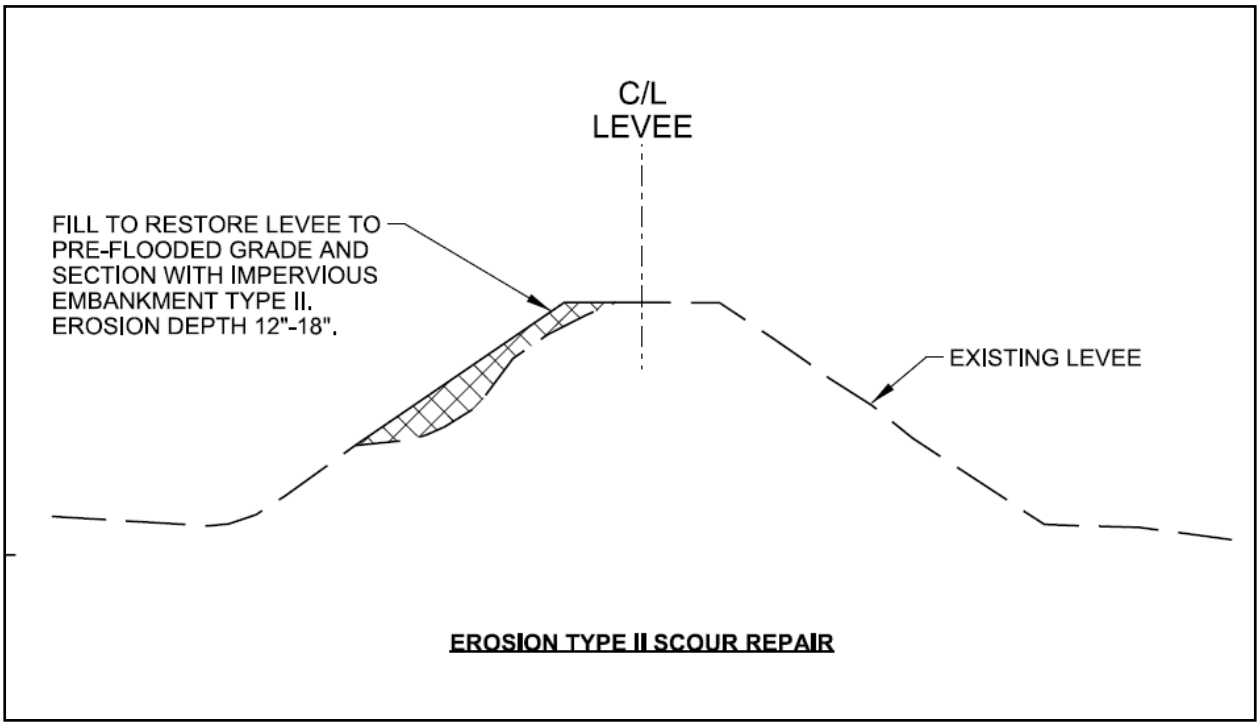

Figure 9. Typical section for Erosion Type II repair.

- Erosion Type III damages would be repaired by filling in the eroded areas using embankment material from designated borrow area(s). Material would be excavated from approved borrow sites, hauled to the damaged locations, placed in the eroded areas, and then compacted. After compaction, the repaired areas would be seeded by spreading seed, fertilizer, and mulch on the disturbed areas. The areas would be watered as needed. This is the recommended repair method for Areas 4, 5, 6, 7, and 8. Figure 10 shows an example of Erosion Type III. Figure 11 illustrates a typical repair for Erosion Type III.

Figure 10. Example of Erosion Type III at the Sainte Genevieve Levee System No. 2.

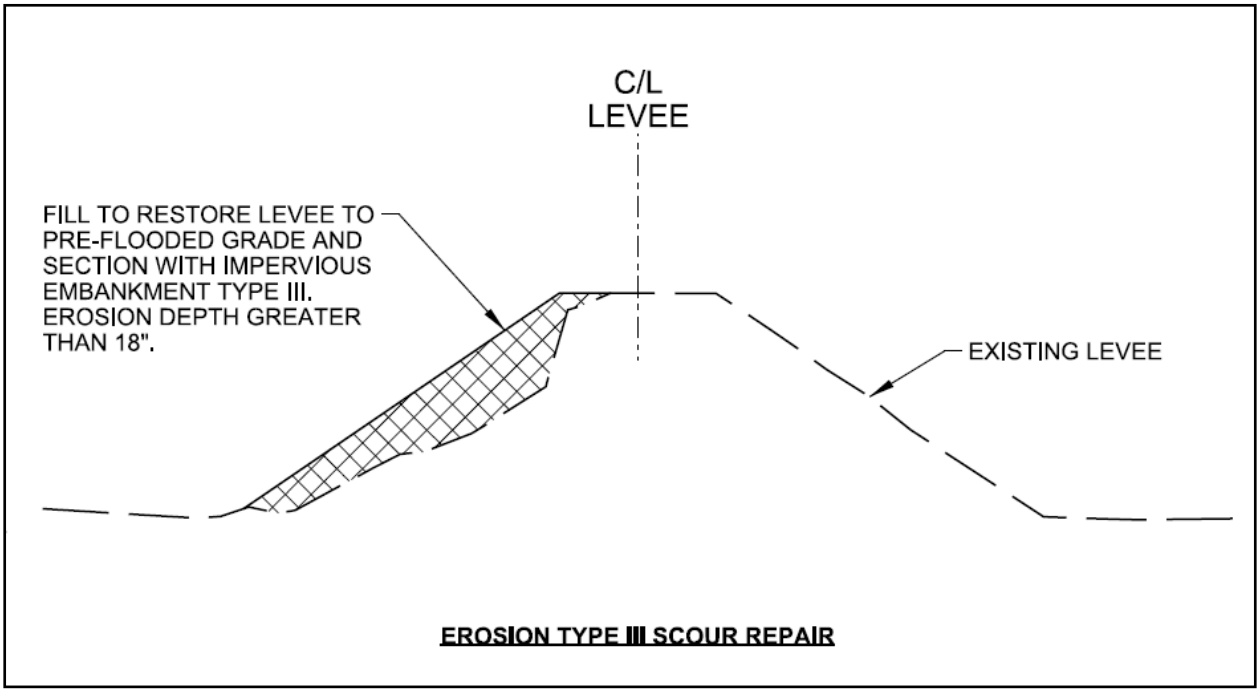

Figure 11. Typical section for Erosion Type III repair.

- Levee breaches would be repaired by restoring the levee closely to the original alignment by filling in the scoured areas using pervious material obtained from designated borrow site(s), transported on designated haul roads, and then placed in the eroded areas. The pervious material would be compacted for all layers above the water surface. The pervious material would then be capped with impervious materials obtained and transported from designated borrow sites. The repaired areas would be compacted. Repaired earthen areas would seeded by spreading seed, fertilizer, and mulch on the disturbed areas. The areas would be watered as needed. If the levee crown had surfacing prior to the flood damage, it would be surfaced with crushed stone over a geotextile fabric and compacted in lieu of seeding. This is the recommended repair method for Areas 10 and 11.

  The adjacent creek at Breach 1 would also be restored, following a slightly altered alignment within the scour hole and near the tie-in to the northern intact levee section to establish a reasonable offset from the levee foundation for stability and seepage resilience. Stone grade control within the creek channel at the upstream edge of the scour is recommended to ensure a head cut does not form and cause erosion upstream and into the levee or foundation. The creek will be repaired following the edge of the breach scour by filling with clean sand material up to the water level at the time of construction, and then capped with compacted or semi-compacted clay material. The contractor will establish necessary systems to ensure dry working conditions when placing fine grained material, and ensure negligible silt or clay discharge as required by the “Care of Water” requirements in the contract specifications. At the upstream end of the scour, the existing creek bank will be partially excavated to allow for a smooth transition from the existing to the new channel, and a graded stone riprap sill structure will be constructed to prevent head cutting upstream of the damaged area. The downstream end of the new channel will tie into the existing bank near where the low-water crossing previously existed.

Figures 12-13 show Breach 1; Figure 14 shows the creek realignment required as a result of Breach 1; Figure 15 shows typical sections for stream restoration and grade control repairs at Breach 1; Figure 16 shows Breach 2. Figure 17 shows the limits of the breaches. Figures 18-19 show the repair profiles for each breach.

Figure 12. Photo of Breach 1 (Damage Area 10) with scour hole extending through the nearby creek. The damages occurred as a result of the 2019 spring flood at Sainte Genevieve Levee System No. 2.

Figure 13. Ramp from the levee, damaged at Breach 1 during the 2019 spring flood.

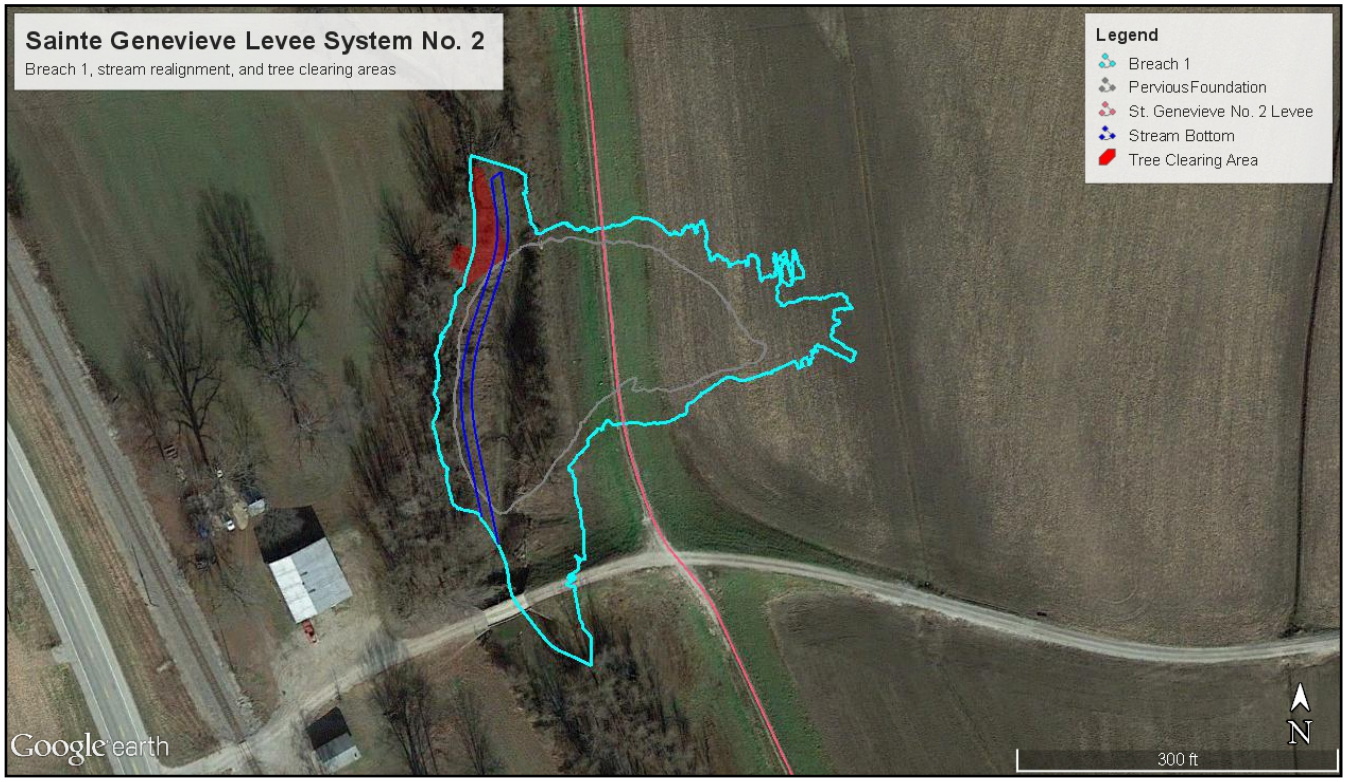

Figure 14. Stream realignment required as a result of Breach 1 at Sainte Genevieve Levee System No. 2.

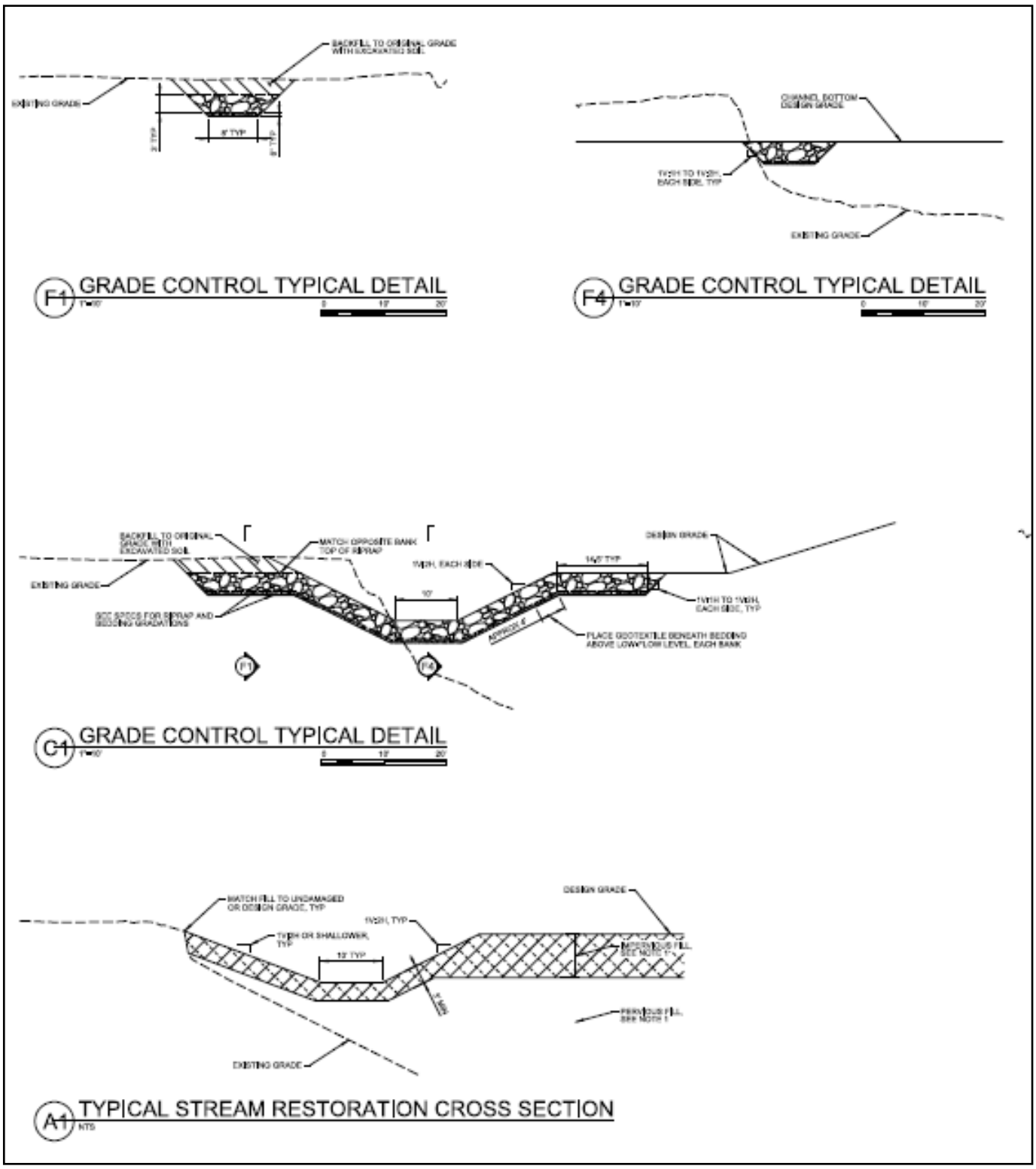

Figure 15. Typical sections for stream restoration and grade control repairs at Breach 1.

Figure 16. Photo of Breach 2 (Damage Area 11). The damages occurred as a result of the 2019 spring flood at Sainte Genevieve Levee System No. 2.

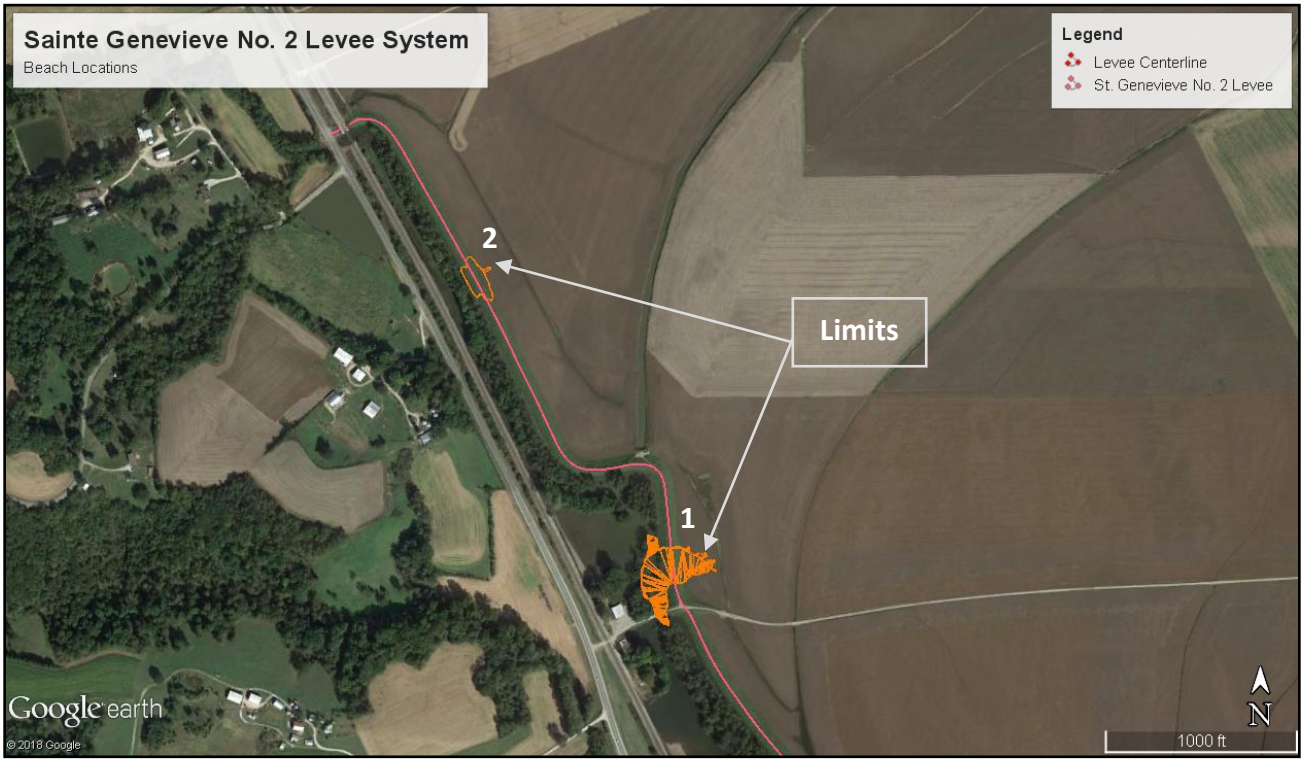

Figure 17. Limits of breaches shown in orange (Damage Areas 10-11). Breach 1 through the creek requires rip rap stabilization and grade control upon repair.

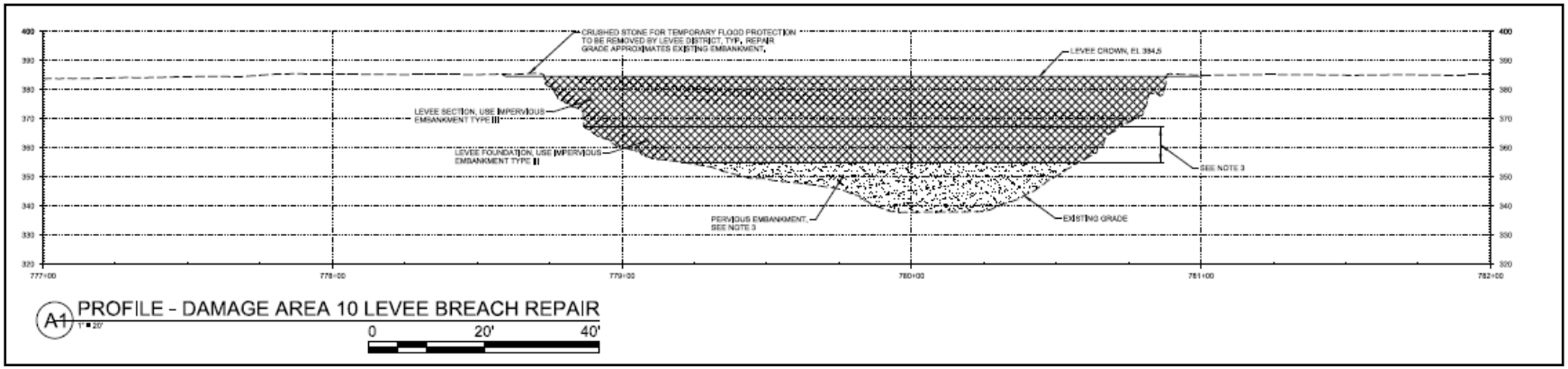

Figure 18. Repair profile for Breach 1 (Damage Area 10) Sainte Genevieve Levee System No. 2.

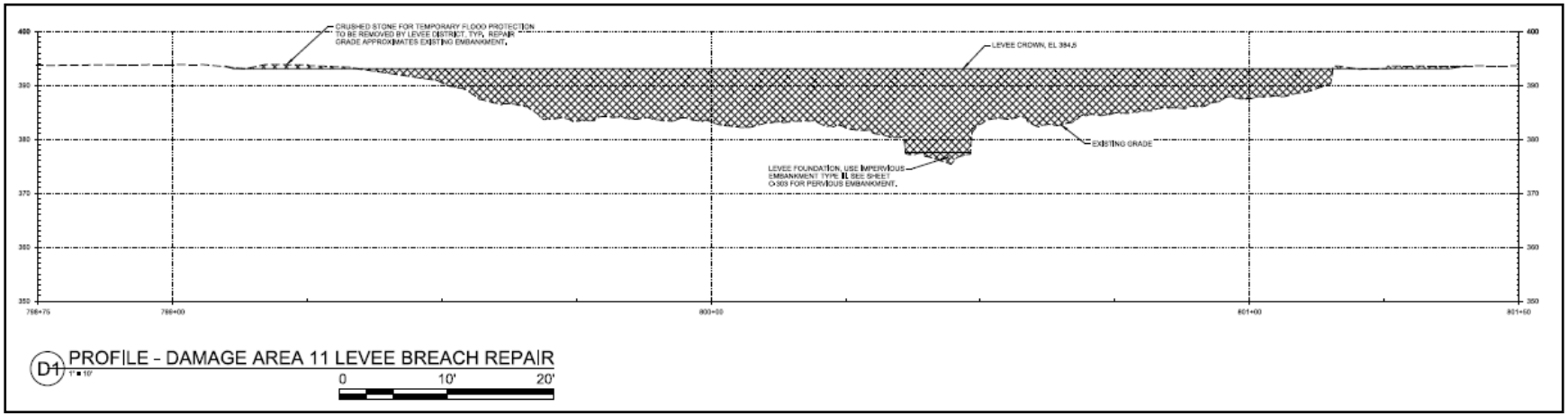

Figure 19. Repair profile for Breach 2 (Damage Area 11) at Sainte Genevieve Levee System No. 2.

Borrow Material – All repair pervious and impervious borrow material would be excavated from existing agricultural land, shown as borrow sites A-E (Figure 20) within (sites B, C, D) and adjacent to the leveed area (sites A and E). No tree clearing is required to access borrow material. Borrow sites A – D did not exhibit any wetland characteristics. Borrow site E exhibited some wetland characteristics, however all areas except site A are currently being farmed. Thus, no USACE Regulatory permits are required for borrow material. Before obtaining any material, the vegetation would need to be stripped off, stockpiled, and then re-deposited as top dress on the disturbed area. After borrow material is removed, usually to a depth of no greater than 2-4 feet, the areas would be graded and put back into agricultural production if they were being farmed prior to being used as a borrow site.

Construction Limits – Construction limits have been established in the immediate vicinity of the repair and borrow areas (Figure 21).

Access and Staging Areas – Staging areas and access routes to the repair sites would be established to avoid and minimize environmental impacts. Existing access points such as roads, rights of way, and levees located within a reasonable distance to the construction sites would be utilized. Haul road locations and staging areas would be restored to their pre-project condition after project completion.

Final Plans and Specifications – Due to the emergency nature of the levee repairs, plans & specs would be finalized for construction during the NEPA process. Construction would commence as soon as possible thereafter and is anticipated to be completed within one construction season.

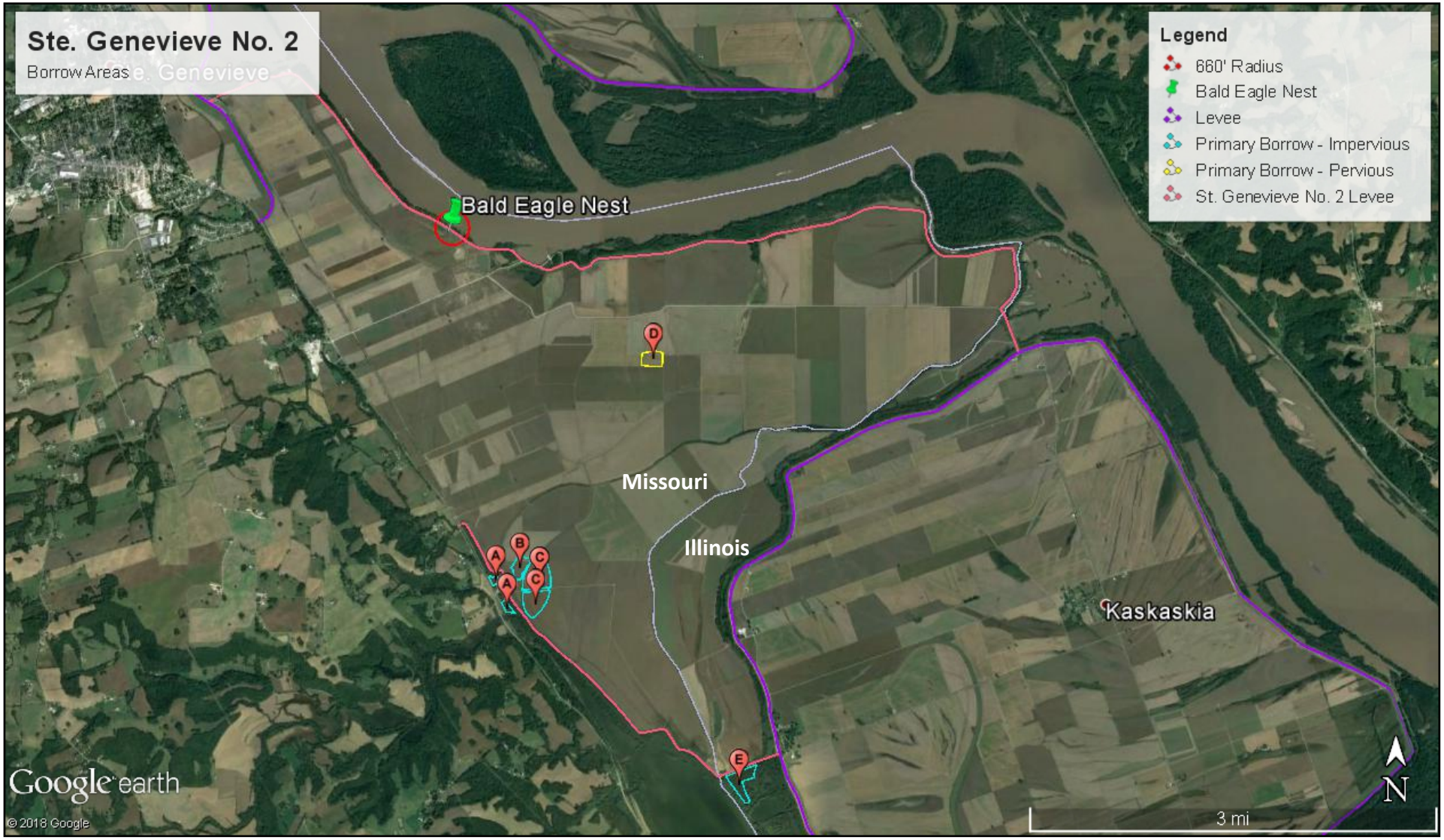

Figure 20. Location of borrow sites for the repair of damages to Sainte Genevieve Levee System No. 2 resulting from the spring 2019 flood.

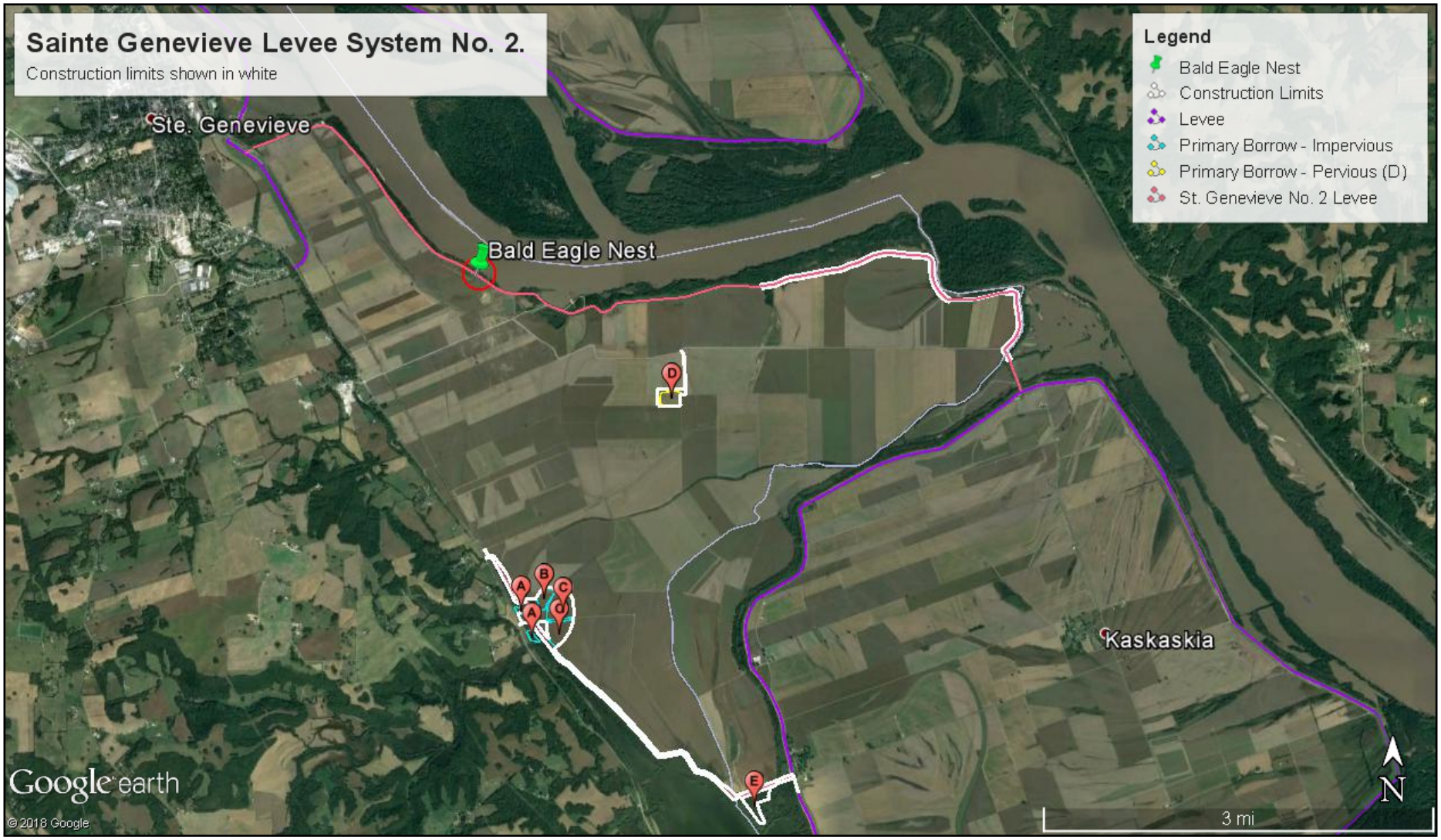

Figure 21. Construction limits at Sainte Genevieve Levee System No. 2 shown in white.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter summarizes the biological, physical, and social environments of the affected project area relative to the alternatives under consideration. Relevant resources are addressed in terms of their present condition, their projected condition under the No Action alternative and the expected effects of the Tentatively Selected Plan.

3.1. Physical Resources

3.1.1. Land Use/Land Cover

The Sainte Genevieve County Levee District No. 2 is located on the floodplain of the Mississippi River. Because of the fertility of the soil and moisture, the land is prized for its agricultural productivity. Thus, the vast majority of the land within the leveed area is used for agriculture. Levees have been constructed to the federal standard to reduce the likelihood of inundation within the leveed area to a 15-year return period; and to provide a reasonable amount of certainty of producing crops in most years. Much of the area within the levee is considered prime farmland.

Alternative 1 - No Action (Future without Project) – If no action is taken, flooding would continue to occur and the integrity of the levee would be further compromised. Use of inundated land for agriculture would be unlikely to occur. Land cover would also change as flood intolerant trees die off.

Alternative 3 - Repair of Levees with Federal Assistance – Erosion, rutting, breach, and turf repairs would meet the Federal standard. Use of the land for agricultural productivity would be regained.

3.1.2. Noise

The area in the vicinity of the proposed project includes transportation, recreation, and agricultural zones. Agricultural and open space areas typically have noise levels in the range of 34-70 decibels (dB; a measure of loudness) depending on their proximity to transportation arteries (Figure 22). Noise associated with transportation arteries such as highways, railroads, airports etc., would be greater than those in rural areas. Agriculture, traffic, and recreation-related noise, such as that created by vehicles, machinery, and recreationists, are the main sources of noise within the study area. In general, urban noise emissions do not typically exceed about 60 dB, but may attain 90 dB or greater in busier urban areas or near high volume transportation arteries. Ambient noise in the study area is generated by wildlife, human activities, agricultural activities, and vehicular traffic.

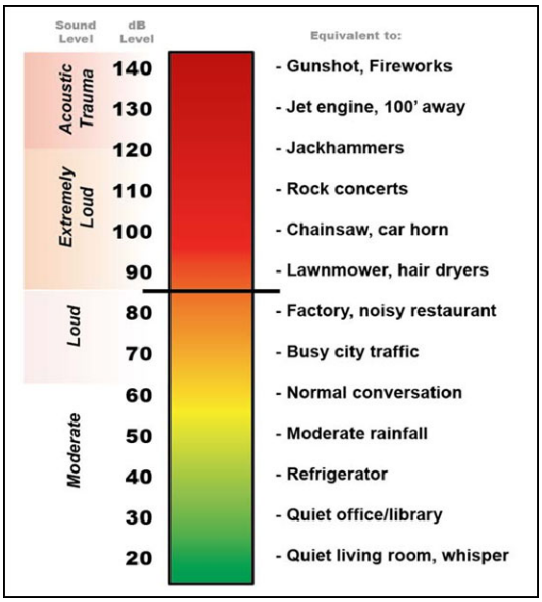

Figure 22. Examples of the sound level and decibel (dB) level of various sources.

Alternative 1 - No Action (Future without Project) – If no action is taken, the level of noise will remain the same as pre-flood conditions.

Alternative 3 - Repair of Levees with Federal Assistance – The proposed project would be expected to temporarily increase noise levels near the repair and associated worksites. The U.S. Environmental Protection Agency has set a limit of 85 decibels on the A scale (the most widely used sound level filter) for eight hours of continuous exposure to protect against permanent hearing loss. Based upon similar construction activities conducted in the past, noise above this level would not be expected to occur for periods longer than eight hours. The noise levels would return to pre-flood damage levels after the repairs are complete and will not result in a permanent increase the overall noise pollution in the area.

3.1.3. Air Quality

The EPA has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" air pollutants. These include carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. St. Genevieve County, Missouri; and Randolph County, Illinois are currently in attainment for all U.S. Environmental Protection Agency air quality criteria (USEPA 2019).

Alternative 1 – No Action (Future without Project) - If no action is taken, the air quality will remain the similar to pre-flood conditions.

Alternative 3 - Repair of Levees with Federal Assistance – Construction activities would cause a slight increase in suspended particulates (i.e., dust). Emissions from construction equipment would increase the ozone, carbon monoxide and carbon dioxide levels in the vicinity of the construction site. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. The increases in air quality standard pollutants would be very negligible and would cease after construction.

3.1.4. Water Quality

The Mississippi River between the Meramec River and the Kaskaskia River was included on the EPA 303(d) List of Impaired Waters in Missouri due to *Escherichia Coli* (E. Coli) for Reporting Year 2016, which is the latest report available (https://ofmpub.epa.gov/waters10/attains_waterbody.control?p_list_id=MO_1707.03&p_report_type=T&p_cycle=2016; accessed 7 November 2019).

Alternative 1 – No Action (Future without Project) – If the Sainte Genevieve Levee System No. 2 levee is not repaired to the federal standard there would be an increased flood risk and more physical damages would occur within the Levee District, such as erosion and sedimentation. If the levee is not repaired, Mississippi River waters would enter the levee district at approximately a 50% (2-year frequency) chance exceedance flood. When these floodwaters drain off the agricultural land, excess nitrogen and phosphorus can be washed from farm fields and into waterways. Excess nutrients can also leach through the soil and into groundwater over time. High levels of nitrogen and phosphorus in water can result in a lack of oxygen, causing fish kills and a decrease in aquatic life. Excess nutrients can cause harmful algal blooms in freshwater systems, which not only disrupt wildlife, but can also produce toxins harmful to humans.

Alternative 3 - Repair of Levees with Federal Assistance – Construction activities would occur on the levee berms and fields adjacent to streams and water areas. Levee repairs could cause a short-term increase in turbidity in the waterways at the immediate construction site if flooding or heavy rains occurred during construction. However, the Contractor shall comply with all applicable federal, state, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. All disturbed areas would be reseeded following construction to reduce the potential for erosion.

3.2. Biological Resources

Fish and wildlife habitats located in and near the leveed area include permanent water, temporary water, bottomland forest / wooded swamp, old fields, and agricultural cropland. These habitats provide food and cover for a variety of fish and wildlife, including largemouth bass, bluegill, carp, crappie, warmouth, channel catfish, bullfrog, snapping turtle, muskrat, rabbits, squirrel, red fox, white-tailed deer, and many species of waterfowl, shorebirds, songbirds. Typical tree species include willow, pecan, eastern cottonwood, American elm, box-elder, silver maple, pin oak, shagbark hickory, and river birch. The levees are mowed grass areas that are managed to prevent shrub and tree growth and animal damage.

Alternative 1 – No Action (Future without Project) – If the Sainte Genevieve Levee System No. 2 levee is not repaired to the federal standard, and agriculture use diminish, a more diverse and dynamic terrestrial and aquatic habitat may develop. The terrestrial habitat could be inundated by high water more frequently, and the vegetative composition may be altered. During high water events, water could pond on the landside of the levee and deposit sediment, thereby decreasing floodwater turbidity, filling wetlands, and killing vegetation as floodwater ponds on typically dry areas currently dominated by agriculture. However over time, wetland vegetation could become established. During high water events, terrestrial fauna would be displaced as their habitat is inundated. Conversely, fishes and other aquatic organisms would gain access to a large area of floodplain habitat, which would benefit the spawning and rearing of many fish species.

Alternative 3 – Repair of Levees with Federal Assistance – If heavy rain occurs during construction, washing soil into the river and other waterways, there could be a short-term increase in turbidity in the immediate area. Additionally, the creek scour realignment repair is anticipated to increase local turbidity during repair. Increased turbidity may temporarily displace fish and other mobile organisms. Following construction, aquatic species would be expected to return. The Contractor is required to comply with all applicable federal, state, and local laws and regulations. Additionally, the Contractor is required to provide environmental protective measures and procedures to prevent and control pollution. This includes the condition that the Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to, and damage of, fish and wildlife. Approximately 0.10 acres of tree clearing would be required in order to repair Breach #1 (Figure 14). Tree clearing would occur between 1 November 2019 and 31 March 2020. Therefore, no more than short-term limited impacts to fish and wildlife resources are anticipated.

3.3. Bald Eagle

Although the Bald Eagle (*Haliaeetus leucocephalus*) was removed from the Federal list of threatened and endangered species in 2007, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA prohibits unregulated take of bald eagles, including disturbance. The U.S. Fish and Wildlife Service developed the National Bald Eagle Management Guidelines (USFWS 2007a) to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to Bald Eagles, particularly where such impacts may constitute disturbance. A bald eagle nest is located along the western bank of the Mississippi River, near river mile (RM) 121, approximately 2 miles west of the nearest repair site for 2019 damages. USFWS Eagle Take Permit Number MB21416C-0 was issued for this nest in order to repair 2015-2017 flood damages under PL 84-99. The permit was effective as of 22 Feb 2017, and expired on 31 December 2017. No impacts to the nest or bald eagles were observed.

3.4. State Listed Species

The Illinois Department of Natural Resources (IDNR) Ecological Compliance Assessment Tool (EcoCAT; IDNR Project Number 2003353) was used to identify any Illinois state identified species that may exist in the vicinity of the proposed action. EcoCAT identified American Eel (*Anguilla rostrata*; State Threatened), Mississippi Kite (*Ictinia mississippiensis*; State Endangered), and Pallid Sturgeon (*Scaphirhynchus albus*; State and Federally Endangered) as being protected resources possibly occurring in the vicinity of the proposed levee repairs.

A Missouri Department of Conservation Natural heritage review as conducted by USACE on 1 November 2019. In an e-mail dated 4 November 2019, The Missouri Department of Conservation lists the following species listed as threatened or endangered by the state of Missouri as potentially occurring in the vicinity of the proposed levee repairs: Lake Sturgeon (*Acipenser fulvescens*; State Endangered).

Alternative 1 – No Action (Future without Project) – During highwater events, the breaches would continue to erode and wash soil into adjacent waterbodies, resulting in a short-term increase in turbidity in the immediate area.

Alternative 3 – Repair of Levees with Federal Assistance – No adverse issues to state listed species are anticipated due to the proposed levee repairs.

In a letter dated 07 October 2019, Adam Rawe of the Illinois Department of Natural Resources stated that the Department has evaluated this information and concluded that adverse effects are unlikely.

3.5. Federally Listed Species Biological Assessment

In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, an official list of species and critical habitat was acquired from the USFWS IPaC website (USFWS 2019) (https://ecos.fws.gov/ipac/) on 24 September 2019 (Consultation Code: 03E14000-2019-SLI-3774, Event Code: 03E14000-2019-E-08584; and Consultation Code: 03E18100-2019-SLI-0651, Event Code: 03E18100-2019-E-01686) for the Sainte Genevieve Levee District No. 2 project area (Table 3). There are no critical habitats within the proposed project area. Habitat requirements and impacts of the proposed federal action are discussed for each species below.

Table 3. List of federally threatened or endangered species and their habitat requirements, potentially occurring in the vicinity of the proposed project at Sainte Genevieve Levee District No. 2.

Common Name (*Scientific Name*)	**Classification**	**County/State**	**Habitat**
Indiana Bat (*Myotis sodalis*)	Endangered	Sainte Genevieve Co., MO Randolph Co., IL	Caves, mines (hibernacula); small stream corridors with well-developed riparian woods; upland forests (foraging)
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened with 4(d) rule	Sainte Genevieve Co., MO Randolph Co., IL	Caves and mines; rivers and reservoirs adjacent to forests
Gray Bat (*Myotis sodalis*)	Endangered	Sainte Genevieve Co., MO	Caves
Least Tern (*Sterna antillarum*)	Endangered	Randolph Co., IL	Bare alluvial and dredged spoil islands
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	Sainte Genevieve Co., MO Randolph Co., IL	Mississippi and Missouri Rivers
Small Whorled Pogonia (*Isotria medeoloides*)	Threatened	Randolph Co., IL	Dry woodlands

3.5.1 Indiana Bat

The endangered Indiana Bat has been noted as occurring in several Illinois and Missouri counties. Indiana Bats are considered to potentially occur in any area with forested habitat.

Indiana Bats migrate seasonally between winter hibernacula and summer roosting habitats. Winter hibernacula includes caves and abandoned mines. Females emerge from hibernation in late March or early April to migrate to summer roosts. Females form nursery colonies under the loose bark of trees (dead or alive) and/or in cavities, where each female gives birth to a single young in June or early July. A maternity colony may include from one to 100 individuals. A single colony may utilize a number of roost trees during the summer, typically a primary roost tree and several alternates. Some males remain in the area near the winter hibernacula during the summer months, but others disperse throughout the range of the species and roost individually or in small numbers in the same types of trees as females. The best available data indicate that the species or size of tree does not appear to influence whether Indiana Bats utilize a tree for roosting provided the tree exhibits any of the following characteristics: exfoliating bark, cracks, crevices, cavities. Data also indicate that the use of a particular tree is influenced by conditions, such as solar exposure, temperature and precipitation (USFWS 1999, USFWS 2007b).

During the summer, Indiana Bats frequent the corridors of small streams with well-developed riparian woods, as well as mature bottomland and upland forests. They forage for insects along stream corridors, within the canopy of floodplain and upland forests, over clearings with early successional vegetation (old fields), along the borders of croplands, along wooded fence rows, and over farm ponds and in pastures. It has been shown that the foraging range for the bats varies by season, age and sex and ranges up to 81 acres (33 ha). Suitable Indiana Bat summer habitat may be located in the forested areas in and adjacent to Sainte Genevieve Levee System No. 2.

Alternative 1 - No Action (Future without Project) - Without levee breach and erosion stabilization, trees which may potentially be used by Indiana Bats could fall over. Riparian habitat would be adversely impacted by breaching and scour. Conversely, if the levee district remained unrepaired, habitat conditions would recover over an extended period of time. If the Levee District initiated some level of repair; it is unlikely to be to Corps' standards.

Alternative 3 - Repair of Levees with Federal Assistance - The proposed project would not affect any caves or mines or involve clearing forest or woodland habitat containing suitable roosting habitat. As currently planned, this project involves approximately 0.10 acre of tree clearing along the edge of Breach #1 which is necessary in order to make the repair (Figure 14). The tree clearing would be conducted between 1 November 2019 and 31 March 2020. A site visit was conducted on 1 Oct 2019 to determine if potential Indiana Bat habitat existed in the proposed construction or borrow areas; however none was discovered. Therefore, the St. Louis

District has determined that the proposed project "*may affect, but is not likely to adversely affect the Indiana Bat*".

3.5.2. Northern Long-Eared Bat

The Northern Long-eared Bat is sparsely found across much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and eastern British Columbia. Northern long-eared bats spend winter hibernating in large caves and mines. During summer, this species roosts singly or in colonies underneath bark, in cavities, in crevices of both live and dead trees. Foraging occurs in interior upland forests. Forest fragmentation, logging and forest conversion are major threats to the species. One of the primary threats to the northern long-eared bat is the fungal disease, white-nose syndrome, which has killed an estimated 5.5 million cave hibernating bats in the Northeast, Southeast, Midwest and Canada. Suitable northern long-eared bat summer habitat may be located in the forested areas in and adjacent to Sainte Genevieve Levee System No. 2.

Alternative 1 - No Action (Future without Project) - Without levee breach and erosion stabilization, trees which may potentially be used by Northern Long-eared Bats could fall over. Riparian habitat would be adversely impacted by breaching and scour. Conversely, if the levee district remained unrepaired, habitat conditions would recover over an extended period of time. If the Levee District initiated some level of repair; it is unlikely to be to Corps' standards.

Alternative 3 - Repair of Levees with Federal Assistance - The proposed project would not affect any caves or mines or involve clearing forest or woodland habitat containing suitable roosting habitat. As currently planned, this project involves approximately 0.10 acre of tree clearing along the edge of Breach #1 which is necessary in order to make the repair (Figure 14). The tree clearing would be conducted between 1 November 2019 and 31 March 2020. A site visit was conducted on 1 Oct 2019 to determine if potential Indiana Bat habitat existed in the proposed construction or borrow areas; however none was discovered. Therefore, the St. Louis District has determined that the proposed project "*may affect, but is not likely to adversely affect the Northern Long-Eared Bat*".

3.5.3. Gray Bat

The Gray Bat is a species that has a limited range in limestone karst areas of the southeastern United States, including several Illinois and Missouri counties. Gray Bats typically roost in caves year-round. During winter, Gray Bats hibernate in deep, vertical caves, and during summer, Gray Bats generally roost in various caves, but have been documented roosting under bridges and in other structures. Gray Bats forage on a variety of night-flying aquatic and terrestrial insects along rivers, lakes, and creeks.

Gray Bats are endangered largely because of their habitat of living in large numbers in only a few caves; thus making the species vulnerable to human disturbance and habitat loss or modification. Disturbance of Gray Bats in their caves during their hibernation, can cause them to use their energy reserves and could lead to starvation. Disturbances to their caves during their nursing season (June and July) can frighten females causing them to drop non-volant pups to their death in panic to flee from the intruder. Additionally, many important caves that have been historically used by Gray Bats have been inundated by reservoirs. The commercialization of caves, and alterations of the air flow, temperature, humidity, and amount of light can make the cave unsuitable habitat for Gray Bats and drive bats away.

The fatal bat disease, white-nose syndrome (WNS), has not yet been documented to adversely affect the Gray Bat. However, because of Gray Bats are cave obligates, and considering how WNS has decimated other cave-dwelling bat species, WNS could be another significant threat to the Gray Bat.

Alternative 1 – No Action (Future without Project) – Without levee stabilization, additional vegetation in the path of the breaches may be washed away. Riparian habitat would be adversely impacted by breaching and scour. Conversely, if the levee district remained unrepaired, habitat conditions would recover over an extended period of time. If the Levee District initiated some level of repair; it is unlikely to be to Corps' standards.

Alternative 3 – Repair of Levees with Federal Assistance – The proposed project would not negatively affect any caves. As currently planned, this project involves approximately 0.10 acre of tree clearing along the edge of Breach #1 which is necessary in order to make the repair (Figure 14). The tree clearing would be conducted between 1 November 2019 and 31 March 2020. A site visit was conducted on 1 Oct 2019 to determine if potential Gray Bat habitat existed in the proposed construction or borrow areas; however none was discovered. Therefore, the St. Louis District has determined that the proposed project "*may affect, but is not likely to adversely affect the Gray Bat*".

3.5.4. Interior Least Tern

Interior least terns historically nested along sand and gravel bars of the Lower Mississippi River and its major tributaries, including the Missouri, Red, Ohio, and Arkansas rivers (USFWS 2019a). Interior least terns currently nest along more than 2,800 miles of river channels across the Great Plains and the Lower Mississippi Valley, with nesting colonies documented in Montana, North Dakota, South Dakota, Nebraska, Colorado, Iowa, Kansas, Missouri, Illinois, Indiana, Kentucky, New Mexico, Oklahoma, Arkansas, Tennessee, Texas, Louisiana and Mississippi. The

characteristics required for suitable breeding grounds include "bare alluvial islands or sandbars", food, and appropriate water regime (USFWS 2019a). Least terns arrive at breeding grounds in late April and the breeding season is complete by early September (USFWS 1990). Since being protected under the ESA, the numbers and distribution of interior least terns have steadily increased. They currently number approximately 18,000 birds (USFWS 2019a). Consequently, the U.S. Fish and Wildlife Service is proposing to delist the species from the ESA due to recovery.

Alternative 1 - No Action (Future without Project) – During highwater events, the breaches would continue to erode and wash soil into adjacent waterbodies, resulting in a short-term increase in turbidity in the immediate area.

Alternative 3 - Repair of Levees with Federal Assistance – Construction activities would occur near the levee berms and fields adjacent to streams and water areas. Levee repairs could cause a short-term increase in turbidity in the waterways at the immediate construction site if flooding or heavy rains occurred during construction. However, the Contractor shall comply with all applicable federal, state, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. All disturbed areas would be reseeded following construction to reduce the potential for erosion. Repair activities would not impact any interior least tern habitat. Therefore, the St. Louis District has determined that the Tentatively Selected Plan "*may affect, but is not likely to adversely affect the Interior Least Tern*".

3.5.5. Pallid Sturgeon

The Pallid Sturgeon is found in the Mississippi River downstream of its confluence with the Missouri River. Pallid Sturgeon forage for insects, crustaceans, snails, clams, and fish along the bottom of large rivers. These fish are most frequently caught over a sand bottom, which is the predominant bottom substrate within the species' range on the Mississippi River. Tag returns have shown that the species may be using a range of habitats in off-channel areas and tributaries of the Mississippi River. Loss of habitat has occurred due to anthropogenic changes which has ultimately decreased the availability of spawning habitat, reduced larval and juvenile rearing habitat, availability of seasonal refugia, and availability of foraging habitat.

Alternative 1 - No Action (Future without Project) – During highwater events, the breaches would continue to erode and wash soil into adjacent waterbodies, resulting in a short-term increase in turbidity in the immediate area. Conversely, reconnected floodplains have been identified as an important habitat for sturgeon. While unrepaired breaches on or near the

mainstem river may allow sturgeon to gain access to a large area of floodplain habitat, it is highly unlikely in this case, given the location of the breaches to Sainte Genevieve Levee System No. 2 resulting from the 2019 flood.

Alternative 3 - Repair of Levees with Federal Assistance - Levee repairs would take place within and adjacent to the footprint of the levee and designated work areas and would not directly impact any Pallid Sturgeon habitat. Levee repairs could cause a short-term increase in turbidity in the waterways at the immediate construction site if flooding or heavy rains occurred during construction. Therefore, the St. Louis District has determined that the Tentatively Selected Plan "*may affect, but is not likely to adversely affect the Pallid Sturgeon*".

3.5.5. Small Whorled Pogonia

The small whorled pogonia, an orchid, was added to the U.S. List of Endangered and Threatened Wildlife and Plants in 1982 as an endangered species. In 1994 it was reclassified to threatened. This orchid grows in older hardwood stands of beech, birch, maple, oak, and hickory that have an open understory. Sometimes it grows in stands of softwoods such as hemlock. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams. The primary threat to the small whorled pogonia is the past and continuing loss of populations when their habitat is developed for urban expansion. Some forestry practices eliminate habitat. Also, habitat may be degraded or individual plants lost because of recreational activities and trampling. As with all rare orchids, the small whorled pogonia is vulnerable to collecting for commercial or personal use (USFWS 2019b).

Alternative 1 - No Action (Future without Project) – According to the USFWS (2019b), it has been extirpated from Missouri, Vermont and Maryland. Thus, no impacts are anticipated as a result of taking No Action to address levee repairs.

Alternative 3 - Repair of Levees with Federal Assistance – The proposed project area does not include suitable habitat for this species. According to the USFWS (2019b), it has been extirpated from Missouri, Vermont and Maryland. Therefore, the St. Louis District has determined that the proposed project would have "*no effect*" on the small whorled pogonia.

3.6. Socioeconomic Resources

3.6.1. Economic

Sainte Genevieve Levee System No. 2 encompasses 7,859 acres (7,699 cropland acres). The levee system is a non-federal project that is active in the USACE Rehabilitation and Inspection Program. Therefore, Sainte Genevieve Levee System No. 2 is eligible for Flood Control and Coastal Emergency funding authorize by PL 84-99. The main occupation in the Sainte

Genevieve Levee System No. 2 is farming, and levees are of regional economic importance to maintain the agricultural productivity occurring in the floodplain. 2013 USDA NASS aerial imagery provided an estimation of the crop allocation inside the levee district, which was used to determine a distribution of 45% corn, 50% soybean, and 5% wheat. If the levee is not repaired, Mississippi River waters will enter the levee district at approximately a 50% (2-year frequency) chance exceedance flood. The repair project will provide flood risk reduction against an approximate 7% (15-year frequency, pre-flood design) chance exceedance flood. The total rehabilitation would have a benefit to cost (b/c) ratio of 2.9 to 1.

Alternative 1 – No Action (Future without Project) – If the Sainte Genevieve Levee System No. 2 levee is not repaired to the Federal standard, Mississippi River waters will begin flooding the levee district at approximately a 50% (2-year frequency) chance exceedance flood. The previously leveed area would continue to be subject to flooding, making the area less suitable and possibly unsuitable for agriculture. This would result in a negative economic effect on the Levee District and the local economy.

Alternative 3 – Repair of Levees with Federal Assistance – Local agricultural and agri-businesses would benefit from levee repair and subsequent flood damage reduction. The repair project would provide flood risk reduction against an approximate 7% (15-year frequency, pre-flood design) chance exceedance flood. The proposed levee repairs would not require residential displacement. No adverse impacts to life, health, or safety would result from levee repair.

3.6.2. Cultural Resources (Historic and Archaeological)

The repair site locations are composed of areas of erosion in recently deposited material or recently-placed levee berm material. There are no recorded archaeological sites in the repair site and borrow material locations. A survey of borrow areas found no evidence of cultural materials. No historic properties would be affected.

Alternative 1 – No Action (Future without Project) – Without flooding, there would be no change from current conditions. With flooding, there is the potential for damage to culturally significant sites protected by the levee.

Alternative 3 – Repair of Levees with Federal Assistance – The proposed repairs to the levee within Sainte Genevieve Levee System No. 2 would have no effect upon significant historic properties (archaeological remains or standing structures). The repairs consist of repairs of erosion damage and slides on the levee itself. The two breaches will be repaired with borrow material excavated from agricultural fields. A survey of borrow areas found no evidence of cultural materials. No historic properties would be affected. Missouri State Historic

Preservation Office (SHPO) concurred with the Corps no adverse effect determination in a letter dated 31 October 2019.

In the unlikely event that earthmoving activities associated with the proposed repairs did impact potentially significant archeological/historic remains, all construction activities and earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains could be determined. The precise nature of such investigations would be developed by the Saint Louis District in concert with the professional staff of the Missouri and Illinois SHPOs.

3.6.3. Tribal Coordination

The St. Louis District consulted with 27 tribes that have an interest in projects along all rivers within our district boundaries. Several levees adjacent to the Mississippi, Illinois and Missouri river within the U.S. Army Corps of Engineers St. Louis District boundaries were damaged by flooding in 2019.

Alternative 1 – No Action (Future without Project) – Without flooding, there would be no change from current conditions. With flooding, there is the potential for damage to culturally significant sites protected by the levee.

Alternative 3 – Repair of Levees with Federal Assistance – The recovery and repair of these damaged levees, authorized under PL 84-99, has been coordinated with all tribes in the following manner: On 22 October 2019 an initial letter to the tribes described the locations of existing flood damaged structures, lands and fills. Maps of the areas and a description of the types of impacts resulting from construction were also included along with an archaeological survey reports for the proposed borrow areas. The tribes were requested to contact the USACE if there are known tribal areas of concern in any of the project areas and if they desire further consultation on each or any project. Depending on tribal response, the USACE continues the consultation process until the completion of the project.

Of the 27 tribes consulted, only one responded. In an e-mail dated 22 November 2019, the Shawnee stated that they had no issues concerning the proposed project.

3.6.4. Environmental Justice

Environmental justice refers to fair treatment of all races, cultures and income levels with respect to development, implementation and enforcement of environmental laws, policies and actions. Environmental justice analysis was developed following the requirements of:

- Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations," 1994)

- "Department of Defense's Strategy on Environmental Justice" (March 24, 1995).

Alternative 1 – No Action (Future without Project) – If Sainte Genevieve Levee System No. 2 is not repaired to the Federal standard, the level of protection would be eliminated (due to the levee breaches) from that provided by the design (pre-2019 flood event) levee. This would not disproportionately affect low income or minority populations.

Alternative 3 – Repair of Levees with Federal Assistance – If Sainte Genevieve Levee System No. 2 is repaired to the Federal standard, the level of protection would be that provided by the design (pre-2019 flood event) levee. This would not disproportionately affect low income or minority populations.

3.7. Hazardous, Toxic, and Radioactive Waste (HTRW)

Hazardous, Toxic, and Radioactive Waste (HTRW) At this time, there are no recognized environmental conditions (RECs) that would indicate a risk of HTRW contamination within the project area. Potential RECs were identified outside of the project area, but currently do not pose a risk for this project.

Alternative 1 - No Action (Future without Project) – Without flooding, there would be no change from current conditions. With flooding, there is the potential for floodwater to spread some contaminants which may be in the area.

Alternative 3 - Repair of Levees with Federal Assistance – The likelihood of hazardous substances adversely affecting the project area due to the proposed construction activities is very low. The St. Louis District conducted a modified Phase I assessment prior to construction to ensure that no HTRW contamination exists within the project area at the time of the investigation.

4. SUMMARY COMPARISON OF PROJECT ALTERNATIVES

Impacts of the tentatively selected alternative to natural resources, cultural resources, and other aspects and features of the human environment are summarized in Table 4 of this EA.

Table 4. Summary of the "No Action" and tentatively selective alternatives to physical, biological, and socioeconomic resources.

Resources	**Alternatives**	
	No Action	**Tentatively Selected Alternative**
Physical Resources	Flooding will occur if the levees are not repaired and the levee's integrity is further compromised during a flood.	Erosion repairs, and breach repairs would meet the Federal standard.
	Increased potential for further erosion of levee and sedimentation within Levee District during flood events.	Temporary minor impacts to water and air quality during construction.
	Does not meet project objective of repairs to Federal standard.	Meets project design objective of 15-year protection level.
Biological Resources	If levee system is compromised, there is potential for beneficial impacts due to potential increase in floodplain habitat.	Construction would be confined to the levee and borrow areas which may result in minor temporary impacts.
	Federal T&E species would not be adversely impacted.	There would be little tree clearing; therefore, proposed action should have no adverse effects on listed species.
	Meets project objective of minimal environmental impacts.	Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The Levee District would be susceptible to future floods. Potential negative impacts to the Levee District and regional economy due to levee damages.	Repair of levee would result in the protection of croplands, businesses and structures from floods up to the design (15-year frequency) of the levee system.
	Does not meet project objective of protecting the socioeconomic value of the Levee District.	Meets project objective of protecting the economic value of the Levee District.

5. CUMULATIVE IMPACTS

The majority of the levee systems in the region have been in place for decades. Repairs would involve returning most of the damaged levee sections to the same alignment and level of protection as existed prior to the spring high water events of 2019. Temporary impacts from noise, air, and water pollution would occur; however, repair sites are widely scattered throughout the St. Louis District and therefore additive effects of these impacts would be negligible. These repairs are not anticipated to decrease the post-flood productivity of lands riverward or landward of the levee systems. The Sainte Genevieve Levee System No. 2 PL 84-99 project along with several other levees would require borrow for levee repairs. Borrow sites have been examined and selected in order to avoid sensitive areas and resources. Borrow for the majority of these projects would come from agriculture areas, low quality farmed wetlands, and previously identified borrow areas. Pervious material (sand) would be taken from large sand deposits that accumulated at several locations on agricultural fields during the flood. Some PL 84-99 projects sustained damage that is infeasible to repair on the original levee alignment. For new levee alignments, some acreage would be removed from agricultural use causing a minor loss to overall farm production and increase in floodplain habitat. The widely scattered nature of repair sites and shallow excavation depth of borrow sites would reduce impacts and no long term adverse cumulative impacts are expected. Borrow sites have been evaluated during field trips to reduce environmental impacts.

6. RELATIONSHIP OF TENTATIVELY SELECTED PLAN TO ENVIRONMENTAL REQUIREMENTS

The relationship of the Tentatively Selected Plan (Alternative 3 – Repair of Levees with Federal Assistance) to environmental requirements, environmental act, and /or executive orders is shown in Table 5.

Table 5. Relationship of the tentatively selected plan to environmental requirements, environmental act, and /or executive orders.

Environmental Requirement	Compliance
Bald Eagle Protection Act, 42 USC 4151-4157	FC
Clean Air Act, 42 USC 7401-7542	FC
Clean Water Act, 33 USC 1251-1375	FC

Comprehensive Environmental Response, Compensation, and Liability Act, (HTRW) 42 USC 9601-9675	PC
Endangered Species Act, 16 USC 1531-1543	PC
Farmland Protection Policy Act, 7 (Prime Farmland) USC 4201-4208	FC
Fish and Wildlife Coordination Act, 16 USC 661-666c	PC
Food Security Act of 1985 (Swampbuster), 7 USC varies	FC
Land and Water Conservation Fund Act, (Recreation)16 USC 460d-4601	FC
National Environmental Policy Act, 42 USC 4321-4347	PC
National Historic Preservation Act, 16 USC 470 et seq.	FC
Noise Control Act of 1972, 42 USC 4901-4918	FC
Resource, Conservation, and Rehabilitation Act, (Solid Waste) 42 USC 6901-6987	FC
Rivers and Harbors Appropriation Act, (Sec. 10) 33 USC 401-413	FC
Water Resources Development Acts of 1986 and 1990 (Sec 906 – Mitigation; Sec 307 - No Net Loss - Wetlands)	FC
Floodplain Management (EO 11988 as amended by EO 12148)	FC
Federal Compliance with Pollution Control Standards (EO 12088)	FC
Protection and Enhancement of Environmental Quality (EIS Preparation) (EO 11991)	FC
Protection and Enhancement of the Cultural Environment (Register Nomination) (EO 11593)	FC
Protection of Wetlands (EO 11990 as amended by EO 12608)	FC

FC = Full Compliance, PC = Partial Compliance (on-going, will be accomplished before construction)

7. COORDINATION, PUBLIC VIEWS, AND RESPONSES

Notification of this Environmental Assessment and unsigned Finding of No Significant Impact were sent to the officials, agencies, organizations, and individuals listed in Table 6 below for review and comment. Additionally, an electronic copy is available on the St. Louis District's website at http://www.mvs.usace.army.mil/Missions/ProgramsProjectManagement/PlansReports.aspx during the public review period.

Please note that the Finding of No Significant Impact is unsigned. These documents will be signed into effect only after having carefully considered comments received as a result of this public review.

To assure compliance with the National Environmental Policy Act, Endangered Species Act, and other applicable environmental laws and regulations, coordination with these agencies will continue as required throughout the planning and construction phases of the proposed levee repairs.

Table 6. Notification of Environmental Assessment and unsigned Finding of No Significant Impact.

U.S. Senator Roy Blunt (MO)	U.S. Senator Richard Durbin (IL)
U.S. Senator Josh Hawley (MO)	U.S. Senator Tammy Duckworth (IL)
U.S. Representative Jason Smith (Dist 8; MO)	U.S. Representative Mike Bost (District 12; IL)
MO Senator Wayne Wallingford (District 27)	IL Senator Paul Schimpf (District 58)
MO Representative Dale Wright (District 116)	IL Representative Nathan Reitz (Dist 116)
Federal Emergency Management Agency (MO – Region 7)	Federal Emergency Management Agency (IL – Region 5)
Missouri Emergency Management Agency	Illinois Emergency Management Agency
Missouri Environmental Protection Agency (MDNR)	Illinois Environmental Protection Agency
Karen Harrington, U.S. Fish & Wildlife Service, Missouri Ecological Services Field Office	Matt Mangan, U.S. Fish and Wildlife Service, Southern Illinois Sub-Office (Marion)
Matt Vitello, P.E., Missouri Department of Conservation	Brad Hayes, Illinois Department of Natural Resources
Missouri Department of Agriculture	Illinois Department of Agriculture
Sierra Club, Missouri Chapter	Sierra Club, Illinois Chapter
The Nature Conservancy, Missouri Office	The Nature Conservancy, Illinois Office
Heartlands Conservancy	Ste. Genevieve Herald

8. ENVIRONMENTAL ASSESSMENT PREPARERS

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Meredith Trautt, District Archaeologist, USACE District
Evan Stewart, Economist, USACE District

9. REFERENCES

USEPA (U.S. Environmental Protection Agency). 2019. Missouri Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants https://www3.epa.gov/airquality/greenbook/anayo_mo.html; and Illinois Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants https://www3.epa.gov/airquality/greenbook/anayo_il.html (Accessed: 2 Dec 2019)

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USFWS (U.S. Fish and Wildlife Service). 2019b. Small Whorled Pogonia (*Isotria medeoloides*) Fact Sheet. (https://www.fws.gov/midwest/endangered/plants/swpo/smallwhorledpogoniafs.html).

FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
SAINTE GENEVIEVE LEVEE SYSTEM NO. 2
SAINTE GENEVIEVE COUNTY, MISSOURI; RANDOLPH COUNTY, IL
MISSISSIPPI RIVER, MILES 122 to 113

1. I have reviewed the documents concerned with the proposed levee repairs to Sainte Genevieve Levee System No. 2. The purpose of this project is to repair levee sections damaged by an extended high water event during the spring of 2019. Repairs would return the Levee System to pre-flood conditions.

2. I have also evaluated pertinent data concerning practicable alternatives relative to my decision on this action. As part of this evaluation, I have considered the following alternatives:

a. No Action Alternative: Under the no-action alternative, the federal government would not repair the flood damaged levees. It is assumed that, because of the cost of repairs, the levee district would not repair the levee.

b. Nonstructural Alternative: Under PL 84-99, the Corps has the authority to pursue a non-structural alternative only if the project sponsor requests such an alternative. Sainte Genevieve County Levee District No. 2 declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further consideration.

c. Repair of Levees with Federal Assistance (Tentatively Selected Plan): Under this alternative, the federal government would repair the damaged areas to the pre-flood level of protection. Since Sainte Genevieve Levee System No. 2 is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99.

3. The possible consequences of the No Action Alternative and Levee Repair Alternative have been studied for physical, environmental, cultural, social and economic effect, and engineering feasibility. Major findings of this investigation include the following:

a. The No Action Alternative was evaluated and subsequently rejected primarily based upon the higher potential for future flooding and damage to area agricultural fields, primary and secondary residences, outbuildings, and infrastructure.

b. Borrow for the final levee repair would come from existing agricultural lands that would be contoured and returned to agriculture if they were being farmed.

c. No appreciable effects to general environmental conditions (air quality, noise, water quality) would result from the Levee Repair Alternative.

d. The Levee Repair Alternative is not expected to cause significant adverse impacts to general fish and wildlife resources.

e. The Levee Repair Alternative is not expected to cause unacceptable adverse impacts to riparian habitat, bottomland hardwood forest, or other wetlands.

f. No Federally endangered or threatened species are anticipated to be adversely impacted by the Levee Repair Alternative.

g. No prime farmland would be adversely impacted as a result of the Levee Repair Alternative.

h. No significant impacts to historic properties (cultural or tribal resources) are anticipated as a result of the Levee Repair Alternative.

i. Under the Levee Repair Alternative, local economies would benefit through an increased labor demand to carry out levee repairs. Agricultural land and structures within the Levee District would be provided with pre-2019 flood protection.

j. The Contractor shall comply with all applicable federal, state, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. All disturbed areas would be reseeded following construction to reduce the potential for erosion.

4. Based upon the Environmental Assessment of the Levee Repair Alternative, no significant impacts on the environment are anticipated. The proposed action has been coordinated with appropriate resource agencies, and there are no significant unresolved issues. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with this action.

_____ _____

Date

Bryan K. Sizemore
Colonel, U.S. Army
District Commander