US Army Corps
of Engineers
St. Louis District

ENVIRONMENTAL ASSESSMENT WITH DRAFT FINDING OF NO SIGNIFICANT IMPACT

LEVEE REPAIR (P.L. 84-99): HOWARD BEND LEVEE DISTRICT ST. LOUIS COUNTY, MISSOURI MISSOURI RIVER

Prepared by:
Environmental Compliance Branch
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis Missouri 63103-2833

November 2016

DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
ROBERT A. YOUNG BUILDING - 1222 SPRUCE ST.
ST. LOUIS, MISSOURI 63103-2833

November 10, 2016

Reply to:
US Army Corps of Engineers
St. Louis District
Environmental Compliance Section (PD-C)
1222 Spruce St.
St. Louis, MO 63103-2833

RE: Howard Bend Levee District PL 84-99

Dear Sir or Madam:

We are providing for your review an Environmental Assessment and unsigned Finding of No Significant Impact for the Howard Bend Levee District, which incurred levee damages during the winter of 2015 flooding. 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 can be obtained from the St. Louis District's website at

http://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/HowardBendPL84992015Flood2016EAandFONSI.pdf

Levees throughout the St. Louis District were damaged during winter flooding in 2015. Many levee and drainage districts have requested assistance under Public Law 84-99, which provides repair assistance for flood damaged levees. 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, by close of business on 12 December 2016.

Thank you,

Brian Johnson

Brian L. Johnson
Chief Environmental Compliance Branch
St. Louis District

INTRODUCTION

This document is a Draft Environmental Assessment (EA) with an attached unsigned Finding of No Significant Impact (FONSI) for levee repairs to the Howard Bend Levee District (LD). 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.

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 P.L. 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 P.L. 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 (P.L. 93-205 and Appendix B of ER 1105-2-50) and archeological and historic properties (Chapter 3 of ER 1105-2-50). Since the Howard Bend Drainage District is active in the USACE Rehabilitation and Inspection Program, they are eligible for Flood Control and Coastal Emergency funding authorized by P.L. 84-99.

Project Location and Scope

The Howard Bend LD is located in St. Louis County, Missouri, along the east bank of the Missouri River at approximately Missouri River Mile 29.7 to 37.4 (Figure 1). The system consists of 1.91 miles of floodwall and 6.25 miles of levee constructed with a representative crown width between 10 feet, and a representative side slope of 1 on 3. The levee system is primarily industrial and urban lands, one airport, two water treatment plants, one sewage treatment plant, and recreational parks. Approximately 1/3 of the protected area is agricultural lands. The levee system provides a 500-year level of protection.

Project Purpose and Need

The Howard Bend LD sustained damages as a result of high water events during the winter of 2015. A powerful winter storm struck the Midwest on December 26-29, 2015, bringing torrential rain and heavy snow across the region. Some locations in east-central Missouri and southern Illinois received over 10 inches of precipitation which is 300-400% above average.

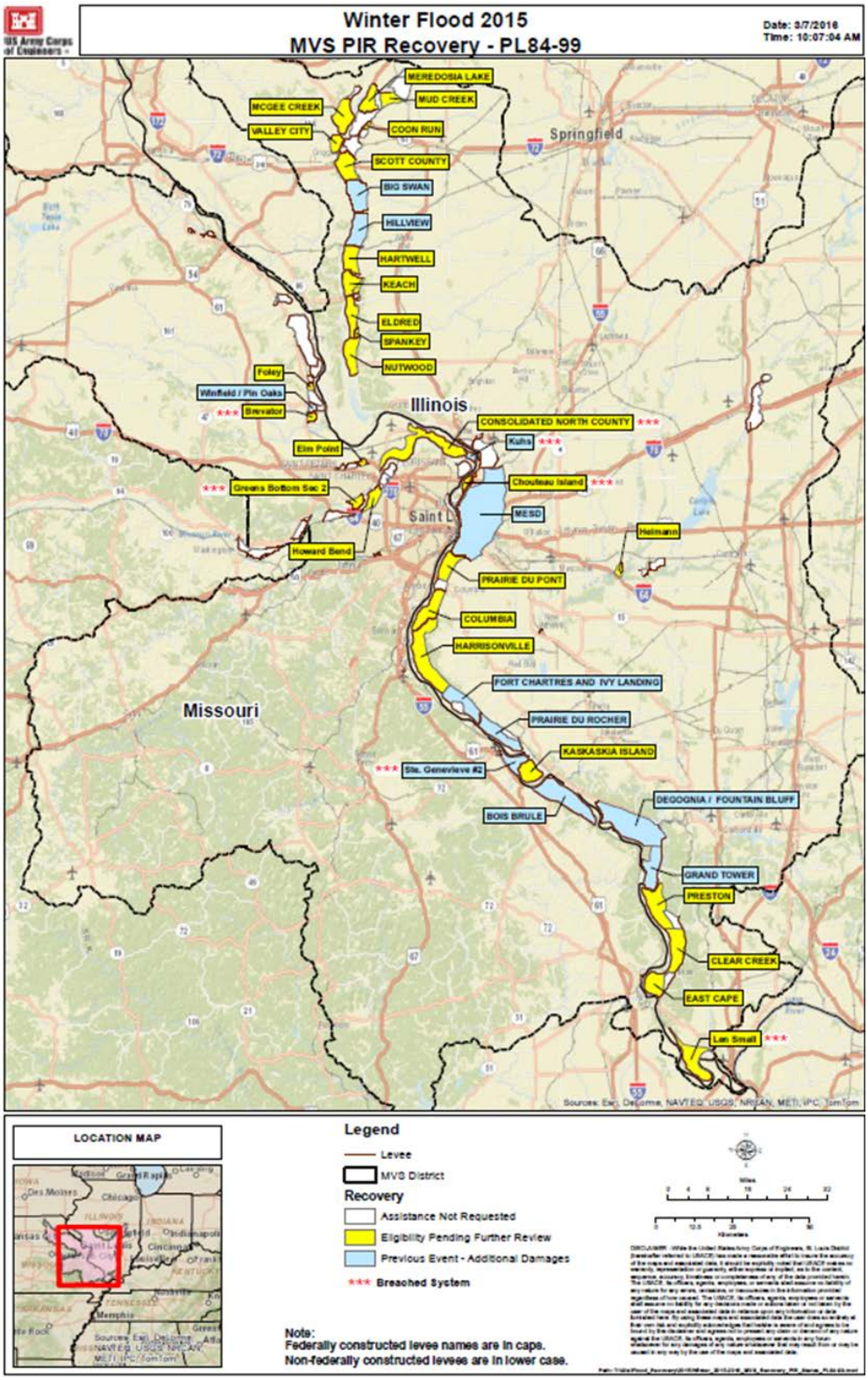

Figure 1: General Location of the Howard Bend Levee District

This storm caused a high water event resulting in damage to the Howard Bend LD. The storm resulted in damages to the levee system that included a single 24 foot long slide adjacent to a water control gate and approximately 0.25 acre of turf damage.

The purpose of this federal action is to restore the level of flood protection to that which existed prior to the 2015 flood event. There is a need for repairs, because flood damages reduced flood protection provided by the levee, making the district vulnerable to increased damage and potential flooding during the next flood event.

Damage Description

Damages consisted of a levee slide and turf damage on the levee associated with an outfall structure (See Figures 2-5). The Outfall Structure is located approximately 1.3 miles upstream of where the I-70 bridge crosses the Missouri River; the Outfall Structure is located on Creve Coeur Creek about 1,200 feet inland on the East Bank of the Missouri River. It is adjacent to an MSD treatment plant on the landside, behind the floodwall. A levee slope failure was reported by the Howard Bend LD and documented by a USACE damage inspection team. The failure resembled a bank slope failure on a creek bank vs. the traditional levee slide. The levee slope failure was located on the east side (downstream) of the east gate outlet wingwall, and was approximately 24 ft. long, extending eastward from the outlet wingwall in the direction parallel to the levee. The failure was approximately 24’ Long x 36’ Wide (as measured down the bank slope) x 7.5’ Deep, immediately adjacent to the east outlet wingwall. The edge of the slope failure was near the edge of the structure’s access road on the levee crown. The gravel platform for the vehicle that operates the slide gates was also in poor condition and was near the edge of the failure. In addition, a concrete floodwall is located on the landside edge of the levee crown immediately adjacent to the access road. The grade of the existing slope on the riverside was approximately a 1 Vertical on 2 Horizontal, making replacement of levee embankment difficult without additional slope reinforcement, such as rock bank protection keyed into the bottom of the creek. Of note is this repair is critical because the Outlet Structure contains two 10’ by 12’ metal sluice gates with wingwalls, and the structure sits just adjacent to riverside of the levee crown, with the crown of levee section set behind the structure and a concrete floodwall sitting at the back edge of the landside crown of the levee. The entire system is at a critical point in the line of protection on Creve Coeur Creek.

Figure 2: Howard Bend Levee Damage Locations.

Figure 3: Plan View of Howard Bend Outlet Structure.

Figure 4: Standing Downstream Looking West at East Wingwall and Howard Bend Outlet Structure.

Figure 5: Standing at East End of Levee Looking West at Slope Failure Area in Levee Section, Outlet Structure with Wingwalls and Sluice Gates, and Concrete Floodwall in Background.

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 Howard Bend LD. 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 (P.L. 93-251) requires federal agencies to give consideration to nonstructural measures to reduce or prevent flood damage.

Alternative 1 - No Action (Future without Project)

Under the No Action Alternative, the federal government would not repair the damages to the Howard Bend LD. It is possible that the Drainage District would make repairs without federal assistance. Environmental impacts of repairs made by the Drainage 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 Drainage 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 areas.

Alternative 2 - Nonstructural Measures

Section 73 of the WRDA of 1974 (P.L. 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 Howard Bend Levee District, would have large costs, and result in loss of numerous acres of prime farmland.

Under P.L. 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 Howard Bend LD declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further analysis in this EA.

Alternative 3 – Structural Repair of Levees with Federal Assistance
Under this alternative, at the request of the Howard Bend LD, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Howard Bend LD is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by P.L. 84-99.

Repair - The recommended repair is to restore the net levee section by excavating enough material underneath and adjacent to the slope failure area to reach good in situ embankment material, fill in the excavated area and also the failure area with compacted clay fill, and additionally stabilize the repair section by placing riprap on bedding material on geotextile half way up the levee slope. In addition, since this is an Outlet Structure in front of the riverside levee crown with a floodwall located immediately off the landside levee crown, the riprap bank protection will continue 100' downstream and be keyed into the creek bottom for stability on the entire outlet/levee/floodwall system. After repair, exposed embankment will be seeded to reestablish turf and ground cover.

Construction Material – Total estimated volume of clay embankment to repair the slope failure and restore the levee is 850 cubic yards (cy^3). The soil repair material is coming from a commercial supplier, so there are no borrow areas associated with this repair. Total estimated amount of riprap is 1,650 tons, bedding material is 350 tons and geotextile is 600 square yards.

Construction Limits - Construction limits will be restricted to the immediate vicinity of the erosion and turf repair areas. The slide is approximately 24 feet long, so the construction area and potential impact zone will be minimal.

Access and Staging Areas - Staging areas and access routes to the repair sites would be established to avoid and minimize environmental impacts. There is an existing road adjacent to the levee slide area that will be used as an access point to the construction and as a haul road.

Final Plans and Specifications - Following review of comments and the signing of the FONSI (should that be the decision), plans & specs will be finalized for construction. Construction will commence as soon as possible thereafter and will be completed within one construction season.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

Physical Resources

The Howard Bend LD is located on the floodplain of the Missouri River. Because of the fertility of the soil and moisture, the land is prized for its agricultural productivity. The Howard Bend LD protects 6,044 acres (2,299 acres of which is agricultural production land). 2013 USDA NASS aerial imagery provided an estimation of the crop allocation inside the levee district, which was used to determine a distribution of 40% corn, 39% soybean, and 21% wheat.

St. Louis County, Missouri, experienced 250 days of good air quality 133 days of moderate air quality, and 2 days of unhealthy air quality in 2015 (USEPA 2016). NO_2, ozone, and particulate matter were the major air quality pollutants. Ambient noise in the study area is generated by wildlife, human activities and vehicular traffic.

Alternative 1 – No Action (Future without Project) - If the Howard Bend levee is not repaired to the federal standard there would be an increased flood risk during the next flood event. Air quality and noise pollution are not anticipated to be altered by this alternative.

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. Noise levels would return to normal after construction completion.

Construction activities would cause a slight increase in suspended particulates (i.e., dust). Emissions from construction equipment would increase the carbon monoxide, carbon dioxide, NO_2, and ozone levels in the vicinity of the construction site. The expected increases would be very negligible and would cease after construction.

Construction activities would occur on the mowed grass levee berms 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.

Biological Resources

Fish and Wildlife

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 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. The borrow material would be acquired from a commercial source (stockpiled material from a sand quarry within the Drainage District).

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 2007c) 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. An active Bald Eagle nest was discovered by a USACE team that is approximately 1,500 feet from the construction site.

Alternative 1 – No Action (Future without Project) – Conditions behind the levee would remain essentially the same unless a major future flood event were to further damage the levee system or breach the levee.

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, temporarily displacing fish and other mobile organisms. Following construction, aquatic species would be expected to return. The Bald Eagle nest is beyond the 660 foot “no disturbance” protection zone and is not expected to be impacted. The Contractor is required to comply with all applicable federal, state, and local laws and regulations. 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. Therefore, no more than short-term limited impacts to fish and wildlife resources are anticipated.

Federally Threatened and Endangered Species, St. Louis, Missouri:

In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, a list of species and critical habitat was acquired from the USFWS IPaC website on 10 November 2016 (USFWS 2016) for St. Louis County, MO https://ecos.fws.gov/ipac/project/BM5ERWE7GZB67OJN2TEZIBQ75M/resources

(Table 2). Habitat requirements and impacts of the Tentatively Selected Plan are discussed for each species below.

Table 1: List of federally threatened and endangered species and their habitat potentially occurring in St. Louis County, Missouri.

Common Name **(Scientific Name)**	**Classification**	**Habitat**
Gray Bat (*Myotis grisescens*)	Endangered	Caves
Indiana Bat (*Myotis sodalis)*	Endangered	Hibernacula: Caves and mines; Maternity and foraging habitat: small stream corridors with well developed riparian woods; upland forests
Northern Long-Eared Bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	Mississippi and Missouri Rivers
Decurrent False Aster (*Boltonia decurrens*)	Threatened	Disturbed alluvial soils

Gray Bat

The Gray Bat occurs in several Illinois and Missouri counties where it inhabits caves during both summer and winter. This species forages over rivers and reservoirs adjacent to forests.

Alternative 1 - No Action (Future without Project) - Current status anticipated to remain the same.

Alternative 3 -Repair of Levees with Federal Assistance - No caves would be impacted by the project and no trees (potential foraging habitat along the river) will be cut down for the levee slide and turf repairs. Work will occur during daylight hours, so foraging will not be affected. Therefore, the St. Louis District has determined that the proposed project will have “no effect" on the Gray Bat.

Indiana Bat

This species 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 include 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 species or size of tree does not appear to influence whether Indiana bats utilize a tree for roosting provided the appropriate bark structure is present. However, the use of a particular tree does appear to be influenced by weather conditions, such as temperature and precipitation (USFWS 2007a, USFWS 1999).

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 the Brevator Drainage District.

Alternative 1 - No Action (Future without Project) - Current status anticipated to remain the same.

Alternative 3 -Repair of Levees with Federal Assistance - The proposed project would not affect any caves or foraging habitat. As currently planned, this project involves no tree clearing. Therefore, the St. Louis District has determined that the proposed project will have “no effect" on the Indiana Bat.

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 the Howard Bend LD.

Alternative 1 - No Action (Future without Project) - Current status anticipated to remain the same.

Alternative 3 -Repair of Levees with Federal Assistance - The proposed project would not affect any caves or foraging habitat. As currently planned, this project involves no tree clearing. Therefore, the St. Louis District has determined that the proposed project will have "no effect" on the Northern Long-eared Bat.

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 (USFWS 2015). 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.

Alternative 1 - No Action (Future without Project) - Current status anticipated to remain the same.

Alternative 3 -Repair of Levees with Federal Assistance - Levee repairs would take place within the footprint of the levee and designated work areas and would not impact any Pallid Sturgeon habitat. Because the slide repair is adjacent to an outlet structure and a drainage way there is a potential for increased turbidity in the drainage ditch during construction, especially if a storm event should occur. Considering the high suspended sediment load of the Missouri, environmental effects would be minor. Therefore, the St. Louis District has determined that the proposed project will have "no effect" on the Pallid Sturgeon.

Decurrent False Aster

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. The 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 (MDC 2008a).

In Missouri, the Decurrent False Aster distribution is currently restricted to the Mississippi River floodplain from the Illinois River southward. Current populations are fewer and more isolated than in historical times. Former distribution of this plant included Lincoln, St. Charles, St.

Louis, and Cape Girardeau counties. Presently it is only known to occur in St. Charles County (MDC 2008a).

Alternative 1 - No Action (Future without Project) - Current status anticipated to remain the same.

Alternative 3 -Repair of Levees with Federal Assistance - No occurrences of this species are known from the project area. Therefore, the St. Louis District has determined that the proposed project will have "no effect" on the Decurrent False Aster.

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 2007, 2007b, 2007c) 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. During engineering survey work an active bald eagle nest was found within the Howard Bend LD (See Figure 6), but it was over 1,500 feet from the construction area. This is beyond the suggested 660 foot Bald Eagle "no construction" safety zone.

Figure 6: Location of Bald Eagle Nest in Relation to Repair Location.

Alternative 1 - No Action (Future without Project) - Current status anticipated to remain the same.

Alternative 3 -Repair of Levees with Federal Assistance – All work will be carried out beyond the suggested 660 foot Bald Eagle protection zone. Therefore, the St. Louis District has determined that the proposed project will have “no effect" on the Bald Eagle.

SOCIOECONOMIC RESOURCES

Economic

The Howard Bend LD is a non-federal project that is active in the USACE Rehabilitation and Inspection Program (RIP). Therefore, Howard Bend LD is eligible for Flood Control and Coastal Emergency (FCCE) funding authorized by P.L. 84-99. The Howard Bend levee system protects 6,044 acres (2,299 acres of which is agricultural production land). 2013 USDA NASS aerial imagery provided an estimation of the crop allocation inside the levee district, which was used to determine a distribution of 40% corn, 39% soybean, and 21% wheat. The levee is industrialized and currently protects highly valued commercial structures along with major county roads and state highways. If the levee is not repaired, Missouri River waters will enter the urban levee district at approximately a 0.27% (375-year frequency) chance exceedance flood. The repair project will provide protection against a 0.20% (500-year frequency, pre-flood design) chance exceedance flood. Based on an economic analysis of the Howard Bend LD system, the project average annual benefits are estimated to be $187,000 with average annual costs of $9,000, yielding a Benefit to Cost Ratio of 20.8 to 1. The total rehabilitation project cost is approximately $220,000 with a benefit to cost (b/c) ratio of 20.8 to 1. The non-federal sponsor’s cost-share responsibility is approximately $37,800

Alternative 1 – No Action (Future without Project) – If the Howard Bend levee is not repaired to the Federal standard, there would potential for additional damage and possible breaching during the next major flood event. This could result in a negative economic effect on the Drainage District and the local economy.

Alternative 3 – Repair of Levees with Federal Assistance – Local agricultural and agri-businesses would benefit from levee repair and potential future flood damage reduction during the next flood event. The proposed levee repairs would not require residential displacement. No adverse impacts to life, health, or safety would result from levee repair.

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 locations.

Alternative 1 – No Action (Future without Project) – Without flooding, there would be no change from current conditions. With future 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 the Howard Bend LD will have no effect upon significant historic properties (archaeological remains or standing structures). The repairs consist of minor earth work and returfing on the levee itself. The breaches will be repaired with borrow material that is purchased from a commercial source.

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 State Historic Preservation Office (SHPO).

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 Howard Bend levee is not repaired to the Federal standard, the level of protection would be reduced from that provided by the design (pre-2015 flood event) levee. This would not disproportionately affect low income or minority populations.

Alternative 3 – Repair of Levees with Federal Assistance – If the Howard Bend levee is repaired to the Federal standard, the level of protection would be that provided by the design (pre-2015 flood event) levee. This would not disproportionately affect low income or minority populations.

Tribal Coordination

The St. Louis District consults with 27 tribes that have an interest in projects along all rivers within our district boundaries. Many levees adjacent to the Mississippi River within the U.S. Army Corps of Engineers St. Louis District boundaries were damaged by flooding in 2013.

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 P.L. 84-99, will be coordinated with all tribes in the following manner: An initial letter to the tribes will describe 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 are also included. The tribes are 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.

HTRW

At this time, there are no recognized environmental conditions that would indicate a risk of HTRW contamination within the project area.

Alternative 1 - No Action (Future without Project) - Without flooding, there would be no change from current conditions. With flooding, there is the potential for flood water to spread some contaminants.

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 would conduct a modified Phase I assessment including a site investigation prior to construction to ensure that no HTRW contamination exists within the project area.

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 2 of this EA.

Table 2. Summary of the "No Action" and tentatively selective alternatives to physical, biological, and socioeconomic resources.

Resources	Alternatives	
	No Action	**Tentatively Selected Alternative**
Physical Resources	Due to the severity of the levee slide, there is a potential for further levee damage and a possible breach during the next flood event.	Slide and turf repairs would meet the Federal standard.
	Increased potential for further erosion of levee and sedimentation within drainage 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 500-year protection.
Biological Resources	If levee system is compromised, there is potential for a major contamination event due to the location of sewage treatment facilities within the levee district.	Construction would be confined to the levee and borrow area which may result in minor temporary impacts.
	Federal T&E species would not be adversely impacted.	Environmental effects from construction would be minor. No effects on T& E species.
	Meets project objective of minimal environmental impacts.	Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The drainage district would be susceptible to future floods and potential negative impacts to the drainage 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 (500 - year frequency) of the levee system.
	Does not meet project objective of protecting the socioeconomic value of the drainage district.	Meets project objective of protecting the economic value of the drainage district.

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 high water events of 2015. 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 Howard Bend Levee District P.L. 84-99 project along with several other levees will 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 will come from agriculture areas, low quality farmed wetlands, and previously identified borrow areas. Some P.L. 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.

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 3.

Table 3. 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.	PC
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)

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 4 below for review and comment. Additionally, an electronic copy will be 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 4. Notification of Environmental Assessment and unsigned Finding of No Significant Impact.

U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service, Columbia Field Office
Federal Emergency Management Agency
Senator Roy Blunt
Senator Claire McCaskill
Representative Ann Wagner
Missouri Environmental Protection Agency
Missouri Department of Conservation
Missouri Department of Natural Resources
Missouri Emergency Management Agency
State Senator Jill Schupp
State Representative Bill Otto
Sierra Club, Missouri Chapter
Izaak Walton League of America
American Bottoms Conservancy
The Nature Conservancy

ENVIRONMENTAL ASSESSMENT PREPARERS

Rick Archeski, Environmental Engineer
Experience: 16 years USFWS, 16 years US Army, 19 years USACE-MVS
Role: Environmental Engineering, HTRW

James E. Barnes, District Archaeologist
Experience: 8 years private sector; 22 years Center of Expertise, Curation and Maintenance of Archaeological Collections
Role: National Historic Preservation Act Analysis and Compliance

Bryan Dirks, P.E.
Experience: 8 years Design Branch, USACE
Role: Technical Engineering Lead

Thomas M. Keevin, Ph.D., Aquatic Ecologist
Experience: 5 years private sector; 33 years Environmental Branch, USACE
Role: EA Coordinator, Environmental Impact Analysis, NEPA and Environmental Compliance

Sheila McCarthy, Project Manager
Experience: 8 years USACE-CERL; 8 years USACE-MVS
Role: Project Manager

Danny McClendon, Chief Regulatory Branch
USACE-MVS Regulatory Office
Role: Section 404/401 permit review; NEPA and Environmental Compliance Coordination

Evan Stewart, Economist
Experience: 3 years USACE-MVN
Role: Economics

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DRAFT FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
HOWARD BEND LEVEE DISTRICT
ST. LOUIS COUNTY, MISSOURI

1. I have reviewed the documents concerned with the proposed levee repairs to the Howard Bend Levee District. The purpose of this project is to repair levee sections damaged by an extended high water event during the winter of 2015. Repairs would return the drainage district to pre-flood conditions in an expedient manner.

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 P.L. 84-99, the Corps has the authority to pursue a non-structural alternative only if the project sponsor requests such an alternative. The Howard Bend 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 the Howard Bend Levee District is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by P.L. 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 will come from a commercial supplier. Strict engineering and environmental quality controls have been placed on the procurement of the borrow material.

c. No appreciable effects to general environmental conditions (air quality, noise, water quality) would result from the tentatively selected plan.

d. The tentatively selected plan is not expected to cause significant adverse impacts to general fish and wildlife resources.

e. The tentatively selected plan is not expected to cause unacceptable adverse impacts to riparian habitat, bottomland hardwood forest, or other wetlands.

f. No Federally endangered or threatened species would be adversely impacted by the tentatively selected plan.

g. An active Bald Eagle nest was located withing the drainage district, however, all levee repairs will be beyond the 660 foot construction protection zone for the species. As such, the project should have no impact on the species.

h. No prime farmland would be adversely impacted as a result of the tentatively selected plan.

i. No significant impacts to historic properties (cultural resources) are anticipated as a result of the tentatively selected plan.

j. Under the tentatively selected plan, local economies would benefit through an increased labor demand to carry out levee repairs. Agricultural land and structures within the drainage district would be provided with pre-2015 flood protection.

k. 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 tentatively selected plan, 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

Anthony P. Mitchell
Colonel, U.S. Army
District Commander