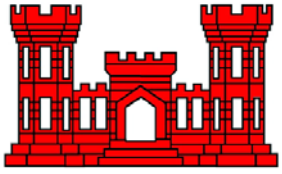
DRAFT ENVIRONMENTAL ASSESSMENT

Mississippi River Mainline Levee
Below Commerce and Below Charleston
Seepage Control Measures
Scott and Mississippi Counties, Missouri



U.S. Army Corps of Engineers
Mississippi Valley Division
Regional Planning and Environmental Division South

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division, Regional Planning and Environmental Division South, has prepared this draft environmental assessment (EA) for the Memphis District (MVM) to evaluate the potential impacts associated with seepage control measures at three locations along the Mississippi River mainline levee (MRL), located near the towns of Commerce, in Scott County, and Charleston, in Mississippi County, Missouri (Figure 1).

This draft EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation ER 200-2-2. This draft EA provides sufficient information on the potential adverse and beneficial environmental effects to allow the MVM District Commander to make an informed decision on the appropriateness of an environmental impact statement (EIS) or a Finding of No Significant Impact (FONSI).

A 1998 final Supplemental EIS (SEIS), *Mississippi River Mainline Levees Enlargement and Seepage Control*, addressed seepage control measures to be implemented along the MRL. Additionally, in 2007, an EA, *Mississippi River Levee Construction Project, Seepage Control Measures*, was completed to address additional seepage issues along the MRL that were not identified when the July 1998 final SEIS was completed. However, since publication of the 1998 SEIS and 2007 EA, it has been determined that other seepage control measures need to be installed along the MRL within the MVM to prevent continued seepage and potential degradation of the levee. During the winter flood of 2015-16, seepage issues were discovered at the proposed project locations. Subsequently, funding was provided through Supplemental Funding Public Law 114-254 (10 December 2016) to address these issues.

1.1 Proposed Action

The proposed project involves implementing seepage control measures along the MRL in Scott and Mississippi counties, Missouri. Project features for the proposed seepage control action includes installing 29 relief wells, modifying existing drainage systems to accommodate additional seep water, placement of rip-rap at each drainage confluence to prevent potential scour, and clearing vegetation from existing ditches. The location of each proposed action is presented in Figures 1 - 4. Access to the project areas would be from State Highway E (Below Commerce Mile 5), Highway N (Below Commerce Mile 15), and the MRL (Below Charleston Mile 24). Specialized drill rigs would be used to drill the holes along the levee, and cranes would be used to install the relief wells. Excavated material obtained from ditch modifications at the Below Commerce Mile 5 site would be used to bring the depressional area adjacent to the levee to grade to facilitate seep water drainage into the modified ditch. However, in doing so, it

is anticipated that approximately 11.4 acres of farmed wetlands would be impacted (Figure 2). The excavated material from the ditch modification at the Below Charleston Mile 24 site would be spread onto non-wet agricultural fields adjacent to the site. Additionally, approximately 1 combined acre of vegetation would be cleared from existing ditches at the Below Commerce Mile 15 and Below Charleston Mile 24 sites to facilitate seep water drainage. Compensatory mitigation for unavoidable impacts associated with the proposed action would consist of restoring approximately 25 acres of cleared agricultural lands to bottomland hardwood forest as described in the Mitigation Section (6.0) below.

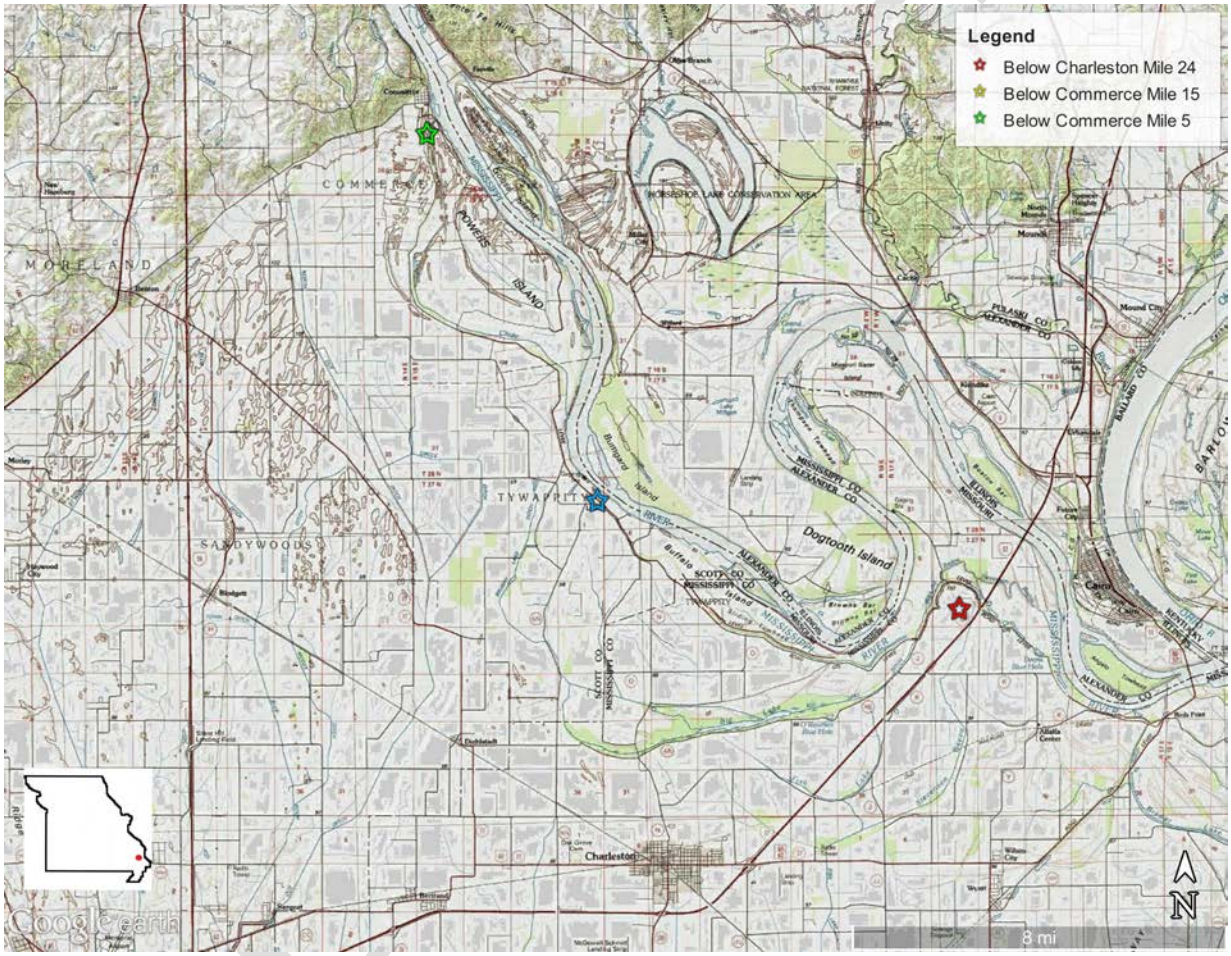

Figure 1. Location of proposed seepage control measures along the Mississippi River mainline levee, located near the towns of Commerce, in Scott County, and Charleston, in Mississippi County, Missouri.

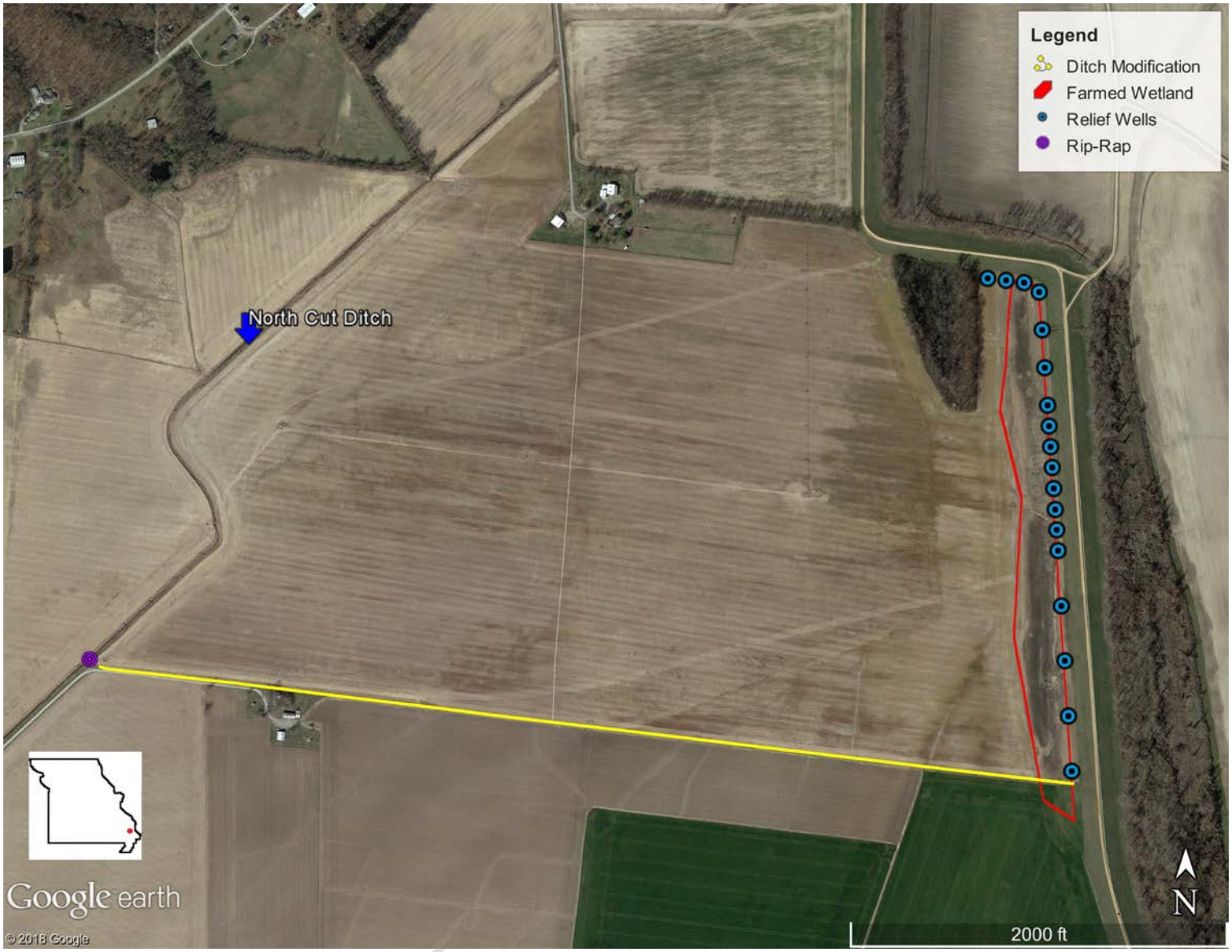

Figure 2. Proposed seepage control measures along the Mississippi River mainline levee at the Below Commerce Mile 5 project area, Scott County, Missouri.

Figure 3. Proposed seepage control measures along the Mississippi River mainline levee at the Below Commerce Mile 15 project area, Scott County, Missouri.

Figure 4. Proposed seepage control measures along the Mississippi River mainline levee at the Below Charleston Mile 24 project area, Mississippi County, Missouri.

1.2 Purpose and Need for the Proposed Action

The purpose of the proposed action is to control seepage under the MRL that occurs during flood conditions on the Mississippi River to ensure that the levee system does not fail during a flood event. Continued seepage could eventually lead to a levee failure, which would result in property damage and cause human injuries and/or loss of life.

1.3 Authority for the Proposed Action

The proposed action is authorized as part of the Flood Control Act of 1928, as amended.

1.4 Prior Reports

This draft EA has been prepared because of seepage problems at the proposed project locations were not anticipated when the July 1998 final SEIS was completed. In 2007, an EA, *Mississippi River Levee Construction Project, Seepage Control Measures*, was completed to address additional seepage issues along the MRL that were not identified when the July 1998 final SEIS was completed. Since publication of the 1998 SEIS and 2007 EA, it has been determined that additional seepage control measures need to be installed to prevent recently discovered seepage problems within the MRL. The 1998 final SEIS and the 2007 EA are incorporated herein by reference.

1.5 Public Concerns

Public concerns exist regarding the ability of the MRL to contain floodwaters during a flood event. Seepage could undermine the levee causing it to breach if unabated, thus posing a threat of flooding. A levee breach would flood the surrounding lands and residential areas, and threaten the lives and property of residents within the flooded areas. The record level flooding of the Mississippi River in May 2011 has heightened public concerns.

2.0 ALTERNATIVES TO THE PROPOSED ACTION

Three alternatives were considered for the proposed action. These alternatives were: 1) no-action; 2) installation of relief wells and associated drainage work; and 3) construct a landside berm.

2.1 Alternative 1 – Future without Project Condition (No-Action)

In the future without project condition (no-action), the proposed action would not be constructed. The no-action alternative would result in continued seepage during flood conditions. Sands and silts would be carried under the levee, potentially causing sand boils. This could eventually lead to levee failure during a major flood event. Failure of the levee could result in property damage, human injuries and/or loss of life.

2.2 Alternative 2 – Install Relief Wells with Associated Drainage Work

The proposed project action for alternative 2 involves implementing seepage control measures along the MRL. Project features would include installing 29 relief wells, modifying existing drainage systems to accommodate additional seep water, placement of rip-rap at each drainage confluence to prevent potential scour, and clearing vegetation from existing ditches. The excavated material from the ditch modification at the Below Commerce Mile 5 site would be used to bring the depressional area adjacent to the levee to grade. However, this would result in impacts to approximately 11.4 acres of farmed wetlands. Approximately 1 acre of vegetation would be cleared from existing ditches at the Below Commerce Mile 15 and Below Charleston Mile 24 sites to facilitate seep water drainage.

2.3 Alternative 3 – Construct a Landside Berm

This alternative involves constructing a berm along the landside toe of the MRL to control seepage under the levee. As the case with alternative 2, alternative 3 would also result in impacts to approximately 11.4 acres of farmed wetlands. However, as opposed to relief wells, borrow material would be needed to construct a seepage berm. Suitable soils would need to be obtained from borrow areas located at the project site or hauled in from an off-site location. A suitable site would first need to be located, landowner access for rights-of-entry obtained, and soil borings conducted to determine if sufficient quantities are available. Several sites may need to be located and surveyed before an appropriate site is found. Once a suitable site is located, the land or borrow rights would need to be purchased. Additional time required to locate a suitable borrow source and to obtain the land or borrow rights would delay project implementation. Additionally, construction of berms is more expensive than relief wells due to the cost to obtain the land or borrow rights, excavation of large quantities of earthen material needed, and to transport the material to the project site. Furthermore, if the borrow areas were to be located in wooded or farmed wetlands, additional adverse environmental impacts would result and increase costs for project compensatory mitigation requirements. Impacts to local roadways and the public use of those roads would also result, as haul trucks would be needed to transport the tons of material to the project site.

2.4 Preferred Alternative for the Proposed Project

After careful consideration of all alternatives, it was determined that alternative 1 (no-action) was unacceptable because of risks to human life and property. If these seepage problems are not addressed, levee failure resulting in catastrophic impacts could ultimately result. Due to the potential of increased adverse environmental effects and time delay associated with locating suitable borrow areas, it was determined that alternative 3 (landside berms) is not practicable or reasonable. Alternative 2 (relief wells and associated drainage work) has higher maintenance costs than the other alternatives, but has fewer adverse environmental impacts. All factors considered, alternative 2 is the most practical solution for seepage control, the least environmentally damaging practicable alternative, and is the preferred alternative for the proposed project assessed in this draft EA.

3.0 AFFECTED ENVIRONMENT

3.0.1 Environmental Setting

The proposed seepage control items are located in Scott and Mississippi counties, Missouri. During the fall of 2017, USACE biologists performed site assessments of the proposed project areas. At all three locations, properties on the landside of the levee surrounding the proposed work sites are dominated by large, row crop agricultural production. Tree species in the batture lands (riverside of the levee) adjacent to the project areas generally consist of cottonwood, American elm, sugarberry, silver maple, bitter pecan, sycamore, cypress, black willow and various types of oaks.

At the Below Commerce Mile 5 site (Figure 2), the proposed alignment for the relief wells lies adjacent to approximately 11.4 acres of farmed wetlands. The farmed wetland designation was determined through coordination with the Natural Resource Conservation Service (NRCS). The existing ditch proposed to be modified (Figure 5) is dry throughout most of the year, covered in various grasses and forb species, farmed to top bank on the north side, bound by a utility line right-of-way on the south side, and empties into North Cut Ditch. The ditch tie-in to North Cut Ditch has been previously rip-rapped to prevent scour and erosion.

At the Below Commerce Mile 15 site (Figure 3), the proposed alignment for the relief wells abuts a portion of Highway N and agricultural land currently in production. The vegetation to be removed within 40-feet of existing relief wells along the existing drainage system is dominated by sugarberry and silver maple, with a minor constituency of cottonwood, black willow and hickory (Figure 6). No evidence of suitable roost trees for bats were noted during the site visit.

At the Below Charleston Mile 24 site (Figure 4), the proposed alignment for the relief wells are located in land planted in grass and subject to routing mowing. The existing ditch proposed to be modified is dry throughout most of the year, covered in various grasses and forb species, and farmed to top bank on both sides (Figure 7). Vegetation that will be removed near the eastern limits of the existing ditch proposed for modification consists of sugarberry, silver maple, cottonwood, Black walnut, sycamore, and box elder (Figure 8). No evidence of suitable bat roost trees was noted during the site visit.

Figure 5. Existing condition of ditch proposed to be modified to facilitate seepwater drainage at the Below Commerce Mile 5 project area, Scott County, Missouri.

Figure 6. Existing condition of vegetation to be cleared within 40-feet of existing relief wells at the Below Commerce Mile 15 project area, Scott County, Missouri.

Figure 7. Existing condition of ditch proposed to be modified to facilitate seepwater drainage at the Below Charleston Mile 24 project area, Mississippi County, Missouri.

Figure 8. Existing condition of vegetation proposed to be cleared to facilitate seepwater drainage at the Below Charleston Mile 24 project area, Mississippi County, Missouri.

3.0.2 Climate

Average monthly temperatures in the general project area range from 30 degrees Fahrenheit in January to 81 degrees Fahrenheit in July. Maximum temperatures can exceed 100 degrees Fahrenheit and minimum temperatures can go below minus 10 degrees. Annual precipitation ranges from 25 to 80 inches with a normal or average of approximately 50 inches. The heaviest rainfall generally occurs in the winter-spring period of January through May. The growing season has a length of approximately seven months with the first and last killing frost occurring in the early parts of November and April, respectively.

3.0.3 Geology

The majority of the soils in most of the landside proposed work sites are Fluvaquents, but are no longer frequently flooded. However, the soils on the riverside of the levee still flood frequently. These soils are somewhat poorly drained and occur mostly as narrow strips that parallel levees where soil material has been excavated for use in constructing the levee. During high water, sands and silts are carried under the levee, potentially causing sand boils.

3.1 Relevant Resources

This section contains a description of relevant resources that could be impacted by the project. The relevant resources (Table 1) described in this section are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. The following resources have been considered and found to not be affected by the alternative under consideration: freshwater marshes, freshwater lakes, state-designated scenic streams, fisheries, municipal facilities, municipal utilities, roadways, recreation, aesthetics, socio-economic, and environmental justice.

Table 1. Relevant Resources.

Resource	Institutionally Important	Technically Important	Publicly Important
Agricultural Lands	Food Security Act of 1985, as amended; the Farmland Protection Policy Act of 1981	The habitat provided for the provision or potential provision of human and livestock food products.	The present economic value or potential for future economic value.
Wetlands	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918.	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Threatened and Endangered Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, U.S. Fish and Wildlife Service, NRCS, U.S. Environmental Protection Agency, and Missouri Department of Natural Resources cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Cultural Resources	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.
Air Quality	Clean Air Act of 1963.	State and Federal agencies recognize the status of ambient air quality in relation to the National Ambient Air Quality Standards.	Virtually all citizens express a desire for clean air.
Hydrology and Water Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act.	State and federal agencies recognize value of fisheries and good water quality. The National and state standards are established to assess water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.

3.1.1 Agricultural Lands

Existing Conditions

The existing ditches proposed for modification at the Below Commerce Mile 5 and Below Charleston Mile 24 transect, and are adjacent to, agricultural fields currently in production. Utilizing the U.S. Department of Agriculture Web Soil Survey (https://websoilsurvey.nrcs.usda.gov/app/), it was determined that approximately 1.0 acre of prime farmland falls within the construction limits of the proposed ditch modifications (approximately 0.8 acres at the Below Commerce Mile 5 site and approximately 0.2 acres at the Below Commerce Mile 24 site). At the Below Commerce Mile 15 site, no agricultural lands are present within the projects right-of-way.

3.1.2 Wetlands

Existing Conditions

The NRCS was contacted regarding the presence of prior converted wetlands and farmed wetlands in any of the three project area vicinities. The NRCS reported that a farmed wetland of approximately 11.4 acres was present at the Below Commerce Mile 5 site (Figure 2). Also at the Below Commerce Mile 5 site, NRCS noted an approximate 5.2 acre wooded wetland area that is located in the project vicinity. However, the wooded wetland is outside of the projects right-of-way and would not be impacted by the project. No reported wetland areas were noted at the Below Commerce Mile 15 and Below Charleston Mile 24 project areas.

3.1.3 Wildlife

Existing Conditions

Wildlife species that could be expected to be found within the Below Commerce Mile 5, Below Commerce Mile 15 and Below Charleston 24 project areas include coyotes, deer, raccoons, opossums, rabbits, gray and fox squirrels, muskrats, mice, rats, shrews, songbirds, turtles, snakes, amphibians, and other small animals typically found along the Mississippi River levees.

3.1.4 Threatened and Endangered Species

Existing Conditions

According to results obtained from the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) conservation planning tool, there are a total of four threatened, endangered, or candidate species known to be found within Scott and Mississippi counties, Missouri. These species are the Indiana bat (*Myotis sodalis*), grey bat (*M. grisescens*), northern long-eared bat (M. septentrionalis), and pallid sturgeon (*Scaphirhynchus albus*). Of these four species, only the endangered Indiana bat and threatened northern long-eared bat would potentially utilize the forested habitat within the project areas. Grey bats are cave-dependant species, and caves are not found within the project area. As sturgeon are limited to the nearby Mississippi River, they are not found within the project area.

In the fall of 2017, USACE biologists conducted a site assessment of the Below Commerce and Below Charleston project areas. Vegetation proposed to be cleared was examined for the presence of suitable/potential habitat for the Indiana and northern long-eared bat. Dominant tree species include sugarberry, silver maple, cottonwood, black walnut, sycamore, and box elder. Although some trees were larger than 3 inches diameter at breast height (DBH), no evidence of suitable roost trees (snags or live trees with exfoliating bark, cracks, crevices, or hollows) were observed in proposed clearing locations. Additionally, habitat within the project areas is not considered critical habitat for any potential species.

3.1.5 Cultural Resources

Existing Conditions

A literature review and cultural resources surveys within the project's Area-of-Potential-Effect (APE) were completed by the MVM Archaeologist in the fall of 2017. The investigation identified two significant cultural resources within the APE, sites 23ST187 and 23ST281. Site 23ST187 is a prehistoric lithic scatter, which is outside of the project area. Site 23ST281 is a historic site with one standing structure and is outside but adjacent to the project area.

3.1.6 Air Quality

Existing Conditions

The proposed project area is in attainment for all air quality standards. As equipment to be used during construction is a mobile source, the project is exempt from air quality permitting requirements. Although air emissions would not require a permit, best management practices shall be used throughout the construction to minimize air pollution.

3.1.7 Hydrology and Water Quality

Existing Conditions

Water flow within the existing ditches and waterways within the proposed project area is dependent on heavy rainfall and seepage under the MRL from the adjacent Mississippi River. Therefore, the existing drainage ditches are normally dry and would only have flowing water during periods of heavy rain and high river stages.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Agricultural Lands

Future Conditions with No Action

Without implementation of the proposed action, agricultural lands (prime and unique farmland) within the project area are expected to remain as noted in Existing Conditions, provided that the adjacent levee remains stable. However, continued seepage could lead to a levee failure during a

major flood event. Floodwaters could negatively impact existing agricultural lands through erosion and excess deposition of sand and gravel.

Future Conditions with the Proposed Action

The NRCS was contacted regarding the presence of prime and unique farmland in the project vicinity. The NRCS reported that there were soils within the project area that are considered prime farmland. However, the NRCS noted that as there would be such a small acreage involved that there would be no adverse impacts to this overall cropland type.

4.2 Wetlands

Future Conditions with No Action

Without implementation of the proposed action, wetland habitats within the project area are expected to remain as noted in Existing Conditions, provided that the adjacent levee remains stable. However, continued seepage could lead to a levee failure during a major flood event. Floodwaters could negatively impact the existing farmed wetland through erosion and excess deposition of sand and gravel.

Future Conditions with the Proposed Action

With implementation of the proposed action, approximately 11.4 acres of farmed wetlands at the Below Commerce Mile 5 site would be removed along with the potential habitat use and function provided. The 11.4 acres would be converted to agricultural land by filling with material obtained from the adjacent ditch modification. To mitigate for the loss of 11.4 acres of farmed wetlands, approximately 23 acres of prior converted cropland would be restored to bottomland hardwoods as described in the Mitigation Section (6.0) below.

4.3 Wildlife

Future Conditions with No Action

Without implementation of the proposed action, the wildlife resources within the project area are expected to remain as noted in Existing Conditions.

Future Conditions with the Proposed Action

With implementation of the proposed action, impacts to wildlife resources would include the loss of approximately 11.4 acres of farmed wetlands at the Below Commerce Mile 5 site and approximately 1 combined acre of non-wet forested areas from the Below Commerce Mile 15 and Below Charleston Miles 24 sites, which would be cleared to facilitate seep water drainage in the collector ditches. Additionally, disturbance and noise from the construction equipment would temporarily disperse wildlife species from the project area. However, once the project is completed, wildlife species would be expected to return to the project area. The loss of habitat and temporary disturbance would not adversely impact the general populations of wildlife

species within the region, as extensive forested areas and suitable habitat is readily available within the vicinity of the project area, specifically riverside of the levee. To mitigate for the loss of 11.4 acres of farmed wetlands and one combined acre of forested habitat, approximately 25 acres of prior converted cropland would be restored to bottomland hardwoods as described in the Mitigation Section (6.0) below.

4.4 Threatened and Endangered Species

Future Conditions with No Action

Without implementation of the proposed action, threatened and endangered species within the project area are expected to remain as noted in existing conditions.

Future Conditions with the Proposed Action

With implementation of the proposed action, approximately 1 combined acre of non-wet forested area would be cleared to facilitate seep water drainage in collector ditches. As noted in Section 3.1.7, according to information on USFWS IPaC planning tool, the Indiana bat and threatened northern long-eared bat would potentially utilize the forested habitat within the project areas. A site assessment of the areas to be cleared at the Below Commerce Mile 15 and Below Charleston Mile 24 project locations was conducted in the fall of 2017. Results of the site assessment concluded that although trees were present larger than 3 inches DBH, no evidence of suitable roost trees was present at proposed clearing locations. Therefore, USACE has determined that the proposed project would have no effect on any threatened or endangered species or their critical habitats. Additionally, no evidence of bald eagles, or their nests, were observed at any project location. The bald eagle is no longer listed as a threatened species, but is still protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act.

4.5 Cultural Resources

Future Conditions with No Action

Without implementation of the proposed action, cultural resources are expected to remain as noted in Existing Conditions. However, continued seepage could lead to a levee failure during a major flood event, potentially impacting cultural resources.

Future Conditions with the Proposed Action

With implementation of the proposed action, neither Site 23ST187 nor Site 23ST281 would be adversely impacted by the project, as both sites are located outside of the project area. Additionally, there are no historic properties listed in or determined eligible for inclusion in the National Register of Historic Places (NRHP) in the project's APE. On November 28, 2017, the Missouri State Historic Preservation Office concurred with the MVM determination that there would be no historic properties affected as a result of the proposed project. No additional cultural resources investigations are recommended prior to project implementation.

4.6 Air Quality

Future Conditions with No Action

Without implementation of the proposed action, no change in air quality would occur.

Future Conditions with the Proposed Action

With implementation of the proposed action, project-related equipment would produce small amounts of engine exhaust during construction activities. The temporary, minor impacts to air quality would be localized to the project area, and would not affect area residents. The project area would still be in attainment for all air quality standards. Since the equipment to be used is a mobile source, the project is exempt from air quality permitting requirements. Although air emissions would not require a permit, best management practices would be used throughout the construction to minimize air pollution.

4.7 Water Quality

Future Conditions with No Action

Without implementation of the proposed action, hydrology and water quality within the project area would be as noted in Existing Conditions.

Future Conditions with the Proposed Action

With implementation of the proposed action, hydrology riverside of the levee would be as noted in Existing Conditions. Impacts to water quality within the Mississippi River would be minimal or have no effect, as the river normally carries a heavy sediment load and that the project action would be conducted during dry or low water periods. Installation of the relief wells would affect the existing hydrology landside of the levees by transporting seepage waters from the wells to the existing drainage ditches. In addition, cleaning out the existing drainage ditches would facilitate water flow through the existing ditches, which connect to other drainage ditches. At the Below Commerce Mile 5 site, approximately 11.4 acres of farmed wetlands would be filled and no longer receive seep water. However, water provided through seepage of the MRL occurs only during high water periods and the site is in active agricultural production during dry conditions. Thus, no significant impacts to water quality would occur as a result of the proposed project. A Section 404(b)(1) Evaluation has been prepared for the proposed project action and is included as an appendix. A state water quality certification is requested from the State of Missouri, Department of Natural Resources.

4.8 Hazardous, Toxic, and Radioactive Waste (HTRW)

USACE is obligated under Engineer Regulation (ER) 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of proposed actions. ER 1165-2-132 identifies that HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities.

A record search has been conducted of the Environmental Protection Agency's (EPA) EnviroMapper for Envirofacts web site (https://www.epa.gov/emefdata/em4ef.home). The web site was checked for any superfund sites, toxic releases, or hazardous waste sites within the vicinity of the proposed project area. Additionally, a site inspection of the proposed project was conducted by USACE personnel during the fall of 2017. Environmental record search and the site survey conducted did not identify the presence of any hazardous or suspected hazardous wastes in the project area. As a result of these assessments, it was concluded that the probability of encountering HTRW is low. If any hazardous waste/substance is encountered during construction activities, the proper handling and disposal of these materials would be coordinated with the EPA and applicable state agencies.

4.9 Cumulative Impacts

The Council on Environmental Quality's (CEQ) regulations (40 CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.) define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7)". Cumulative Effects can result from individually minor but collectively significant actions taking place over a period of time."

A final SEIS, *Mississippi River Mainline Levees Enlargement and Seepage Control*, was completed in July 1998 to address all remaining work on the levee enlargement and seepage control project. However, the seepage problems at the proposed project locations were not anticipated when the SEIS was completed. Benefits resulting from cumulative effects in the SEIS included 1) the mitigation plan and borrow area reforestation which resulted in a net gain of 4,070 acres of bottomland hardwoods; 2) incremental impacts which resulted in a net gain in nationally significant habitat and environmental values; 3) the action would not improve or worsen any cumulative effects associated with the existing Mississippi River levees; 4) the project did not affect the hypoxia zone in the Gulf of Mexico; and 5) the environmental design and compensation features result in a net increase in terrestrial, wetland, waterfowl, and aquatic resource values such that no significant cumulative environmental impact resulted on an ecosystem, landscape, or regional scale.

Impacts of the proposed project action were evaluated during the preparation of this EA on the natural and human environment. A total of approximately 11.4 acres of farmed wetlands and 1 acre of non-wet forested habitat would be impacted by the proposed project action. The proposed mitigation would include restoring approximately 25 acres of agricultural land to high quality bottomland hardwood forest. The impacts associated with the proposed project activities should not have any significant adverse cumulative effects on the environment in addition to those reported in the 1998 SEIS.

5.0 COORDINATION

Preparation of this draft EA and draft Finding of No Significant Impact (FONSI) have been coordinated with members of the project interagency environmental team (IAT). The IAT is

comprised of representatives from USACE, USFWS, EPA, Missouri Department of Natural Resources, and Missouri Department of Conservation. In addition, this draft EA is being coordinated with these agencies: Missouri State Historic Preservation Office, federally recognized tribes, and other interested parties.

6.0 MITIGATION

A total of approximately 11.4 acres of farmed wetlands and 1 combined acre of non-wet vegetated areas would be impacted by the proposed project. Mitigation requirements would consist of planting bottomland hardwood species and restoring hydrology, if applicable, within tracts of cleared agricultural land. Mitigation is anticipated to be located in one of two sites in New Madrid and Mississippi counties, Missouri; and acquisition would occur as part of the ongoing overall MRL mitigation acquisition effort. As either of these sites are larger than would be required of stand-alone project mitigation, the IAT concurred that due to the overall ecological benefits of a large tract size, mitigation to offset the impacts as a result of project implementation be included with the ongoing MRL acquisition. Please note overall MRL mitigation requirements credited at these tracts would be adjusted to account for this project. The IAT was consulted and it was concluded that a mitigation ratio of 2:1 would sufficiently offset project impacts. Therefore, approximately 25 acres of the ongoing MRL mitigation acquisition would be planted in bottomland hardwood species to offset impacts associated with project implementation. The MRL Mitigation Plan for the mitigation tracts would be followed and success not be declared until conditions specified in the document are achieved.

7.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action would be achieved upon: coordination of this draft EA and draft Finding of No Significant Impact (FONSI) with appropriate agencies, organizations, and individuals for their review and comments; USFWS confirmation that the proposed action would have no effect on any endangered or threatened species; receipt of a Water Quality Certificate from the State of Missouri; public review of the Section 404(b)(1) Public Notice; and signature of the Section 404(b)(1) Evaluation. The Missouri State Historic Preservation Office concurred with the no effect determination on November 28, 2017. The draft FONSI would not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described above.

8.0 CONCLUSION

The proposed action involves implementing seepage control measures along the MRL. A total of approximately 11.4 acres of farmed wetlands and 1 combined acre of non-wet forested areas would be impacted by the proposed project. To mitigate for the impact, approximately 25 acres of cleared agricultural land would be restored to bottomland hardwoods.

This office has assessed the environmental impacts of the proposed action and has determined that the proposed work is expected to have only minor impacts on agricultural lands, wildlife, air quality, and hydrology. Impacts to wildlife and air quality would be temporary, and would expected to return to existing conditions after completion of the project action. The proposed

project would have no impacts upon freshwater marshes, freshwater lakes, state designated scenic streams, prime and unique farmlands, cultural resources, municipal facilities, municipal utilities, roadways, recreation, aesthetics, socio-economic, or environmental justice. Also, no significant adverse impacts would occur to wetlands, aquatic resources/fisheries, wildlife, threatened and endangered species, hydrology/water quality, air quality, or the human environment. Therefore, a supplemental EIS is not required.

9.0 PREPARED BY

This draft EA and draft FONSI were prepared by Mr. Joshua M. Koontz, USACE biologist, with cultural resources information provided by Ms. Pam Lieb, USACE archeologist. For additional information, contact Mr. Joshua M. Koontz at (901) 544-3975, or by email at joshua.m.koontz@usace.army.mil, or by mail at USACE Memphis District, Attn: Joshua M. Koontz, 167 North Main St., RM-B202, Memphis, TN 38103-1894.

APPENDICES

Appendix A – Detailed Plans and Cross Sections for Proposed Action – Alternative 2

Appendix B – Section 404(b)(1) Evaluation

Appendix B

Section 404(b)(1) Evaluation

SECTION 404(b)(1) EVALUATION
Mississippi River Mainline Levee
Seepage Control Measures
Scott and Mississippi Counties, Missouri

I. Project Description

a. Location

The proposed seepage control measures are located along the Mississippi River Mainline Levee (MRL), near the towns of Commerce, in Scott County, and Charleston, in Mississippi County, Missouri. The location of each proposed action is presented in Figures 1 - 4.

b. General Description

The U.S. Army Corps of Engineers (USACE), Memphis District (MVM), is proposing a seepage control project that involves installing 29 relief wells, modifying existing drainage systems to accommodate additional seep water, placing rip-rap at the confluence of drainages to prevent potential scour, and clearing of vegetation from existing ditches to facilitate drainage (Figures 1 – 4).

Existing ditches proposed to be modified are dry throughout most of the year and covered in various grasses and forb species. Excavated material obtained from ditch modifications at the Below Commerce Mile 5 site would be used to facilitate seep water drainage into the modified ditch, which would result in impacts to approximately 11.4 acres of farmed wetlands (Figure 2). Additionally, at the Below Commerce Mile 5 site, the confluence of the modified ditch and North Cut Ditch would be rip-rapped to protect against erosion. The excavated material from the ditch modification at the Below Charleston Mile 24 site would be spread onto non-wet agricultural fields adjacent to the site. Additionally, approximately 1 combined acre of vegetation would be cleared from existing ditches at the Below Commerce Mile 15 and Below Charleston Mile 24 sites to facilitate seep water drainage.

Compensatory mitigation requirements for unavoidable impacts to farmed wetlands and wildlife habitat would consist of planting bottomland hardwood species and restoring hydrology, if applicable, within tracts of cleared agricultural land, and would occur as part of the ongoing overall MRL mitigation acquisition in New Madrid and Mississippi counties, Missouri. The interagency environmental review team (IAT) concurred that, due to the overall ecological benefits of a large tract size, mitigation to offset the impacts as a result of project implementation should be included with the ongoing MRL acquisition. Please note overall MRL mitigation requirements credited at these tracts would be adjusted to account for this project. The IAT was consulted and it was concluded that a mitigation ratio of 2:1 would sufficiently offset project impacts. Therefore,

approximately 25 acres of the ongoing MRL acquisition would be planted in bottomland hardwood species to offset impacts associated with project implementation. The MRL Mitigation Plan for the mitigation sites would be followed, and success would not be declared until conditions specified in the document achieved.

c. Authority and Purpose

The proposed action is authorized as part of the Flood Control Act of 1928, as amended. A 1998 final Supplemental EIS (SEIS), *Mississippi River Mainline Levees Enlargement and Seepage Control*, addressed seepage control measures to be implemented along the MRL. Since publication of the SEIS, it has been determined that other seepage control measures need to be installed along the MRL to prevent continued seepage under flood conditions, potential degradation of the levee, or eventual levee failure which would result in property damage and cause human injuries and/or loss of life.

d. General Description of Dredged or Fill Material

1) General Characteristics of Material

R-200 and R-400 rip-rap would be placed at confluence locations to prevent potential scour. R-90, filter material, and geotextile filter fabric would be placed as bedding material.

Backfill – Excavated material from the ditch modification at the Below Commerce Mile 5 site would be used to bring the depressional area adjacent to the levee to grade. The swale constructed would be designed to drain into the modified ditch.

2) Quantity of Material

Rip-rap – Approximately 750 tons R-400 rip-rap, 70 tons R-90 rip-rap, 160 tons of filter material, and 130 square yards of geotextile filter fabric would be required for the Scott County work (Below Commerce Mile 5 and Mile 15). Material required for the Mississippi County work (Below Charleston Mile 24) would require 100 tons R-200 rip-rap, 40 tons R-90 rip-rap, 35 tons of filter material, and 70 square yards of geotextile filter fabric.

Backfill – Approximately 30,000 cubic yards of excavated material would be used as backfill in the depressional area at the Below Commerce Mile 5 site. Approximately 3,000 cubic yards of material would be excavated at the Below Charleston project area.

3) Source of Material – The rip-rap, filter material, and geotextile fabric would be provided from commercial sources. The backfill would be obtained from the excavation required with the drainage ditch.

e. Description of the Proposed Discharge Site(s)

1) Location – The excavated material from the proposed ditch modifications at the Below Commerce Mile 5 site in Scott County, Missouri, would be discharged within the farmed wetland adjacent to the MRL (Figure 2). Additionally, the Below Commerce Mile 5 site, the confluence of the modified ditch and North Cut Ditch would be rip-rapped to protect against erosion. Proposed mitigation to offset wetland function is discussed in Section II. g. Determination of Cumulative Effects on the Aquatic Ecosystem. Excavated material from the ditch modifications at the Below Commerce Mile 24 site would be spread onto non-wet agricultural fields adjacent to the site (Figure 4). No excavation is expected from the Below Commerce Mile 15 site.

2) Size – It is anticipated that approximately 11.4 acres of farmed wetlands and approximately 0.05 acres at the confluence of North Cut Ditch would be impacted at the Below Commerce Mile 5 site. Approximately 1 acre of non-wet agricultural fields adjacent to the ditch proposed for modification at the Below Charleston Mile 24 site would be used for spreading excavated material. No excavation is expected at the Below Commerce Mile 15 site.

3) Type(s) of Habitat – Available habitat is seasonal throughout the project area as little flow occurs during dry periods. Drainage is predominately controlled by rain events. During dry years, the farmed wetland is in agricultural production.

4) Timing and Duration of Discharge – Construction is scheduled to commence in the immediate future, and would take place as soon as possible. However, every effort would be made to construct during periods of low water and dry conditions, and best management practices would be applied.

f. Description of Disposal Method

Excavated material from the proposed ditch modifications at Below Commerce Mile 5 would be placed and graded with conventional earth moving equipment (e.g., bulldozers and excavators) adjacent to the levee to direct drainage into the proposed modified drainage ditch. Material excavated at the Below Commerce Mile 24 site would be spread onto the adjacent non-wet agricultural fields with conventional earth moving equipment (e.g., bulldozers and excavators).

II. Factual Determinations

a. Physical Substrate Determinations

1) Substrate Elevation and Slope – The thalweg of the drainage ditches would be designed to have positive flow away from the levee and relief wells. The farmed wetland at the Below Commerce Mile 5 site would be raised from 326 feet NAVD88 to 328 feet NAVD88.

2) Sediment Type – Sediment is composed primarily of Fluvaquents, but are not longer frequently flooded.

3) Dredged/Fill Material Movement – Material would be excavated from the existing ditches and transported, via haul trucks, at the Below Commerce Mile 5 site. At the Below Charleston Mile 24 site, material would be excavated from the existing ditch and deposited adjacent to the ditch.

4) Physical Effects on Benthos – Placement of rip-rap would have a minimal impact on benthos. Benthic communities would return to pre-existing conditions shortly after project completion.

5) Other Effects – N/A

6) Actions Taken to Minimize Impacts - The following actions would be implemented during construction to minimize impacts:

- Effective erosion control would be in place prior to construction and maintained throughout the construction period.
- Construction would take place during periods of low rainfall and low water stages.
- Vegetation to be cleared would be the minimum necessary to allow for construction access.
- All disturbed areas would be seeded within 30 days after construction is completed.
- Construction debris would be kept from entering the ditch channel and shall be disposed of properly.
- Appropriate steps shall be taken to ensure that petroleum products or other chemical pollutants are prevented from entering the water.

b. Water Circulation, Fluctuation, and Salinity Determinations

1) Water. No change in water quality is expected due to this action.

a) Salinity – N/A

b) Water Chemistry – The water chemistry of the project area would not be expected to change as a result of the excavation of material or placement of rip-rap.

c) Clarity – There would be temporary increases in turbidity during rip-rap placement. Turbidity levels would be expected to return to pre-construction levels shortly after construction is completed.

d) Color – No expected change.

e) Odor – No expected change.

f) Taste – No expected change.

g) Dissolved Gas Levels – No expected change.

h) Nutrients – No expected change.

i) Eutrophication – No expected change.

j) Others as appropriate – N/A

2) Current Patterns and Circulation

a) Current Patterns and Flow – Current patterns are not expected to change. However, flows may potentially be increased during high water or rain events due to the greater storage capacities of the enlarged ditches and action of the relief wells.

b) Velocity – Water velocity is not expected to be change.

c) Stratification – No expected change.

d) Hydrologic Regime – Installation of the relief wells would affect the existing hydrology landside of the levees by transporting seepage waters from the wells to the existing drainage ditches. In addition, cleaning out the existing drainage ditches would facilitate water flow through the existing ditches, which are connected to other drainage ditches. Impacts to water quality within the Mississippi River would be minimal, if any, due to the heavy sediment loads normally carried by the river. Thus, no significant impacts to water quality would occur as a result of the work.

3) Normal Water Level Fluctuations – The existing water levels in the ditches are determined by rainfall and channel capacity. By enlarging the existing ditches, the storage capacity within the ditches would increase, but water level fluctuations should be minimal.

4) Salinity Gradients – N/A

5) Actions Taken to Minimize Impacts – Actions that would be implemented during construction to minimize impacts have been previously described in the Factual Determinations section above.

c. Suspended Particulate/Turbidity Determinations

1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site – Minor increases in suspended particulates and turbidity levels are expected during construction. Best management practices would be used throughout the construction process to minimize the impact. Ambient conditions are expected to return shortly after completion of construction.

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

a) Light Penetration – Minor impacts are expected to light penetration due to an expected increase in turbidity levels during construction. Ambient conditions are expected to return shortly after completion of construction.

b) Dissolved Oxygen – No change is expected due to the shallow water depth and currents.

c) Toxic Metals and Organics – No effect on toxic metals and organics are expected.

d) Pathogens – N/A

e) Aesthetics – Aesthetics would be temporarily impacted during construction due to the presence of construction equipment.

f) Others as Appropriate – None noted.

2) Effects on Biota

a) Primary Production – Project activities would remove approximately 11.4 acres of farmed wetlands. Aquatic vegetation is limited within the existing ditches. The proposed work should have little effect on primary production after the banks become vegetated.

b) Suspension/Filter Feeders – Increased turbidity would be of short duration, and any organisms that are impacted should repopulate the area after project completion.

c) Sight Feeders – Resident fish are adapted to turbidity increases that occur after every rainstorm. Project-related turbidity increases would be minor

compared to these natural events. Since fish and other sight feeders are highly mobile, project impacts to sight-feeding organisms would be insignificant and short term.

d) Actions taken to Minimize Impacts – Actions that would be implemented during construction to minimize impacts have been previously described in the Factual Determinations section above.

d. Contaminant Determinations – It is not expected that any contaminants would be introduced or translocated due to construction. A hazardous, toxic, and radioactive waste survey has been conducted on the area. No potential sources of contamination were found.

e. Aquatic Ecosystem and Organism Determinations

1) Effects on Plankton – Planktonic organisms may be temporarily disturbed during construction, as increases in turbidity are expected. However, turbidity levels would be expected to return to pre-construction levels shortly after construction is completed. Therefore, there would be no significant impacts to plankton.

2) Effects on Benthos – Benthic organisms may be disturbed with the turbidity increase, but no more than what would naturally occur during high flow events.

3) Effects on Nekton – Nekton would be temporarily displaced during construction, but would return shortly after project completion.

4) Effects on Aquatic Food Web – Temporary reductions in benthic and suspension/filter communities in such a small area should not significantly impact the aquatic food web during construction. These organisms would quickly colonize the area after construction.

5) Effects on Special Aquatic Sites

a) Sanctuaries and Refuges – N/A

b) Wetlands – Approximately 11.4 acres of farmed wetlands would be impacted by the proposed project. Approximately 25 acres of mitigation is proposed to offset these impacts and fulfill mitigation requirements.

c) Mud Flats – N/A

d) Vegetated Shallows – N/A

e) Coral Reefs – N/A

f) Riffle and Pool Complexes – N/A

6) Threatened and Endangered Species – Site assessments of the areas to be cleared of trees at the Below Commerce Mile 15 and Below Charleston Mile 24 project locations were conducted in the fall of 2017. Results of the site assessment concluded that although trees were present larger than 3 inches DBH, no evidence of suitable roost trees for Indiana or northern long-eared bats were present at proposed clearing locations. Therefore, USACE has determined that the proposed project would have no effect on any threatened or endangered species nor their critical habitats. Additionally, no evidence of bald eagles, or their nests, were observed at any project location.

7) Other Wildlife – Terrestrial wildlife would be minimally impacted with the clearing of woody vegetation and may be temporarily displaced during project construction.

8) Actions Taken to Minimize Impacts – Actions that would be implemented during construction to minimize impacts have been previously described in the Factual Determinations section above. Chiefly construction would occur in low-flow periods, and impact areas would be limited to the extent necessary for construction. Compensatory mitigation is described above in I. b. General Description.

f. Proposed Disposal Site Determinations

1) Mixing Zone Determinations – N/A

2) Determination of Compliance with Applicable Water Quality Standards – USACE, MVM, has requested water quality certification from the State of Missouri, Department of Natural Resources, with the draft environmental assessment and the Joint Public Notice.

3) Potential Effects on Human Use Characteristic

a) Municipal and Private Water Supply – N/A

b) Recreational and Commercial Fisheries – N/A

c) Water Related Recreation – N/A

d) Aesthetics – Aesthetics would be temporarily impacted during construction due to the presence of construction equipment.

e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves – N/A

g. Determination of Cumulative Effects on the Aquatic Ecosystem – Approximately 11.4 acres of farmed wetlands and approximately 0.05 acres of North Cut Ditch

would be impacted by the proposed project. Approximately 25 acres of mitigation is proposed to offset the impact at a 2:1 ratio.

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

III. Findings of Compliance for MRL Seepage Control Measures

a. Evaluation of Availability of Practical Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem

A draft environmental assessment has been completed that addresses alternatives to the proposed action. The recommended plan was determined to be the most cost effective and least environmentally damaging of the alternatives studied in detail. The no action alternative was determined not to be practical. The proposed action would protect existing public infrastructure, and private homes and businesses. Without installation of seepage control measures, the integrity of the levee would be compromised. Seepage could potentially undermine the levee and cause it to fail during a flood event.

b. Compliance with Applicable State Water Quality Standards

Application for State of Missouri water quality certification has occurred with the draft environmental assessment and the Joint Public Notice. A determination concerning water quality certification has not been made to date. Those making comments to this 404(b)(1) evaluation are asked to furnish a copy of their comments to the Missouri Department of Natural Resources.

c. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 Of the Clean Air Act

Mississippi and Scott Counties are in attainment for all air quality standards. No significant impacts to air quality are expected. The equipment to be used is a mobile source. Therefore, the project is exempt from air quality permitting requirements.

d. Compliance with Endangered Species Act of 1973

No impacts are expected to federally listed or proposed threatened or endangered species. This project has been coordinated with the Department of Interior, U.S. Fish and Wildlife Service.

e. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

Not applicable.

f. Evaluation of Extent of Degradation of the Waters of the United States

1) Significant Adverse Effects on Human Health and Welfare

a) Municipal and Private Water Supplies – N/A

b) Recreation and Commercial Fisheries – N/A

c) Plankton – No significant impacts are expected.

d) Fish – No significant impacts are expected.

e) Shellfish – N/A

f) Wildlife – No significant impacts are expected.

g) Special Aquatic Sites – N/A

2) Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems

No significant impacts are expected.

3) Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity, and Stability

No significant impacts are expected.

4) Significant Adverse Effects on Recreational, Aesthetic, and Economic Values

No significant impacts are expected.

g. Appropriate and Practical Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

Actions that would be implemented during construction to minimize impacts have been previously described in the Factual Determinations section above. Chiefly best management practices would be implemented, construction would occur during low-flow periods, and impact areas would be limited to the extent necessary for construction.

h. On the Basis of the Guidelines, the Proposed Disposal Site(s) for the Discharge of Dredged or Fill Material is:

1) __ Specified as complying with the requirements of these guidelines; or,

2) _**X**_ Specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem; or,

All conditions from the Missouri Department of Natural Resources would be adhered to.

3) __Specified as failing to comply with the requirements of these guidelines.

_____
Date

Prepared by:
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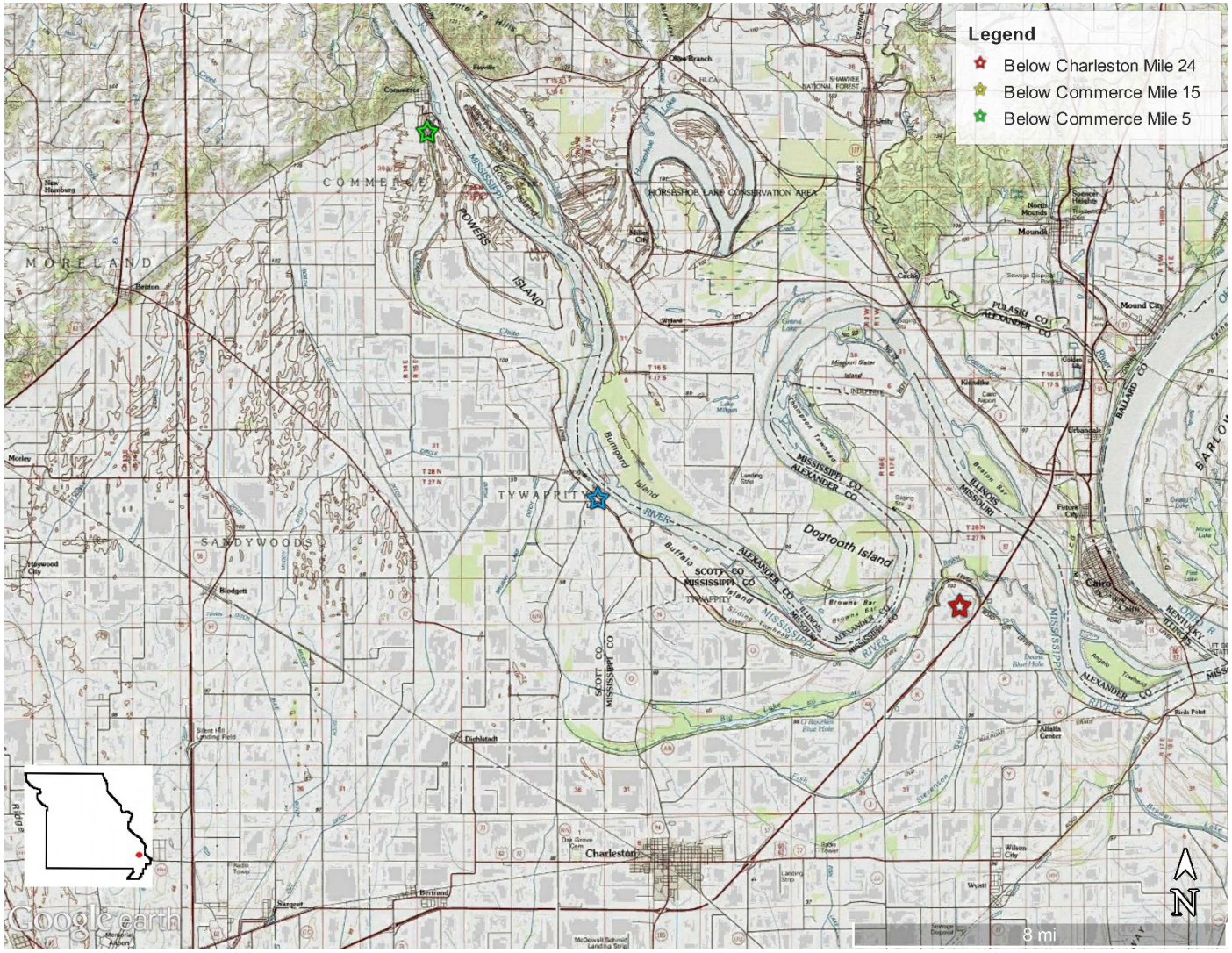

Figure 1. Location of proposed seepage control measures along the Mississippi River mainline levee, located near the towns of Commerce, in Scott County, and Charleston, in Mississippi County, Missouri.

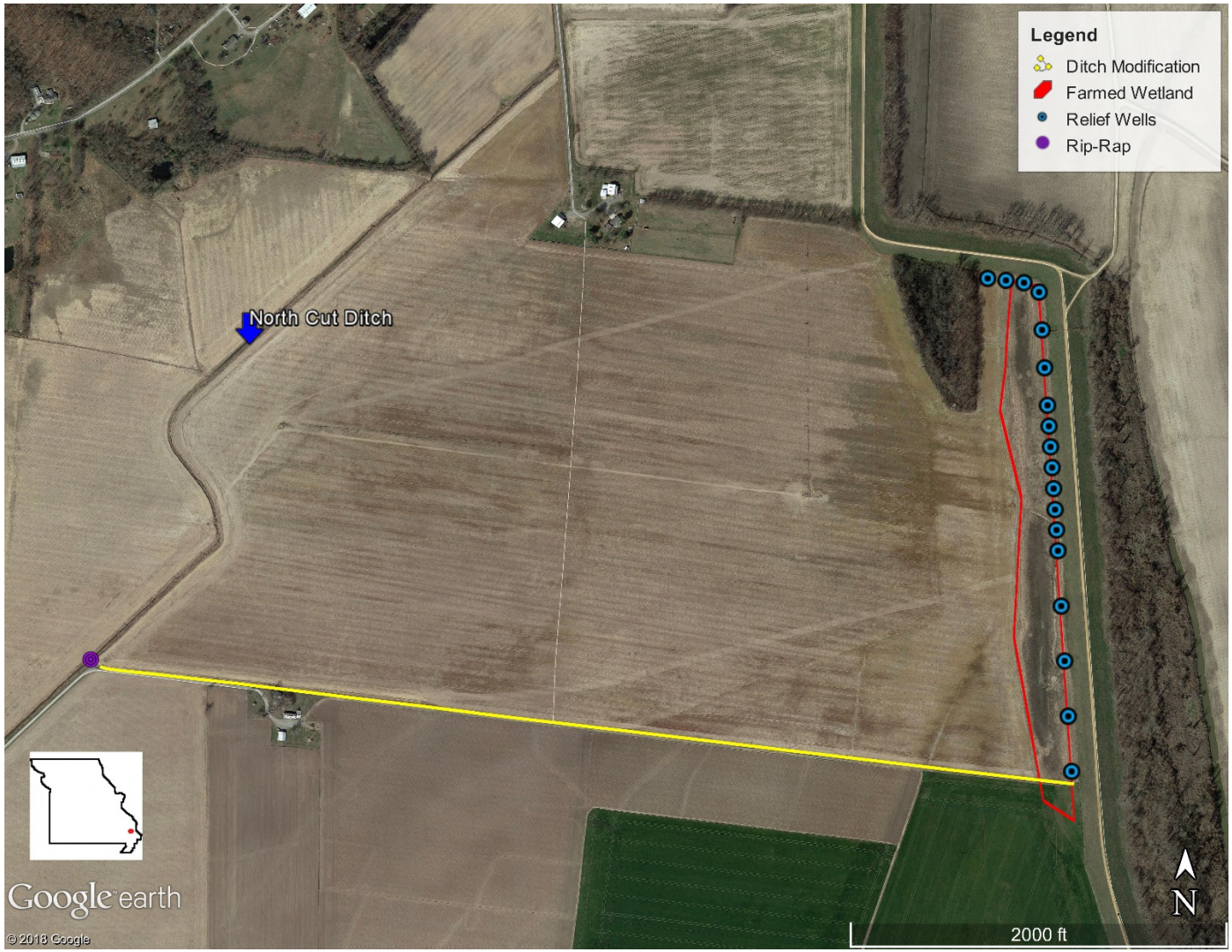

Figure 2. Proposed seepage control measures along the Mississippi River mainline levee at the Below Commerce Mile 5 project area, Scott County, Missouri.

Figure 3. Proposed seepage control measures along the Mississippi River mainline levee at the Below Commerce Mile 15 project area, Scott County, Missouri.

Figure 4. Proposed seepage control measures along the Mississippi River mainline levee at the Below Charleston Mile 24 project area, Mississippi County, Missouri.