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)

5 March 2020

RE: Bluffdale Farms Levee System PL 84-99 2019 Repairs

Dear Sir or Madam:

We are providing for your review a Draft Environmental Assessment (EA) and unsigned Finding of No Significant Impact for the Bluffdale Farms Levee System, 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

https://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/DraftEABluffdaleFarmsPL84992019Repairs.pdf

Several levees throughout the St. Louis District were damaged during the spring flooding in 2019. The Bluffdale Farms Levee System 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 Monday, 6 April 2020, in order to have your comments considered.

Thank you,

T C Allen

Teri C Allen, Ph.D.
Chief, Environmental Compliance Section

DRAFT ENVIRONMENTAL ASSESSMENT
WITH
FINDING OF NO SIGNIFICANT IMPACT

LEVEE REPAIR (PL 84-99)
BLUFFDALE FARMS LEVEE SYSTEM
GREENE COUNTY, ILLINOIS
ILLINOIS RIVER, MILES 32 to 33

March 2020

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 Bluffdale Farms Levee System. 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 CFR 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 Bluffdale Farms 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 Bluffdale Farms Levee System reduces the risk of flooding from the Illinois River to agricultural properties in Greene County, Illinois. It is located near the right descending bank of the Illinois River between river miles 32 and 33 above the confluence with the Mississippi River. The levee district is located about 51 miles northwest of St. Louis, Missouri, in Greene County, Illinois (Figure 1). The northern flank of the Bluffdale Farms levee borders the Keach Levee System, the west is bordered by the Eldred Drainage and Levee District System, while the south flank borders the Schafer Levee System (Figure 2).

The system was privately constructed in the 1930s and is operated and maintained by the nonfederal Sponsor, Bluffdale Farms Drainage and Levee District. The levee system consists of nearly 4 miles of earthen embankment within the Illinois River floodplain along Hurricane Creek. Within the 723-acre leveed area are agricultural bottomlands. No towns, villages, or permanent residents are located within the leveed area. The levee system was designed for a 2% (50-year frequency) annual chance exceedance (ACE) flood.

1.4. Project Purpose and Need

The Bluffdale Farms Levee System 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 50-year frequency flood protection to less than 12.5-year frequency flood protection) provided by the levee system, making the levee district vulnerable to frequent flooding. Without federal involvement through the PL 84-99 program, it is unlikely that the Bluffdale Farms Drainage and Levee District has the financial ability to restore the level of protection according to Corps of Engineers standards.

1.5. Damage Description

The damages to the Bluffdale Farms Levee System sustained from the high water events and the methods by which these damage types are typically repaired are described in Tables 1 and 2.

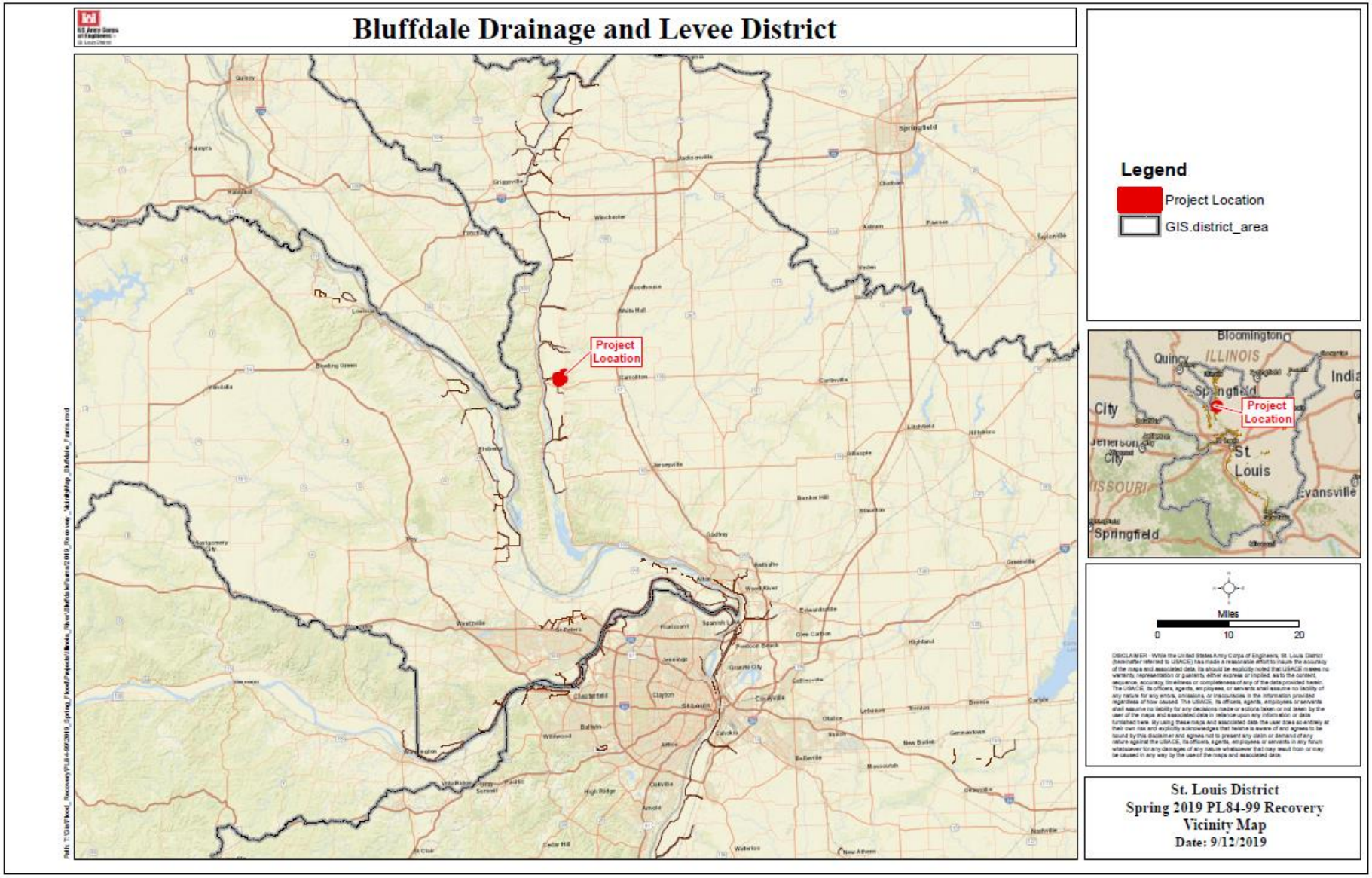

Figure 1. General Location Map of the Bluffdale Farms Levee System.

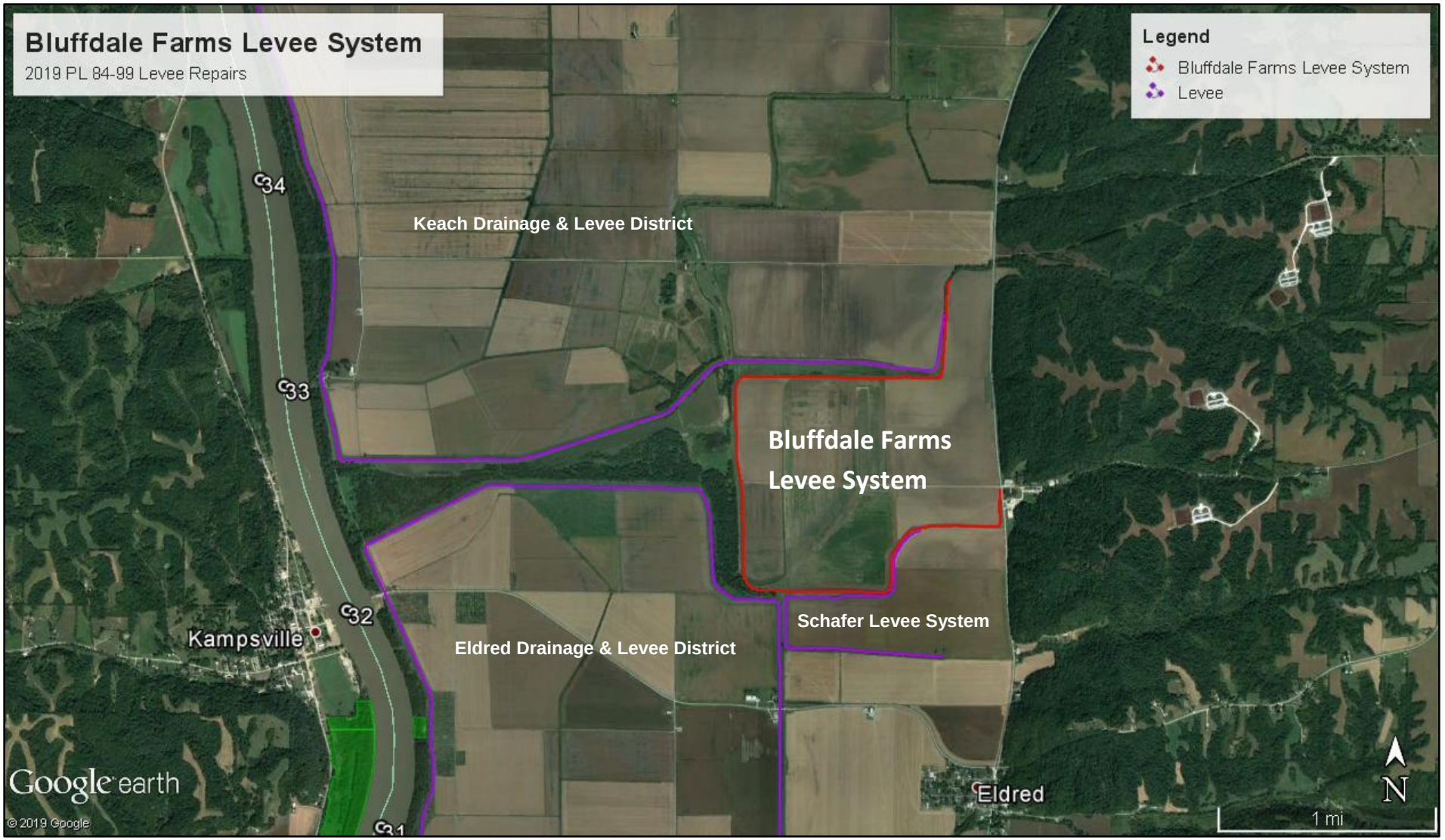

Figure 2. Overview of the Bluffdale Farms Levee System, located along the Illinois River in Greene County, IL.

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.
Overtopping	The level of the flood water is simply higher than the height of the levee, and water flows over the top of the levee.	Stripping, preparing, placing embankment, and compacting.
Scour	Channel or pool created by water flowing forcefully over something (e.g., levee)	Often accompanies a levee breach. Repair method varies by location and severity.
Slide	Movement of soil down the levee slope	Excavation of damaged area, and replacement of embankment in compacted lifts
Erosion Type I	Wave wash / minor erosion less than 12 inches deep, measured in linear feet.	Disking and compacting.
Erosion Type II	Moderate erosion between 12 and 18 inches deep, measured in yards^3.	Stripping, disking, filling, and compacting.
Erosion Type III	Major erosion greater than 18 inches deep	Stripping, preparing, placing embankment, and compacting in layers
Turf Damage	The upper layer of ground that is made up of grass and plant roots that has been damaged due to long-standing water inundation.	Turf damage is repaired by disking and seeding.

1.5.2. List of Damages at Bluffdale Farms Levee System

The Bluffdale Farms Levee System suffered a variety of damage types, including Erosion Types I and II. The damages are described by type and damage area in Table 2. Figure 3 shows Damage Areas 1 and 4.

Table 2. Description of 2019 flood-related damages and locations at Bluffdale Farms Levee System.

Location	Damage Type	Specific Damage Description
Damage Area 1	Erosion Type II	Damage located on the upper 1/3 of the leveed side slope of the levee. The erosion damage is approximately 140 feet in length and has an average width of 10 feet. The damaged area was along a bend in the levee and had an average vertical face/depth of 2 feet.
Damage Area 4	Erosion Type I	Erosion Type 1 located on the leveed side of the levee. The erosion is less than 12 inches in depth, 70 feet in length, and has an average width of 15 feet.

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 Bluffdale Farms Levee System. 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 Bluffdale Farms Levee System. 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 and agricultural activities within the leveed area.

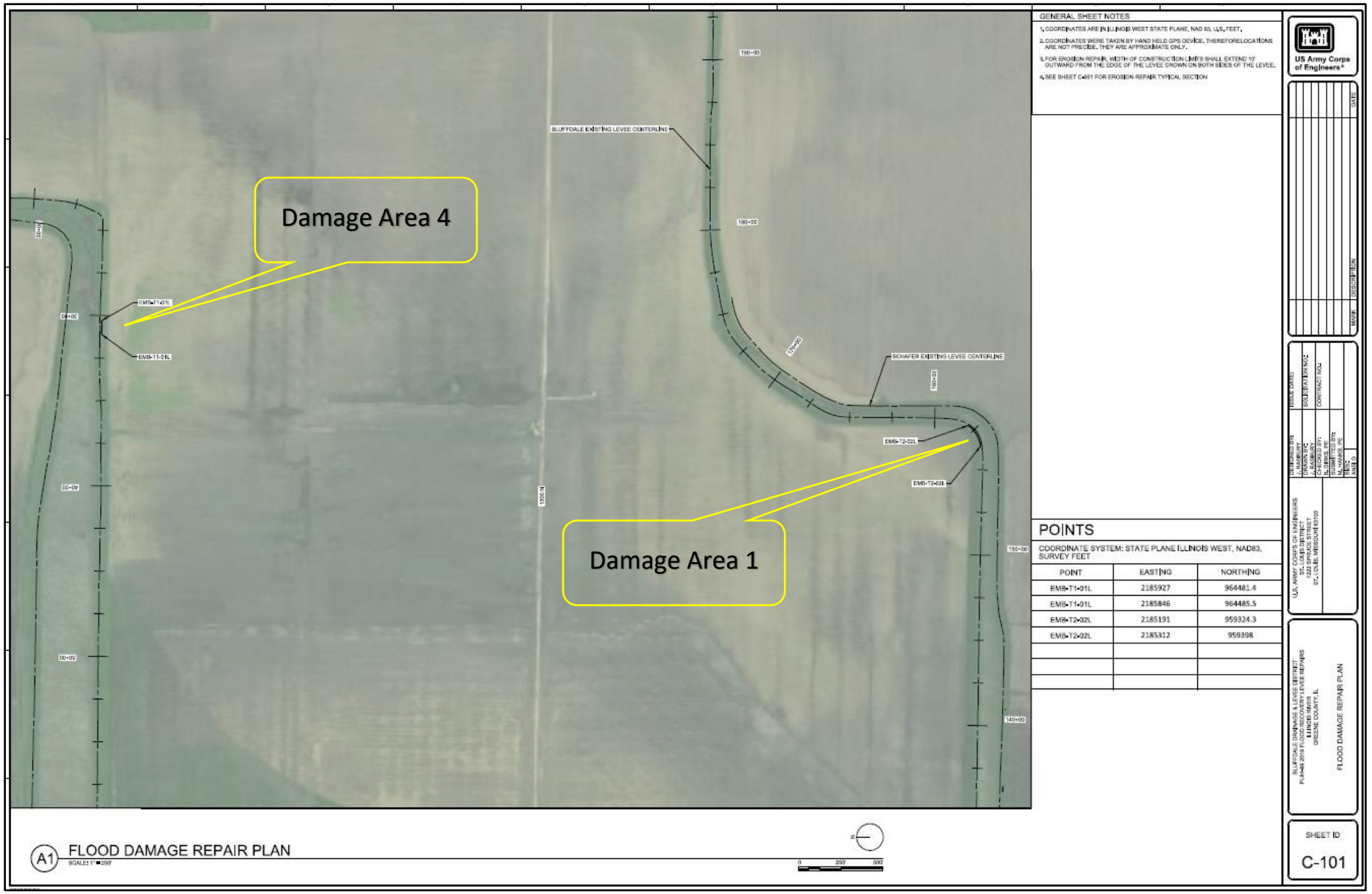

Figure 3. Bluffdale Farms Levee System Damage Areas 1 and 4.

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 Bluffdale Farms Drainage and Levee District, 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 Bluffdale Farms Drainage and Levee District 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 Bluffdale Farms Drainage and Levee District, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Bluffdale Farms 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. 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 Systems with Federal Assistance

Alternative 3, structural repair of the existing levee systems 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 Bluffdale Farms Levee System would consists of restoring protection along the previous alignment. Structural repair would reconstruct the levee to pre-flood grade at the location of the erosion. Specifically, the damaged areas of the Bluffdale Farms 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, impervious 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:

Figure 4. Example of Erosion Type II at the Bluffdale Farms Levee System.

- **Damage Area 1** – Erosion Type II damages would be repaired by filling in the eroded areas using material obtain from commercial sources, 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 Damage Area 1 (Figures 4 and 5).

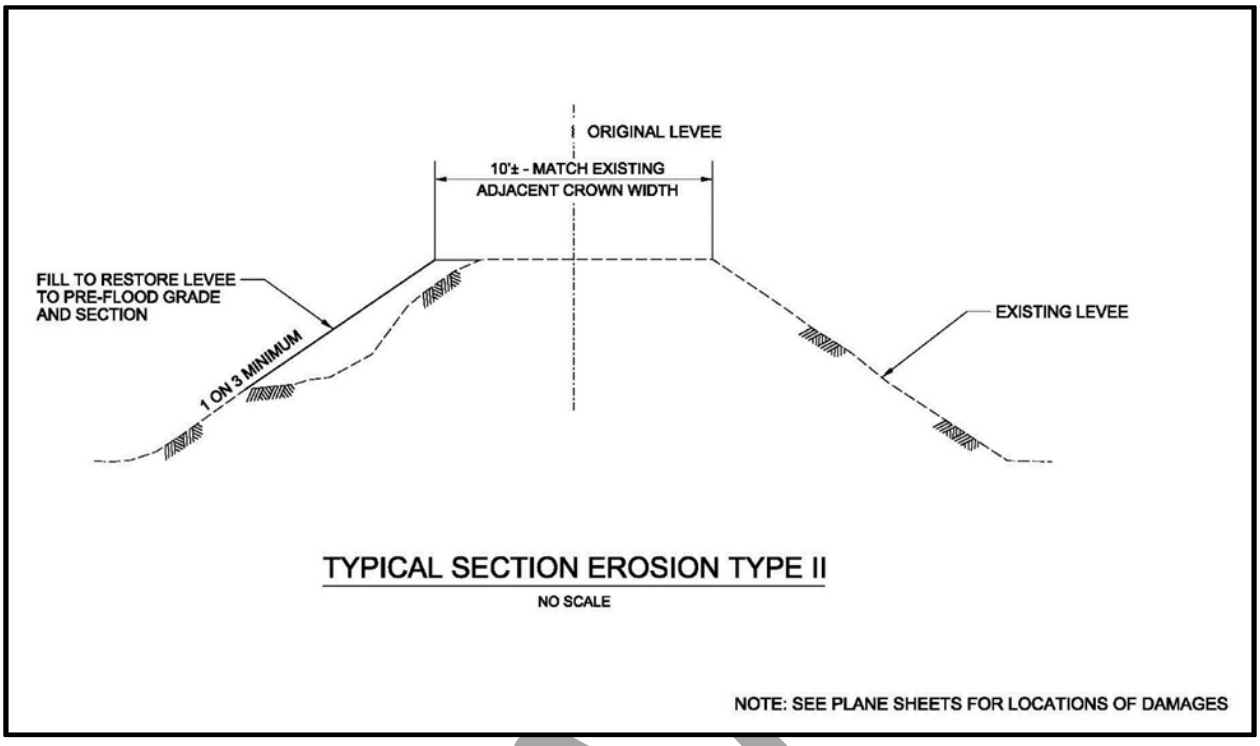

Figure 5. Typical section for Erosion Type II repair.

Figure 6. Example of Erosion Type I at the Bluffdale Farms Levee System.

- **Damage Area 4** – 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 Bluffdale Farms Damage Area 4. Figures 6 and 7 show the typical damage and repair design for Erosion Type I.

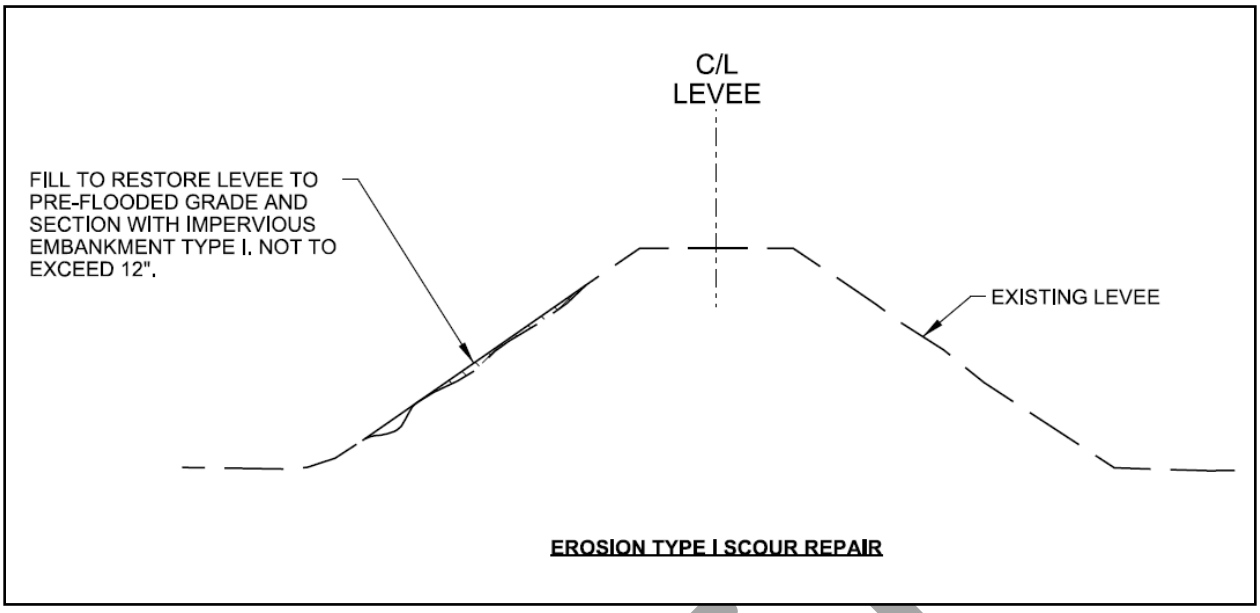

Figure 7. Typical section for Erosion Type I repair.

- Turf damages may occur along entire levee, on the riverside and/or landside. The turf damage would be repaired by disking and seeding areas of the levee where grass and plant roots have been damaged due to long-standing water inundation. Figure 8 shows the typical repair design for turfing.

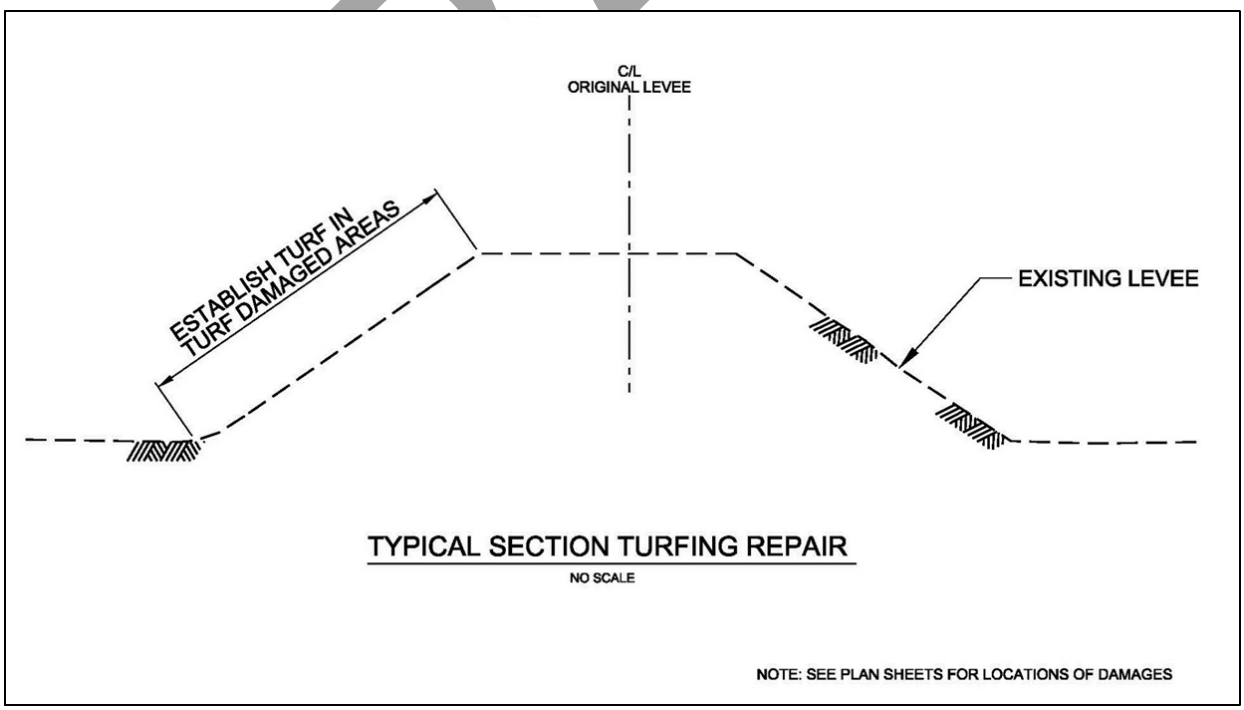

Figure 8. Typical section for turfing repair.

Borrow Material – All required borrow material would be obtained from commercial sources; thus, no tree clearing is required to access borrow material. No USACE Regulatory permits are required for borrow material.

Construction Limits – For erosion repair, construction limits shall extend 10' outward from the edge of the levee crown on both sides of the levee. No construction limits shall not extend beyond the vegetation free zone of the levee.

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.

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 Bluffdale Farms Levee System is located on the floodplain of the Illinois 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 2% (50-year frequency) annual chance exceedance flood; 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 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 9). 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.

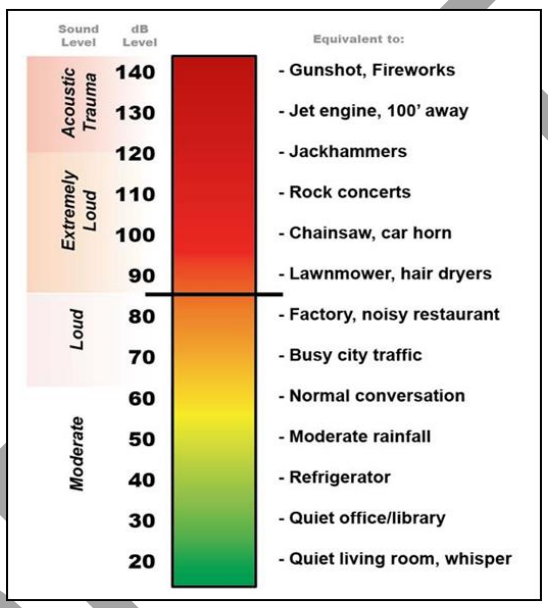

Figure 9. Examples of the sound level and decibel (dB) level of various sources.

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. Greene County, Illinois is 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 lower Illinois River was included on the EPA 303(d) List of Impaired Waters in Illinois due to mercury, polychlorinated biphenyls, and fecal coliform for Reporting Year 2018, which is the latest report available (file:///C:/Users/b6pdtca1/Desktop/303d.pdf; accessed 4 February 2020).

Alternative 1 – No Action (Future without Project) – If the Bluffdale Farms Levee System 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, Illinois River waters would enter the levee district at approximately an 8% (12.5-year frequency) annual 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 Bluffdale Farms Levee System 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. 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. No tree clearing would be required. 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 recorded off the eastern bank of the Illinois River, near river mile (RM) 38, approximately 4 miles north of the nearest repair site for 2019 damages. A survey for bald eagle nests was conducted on 24 February 2020 by USACE biologists Alison Anderson and Evan Hill. No bald eagles nests were located within the Bluffdale Farms Levee System, thus no impacts to bald eagles are anticipated.

3.4. State Listed Species

The Illinois Department of Natural Resources (IDNR) Ecological Compliance Assessment Tool (EcoCAT; IDNR Project Number 2006277) was used to identify any Illinois state identified species that may exist in the vicinity of the proposed action. EcoCAT did not identify any state listed species as being protected resources possibly occurring in the vicinity of the proposed levee repairs.

Alternative 1 – No Action (Future without Project) – During highwater events, areas 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 06 February 2020, Bradley Hayes 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 7 January 2020 (Consultation Code: 03E18100-2020-SLI-0261, Event Code: 03E18100-2020-E-00642) for the Bluffdale Farms Levee System 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 Bluffdale Farms Levee System.

Common Name (*Scientific Name*)	**Classification**	**Habitat**
Indiana Bat (*Myotis sodalis*)	Endangered	Caves, mines (hibernacula); small stream corridors with well-developed riparian woods; upland forests (foraging)

Common Name (*Scientific Name*)	Classification	Habitat
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened with 4(d) rule	Caves and mines; rivers and reservoirs adjacent to forests
Decurrent False Aster (*Boltonia decurrens*)	Threatened	Occurs on moist, sandy, floodplains and prairie wetlands along the Illinois River.

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).

Alternative 1 - No Action (Future without Project) - Without levee erosion stabilization, habitat may be adversely impacted by continued erosion. 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. However, suitable Indiana Bat summer and foraging habitat may be located in the forested areas in and adjacent

to the Bluffdale Farms Levee System. 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.

Alternative 1 - No Action (Future without Project) - Without levee erosion stabilization, habitat may be adversely impacted by continued erosion. 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. However, suitable Northern Long-eared Bat summer and foraging habitat may be located in the forested areas in and adjacent to the Bluffdale Farms Levee System. Thus, 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. Decurrent False Aster (*Boltonia decurrens*)

The Decurrent False Aster is presently known from scattered localities on the floodplains of the Illinois River, and Mississippi River from its confluence with the Missouri River south to Madison County, Illinois. Decurrent False Aster grows in wetlands, on the borders of marshes and lakes, and on the margins of bottomland oxbows and sloughs. Historically, this plant was found in wet prairies, marshes, and along the shores of some rivers and lakes. The species favors recently disturbed areas and flooding may play a role in maintaining its habitat. Current habitats include riverbanks, old fields, roadsides, mudflats and lake shores. It primarily prefers a moist habitat but can tolerate drought (USFWS 2012, MDC 2008).

Alternative 1 - No Action (Future without Project) - Without levee erosion stabilization, habitat may be adversely impacted by continued erosion. Intermittent disturbance may benefit Decurrent False Aster. 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 levee repair activities would be limited to the levee system, the agricultural fields on the landside of the levee, and the vegetation-free zone parallel to the levee on the river side. Travel to the work areas would be primarily along existing roadways and right-of-ways. The area directly adjacent to the levee toe (aka - vegetation-free zone) is routinely mowed and the agricultural fields are intensively farmed and managed, reducing the suitability of these areas for Decurrent False Aster. Based on this site-specific information, the St. Louis District has determined that the proposed project would have "*no effect*" on Decurrent False Aster.

3.6. Socioeconomic Resources

3.6.1. Economic

Bluffdale Farms Levee System encompasses 723 acres (701 cropland acres) of leveed area. The levee system is a non-federal project that is active in the USACE Rehabilitation and Inspection Program. Therefore, Bluffdale Farms Levee System is eligible for Flood Control and Coastal Emergency funding authorize by PL 84-99. The main occupation in the Bluffdale Farms Drainage and Levee District 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 49% corn, 49% soybean, and 2% wheat. If the levee is not repaired, Illinois River waters will enter the levee district at approximately an 8% (12.5-year frequency) chance exceedance flood. The repair project would provide protection against a 2% (50-year frequency, pre-flood design) annual chance exceedance flood. The total rehabilitation would have a benefit to cost (b/c) ratio of 2.5 to 1.

Alternative 1 – No Action (Future without Project) – If Bluffdale Farms Levee System levee is not repaired to the Federal standard, Illinois River waters will begin flooding the levee district at approximately 8% (12.5-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 2% (50-year frequency) annual 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 sites. 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 Bluffdale Farms Levee System would have no effect upon significant historic properties (archaeological remains or standing structures). The repairs consist of repairs of erosion damage on the levee itself. Borrow material for erosion repairs would be obtained areas from a commercial source. No historic properties would be affected. All actions taken would be in accordance with the National Historic Preservation Act of 1966, as amended (NHPA). The NHPA requires that any federal undertaking consider the effects to historic properties and consult with State Historic Preservation Officers. This act is further codified in 36 CFR Part 800, Protection of Historic Properties. Section 800.3(a)(1) states that if the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligation under Section 106.

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 Illinois SHPO.

3.6.3. Tribal Coordination

The St. Louis District consults with 26 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 – All actions taken would be in accordance with the National Historic Preservation Act of 1966, as amended (NHPA). The NHPA requires that Federal agencies consult Tribes if the proposed Federal undertaking may affect historic properties to which the Tribe attaches religious or cultural significance. This act is further codified in 36 CFR Part 800, Protection of Historic Properties. Section 800.3(a)(1) states that if the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligation under Section 106.

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 the Bluffdale Farms Levee System is not repaired to the Federal standard, the level of protection would be reduced 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 the Bluffdale Farms Levee System 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)

The St. Louis District did not conduct a Phase I environmental assessment on this area due to the fact that commercial borrow will be used.

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 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 did not conduct a Phase I environmental assessment on this area since commercial borrow will be used for repairs. The contract will require that any commercial borrow used will be free from HTRW and considered clean as defined by the Illinois EPA.

3.8. Permits

The Illinois Regional General Permit (GP) 26 for Emergency Reconstruction and Repair Activities for Flood Damaged Areas in All Waters of the United States in the State of Illinois, under authority of Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344), which include actions outlined under this Alternative. GP 26 is currently valid with an expiration date of May 15, 2022 unless revoked or specifically extended (See attachment). Preconstruction notification is required for all activities obtaining borrow from forested wetlands, borrowing material

from potential migratory bird nesting areas, clearing trees along stream channels, working in areas with known exotic species, and/or if the proposed repair activity includes restoration of a stream channel back to the original, pre-flood location. Other authorized activities that meet the terms and limits of this GP may proceed without preconstruction notification to USACE. However, post construction reporting is required for all activities undertaken under this GP. Maintenance of existing flood damaged structures and/or flood damaged fills, which have been previously authorized, may be authorized by Nationwide Permit No. 3 or exempted by Part 323.4 of Federal regulations 33 CFR 320- 332. The repair of uplands damaged by storms, floods or other discrete events may be authorized by Nationwide Permit No. 45 upon notification and review by the Regulatory Branch. Section 401 Water Quality Certification is included with all general permits listed above, but additional coordination and/or other state permits may be required prior to construction depending on the scope of repairs. All permits are on file in the District Office.

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.

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.	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 50-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 which may result in minor temporary impacts.
	Federal T&E species would not be adversely impacted.	There would be no 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, and infrastructure from floods up to the design (50- 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 Bluffdale Farms Levee System PL 84-99 project does not require borrow sites for levee repairs. However, borrow sites required for repairs to other systems have been examined and evaluated during field trips, and are selected in order to avoid sensitive areas and resources, and to reduce environmental impacts. 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 may have 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.

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	FC
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 Richard Durbin (IL)
U.S. Senator Tammy Duckworth (IL)
U.S. Representative Rodney Davis (District 13; IL)
IL Senator Steve McClure (District 50)
IL Representative C.D. Davidsmeyer (Dist 100)
Federal Emergency Management Agency (IL – Region 5)
Illinois Emergency Management Agency
Illinois Environmental Protection Agency
Matt Mangan, U.S. Fish and Wildlife Service, Southern Illinois Sub-Office (Marion)
Brad Hayes, Illinois Department of Natural Resources
Illinois Department of Agriculture
Sierra Club, Illinois Chapter
The Nature Conservancy, Illinois Office
Greene Prairie Press (https://greeneprairiepress.com/index165.htm)

8. ENVIRONMENTAL ASSESSMENT PREPARERS

Teri Allen, Ph.D.; Chief, Environmental Compliance Section; Aquatic Ecologist, USACE District
Richard Archeski, Environmental Specialist, USACE District
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Jennifer Rasbury, DA Intern, USACE District
Mark Smith, Ph.D., District Archaeologist, USACE District
Evan Stewart, Economist, USACE District
Meredith Trautt, District Archaeologist, USACE District
Tyson Zobrist, Regulatory Project Manager, USACE District

9. REFERENCES

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FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
BLUFFDALE FARMS LEVEE SYSTEM
GREENE COUNTY, ILLINOIS
ILLINOIS RIVER, MILES 32 to 33

1. I have reviewed the documents concerned with the proposed levee repairs to Bluffdale Farms Levee System. 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. Bluffdale Drainage and Levee District 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 Bluffdale Farms 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.

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, and infrastructure.

b. Borrow for the levee repair would be obtained from a commercial source.

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 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