



DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
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ST. LOUIS, MISSOURI 63103-2833

CEMVS-PM-E

16 July 2008

Planning, Programs, and Project Management
Environmental Branch

To whom it may concern:

A copy of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the " *Levee Repair (P.L. 84-99): Bois Brule Drainage & Levee District Perry County, Missouri and Randolph County, Illinois*" are enclosed for your review. Please note that the Draft 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. We invite your comments related to the technical content of the attached documents. Please address your comments or questions to Charles Hanneken, of the Environmental Branch (CEMVS-PM-E), at telephone number (314) 331-8469, facsimile number (314) 331-8806, or e-mail at <charles.d.hanneken@usace.army.mil>, by close of business on August 15, 2008.

Sincerely,

A handwritten signature in cursive script that reads "Thomas Keevin".

Thomas M. Keevin
Chief, Environmental Branch

ENVIRONMENTAL ASSESSMENT WITH DRAFT FINDING OF NO SIGNIFICANT IMPACT

LEVEE REPAIR (PL 84-99): BOIS BRULE DRAINAGE AND LEVEE DISTRICT PERRY COUNTY, MISSOURI AND RANDOLPH COUNTY, ILLINOIS

1. PURPOSE AND NEED FOR ACTION

This document is a Environmental Assessment with an attached Draft Finding of No Significant Impact for levee repairs to the Bois Brule Drainage and Levee (D&L) District. It describes levee damage, repair alternatives, the existing environment, and potential environmental impacts associated with each alternative. Under PL84-99, D&L Districts within the federal levee system can request federal assistance with flood damage repairs. The Bois Brule levee system sustained slide damage as a result of flooding in spring of 2008. This damage reduces the level of protection provided by the levee, making the district vulnerable to flooding at more frequent intervals.

2. LOCATION

The levee is located in Perry County, Missouri, and Randolph County, Illinois and runs along the right descending bank of the Mississippi River (Fig. 1). It is bordered on the southeast by Cinque Hommes Creek. It extends from Mississippi River Mile 94.0 to River Mile 111.0. It is just south of the confluence of the Mississippi and Kaskaskia rivers and directly across from the confluence of the Mississippi and St. Mary's rivers. There are two repair areas. One repair area is located on the southeastern portion of the levee near River Mile 100. The other slide is directly opposite of this slide on the southwestern portion of the levee.

3. AUTHORIZATION

The Bois Brule levee was authorized by the Flood Control Act of 22 June 1936. Under the provisions of the Flood Control Act of 1965, Section 201, Public Law 89-298, passed in 1972 authorized modifications to the project to reduce damages from interior flooding. Public Law 84-99 (PL-99), an amendment to the Flood Control Act of 1962, authorizes the US Army Corps of Engineers to assist the D&L Districts in the repair of both Federal (Corps constructed, locally operated and maintained) and non-Federal (constructed by non-Federal interests or by the Work Projects Administration) flood control projects damaged by flooding.

4. LEVEE SYSTEM DESCRIPTION

Bois Brule Drainage and Levee District is in the federal levee system and protects approximately 26,060 acres. This area contains approximately 24,700 acres of agricultural with small businesses, two major manufacturers, a municipal airport, residences and the villages of McBride, Belgique and Menfro. The levee system provides protection from a 50 year flood with 2 ft. of freeboard. The system consists of 33.5 miles of levee constructed with a 20 ft. crown width and 1 on 3 to 4 side slopes. The system includes four high capacity Federal Pump Stations, two railroad closures, one highway closure, 357 relief wells and 16 gravity drains.

5. DESCRIPTION OF ALTERNATIVES

The following section describes the cause and damages to the system and alternatives for repair.

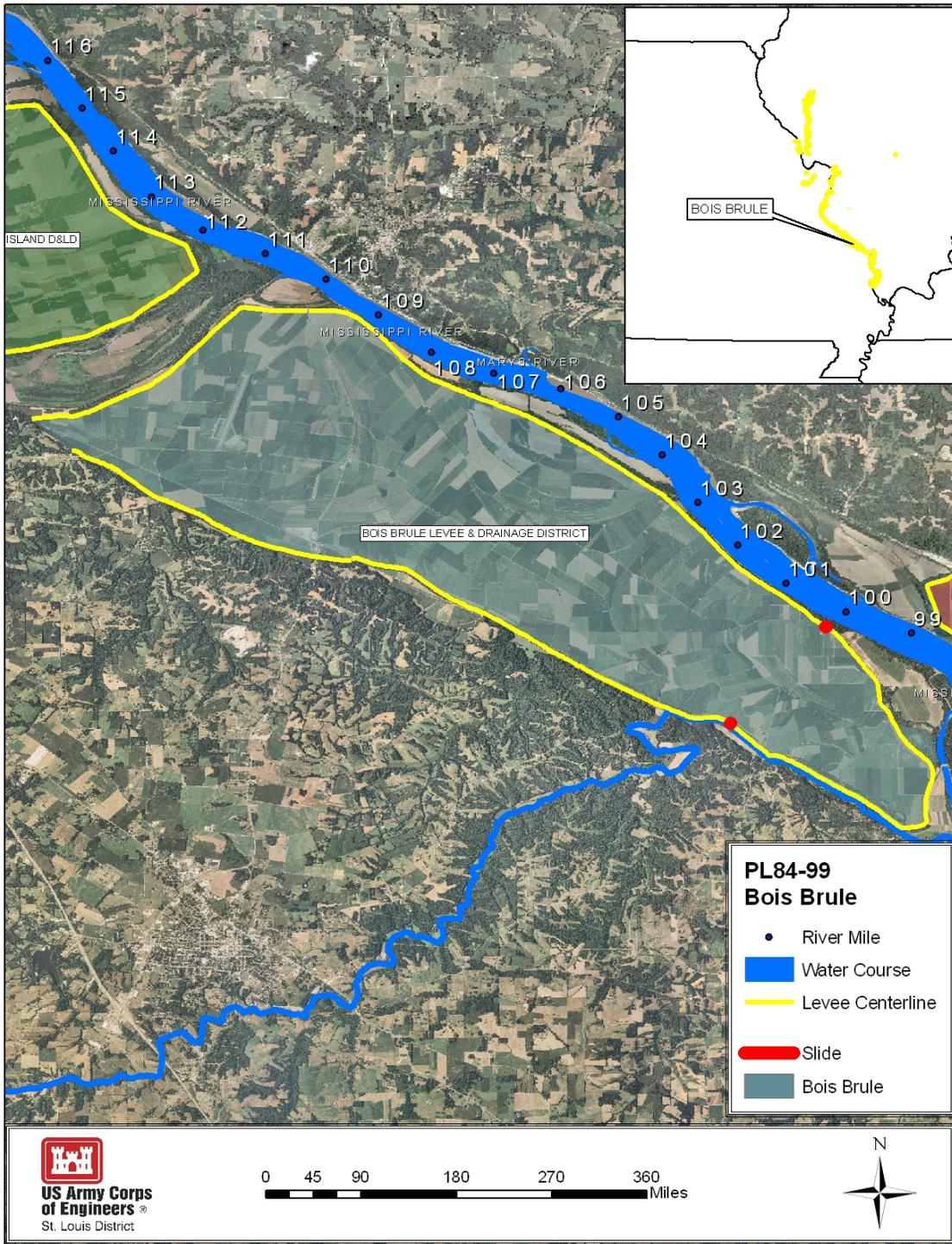


Figure 1. Bois Brule Drainage and Levee District. Levee slides are signified in red.

A. CAUSE OF DAMAGE

Heavy rains throughout, south central Missouri, and southern Illinois during March 2008 caused flooding along the Mississippi River drainage system within the USACE, St. Louis District, in Missouri and Illinois. Two day rainfall totals for March 17-19 ranged from 3 to 11 inches. This pattern continued through April, exceeding the normal rainfall for that time period. Runoff was high during the event due to lack of ground cover and foliage. This resulted in major flooding on small tributaries and filled Corps reservoirs into their flood control pools. The Mississippi River at Cape Girardeau reached 9 feet over flood stage. Flooding in the Meramec basin resulted in a peak discharge of 53,600 cubic feet per second (cfs) at Eureka. This flow resulted in a peak stage 13 feet over flood stage at Valley Park. The Big Muddy River at Murphysboro recorded a flow of over 28,000 cfs, with a stage 15 ft over flood stage.

The Bois Brule Levee is constructed of highly plastic clay soils. These clays have very high Plastic Index values (in excess of 40) and very low shrinkage limits. These soils tend to exhibit a loss of strength with time and have a very high shrink-swell potential that allows for the formation of deep cracks in the levee during periods of low rainfall. These cracks tend to fill with water during high rain events, producing internal hydrostatic pressures against which the levee section was not designed.

B. DAMAGE DESCRIPTION

As a result of flooding on the Mississippi River, Cinque Hommes Creek, and the highly plastic clay soils, the Bois Brule levee became saturated and unstable and sustained slide damage in two areas (Fig. 1). The northern slide (slide 1) occurred on the riverside side of the levee. It extended to the crown of the levee but did not cause crevassing (Fig 2.). The southern slide was land side and was only on the slope (Fig. 2). These slides range in length from 82-84 ft and in depth from 14-15 inches (Table 1).

C. ALTERNATIVES

NEPA requires that in analyzing alternatives to a proposed action a Federal agency consider an alternative of "No Action." Likewise, Section 73 of the WRDA of 1974 (PL93-251) 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 use made of the floodplains, or by accommodating existing uses to the flood hazard. Examples are flood proofing, relocation of structures, 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 would have large costs, and result in loss of numerous acres of prime farmland. Therefore, a nonstructural alternative was eliminated from further consideration.

D. NO ACTION ALTERNATIVE

Under the No Action Alternative, the federal government would not repair the two slide areas on the Bois Brule Levee. It is possible that the Drainage and Levee District would make repairs without Federal assistance. Environmental impacts of the Drainage and Levee District repairs would be similar to the recommended alternative; except that the time period required for repairs may be increased and the environmental protections may be reduced. However, because of the

uncertainty of the Drainage and Levee District making repairs, this potential alternative was not addressed further.

Instead, the environmental impacts of allowing the slides to remain unrepaired are evaluated 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 damage sites. It is estimated that in its damaged condition, the Preston Levee provides a 10 year level of protection instead of the 50 year level it was designed to provide. This reduced level of protection would increase flood risk threatening the livelihood of local landowners.

Table 1. Slide number, location, length, and depth

Slide	Location	Length (ft)	Depth (in)
1	River side	82	15
2	Land side	84	14

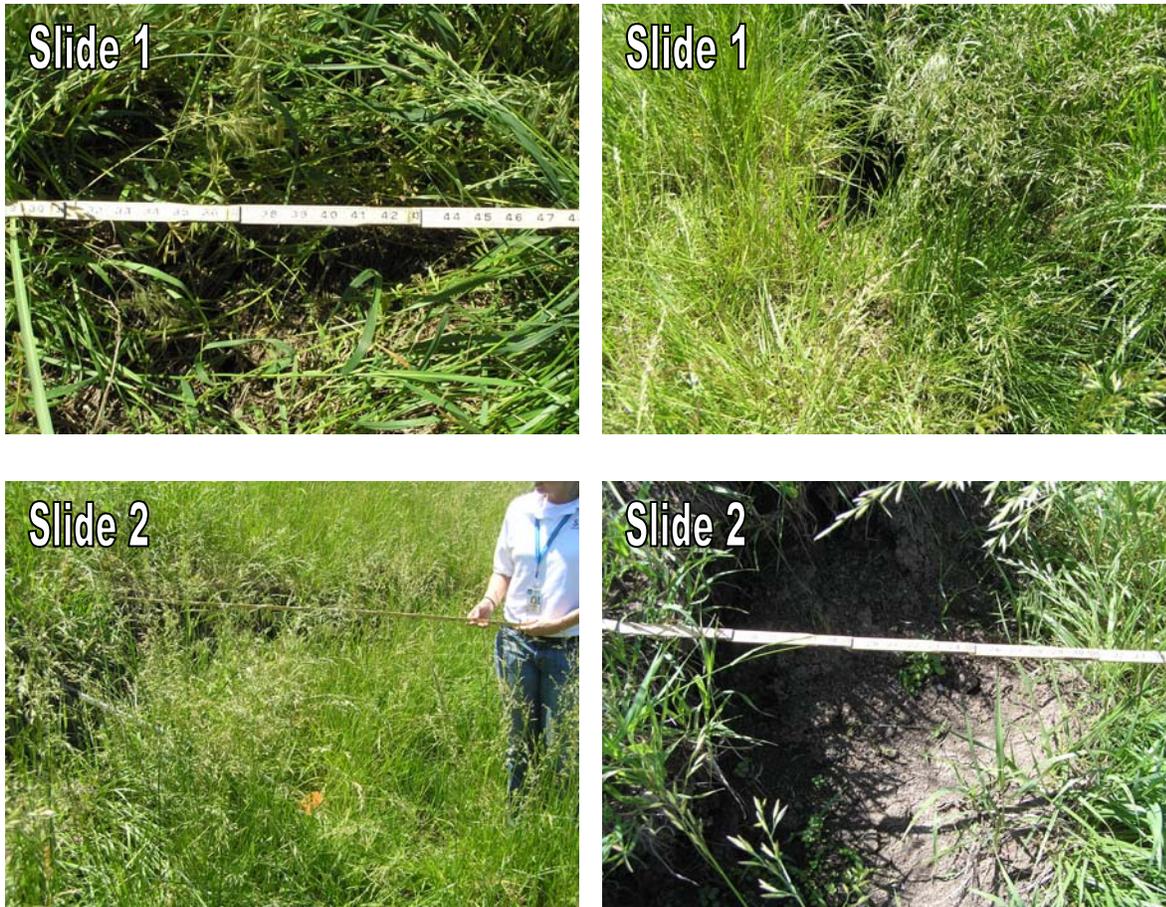


Figure 2. Images of the two slide areas in the Bois Brule Levee.

E. RECOMMENDED ALTERNATIVE: REPAIR OF LEVEES WITH FEDERAL ASSISTANCE

Under this alternative, the Federal Government would repair the two slide areas to pre-flood elevations on the original levee alignment. Because this is a federal levee, the repair costs would be 100% federal.

Alternative Description: To repair the slide areas and bring the levee up to pre-flood protection levels, the following actions are required. Established roads and the levee crown would be used to move equipment to the slide area, including excavators, a bulldozer, a sheeps foot roller, a lime distribution truck, a water truck, a soil pulverizer, a road grader, and a small front end loader. The levee berm on the side of the slide would be used as a staging and work area. Work would begin by excavating and setting aside the top 8” of topsoil from the slide area. Hydrated lime would be mixed into the top 10” of the remaining slide material at an application rate of 16 lbs per square yard. Treated material would then be excavated and set aside on the levee berm. This procedure would be repeated at 10” increments until a depth 1 – 2 ft greater than the failure surface is reached. All treated material would receive a second application of hydrated lime. After all material has been removed, the slide area would be treated with hydrated lime to a depth of 10”. Stockpiled material would be placed and spread over the slide area in increments of 10” and compacted. Finally, top soil would be replaced and disturbed sections of the levee below the levee crown would be re-seeded. Geotextile followed by crushed stone would be placed on the crown to restore the existing road. The repaired sections would match the pre-flood levee grades, cross sections, and alignments. Approximately 4,200 cubic yards of semi-compacted impervious materials would be needed to repair the levee.

F. COMPARISON OF ALTERNATIVES

Under the Repair of Levees with Federal Assistance, damaged levees would be repaired to pre-flood conditions. Under the No Action Alternative, the levee system would remain in its damaged state with a reduced level of protection. This would increase the frequency and risk of monetary damages to croplands and structures in the event of future flooding. It is for these reasons that the Repair of Levees with Federal Assistance Alternative is the recommended alternative.

6. ANTICIPATED SCHEDULE OF WORK WITH PROJECT INFORMATION REPORT APPROVAL

The following is a tentative schedule for the completion of necessary steps for federal repair of the Bois Brule D&L District.

Table 2. Tentative schedule for actions associated with repair.

Action	Proposed End Date
Project Information Report Completion & Submission	July 9, 2008
MVD Project Information Report Review and Approval	R = project approval date
Completed Plans and Specifications & EA public review	R + 36 days
Contract Advertisement	R + 46 days
Contract Bid Opening	R + 50 days
Signed FONSI	R + 52 days
Contract Award	R + 54 days
Notice to Proceed	R + 56 days
Construction Start	R + 60 days
Construction Completion	R + 90 days
Construction Final Inspection	R + 90 days
Fiscal Closeout Complete	R + 105 days

7. IMPACT ASSESSMENT

This section describes the existing environmental and socioeconomic conditions and consequences of both the No Action and the Action Alternatives on those conditions.

Water Resources:

Existing - The areas proposed for repair are located in the portion of the levee that runs along the Mississippi River and also the Cinque Hommes Creek. Adjacent to the repair area of slide 1 is a floodplain forest dominated by cottonwoods, silver maples and willows. The land side where the repair for slide 2 is located is dominated by agriculture. The repair site is separated from Cinque Hommes Creek by the levee.

No Action - The No Action Alternative would have little effect on water quality. The damaged portion of the levee would slowly degrade resulting in erosion. During floods, the protected area is more likely to flood and hold flood waters. This ponding would result in sedimentation on flooded lands and a decrease in water turbidity. However, because the flooded land would still be used for agriculture, receding flood water would be contaminated with agricultural fertilizers and pesticides.

Federal Action - A temporary increase in water turbidity resulting from erosion may occur around repair operations; however, significant adverse impacts associated with turbidity are not anticipated. Repairs would be completed with federal money, design, and supervision ensuring water quality protection.

Soils and Land Use:

Existing - The levee protects approximately 26,060 acres of primarily cropland and development. Adjacent to the northern repair area is about a 1000 foot wide section of floodplain forest and then the Mississippi River. The southern repair area is adjacent to cropland.

No Action - Without flooding, land use and soils in these areas would remain unchanged. With flooding, sedimentation and scour would occur and cropland would be inaccessible until flood waters receded.

Federal Action - Until repair completion, impacts are similar to the No Action Alternative. After construction completion, flood risk would be returned to pre-flood condition reducing flood risk and associated impacts.

Prime Farmland:

Existing – Bois Brule D&L District protects approximately 26,000 acres of prime farmland.

No Action - Under this alternative, the level of flood protection is reduced, increasing the risk of prime farmland flooding.

Federal Action - Material for the levee repair would be excavated from the levee slide area. As such, no agricultural lands would be impacted by the project.

Flora:

Existing - Vegetation on the riverside of the levee is dominated by floodplain species. Common tree species include willow (*Salix sp.*), cottonwood (*Populus deltoides*), ash (*Fraxinus sp.*), maples (*Acer sp.*), sweet gum (*Liquidambar styraciflua*), sycamore (*Platanus occidentalis*), and oaks (*Quercus sp.*). Shrub and herbaceous wetland species include buttonbush (*Cephalanthus occidentalis*), coontail (*Ceratophyllum demersum*), arrow arum (*Peltandra virginica*), pondweeds (*Potamogeton sp.*), duckweeds (*Lemna sp.*), and many sedges. Habitat along the landside of the levee is almost entirely agriculture. The habitat on the levee is mowed cool season grasses.

No Action - Without flooding, the levee slide area would re-vegetate over time and no other impacts would occur. With flooding during the growing season, flood waters could kill vegetation behind the levees as flood water pond on vegetated areas.

Federal Action - Disturbances to levee vegetation (predominantly cool season grasses) would occur during repairs. After repair, the area would be reseeded with similar vegetation resulting in no long term vegetation impacts.

Fauna:

Existing - Floodplain forest, swamps, and aquatic habitats support a great variety of insects, crustaceans, mollusks, reptiles, amphibians, fish, birds, and mammals. Typical terrestrial species utilizing this habitat include turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginianus*), beaver (*Castor Canadensis*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), wood duck (*Aix sponsa*), and many songbirds. The federally endangered Indiana bat (*Myotis sodalis*) and the federally protected American bald eagle (*Haliaeetus leucocephalus*) are

also observed in the area. The proposed repair area does not provide quality wildlife habitat because of regular disturbances from mowing, burrowing mammal control, and other maintenance activities. Therefore, it is unlikely that the repair area supports significant wildlife populations.

No Action - Without flooding, there would be no impacts to fauna. With flooding, fauna would be displaced by flood waters and habitat would be impacted by flood waters.

Federal Action - Wildlife populations occupying the natural areas adjacent to the levee toe would be disturbed by noise, increased water turbidity, and exhaust. These impacts would cease shortly after construction completion.

Fisheries:

Existing - Aquatic species that occur within the Mississippi River, associate tributaries and backwaters include catfish, crappie, freshwater drum (*Aplodinotus grunniens*), gar, shad, paddlefish (*Polyodon spathula*), buffalo, carp, largemouth bass (*Micropterus salmoides*), and sunfish.

No Action - Without flooding, there would be no impacts to fisheries. With flooding, fish would have access to a large area of flooded habitat benefiting spawning and rearing individuals.

Federal Action - Species utilizing big river aquatic habitats typically inhabit a diversity of water velocities, depths, and turbidity levels during various life stages. Any temporary increase in turbidity should have no long term adverse impacts to fish or their habitat.

Threatened and Endangered Species:

Existing - In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, the St. Louis District, Environmental Branch requested the US Fish and Wildlife Service provide a listing of federally threatened or endangered species that may occur in the vicinity of the proposed project. In an electronic message, dated June 25, 2008, the USFWS provided a list of species and critical habitat (Table 1) (USFWS 2008). Habitat requirements and impacts of the Federal Action alternative are discussed for each species below.

No Action - Conditions for threatened and endangered species would remain the same.

Table 1. List of federally threatened and endangered species and their habitat provided by USFWS on June 25, 2008.

Common Name (Scientific Name)	Classification	Habitat
Indiana bat (<i>Myotis sodalis</i>)	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Interior Least Tern (<i>Sterna antillarum</i>)	Endangered	Bare alluvial and dredge spoil islands
Pallid sturgeon (<i>Scaphirhynchus albus</i>)	Endangered	Large rivers

Pallid sturgeon (*Scaphirhynchus albus*) are found in the Mississippi River downstream of its confluence with the Missouri River. Pallid sturgeon forage for fish along the bottom of large rivers (USFWS 1993). Little is known of adults' habitat preferences and even less is known about spawning locations. Pallid sturgeon are most frequently caught over a sand bottom, which is the predominant bottom substrate within the species' range on the Mississippi River. Recent tag returns have shown that the species may be using a range of habitats in off-channel areas and tributaries of the Mississippi River.

Federal Action - Levee repairs would take place within the footprint of the levee and would not impact any pallid sturgeon habitat. The proposed project is not likely to adversely affect the Pallid Sturgeon.

Interior Least Tern (*Sterna antillarum*) historic breeding range includes the Mississippi River system (USFWS, 1990). Surveys of the Mississippi River have found the majority of breeding colonies occur south of Cairo, IL. However, breeding birds have been found in Scott and Mississippi counties. The characteristics required for suitable breeding grounds include “bare alluvial islands or sandbars”, food, and appropriate water regime. Least terns arrive at breeding grounds in late April and the breeding season is complete by early September (USFWS, 1990).

Federal Action - Levee repairs would take place within the footprint of the levee and would not impact any Interior Least Tern habitat. The proposed project is not likely to adversely affect the Interior Least Tern.

Indiana Bat (*Myotis sodalis*) forage on flying insects typically along the shorelines of rivers and lakes, in the canopy of trees in floodplains (Humphrey et al. 1977), and in upland forests (Brack and LaVal 1985). In summer, habitat consists of wooded or semi-wooded areas, mainly along streams. Females bear their offspring in hollow trees or under loose bark of living or dead trees. Trees standing in sunny openings are attractive because of warmer air spaces and crevices under the bark. Maternity sites have been reported in riparian areas, floodplain forests, and upland habitats. Limestone caves with pools are preferred for hibernacula during winter (Hall 1962).

Federal Action - The repair would take place within the footprint of the existing levee and it is unlikely that trees would be adversely impacted. The noise from construction may temporarily disturb roosting bats. This noise is unlikely to affect maternity colonies because any juveniles

should be fully reared before construction occurs (Natureserve 2008). The presence of many suitable roosting sites in the area would also allow for the bats to temporarily roost in another area. The proposed project is not likely to adversely affect the Indiana bat.

Air Quality:

Existing - Perry County, Missouri, and Randolph County, Illinois, meet all Environmental Protection Agency air quality requirements.

No Action - There would be no effects to air quality under this alternative.

Federal Action - Repair activities would result in dust and exhaust from equipment. Therefore, a short- term reduction in air quality that would terminate after the repair completion, is expected.

Hazardous, Toxic and Radioactive Waste Sites:

Existing - There are no recognized environmental conditions that would indicate a risk of HTRW contamination within the project area. The likelihood of hazardous substances existing within the project area or adversely affecting the project area due to the proposed construction activities is very low.

No Action - There would be no effects under this alternative.

Federal Action - Impacts are the same as the No Action Alternative.

Noise:

Existing - Ambient noise in the study area is generated by wildlife, human activities and vehicular traffic.

No Action - There would be no effects under this alternative.

Federal Action - The proposed project would be expected to temporarily increase noise levels near repair sites. 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 by the USACE MVS in the past, noise above this level would not be expected to occur for periods longer than eight hours.

Recreation:

Existing - Popular recreational activities in the Brois Brule levee district include hunting, fishing, hiking, and bird watching in the bordering floodplain forests. No recreational facilities are located near the repair area.

No Action – Without flooding, there would be no impacts to fisheries. With flooding, most recreation activities would not be possible until flood waters receded.

Federal Action - Construction equipment and activities would cause temporary noise affecting and potentially disrupting recreation activities within the vicinity of the repair area. Upon construction completion, all disruption would cease.

Aesthetics:

Existing - The levee repair area is in an area of primarily agricultural activity. Floodplain forest is a conspicuous feature directly adjacent to the levee in the repair area.

No Action – Without flooding, there would be no aesthetic impacts. With flooding, flood damage, sedimentation and scour would occur.

Federal Action - Construction equipment and activities would cause short-term degradation of the landscape. Upon construction completion, all equipment would leave the area, and the seeded repair area would re-vegetate to closely resemble pre-flood conditions.

Socioeconomic:

Existing – The Bois Brule Drainage and Levee District in Perry County provides protection to 25,400 cropland acres, and the villages of McBride, Belgique and Menfro. The crop distribution within the district is approximately 50 percent soybeans and 50 percent corn. The levee protects about \$379,000 in agricultural commodities.

No Action - Without flooding, there would be no socioeconomic impacts. With flooding, damage, sedimentation and scour would occur. This would impair the ability of farmers and businesses to use their land resulting in economic losses.

Federal Action - Under the Federal Action Alternative repairs would be 100% Federal. Local agricultural and agri-businesses would benefit from levee repair and subsequent restoration of the pre-flood level of protection. The proposed initial levee repairs would not require residential displacement and could provide short-term employment for local contractors and laborers.

Environmental Justice:

Existing – The standard unit of analysis for environmental justice is the Census-designated Block Group. The Bois Brule levee district is contained within two block groups. They are a 64 square mile northern area and 52 square mile southern area. The northern block group population and the southern block group population are 99% white. From 2000 to 2005, census data suggests that the population is increasing in the northern block group, but decreasing within the southern block group.

No Action – Without flooding, there would be no change from current conditions. With flooding, damage, sedimentation and scour would occur. This would impair the ability of landowners to use their land resulting in economic losses.

Federal Action - The local agricultural and agri-business economy would benefit from levee repair and subsequent restoration of the pre-flood level of protection. The repairs would also provide short-term employment funded by federal money.

Cultural Resources:

Existing - The repair site and staging area is composed of recently deposited material and is unlikely to contain any culturally significant resources.

No Action - Without flooding, there would be no change from current conditions. With flooding, damage to culturally significant sites that may be protected by the levee could occur.

Federal Action - Under the current proposed plan to repair the slides with the existing slide material and stage equipment on the existing, previously disturbed, levee berm it is very unlikely that any cultural resources would be impacted. As a result, earthmoving / ground disturbance activities associated with the proposed repair are not anticipated to have any effect upon significant archaeological remains. However, in the unlikely event that potentially significant archeological / historic remains are discovered during construction activities, all earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains is determined. The precise nature of such investigations would be developed by the SLD in concert with the State Historic Preservation Officers' representatives in the Missouri Department of Natural Resources and the Illinois Historic Preservation Agency.

Cumulative Impacts:

Existing - System-wide repairs to levees are currently underway. Final repairs would involve returning most of the levee breaches to the same alignment and level of protection as existed prior to the flood of 1993. 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. Other PL84-99 projects currently being planned include projects that require borrow and some that are infeasible to repair on the original alignment, such as the damage to the Vandalia D&L District. Borrow would most likely come from agriculture areas or previously identified areas. 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 impacts are expected.

No Action - No long term adverse impacts are expected.

Federal Action - No long term adverse impacts are expected.

8. EXECUTIVE ORDER 11988 (FLOODPLAIN MANAGEMENT)

Under this Executive Order, Federal agencies are to "provide leadership and shall take action to reduce the risk of flood loss, to minimize the impacts of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains". The St. Louis District, Corps of Engineers has evaluated the levee repairs at the slides which occurred in the Bois Brule D&L District during the spring flooding of 2008. Based on the extent of levee damage that currently exists, it is prudent to repair the levee to restore the level of flood protection that existed prior to the flood event.

By reducing the future risk of flood loss and minimizing the impacts on existing vegetation in the floodplain, this proposed project is in full compliance with this Executive Order.

9. EXECUTIVE ORDER 11990 (PROTECTION OF WETLANDS)

Under this Executive Order, Federal agencies shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities.

The St. Louis District, Corps of Engineers has evaluated the levee repairs at the levee slides which occurred in the Bois Brule D&L District during the spring flooding of 2008. The proposed project work would be conducted within the footprint of the levee. Therefore, the proposed levee repairs are in full compliance with this Executive Order because no wetlands would be affected by this action.

10. BALD AND GOLDEN EAGLE PROTECTION ACT OF 1940

Bald Eagles (*Haliaeetus leucocephalus*) range over most of North America. They build huge nests in the tops of large trees near rivers, lakes, marshes, or other aquatic areas. The staple food of most bald eagle diets is fish, but they will also feed on waterfowl, rabbits, snakes, turtles, other small animals, and carrion. In winter, eagles that nest in northern areas migrate south and gather in large numbers near open water areas where fish or other prey are plentiful (USFWS 2006).

On August 9, 2007 the bald eagle was removed from the federal list of threatened and endangered species. It remains protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act prohibits unregulated take of bald eagles. The Fish and Wildlife Service recently finalized a rule defining "take" that includes "disturb." "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." (USFWS 2007).

The repair would take place within the footprint of the existing levee. Construction is currently scheduled to begin in September. Bald Eagles fledge young in August and begin nest building activities in late January. Therefore, the proposed project is not likely to disturb bald eagles.

11. ENVIRONMENTAL REGULATORY CONSTRAINTS

The Recommended Alternative was subject to compliance review with all applicable environmental regulations and guidelines. The Recommended Alternative was determined to be in full compliance with all applicable acts and legislation.

12. RELATIONSHIP OF PLANS TO ENVIRONMENTAL LAWS AND REGULATIONS

Federal Policies	Compliance
Bald Eagle Protection Act, 42 USC 4151-4157	Full
Clean Air Act, 42 USC 7401-7542	Full
Clean Water Act, 33 USC 1251-1375	Full
Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC 9601-9675	Full
Endangered Species Act, 16 USC 1531-1543	Full
Farmland Protection Policy Act, 7 USC 4201-4208	Not applicable
Fish and Wildlife Coordination Act, 16 USC 661-666c	Full
Food Security Act of 1985, 7 USC varies	Full
Land and Water Conservation Fund Act, 16 USC 460d-4601	Full
National Environmental Policy Act, 42 USC 4321- 4347	Partial ¹
National Historic Preservation Act, 16 USC 470 <i>et seq.</i>	Partial ²
Noise Pollution and Abatement Act, 42 USC 7691-7642	Full
Resource, Conservation, and Rehabilitation Act, 42 USC 6901-6987	Full
Rivers and Harbors Appropriation Act, 33 USC 401-413	Full
Water Resources Development Acts of 1986 and 1990	Full

Floodplain Management (EO 11988 as amended by EO 12148)	Full
Prevention, Control, and Abatement of Air and Water Pollution at Federal Facilities (EO 11282 as amended by EO's 11288 and 11507)	Full
Protection and Enhancement of Environmental Quality (EO 11991)	Full
Protection and Enhancement of the Cultural Environment (EO 11593)	Full
Protection of Wetlands (EO 11990 as amended by EO 12608)	Full

Full compliance: having met all requirements of the statute for the current stage of planning

Not applicable: compliance with the statute not required

1 Full compliance to be achieved with the District Engineer’s signing of the Finding of No Significant Impact

2 Full compliance to be achieved with the State Historic Preservation Officer’s concurrence in the District’s EA conclusions.

13. COORDINATION WITH OTHER STATE AND FEDERAL AGENCIES

This draft EA and FONSI will be provided to the following State and Federal agencies for their review, comments, and concurrence during the 30 day public comment period.

- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Federal Emergency Management Agency
- Natural Resources Conservation Service
- Illinois Department of Natural Resources
- Illinois State Historic Preservation Office
- Illinois Emergency Management Agency
- Missouri Department of Conservation
- Missouri department of Natural Resources

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

14. LIST OF PREPARERS

- Mr. Bruce Douglas, Civil Engineer Role: Project Manager
- Mr. Chuck Frerker, Regulatory Specialist Role: Regulatory Permits
- Dr. Terry Norris, District Archaeologist Role: Archeological Compliance
- Mr. Charlie Hanneken, Biologist Role: Environmental Assessment

15. REFERENCES

- Brack, V., Jr., and R.K. LaVal. 1985. Food habits of the Indiana bat in Missouri. *Journal of Mammalogy* 66: 308-315.
- Hall, J.S. 1962. A life history and taxonomic study of the Indiana bat, *Myotis sodalis*. Reading Public Museum and Art Gallery Science Publication 12: 3-68.
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DRAFT FINDING OF NO SIGNIFICANT IMPACT

LEVEE REPAIR (PL 84-99): BOIS BRULE DRAINAGE AND LEVEE DISTRICT PERRY COUNTY, MISSOURI AND RANDOLPH COUNTY, ILLINOIS

1. I have reviewed and evaluated the documents concerning the proposed repair of two slide areas in the Bois Brule Drainage and Levee District, Perry County, Missouri, and Randolph County, Illinois. These two slide areas reduce the ability of the system to provide the authorized level of flood protection. The St. Louis District proposes work that involves excavation of the slide area to 1 – 2 feet deeper than the failure surface. Excavated material would then be mixed with hydrated lime (approximately 6% by dry weight) on the levee berm. The material would then be placed back in the levee section and compacted in place. All work will be performed within the footprint of the existing levee and the levee restored to pre-flood levee grades, cross sections, and alignments.

2. I have also evaluated other pertinent data and information on these repairs. As part of this evaluation, I have considered the following project alternatives.

a. Providing Federal assistance with repairs to the levee system (Recommended Alternative).

b. No Action Alternative.

c. Nonstructural Alternative

3. The Nonstructural Alternative was eliminated during preliminary planning because it is not desirable to the sponsor, would have large costs, and result in loss of numerous acres of prime farmland. The possible consequences of the remaining two alternatives have been studied for physical, environmental, cultural, social and economic effects, and engineering feasibility. Significant factors evaluated as part of my review include:

a. If no repairs are accomplished, the levee system could deteriorate to the point that protection would be jeopardized during the next significant flood event. The Bois Brule Levee would remain in its damaged state and provide an estimated 10 year level of protection instead of the 50 year level it was designed to provide. This reduced level of protection would increase flood risk and threaten the livelihood of local landowners.

b. Repair activities will cause temporary erosion, noise, and air pollution. Proper construction and soil management techniques will minimize this effect. Upon completion, all construction equipment will be removed and exposed areas will be stabilized by compaction and seeding. Impacts will be short term and minor.

c. Levee vegetation will be lost and wildlife disturbed during repair. These impacts will be both minimal and temporary. Seeding will restore vegetation and wildlife disturbance will end after construction completion.

- d. No Federally endangered, threatened, or proposed species will be adversely impacted by the levee repairs.
 - e. The aesthetic and recreational quality of the area will be temporarily reduced by construction equipment and associate noise. Shortly after construction completion, aesthetic and recreational quality will return to pre-flood conditions.
 - f. Construction/repair activities associated with this project will have no effect upon significant archaeological remains or historic properties. As presently designed, earthmoving will be confined to areas previously disturbed during original levee construction.
 - g. No adverse socioeconomic impacts from the proposed levee repairs were identified.
 - h. The repair work will not require the permanent placement of additional fill material below ordinary high water. As such, the public will not be notified of the action by Public Notice under Section 404 or 401 of the Clean Water Act.
4. Based on my analysis and evaluation of the alternative courses of action presented in the Environmental Assessment, I have determined that the implementation of the recommended plan will not have significant effects on the quality of the environment. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with this action.

Date

Thomas E. O'Hara
Colonel, U.S. Army
District Engineer