



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

22 April 2020

Reply to:

U.S. Army Corps of Engineers
St. Louis District
Environmental Compliance Section (PD-C)
1222 Spruce Street
St. Louis, MO 63103-2833

Dear Sir or Madam:

The St. Louis District, U.S. Army Corps of Engineers has prepared a draft Environmental Assessment (EA) with unsigned Finding of No Significant Impact (FONSI) to evaluate the repairs to the Brevator Levee System, Lincoln County, Missouri.

Under the National Environmental Policy Act of 1969, as amended, the St. Louis District is distributing this letter to notify concerned agencies, interest groups, and individuals of the proposed project and to solicit comments from those persons or organizations who may be interested in or affected by the project. The FONSI is unsigned and will only be signed after comments received as a result of this public review have been considered. The electronic version of draft EA and unsigned FONSI are available online at:

<https://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/BrevatorPL8499PublicReview.pdf>

The St. Louis District of the U.S. Army Corps of Engineers is proposing to repair the damages associated with the 2019 flood event. The Brevator Levee System is active in the USACE Rehabilitation and Inspection Program, which makes them eligible for Flood Control and Coastal Emergency funding under Public Law 84-99 to make repairs to levees damaged during flood events. The proposed repairs would restore the levee system to its pre-disaster condition. Environmental impacts associated with the proposed repairs and associated borrow material sources are outlined in the draft EA.

Please provide any comments you may have regarding this project to Evan Hill of the Environmental Compliance Section, at **telephone** 314-925-5004 or **e-mail** at evan.b.hill@usace.army.mil. Please send any comments to the phone or email contact above, ATTN: Environmental and Planning Branch (PD-C, Hill). In order for comments to be considered prior to a final decision being made, they must be received by this office by close of business on 21 May 2020.

Sincerely,

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

**ENVIRONMENTAL ASSESSMENT
AND
FINDING OF NO SIGNIFICANT IMPACT**

**PUBLIC LAW 84-99
EMERGENCY FLOOD DAMAGE REPAIR FOR THE
BREVATOR LEVEE SYSTEM
LINCOLN COUNTY, MISSOURI
MISSISSIPPI RIVER, MILES 237-239**

22 April 2020

Table of Contents

1.0 INTRODUCTION	4
1.1 Project Authorization	4
1.2 Project Location and Scope	4
1.3 Project Purpose and Need	6
1.4 Classification of Damages:	7
1.5 Damage Description	8
2.0 PROJECT ALTERNATIVES CONSIDERED	10
2.1 Alternative 1 - No Action (Future without Project)	10
2.2 Alternative 2 - Nonstructural Measures	10
2.3 Alternative 3 – Structural Repair of Levees with Federal Assistance	11
2.4 Borrow Material	15
2.5 Tentatively Selected Plan - Structural Repair of Levee Segment with Federal Assistance	17
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS	18
3.1 Physical Resources	18
3.1.1 Land Use/Land-Cover	18
3.1.2 Noise	19
3.1.3 Water Quality	19
3.1.4 Air Quality	20
3.2 Biological Resources	21
3.2.1 Fish and Wildlife	21
3.2.2 Bald Eagle	22
3.3 Biological Assessment	23
3.4 Socioeconomic Resources	27
3.4.1 Economic	27
3.4.2 Cultural Resources	28
3.4.3 Tribal Coordination	28
3.4.4 HTRW	29
3.4.5 Permits	30
3.4.6 Environmental Justice	31
3.4.7 Summary Comparison of Project Alternatives	33
4.0 CUMULATIVE IMPACTS	34

4.1 Relationship of Tentatively Selected Plan to Environmental Requirements	35
5.0 COORDINATION, PUBLIC VIEWS, AND RESPONSES	36
6.0 ENVIRONMENTAL ASSESSMENT PREPARERS.....	43
7.0 REFERENCES	44
8.0 FINDING OF NO SIGNIFICANT IMPACT.....	46

1.0 INTRODUCTION

This document is an Environmental Assessment (EA) with an attached unsigned Finding of No Significant Impact (FONSI) for levee repairs to the Brevator Levee System in Lincoln County, Missouri. The non-federal sponsor, the Brevator Drainage District, is responsible for maintaining the Brevator Levee System. The purpose of this EA is to evaluate potential environmental impacts of proposed levee repairs, determine if the environmental impacts rise to the level of significant, and to serve as a record of interagency coordination for the emergency rehabilitation actions.

1.1 Project Authorization

Emergency actions undertaken by the U.S. Army Corps of Engineers (USACE) to repair flood control works damaged or destroyed by flooding are authorized by Public Law 84-99, as amended by Section 206 of the Flood Control Act of 1962 (hereafter referred to as PL 84-99). USACE regulations covering these and other emergency rehabilitation activities are contained in the Rehabilitation Code 910-300 of ER 500-1-1 (33 C.F.R. 203). The Code states that actions taken to *restore facilities to pre-disaster conditions* under PL 84-99 will not be construed to be either major federal actions or as having significant effects. However, the effect of rehabilitation on the environment must be considered. This includes the effects of construction on endangered species (PL 93-205 and Appendix B of ER 1105-2-50) and archeological and historic properties (Chapter 3 of ER 1105-2-50). Since the Brevator Drainage District is active in the USACE Rehabilitation and Inspection Program, they are eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99.

1.2 Project Location and Scope

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

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

- a. The need to complete construction of levee repairs as soon as possible and prior to additional flooding or inundation.
- b. The risk of economic loss from additional flooding of communities along rivers within the St. Louis District, their tributaries, and adjacent agricultural lands.

Neither the implementation of the Emergency Action provision within ER 200-2-2, nor the use of a categorical exclusion, exempts the action from compliance with any other Federal law (e.g., Endangered Species Act, Fish and Wildlife Coordination Act, Bald and Golden Eagle Protection Act, National Historic Preservation Act, Clean Water Act, etc.). All environmental evaluation, coordination, consultation, and compliance including acquiring any necessary permits will be completed concurrent with, or following, the emergency repairs.

The Brevator Levee System is located in Lincoln County, Missouri (Figure 1). The northern flank of the levee borders Bob's Creek opposite the Winfield-Pin Oaks levee. The eastern flank of the levee is approximately two miles west of the right descending bank of the Mississippi River along river mile 237 to 239.

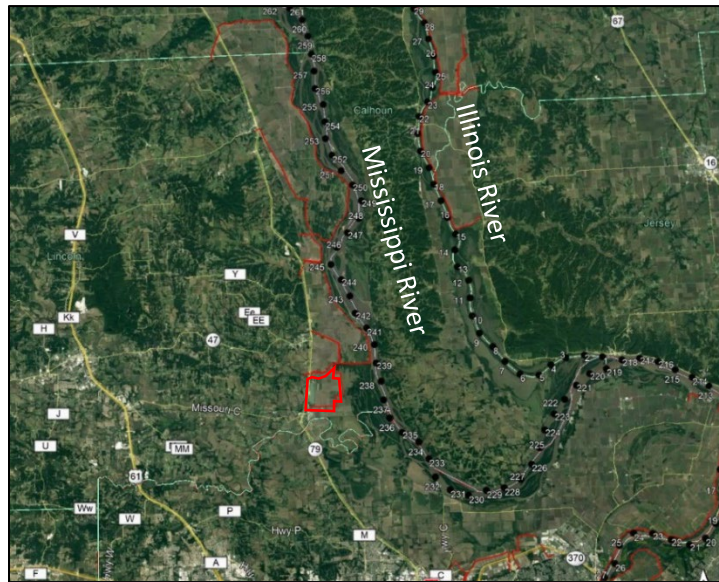


Figure 1. General Location Map of the Brevator Drainage District.

The southern flank is located a little over half a mile north of the Cuivre River/Cuivre Canal. State Highway 79 and the Burlington Northern Santa Fe railroad right of way run north-south along the western side of the leveed area (Figure 2). Brevator is a non-federal levee system consisting of approximately 6.2 miles of earthen levee. The Brevator levee is rated to provide flood risk reduction to approximately 2,345 acres of land against a 20% annual chance exceedence event when 3 feet of freeboard is included. If no freeboard is included, the levee system provides protection up to a 13.3-year event. The levee has a 5-10 foot crown width and 1:2.5 side slopes. The levee contains five gravity flow pipe structures out of the leveed area. The leveed area contains 1,600 acres of cropland and several residential properties and associated outbuildings and farm related structures (implement storage sheds and grain storage bins); a large sand plant (Kimaterials Inc. LLC), and several small businesses such as

Chantilly Cabinet and Ralph's Auto Repair. There is also a series of waste water lagoons for the city of Old Monroe.



Figure 2. Location of the Brevator Drainage District in Lincoln County, Missouri.

1.3 Project Purpose and Need

The purpose of this proposed federal action is to restore the level of flood protection to that which existed prior to the spring 2019 flood event. The Brevator Levee System has prevented properties within the leveed area from flooding during past flood events. However, overtopping with subsequent breaches has occurred in the past, despite the protection provided by the levee. Levee overtopping, breaches, erosion, and other damages remain a primary concern with the system. There is a possibility that, in any given year, floodwaters could overtop or breach the levee system.

The Brevator Levee System sustained damages to the levee's infrastructure as a result of high water events during the spring of 2019. There is a need for repairs, because damages reduced protection from a 13.3 year to a 2 year frequency of flood protection, making the district vulnerable to frequent flooding. Without federal involvement through the PL 84-99 program, it is unlikely that the Brevator Drainage District has the financial ability to restore the level of protection according to Corps of Engineers' standards. If repairs are not made, there would be

significant risk to agricultural productivity from the potential flooding of approximately 1,600 acres of cropland protected by the levee system. There are 27 permanent residents living within the protected area, as well as a large sand plant and several smaller commercial businesses. Transportation infrastructure would likewise be threatened.

1.4 Classification of Damages:

Damages to levee systems are generally classified into seven types: levee breaches, embankment slides, rutting, turf damage, and erosion types I, II, and III (Table 1). Levee breaches refer to any break in the levee continuity as a result of flood damages. Breaches typically result in scour holes on either side of the levee and are repaired by filling in the scour holes and the missing section of the levee. Embankment slides can occur on either side of the levee, and are repaired by removing the sliding soil and replacing it with compact substrate. Rutting and turf damage are relatively superficial damage to the levee structure that are repaired by filling with soil and reseeding. Erosion types are categorized based on their severity, from type I to III, and are repaired similar to embankment slides.

Table 1. Description of each damage type sustained by the Brevator Levee System and the methods by which these damage types are typically repaired.

Damage Type	Damage Description	Repair Method
Breach	A rupture, break, or gap in the levee system, measured in linear feet or yards ³ .	Stripping, preparing, placing embankment, and compacting in lifts.
Slide	A movement of soil down the levee slope where the levee cannot support its own saturated weight.	Excavation of damaged area, and replacement of embankment in compacted lifts.
Erosion Type I	Wave wash / minor erosion less than 12 inches deep, measured in linear feet.	Disking and compacting.
Erosion Type II	Moderate erosion between 12 and 18 inches deep, measured in yards ³ .	Stripping, disking, filling, and compacting.
Erosion Type III	Major erosion greater than 18 inches deep, measured in yards ³ .	Stripping, preparing, placing embankment, and compacting in lifts.
Rutting	Depressions, ruts, or pot holes that are located along the levee crown, embankments, and access roads unrelated to levee settlement that will pond water.	Filling in the eroded areas using embankment material from designated borrow area(s) or material from the adjacent undamaged levee section.
Turf Damage	The upper layer of ground made up of grass and plant roots has been damaged due to long-standing water inundation.	Disking and seeding.

1.5 Damage Description

A total of nine damage areas were identified during a field visit on 8 August 2019 (Table 2). A map of the damage areas on the levee is shown in Figure 3. The levee sustained a single breach (damage area 4b) approximately 135ft long with no associated scour hole (Figure 4). Repairing this breach would require approximately 917 yards³ of impervious borrow material. Five embankment slides were identified, ranging from 50 to 250ft in width. It is estimated that 1,183 yards³ of impervious borrow material would be needed to repair these slides. There was a total of 188 yards³ of Type II erosion in a single damage area and 2,029 yards³ of Type III erosion spread over four damage areas. Approximately 2,217 yards³ of impervious fill would be needed to repair the Type II and III erosion.

Table 2. Damages sustained by the Brevator Levee System during the flood events of the spring of 2019.

Area	Damage Type	Damage Extent	Leveed side or unprotected side
1	Slide	50ft long	Levee side
2	Erosion Type III	150 yards ³	Levee side
3a	Slide	150ft long	Levee side
3b	Erosion Type III	264 yards ³	5ft deep, on levee crown, no scour hole
4a	Erosion Type III	348 yards ³	Levee side
4b	Breach	135ft wide	Through levee with no scour hole
5	Erosion Type II	188 yards ³	Levee side
6	Slide	250ft long	Unprotected side
7	Slide	50ft long	Levee side
8	Slide	60ft long	Levee side
9	Erosion Type III	1267 yards ³	Levee side

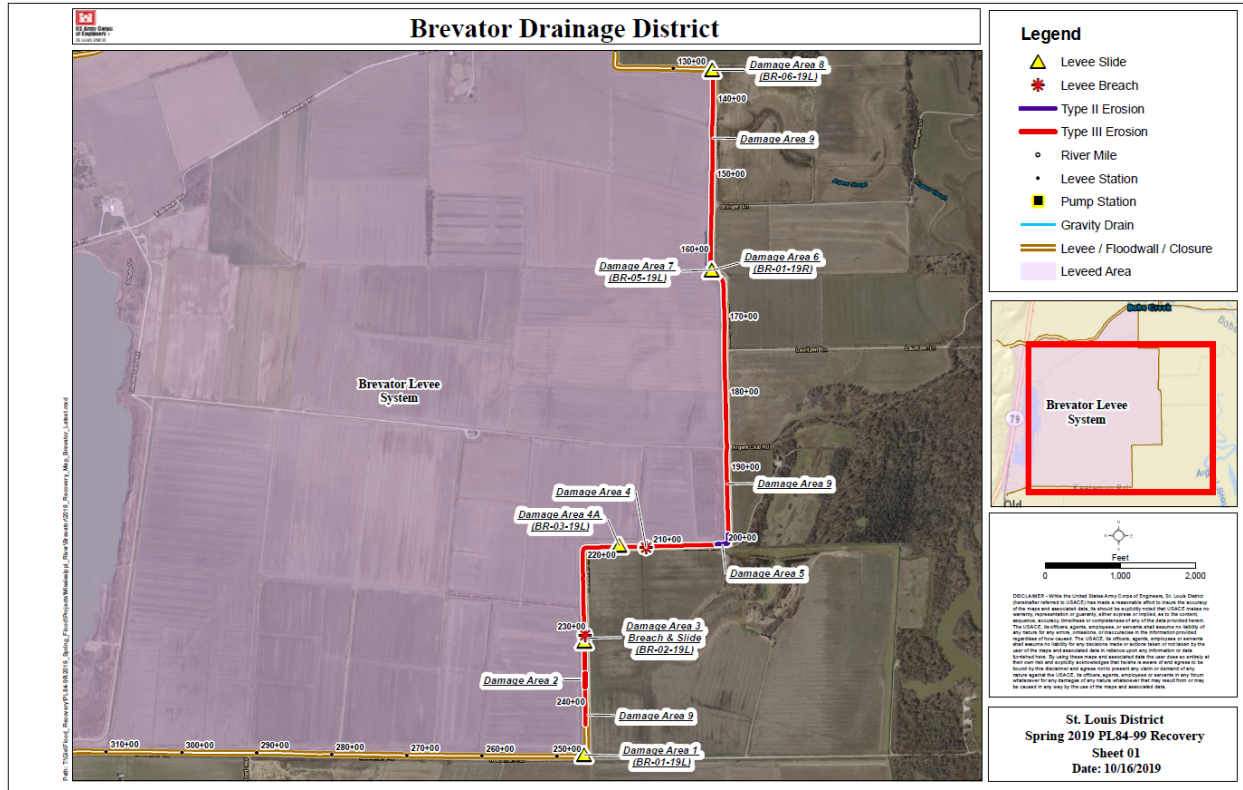


Figure 3. Location of all nine damage areas at the Brevator Levee System.



Figure 4. Photo of the breach on the Brevator Levee System as a result of the flooding event of spring 2019.

2.0 PROJECT ALTERNATIVES CONSIDERED

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

2.1 Alternative 1 - No Action (Future without Project)

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

2.2 Alternative 2 - Nonstructural Measures

Section 73 of the WRDA of 1974 (PL 93-251) requires federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. Nonstructural measures reduce flood damages without significantly altering the nature or extent of flooding. Damage reduction from nonstructural measures is accomplished by changing the land use within the floodplains, or by accommodating existing uses to the flood hazard. Examples include flood proofing, relocation of structures such as levees, flood warning and preparedness systems, and regulation of floodplain uses. A flood warning system would do little to reduce structural and agricultural damages. Flood proofing or relocation is not desirable to the Brevator Drainage District, because it would result in loss of numerous acres of agricultural land, and the present land owners desire to continue agricultural use. The sand plant and wastewater treatment plants for the city of Old Monroe would likewise be costly (or impossible) to relocate.

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

*“There is hereby authorized an emergency fund to be expended in preparation for emergency response to any natural disaster, in flood fighting and rescue operations, or in the repair or restoration of any flood control work threatened or destroyed by flood, including the strengthening, raising, extending, or other modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the work for flood control, or in implementation of **nonstructural alternatives to the repair or restoration of such flood control work if requested by the non-federal sponsor.**”*

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

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

The Brevator Drainage District declined to request the pursuit of a non-structural alternative because present owners desire to continue agricultural use; therefore, this alternative was eliminated from further analysis in this EA.

2.3 Alternative 3 – Structural Repair of Levees with Federal Assistance

Under this alternative, at the request of the Brevator Drainage District, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Brevator Drainage District is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99. The following sections describe the typical repair methods for each damage type.

2.3.1 Erosion Type 2 and 3

Erosion Types 2 and 3 would be repaired by filling in the eroded areas using embankment material from the designated borrow area (Figures 5 and 6). Material would be excavated from borrow areas, hauled to the damaged locations, placed in the eroded areas, and then compacted. After compaction, the repaired areas would be restored by spreading seed, fertilizer, and mulch on the disturbed areas. The areas will be watered as needed. This is the recommended repair method for Areas 2, 3b, 4a, 5, and 9.

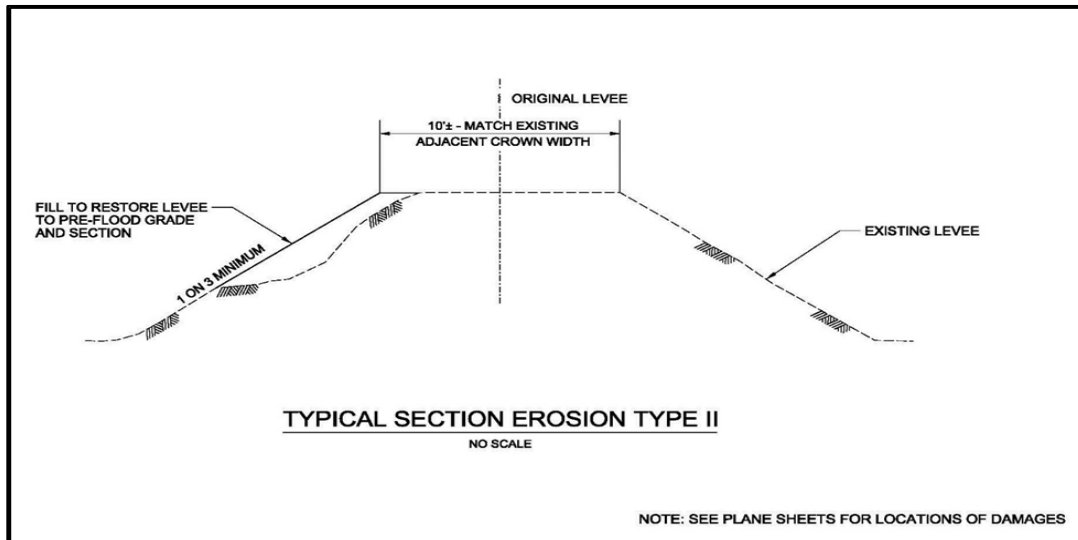


Figure 5. Illustration of a typical erosion type II repair.

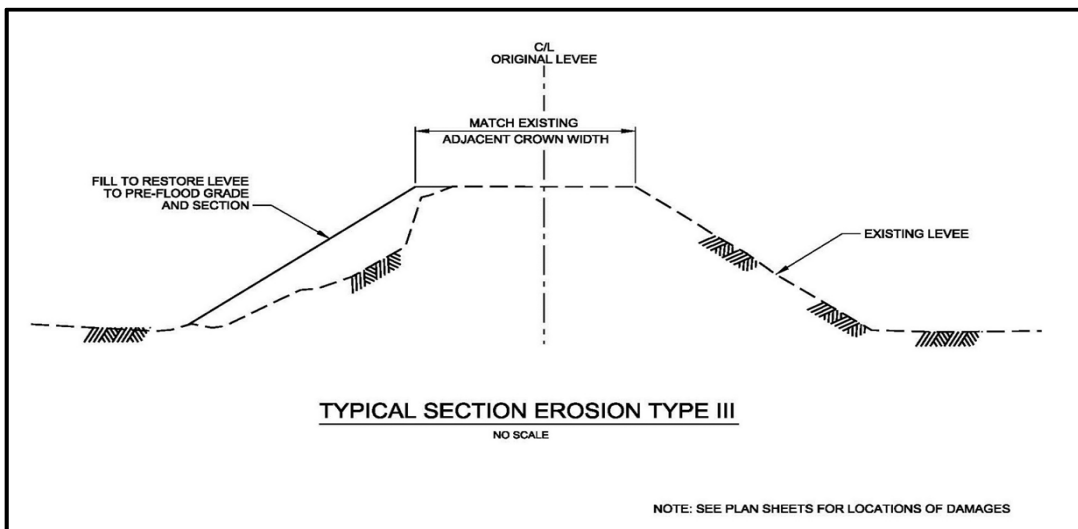


Figure 6. Illustration of a typical erosion type III repair.

2.3.2 Embankment Slides

Embankment Slides would be repaired by excavating the damaged section of the levee to the failure plane and stockpiling the excavated material in designated areas (Figure 7). The

excavated material would be treated with hydrated lime if necessary. The lime treated embankment material or non-treated material from slide repair not requiring lime treatment would be placed back in the levee section and compacted. After compaction, the repaired areas would be restored by spreading seed, fertilizer, and mulch on the repaired areas. The seeded areas would be watered as needed. Pre-flood areas which previously had a crushed stone surface would be re-surfaced with crushed stone in lieu of seeding. A geotextile would be placed on area to be repaired, covered in crushed stone, and compacted. This is the recommended repair method for damage area 1, 3a, 6, 7, and 8.

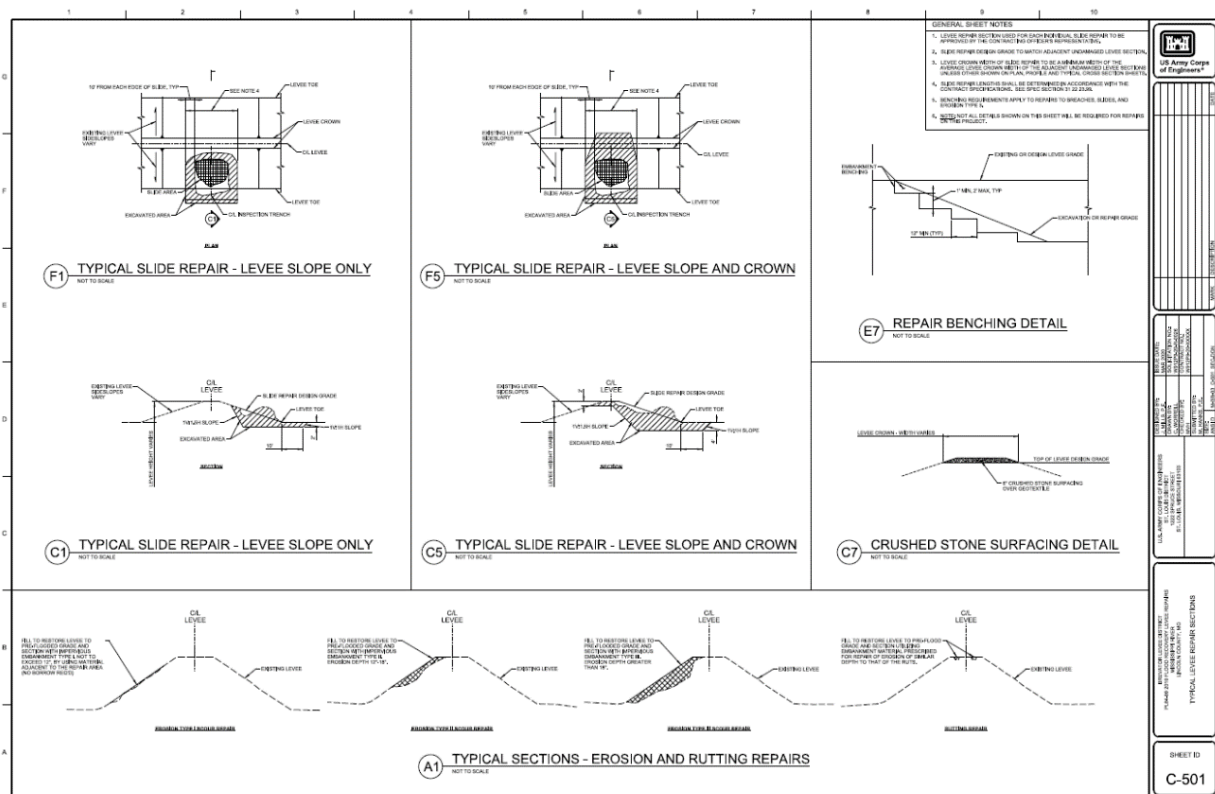
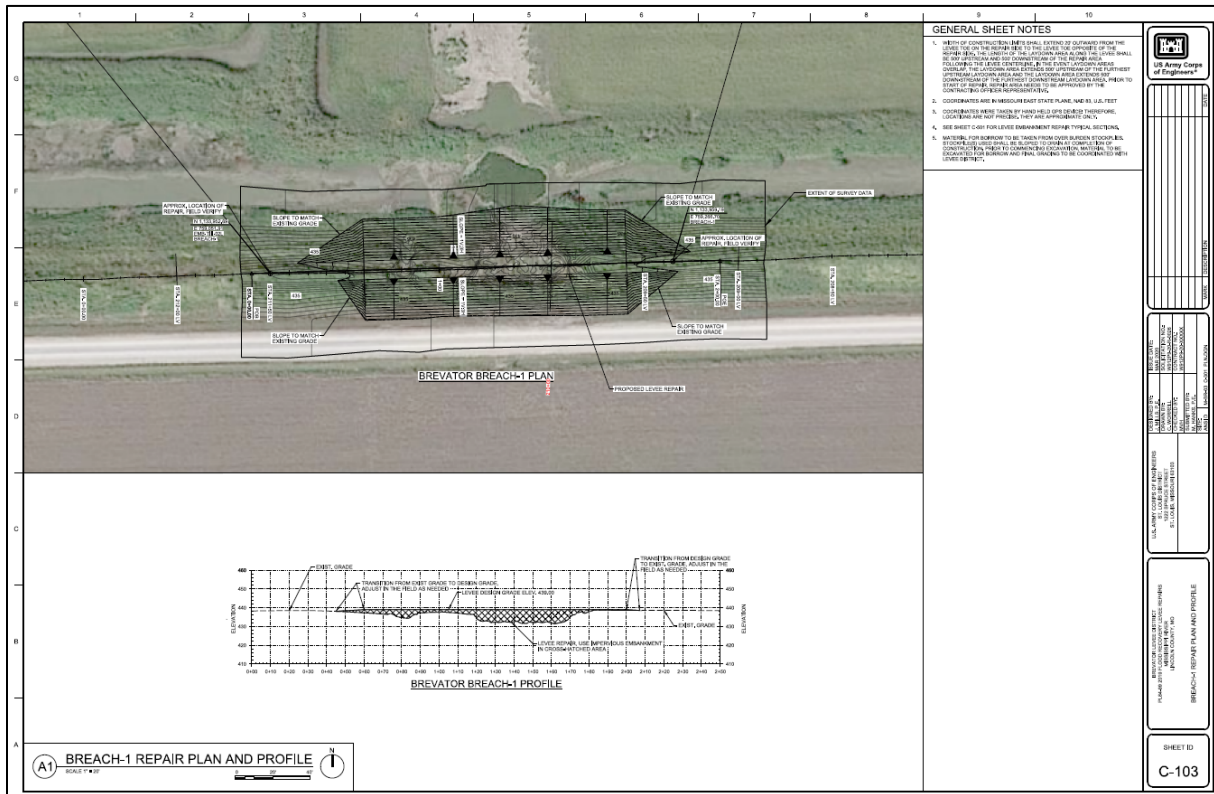


Figure 7. Construction diagram of typical slide repairs and erosion and rutting repairs.

2.3.3 Levee Breaches

Levee Breaches would be repaired by filling in the damaged section using pervious material from the designated borrow area (Figure 8). The breach would be repaired on the original levee alignment. Pervious and impervious material would be excavated from the borrow area using excavators, scrapers or other excavation equipment, and hauled to the breached area on designated haul roads. The materials would be placed in the eroded areas and capped with an impervious material. The placed material would be compacted and the disturbed areas would be restored by spreading seed, fertilizer, and mulch on the disturbed area. The areas would be watered as needed. This is the recommended repair method for damage area 4b.



2.4 Borrow Material

The recommended borrow area is approximately 3.4 acres located landside of the levee (Figure 9). An approximate coordinate for this site is Latitude 38°57'16.14"N, Longitude 90°44'16.03" W taken at the middle of the site. The Kimaterials, Inc. Sand Plant purchased this tract of land just northeast of their current footprint, which has been used as an agricultural field many years in the past. The site is not actively being used for row crop agriculture but is currently an oldfield. Soil samples were collected at the south end, the middle, and the north end of the field. Upon visual inspection, it was observed to be similar



Figure 9. Location of the proposed borrow area.

to the clay material that was used as borrow from a location to the south from the original sand plant footprint that was used to repair the levee from past flooding events. The borrow material is suitable, made up of lean clay. The top six inches of soil would be stripped off, stockpiled, and then re-deposited as top dress on the disturbed area. A maximum of 2 feet of borrow material will be taken from under the initial topsoil strip. There would be no tree clearing required to take the borrow material. The borrow area is a reasonable and economically feasible haul distance to the repair. Approximately 11,000 yards³ is available on this site. This area is recommended for use in the breach repair (Damage Area 4b) and any other repairs for which borrow is necessary.

Construction Limits

Construction limits have been established in the immediate vicinity of the erosion, slide, and breach repair areas. No emergent or forested wetlands exist within the construction limits.

Access and Staging Areas

Staging areas and access routes to the repair sites would be established to avoid and minimize environmental impacts. Existing access points such as roads, rights of way, and levees located within a reasonable distance to the construction sites would be utilized. Haul road locations and staging areas would be restored to their pre-project condition after project completion. The haul roads used for repairs would include County Rd 973, 975, and an unnamed gravel farm road that connects these roads.

Final Plans and Specifications

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

Environmental Protection Measures

The Contractor shall submit an Environmental Protection Plan for review and acceptance by the USACE Contracting Officer, which shall include: a list of state and local laws and regulations; a Spill Control Plan; a Recycling and Waste Minimization Plan; a Contaminant Prevention Plan; a Storm Water Pollution Prevention Plan; an Environmental Protection Plan, and an Environmental Monitoring Plan.

- The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.
- No fill shall be excavated or permanently placed except where required for erosion.
- There shall be no removal of existing vegetation outside of the construction area.
- All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils; and all contractor work areas shall be re-vegetated with fast germinating grass mixtures to reduce any further erosion.
- Thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that seed deposits from plant pests are not present.
- The Contractor shall comply with any special environmental requirements, which are an outgrowth of environmental commitments made by the Government during the project development.
- Proper disposal of solid waste and debris and storage and use of fuels and lubricants.
- Protection of water resources to avoid pollution of surface and ground waters.
- Construct or install temporary and permanent erosion and sedimentation control features such as berms, dikes, drains, grassing and mulching, silt screens, or hay bales.
- Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, and all other work areas free from airborne dust which would cause a hazard or nuisance.
- Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

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

Alternative 3, the structural repair of the existing levee segment to pre-flood condition along its original alignment, is the Tentatively Selected Plan. A team including members of the St. Louis District's Engineering Design Branch and Geotechnical Engineering Branch were involved with developing the most economical and efficient design for repair. Repairs for the Brevator Levee System consists of restoring protection along the previous alignment as opposed to establishing a new alignment in the breach location. Structural repair would reconstruct the levee to pre-flood grade at the location of the breach, slides, and erosion.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

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

3.1 Physical Resources

3.1.1 Land Use/Land-Cover

The Brevator Drainage District is located on the floodplain of the Mississippi River. Because of the fertility of the soil and moisture, the land is prized for its agricultural productivity. A survey of the 2010 Land Use Cover map revealed that the majority of the area is in agriculture (Figure 10). Non-agriculture land use includes wet forest, grass/pasture, an open water pond, and developed areas.

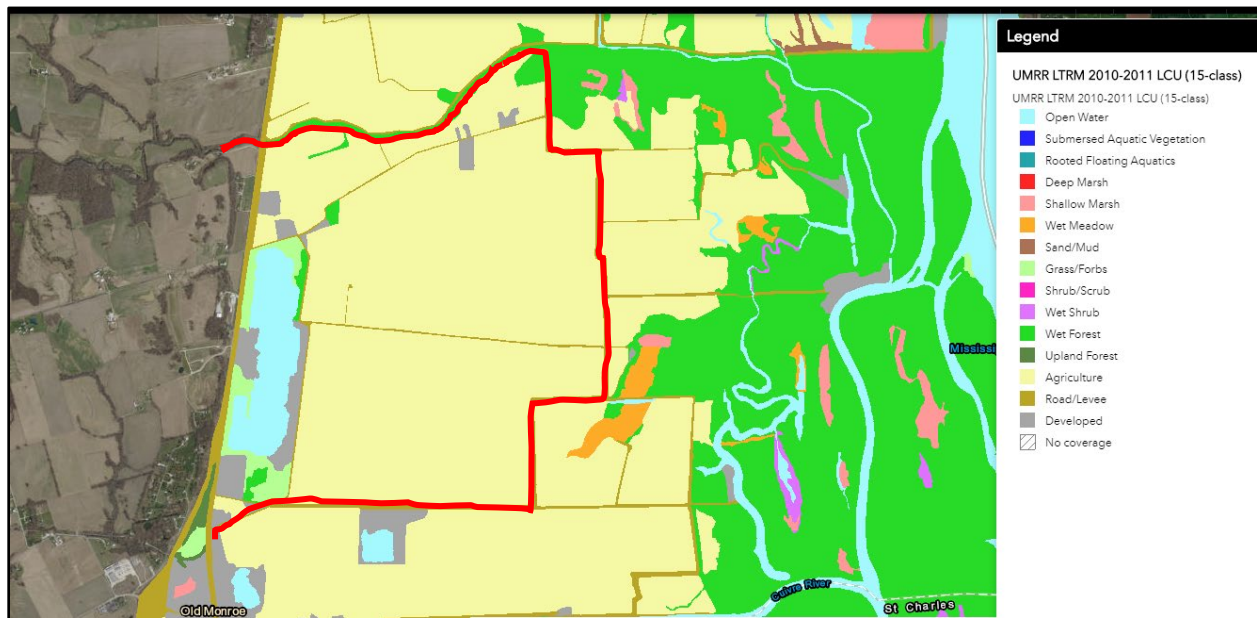


Figure 10. Map of the land use/land cover in the Brevator Drainage District.

Alternative 1 - No Action (Future without Project) – If no action is taken, the capacity of the leveed area to provide agricultural cropland would be significantly diminished as flood waters pond in the area and destroy infrastructure. It is anticipated that as agricultural use decreases, a more diverse and dynamic terrestrial habitat may develop over time.

Alternative 3 - Repair of Levees with Federal Assistance – If the system is repaired to pre-flood conditions, the leveed area would remain protected for some time into the future. Therefore, the land usage patterns would likely remain the same as pre-flood uses.

3.1.2 Noise

The area in the vicinity of the proposed project includes transportation, agricultural zones, the operation of the sand plant, and operation of the wastewater treatment plants for the city of Old Monroe. Agricultural and open space areas typically have noise levels in the range of 34-70 decibels (dB; a measure of loudness), similar to busy city traffic, depending on their proximity to transportation arteries (Figure 11). Noise associated with transportation arteries such as highways would be greater than those along rural county routes. Agriculture, traffic, and recreation-related noise, such as that created by vehicles, machinery, and recreationists, are the main sources of noise within the study area. In general, urban noise emissions do not typically exceed about 60 dB, but may attain 90 dB or greater in busier urban areas or near high volume transportation arteries. Ambient noise in the study area is generated by wildlife, human activities, agricultural activities, and vehicular traffic. The ambient noise level is likely higher near the sand plant during operation hours.

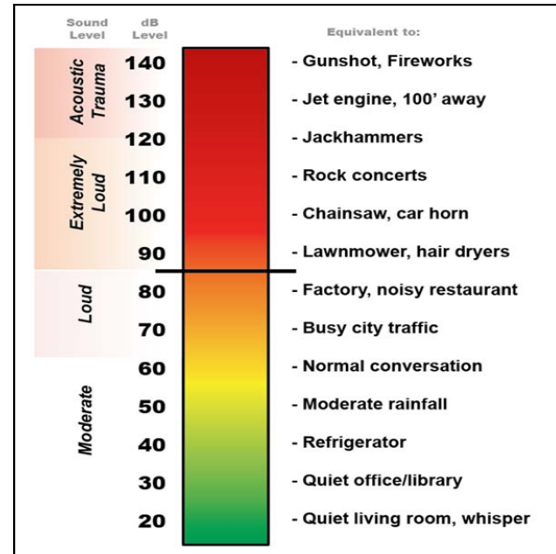


Figure 11. Examples of the sound level and decibel (dB) level of various sources.

Alternative 1 - No Action (Future without Project) – If no action is taken, the level of noise will remain the same as pre-flood conditions. However, noise generated by the operation of the sand plant would cease, if future flood damages prevent the operation of the facility.

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

3.1.3 Water Quality

Water Quality Standards (WQS) are the foundation of the Clean Water Act. In Missouri, the standards define the water quality goals for a waterbody by designating its beneficial uses. The

WQS also set maximum allowable concentrations for up to 100 contaminants for each of those beneficial uses. Missouri's water quality standards extend the Clean Water Act protections to more than 115,000 miles of streams and rivers and 3,080 lakes and reservoirs. The standards also give the beneficial uses for each of those waters (MO DNR 2019a). The ditches running through the Brevator Drainage District are designated as warm water habitat, irrigation, livestock and wildlife protection, secondary contact recreation, and whole body contact recreation (MO DNR 2019b). Argent Slough and Cuivre Slough, which run parallel to the Mississippi River east of the levee, have the same designations as the ditches in the Brevator Levee System (MO DNR 2019b). The Mississippi River, as it flows by the Brevator Levee System, has the same designations as Argent Slough, Cuivre Slough, and the ditches, but is also designated as industrial water supply and drinking water supply (MO DNR 2019b).

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. There are no streams or water bodies within the levee system that are on the MO DNR's 303d list for impairment (MO DNR 2019c).

Alternative 1 – No Action (Future without Project) - If the Brevator Levee System is not repaired, Mississippi River waters would enter the levee district at approximately a 50% (2-year frequency) chance exceedance flood. The increase in sedimentation may change the designations of the waters within the Brevator Drainage District, and compromise the three wastewater treatment ponds protected by the levee.

Alternative 3 – Repair of Levees with Federal Assistance – The proposed repair activities may result in minor temporary increases in sedimentation into the Mississippi River and its tributaries. In addition, levee repairs could cause a short-term increase in turbidity in the waterways at the immediate construction site if flooding or heavy rains occurred during construction. The Contractor shall use best management practices to reduce or eliminate sedimentation resulting from the proposed repairs. All disturbed areas would be reseeded following construction to reduce the potential for erosion.

3.1.4 Air Quality

The Clean Air Act of 1963 requires the U.S. Environmental Protection Agency (USEPA) to designate National Ambient Air Quality Standards (NAAQS). The USEPA has identified standards for six criteria pollutants: ozone, particulate matter (PM₁₀ = less than 10 microns;

and PM_{2.5} = less than 2.5 microns in diameter), sulfur dioxide, lead, carbon monoxide, and nitrogen dioxide. Lincoln County is currently in attainment for all U.S. Environmental Protection Agency air quality criteria (USEPA 2019).

Alternative 1 – No Action (Future without Project) – If the levee is not repaired to the federal standard the air quality standards in the Brevator Drainage District would be maintained at their current levels.

Alternative 3 – Repair of Levees with Federal Assistance – Construction activities would cause a slight increase in suspended particulates (i.e., dust). Emissions from construction equipment would temporarily increase the ozone, carbon monoxide and carbon dioxide levels in the vicinity of the construction site. The expected increases would be negligible and would cease after construction.

3.2 Biological Resources

3.2.1 Fish and Wildlife

Fish and wildlife habitats located in and near the leveed area include permanent water, temporary water, strips of bottomland forest, old fields, and agricultural cropland. The area is dominated by agriculture, and the levees are mowed grass areas that are managed to prevent shrub and tree growth and animal damage. The only wildlife habitat takes the form of two small copses of trees in the northern portion of the leveed area.

Alternative 1 – No Action (Future without Project) – If the Brevator Levee System levee is not repaired to the federal standard, the levee system would have less stability and there is an increased probability of future flooding. During highwater events, bankline scour could erode into the levee and wash soil into adjacent waterbodies, resulting in a short-term increase in turbidity in the immediate area, and temporarily displacing fish and other mobile organisms. Additionally, if flooding were to occur, and agricultural use decreases, then a more diverse and dynamic terrestrial and aquatic habitat may develop over time. The terrestrial habitat could be inundated by high water more frequently, and the vegetative composition may be altered. During high water events, water could pond on the landside of the levee and deposit sediment, decreasing flood water turbidity, filling wetlands, and killing vegetation as flood water ponds on typically dry areas that are currently dominated by agriculture. However, over time, wetland vegetation could become established. During high water events, terrestrial fauna would be displaced as their habitat is inundated. Conversely, fishes and other aquatic organisms would gain access to a large area of floodplain habitat, which could benefit the spawning and rearing of many fish species.

Alternative 3 – Repair of Levees with Federal Assistance – It is anticipated that impacts of the levee repair on fish and wildlife resources would be minimal. Impervious borrow material would be excavated from one borrow area. The borrow site is an oldfield that was once in agricultural production. The borrow site usage, and the levee repairs would require no tree clearing. If heavy rain occurs during construction, washing soil into the river and other waterways, there could be a short-term increase in turbidity in the immediate area, temporarily displacing fish and other mobile organisms. Following construction, aquatic species would be expected to return. However, the Contractor is required to comply with all applicable federal, state, and local laws and regulations. The Contractor is required to provide environmental protective measures and procedures to prevent and control pollution. This includes the condition that the Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of, fish and wildlife. Therefore, no more than short-term, temporary impacts to fish and wildlife resources are anticipated.

3.2.2 Bald Eagle

Although the Bald Eagle (*Haliaeetus leucocephalus*) was removed from the federal list of threatened and endangered species in 2007, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA) (USFWS 2019a). The BGEPA prohibits unregulated take of bald eagles, including disturbance. The U.S. Fish and Wildlife Service developed the National Bald Eagle Management Guidelines (USFWS 2007a) to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute disturbance. On 28 February 2020, USACE biologist Evan Hill conducted a field investigation and survey of the Brevator Levee System to determine the presence of bald eagle nests/nesting within the Levee System. One nest was observed on the northern segment of the levee (Figure 12). This nest is greater than 660 feet from any repair areas or haul routes. According to the MO Natural Heritage Database, the next nearest Bald Eagle nest lies two miles to the east along the Mississippi River (mile 237).

Alternative 1 – No Action (Future without Project) –

If no action is taken to repair the levee, and subsequent flood events compromise the levee protection, agriculture use will decrease and a more diverse and dynamic terrestrial and aquatic habitat may develop. This would indirectly benefit Bald Eagle (and other wildlife) by creating additional foraging and nesting habitat. Furthermore, the decreased agricultural use would reduce the amount of disturbance events to nesting Bald Eagles.



Figure 12. Location of the bald eagle nest found along the Brevator Levee.

Alternative 3 – Repair of Levees with Federal Assistance –

If actions are taken to repair the levee, some temporary impacts as a result of construction activities are expected, but with the nearest nest being greater than 660 feet from the nearest repair area, these impacts would be unlikely to impact Bald Eagle nesting efforts in the Brevator Levee System.

3.3 Biological Assessment

In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, an official list of species and critical habitats potentially occurring in the vicinity of the proposed levee repairs was acquired from the USFWS Information for Planning and Conservation (IPaC) website at <<https://ecos.fws.gov/ipac/>> on 6 February 2020 (Consultation Code: 03E14000-2020-SLI-1192, Event Code: 03E14000-2020-E-02992, Appendix 1). Habitat requirements and impacts of the federal action are discussed for each listed species (Table 3).

Table 3. List of federally threatened and endangered species and habitat potentially occurring in the vicinity of the proposed project.

Common Name (Scientific Name)	Classification	Habitat
Indiana Bat (<i>Myotis sodalis</i>)	Endangered	Caves, mines (winter hibernacula); trees (summer roosting); and small stream corridors with well-developed riparian woods; upland forests (foraging)
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened with 4(d) rule	Caves and mines; rivers and reservoirs adjacent to forests
Gray Bat (<i>Myotis grisescens</i>)	Endangered	Caves year-round (winter hibernacula and summer roosting). In the summer gray bats forage along rivers, lakes, and creeks, and may roost under bridges.
Running Buffalo Clover (<i>Trifolium stoloniferum</i>)	Endangered	Disturbed bottomland meadows

Indiana Bat (*Myotis sodalis*)

This species has been noted as occurring in several Illinois and Missouri counties (USFWS 2007b). Indiana Bats are considered to potentially occur in any area with forested habitat (USFWS 2007b). Indiana Bats migrate seasonally between winter hibernacula and summer roosting habitats. Winter hibernacula include caves and abandoned mines. Females emerge from hibernation in late March or early April to migrate to summer roosts. Females form nursery colonies under the loose bark of trees (dead or alive) and/or in cavities, where each female gives birth to a single young in June or early July. During the summer, Indiana Bats frequent the corridors of small streams with well-developed riparian woods, as well as mature bottomland and upland forests (USFWS 2019b). They forage for insects along stream corridors, within the canopy of floodplain and upland forests, over clearings with early successional vegetation (oldfields), along the borders of croplands, along wooded fence rows, and over farm ponds and in pastures (USFWS 2019b). It has been shown that the foraging range for the bats varies by season, age and sex and ranges up to 81 acres (USFWS 2007b). Suitable Indiana Bat foraging habitat may be located in the forested areas in and adjacent to the Brevator Levee System.

Alternative 1 - No Action (Future without Project). If the levee district remained unrepaired, the suitability of the land for agriculture would be diminished. More permanent and seasonal wetland is expected to establish in the area. These dynamic habitat conditions would provide better foraging habitat than current conditions, which are dominated by agriculture.

Alternative 3 - Repair of Levees with Federal Assistance – The proposed project would not affect any caves or mines, and involves no tree clearing. However, there may be indirect impacts as a

result of general construction disturbance. Therefore, the St. Louis District has made a “*May affect, but not likely to adversely affect*” determination for the Indiana Bat.

Northern Long-Eared Bat (*Myotis septentrionalis*)

The Northern Long-eared Bat is sparsely found across much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and eastern British Columbia (USFWS 2015). Northern long-eared bats spend winter hibernating in large caves and mines. During summer, this species roosts singly or in colonies underneath bark, in cavities and crevices of both live and dead trees. Foraging occurs in interior upland forests (USFWS 2015). Forest fragmentation, logging and forest conversion are major threats to the species (USFWS 2015). One of the primary threats to the northern long-eared bat is the fungal disease, white-nose syndrome, which has killed an estimated 5.5 million cave hibernating bats in the Northeast, Southeast, Midwest and Canada. Suitable Northern Long-Eared Bat foraging habitat may be located in the forested areas in and adjacent to the Brevator Levee System.

Alternative 1 - No Action (Future without Project) –If the levee district remained unrepaired, the suitability of the land for agriculture would be diminished. More permanent and seasonal wetland is expected to establish in the area. These dynamic habitat conditions would provide better foraging habitat than current conditions, which are dominated by agriculture.

Alternative 3 - Repair of Levees with Federal Assistance – The proposed project would not affect any caves or mines and involves no tree clearing. However, there may be indirect impacts as a result of general construction disturbance. Therefore, the St. Louis District has made a “*May affect, but not likely to adversely affect*” determination for the Northern Long-eared Bat.

Gray Bat (*Myotis grisescens*)

The Gray Bat occurs in several Illinois and Missouri counties where it inhabits caves during both summer and winter (USFWS 2016a). With rare exceptions, gray bats live in caves year-round. During the winter, gray bats hibernate in deep, vertical caves. In the summer, they roost in caves which are scattered along rivers. These caves are in limestone karst areas of the southeastern United States. They do not use houses or barns. This species forages over rivers and reservoirs adjacent to forests (USFWS 2016a). Many important caves were flooded and submerged by reservoirs. Other caves are in danger of natural flooding. Even if the bats escape the flood, they have difficulty finding a new cave that is suitable. Suitable Gray Bat foraging habitat may be located in the forested areas in and adjacent to the Brevator Levee System.

Alternative 1 – No Action (Future without Project) – If the levee district remained unrepaired, the suitability of the land for agriculture would be diminished. More permanent and seasonal wetland is expected to establish in the area. These dynamic habitat conditions would provide better foraging habitat than current conditions, which are dominated by agriculture.

Alternative 3 – Repair of Levees with Federal Assistance – The proposed project would not affect any caves or mines and involves no tree clearing. However, there may be indirect impacts as a result of general construction disturbance. Therefore, the St. Louis District has made a “*May affect, but not likely to adversely affect*” determination for the Gray Bat.

Running Buffalo Clover (*Trifolium stoloniferum*)

Running Buffalo Clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but it cannot tolerate full-sun, full-shade, or severe disturbance (USFWS 2011). The species is found in mesic woodlands, streambanks, grazed woodlots, mowed paths, old logging roads, trails, mowed wildlife openings within mature forests, savannahs, sandbars, and steep ravines (USFWS 2011). Clearing land for agriculture and development has led to elimination of populations, loss of habitat, and fragmentation of the clover populations that remain. It has disappeared from all known historic sites in Missouri (USFWS 2011). It formerly occurred in the southern two-thirds of the state. There are historical records from Jasper, Wayne, Cooper, and St. Louis Counties. It was considered extirpated from Missouri until as recently as 1989, when some plants were reported growing in an unattended pile of topsoil in St. Louis. One natural site for Running Buffalo Clover was discovered in Madison County in 1994 and another was discovered in Maries County in 1998 (MDC 2019). A 2008 prescribed burn at the Mark Twain National Forest in Missouri triggered the revival of a reintroduced population that was established in 1994, but had since disappeared (USFWS 2011). A new population was located in Cuivre River State Park, Missouri, in 2009 with approximately 15 rooted crowns (Schuette 2010).

Alternative 1 - No Action (Future without Project) – Failure to repair the levee could possibly lead to the increased potential of Running Buffalo Clover colonization within the disturbed areas adjacent to the breaches if a nearby seed source is present. However, these areas would likely return to agricultural production once flood water receded, inhibiting the more permanent establishment of the species.

Alternative 3 - Repair of Levees with Federal Assistance – The proposed project area is within the existing levee footprint and adjacent agricultural lands (borrow areas). The levees are planted with grasses and mowed regularly. The agricultural lands are intensively managed for row crop production and receive chemical and mechanical disturbance annually, making them non-

suitable for permanent establishment of Running Buffalo Clover. No occurrences of this species are known from the project area. However, the land disturbance resulting from the repair activities may help a local seed source to become established in scattered areas of marginal habitat. Therefore, the St. Louis District has made a “*may affect, but not likely to adversely affect*” determination for the Running Buffalo Clover.

In an e-mail dated 18 March 2020, the U.S. Fish and Wildlife Service, Columbia, Missouri Ecological Services Field Office stated that based on the information in the EA, the Service concurs with the Corps determination that the project may affect, but is not likely to adversely affect federally listed species (Appendix 2).

State Listed Species

A MDC Heritage Review Report was generated on 29 August 2019 (Appendix 3). Bob’s Creek, which feeds into the Cuivre Slough, has occurrences Mississippi Silvery Minnow (*Hybognathus nuchalis*). In addition, the Cuivre River Conservation area to the east of the Brevator Levee System has numerous records of state-listed species. However, both of these resources lie outside of the Brevator Levee System and the construction footprint. In an email dated 3 March 2020, Policy Coordinator Matt Vitello with MDC stated that the agency did not have any further concerns with the proposed repair actions (Appendix 4).

3.4 Socioeconomic Resources

3.4.1 Economic

The Brevator Levee System leveed area contains several residential properties and associated outbuildings and farm related structures (implement storage sheds and grain storage bins); a large sand plant (Kimaterials Inc. LLC), and several small businesses such as Chantilly Cabinet and Ralph’s Auto Repair. There is also a series of waste water lagoons for the city of Old Monroe. The estimated structural value is \$4,500,000. The population inside the leveed area is 27. The total rehabilitation project has a benefit to cost (b/c) ratio of 10.3 to 1. If the levee is not repaired, Mississippi River waters will enter the levee district at approximately a 50% (2-year frequency) chance exceedance flood. The repair project will provide flood risk reduction against a 20% annual chance exceedance flood.

Alternative 1 – No Action (Future without Project) – If the Brevator Drainage District levee is not repaired to the Federal standard, there would be little to no flood risk reduction due to the levee breach. The previously leveed area would continue to be subject to flooding, making the area less suitable and possibly unsuitable for agriculture. This could result in a negative economic effect on the Brevator Drainage District and the local economy. In addition, potential damage to

infrastructure and buildings would likewise impact the local economy. If the wastewater treatment ponds are compromised by floodwaters, it could pose a health risk to the residents of Old Monroe.

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

3.4.2 Cultural Resources

St. Louis District personnel conducted an archeological survey of the proposed borrow site on 18 February 2020. No cultural materials were found in the surveyed areas. Based upon the results of the survey, information from land owners, and referencing the history of the land forms, it is the District's opinion that the proposed project would have no effect on historic properties. A determination letter was sent to MO SHPO on 20 February 2020 (Appendix 5). The MO SHPO sent a letter of concurrence on 11 March 2020 (Appendix 6).

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

Alternative 1 – No Action (Future without Project) – With future flooding, there is the potential for damage to culturally significant resources protected by the levee, whether or not they have been documented by archeologists.

Alternative 3 – Repair of Levees with Federal Assistance – The levee is a previously disturbed area and there were no culturally significant resources found within the borrow area. Therefore, the proposed repairs to the levee within the Brevator Levee System will have no effect upon significant historic properties.

3.4.3 Tribal Coordination

The St. Louis District consulted with 26 Tribes that have an interest in projects along rivers within our district boundaries. The recovery and repair of the Brevator Drainage District, authorized under P.L. 84-99, was coordinated with these 26 tribes in the following manner: An initial letter

(dated 24 February 2020) was sent to the tribes described the locations of existing flood damaged structures, lands and fills (Appendix 7). Maps of the areas and a description of the types of impacts resulting from construction were also included. The tribes were requested to contact the USACE if there are known tribal areas of concern in any the project area, and if they desire further consultation on the project.

Alternative 1 – No Action (Future without Project) –. With future flooding, there is the potential for damage to sites that are culturally significant to Tribes that are currently protected by the levee.

Alternative 3 – Repair of Levees with Federal Assistance – Depending on Tribal response, the USACE continues the consultation process until the completion of the project. No Tribal interests have yet responded with concerns.

3.4.4 HTRW

The U.S. Army Corps of Engineers (USACE) regulations (ER-1165-2-132, ER 200-2-3) and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential HTRW in reconnaissance, feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects by conducting Phase I Environmental Site Assessment (ESA). USACE specifies that these assessments follow the process/standard practices for conducting Phase I ESA's published by the American Society for Testing and Materials (ASTM).

The purpose of a Phase I ESA is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. Current policy is to avoid known HTRW sites. However, the Environmental Quality Section should be contacted immediately if HTRW material is encountered at any point during construction activities.

A Phase I study was performed on 15 January 2020 which did not find anything that would indicate a risk of HTRW contamination within the project area (Phase I report generated on 20 January 2020, Appendix 8). There were no HTRW concerns for repair activities and borrow site usage. The likelihood of hazardous substances adversely affecting the project area due to the proposed levee repair activities is very low. There is still a potential of encountering hazardous substances during the proposed actions. If HTRW material is encountered at any point during

the levee repairs, an environmental contractor should be contacted to assess the conditions. USACE does not and cannot represent that the site contains no hazardous waste or material, including petroleum products.

Alternative 1 - No Action (Future without Project) – If repairs are not made, future flood events have the potential to spread some contaminants which may be in the area.

Alternative 3 - Repair of Levees with Federal Assistance - The likelihood of hazardous substances adversely affecting the project area due to the proposed construction activities is very low. The Phase I assessment found nothing that would indicate that HTRW contamination exists within the project area. However, as previously mentioned, USACE does not and cannot represent that the site contains no hazardous waste or material, including petroleum products.

3.4.5 Permits

The Missouri Regional General Permit (GP) 41 for Flood Recovery and Repair Activities authorizes the protection and repair of existing flood damaged structures, damaged land areas and damaged fills, under authority of Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344), which include actions outlined under the recommended alternative. General Permit 41 is currently valid with an expiration date of April 22, 2023 unless revoked or specifically extended. Preconstruction notification is required for all activities obtaining borrow from forested wetlands, borrowing material from potential migratory bird nesting areas, clearing trees along stream channels, working in areas with known exotic species, and/or if the proposed repair activity includes restoration of a stream channel back to the original, pre-flood location. Other authorized activities that meet the terms and limits of this GP may proceed without preconstruction notification to USACE. However, post construction reporting is required for all activities undertaken under this GP. Maintenance of existing flood damaged structures and/or flood damaged fills, which have been previously authorized, may be authorized by Nationwide Permit No. 3 or exempted by Part 323.4 of Federal regulations 33 CFR 320- 332. The repair of uplands damaged by storms, floods or other discrete events may be authorized by Nationwide Permit No. 45 upon notification and review by the Regulatory Branch. Section 401 Water Quality Certification is included with most general permits listed above, but additional coordination and/or other state permits may be required prior to construction depending on the scope of repairs. All authorizations are on file in the District Office.

A Regulatory site visit was conducted on 15 January 2020. The proposed borrow areas do not exhibit wetland characteristics, therefore a pre-construction notice is not required. The levee

repair work would be fully authorized under Regional General Permit 41 and/or Nationwide Permit 3.

3.4.6 Environmental Justice

Environmental justice refers to fair treatment of all races, cultures and income levels with respect to development, implementation and enforcement of environmental laws, policies and actions. Environmental justice analysis was developed following the requirements of: Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations," 1994), and "Department of Defense's Strategy on Environmental Justice" (March 24, 1995). This mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of proposed projects on minority and low-income populations. Environmental Justice builds on Title VI of the Civil Rights Act of 1964. Environmental Justice has three guiding principles:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental impacts, including social and economic effects on minority and low-income populations
- Ensure full and fair participation by all potentially affected communities in the decision-making process
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

Environmental Justice analysis applies to both minority and low-income populations. For the analysis of Environmental Justice, minority populations are defined as any person who is Black, Hispanic, Asian American, American Indian, or Alaskan Native. The US Department of Transportation (USDOT) recommends using the US Department of Health and Human Services (HHS) poverty guidelines when identifying low-income populations. The HHS poverty guidelines vary by family size and geographic location. The current (as of 2018) poverty level in the 48 contiguous states and the District of Columbia is \$12,140 for an individual and \$25,100 for a household of four.

An Environmental Justice Screen Report was generated on 31 Dec 2019 to identify potential Environmental Justice-related concerns (Figure 13). The Demographic Index of the Brevator Drainage District was 16%, slightly lower than the state average of 27%. The Brevator Drainage District has a 1% minority population, which is much lower than the state average of 20%. The system has 30% low-income population, which is roughly equal to the state average of 34%. There is no percentage of the population that is linguistically isolated, compared to a 1% state average. Age distribution is comparable to the state average, with 6% under 5 years of age, and 15% over 64 years of age. The state averages are 6% and 16%, respectively, for these metrics.

The percent of the population with less than a High School education is 5%, slightly less than the state average of 11%.

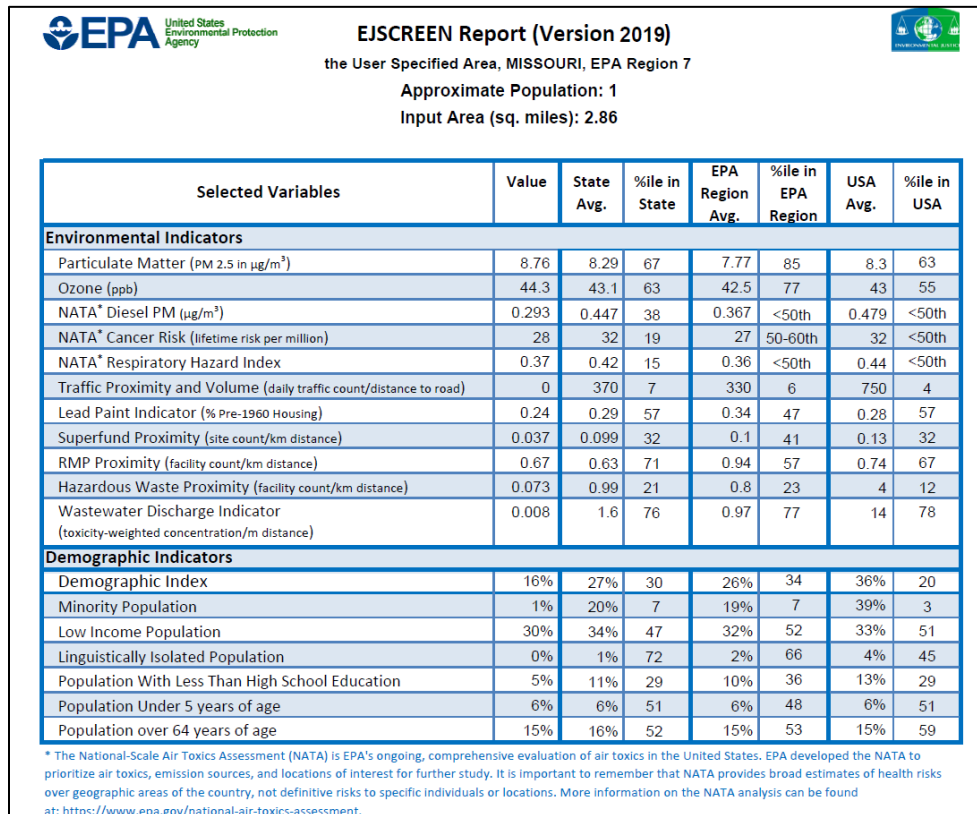


Figure 13. Environmental Justice Report of the Brevator Drainage District as of 31 Dec 2019.

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

Alternative 3 – Repair of Levees with Federal Assistance – If the Brevator Drainage District levee is repaired to the Federal standard, the level of protection would be that provided by the design (pre-2019 flood event) levee. This alternative would simply restore the pre-flood conditions, which would benefit the residents and business-owners living and working within the leveed area. This would not disproportionately affect minority or low income populations.

3.4.7 Summary Comparison of Project Alternatives

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

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

Resources	No Action	Tentatively Selected Alternative
Physical Resources	Flooding will occur if the levees are not repaired and the levee’s integrity is further compromised during a flood.	The breach, slide, and erosion repairs would meet the Federal standard.
	Increased potential for further erosion of levee and sedimentation within the leveed area following flood events.	Temporary minor impacts to water and air quality during construction.
	Does not meet project objective of repairs to Federal standard.	Brings the levee protection level back to pre-2019 flood event conditions.
Biological Resources	If levee segment is compromised in the future, there is potential for beneficial impacts due to potential increase in floodplain wetland habitat. However, there is a potential for water/land pollution if contaminants exist in either area or in the floodwaters.	Construction would be confined to the levee and borrow area which may result in minor temporary impacts.
	Federal T&E species would not be adversely impacted.	The TSP would not result in the removal or alteration of habitat that coincides with the habitat required for the Gray Bat, Indiana Bat, Northern Long-Eared Bat, or Running Buffalo Clover. Therefore, only minimal, indirect impacts to federally listed species are anticipated.
	Meets project objective of minimal environmental impacts.	Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The drainage district would be susceptible to future floods and potential negative impacts to the levee system and regional economy due to levee damages.	Repair of levee would result in the protection of croplands, businesses and structures from floods up to the design (13.3- year frequency) of the levee system.
	Does not meet project objective of protecting the socioeconomic value of the levee system.	Meets project objective of protecting the economic value of the levee system.

4.0 CUMULATIVE IMPACTS

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions of what agency (Federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The majority of the levee systems in the region have been in place for decades. Repairs would involve returning the damaged levee sections to the same level of protection as existed prior to the high water events of 2019. These repairs are not anticipated to decrease the post-flood productivity of lands riverward or landward of the levee systems. The Brevator Levee PL 84-99 project along with several other levees requires borrow for levee repairs. Borrow sites have been examined and selected in order to avoid sensitive areas and resources. Borrow for the majority of these projects would come from agriculture areas, low quality farmed wetlands, and previously identified borrow areas. The widely scattered nature of repair sites and shallow excavation depth of borrow sites would reduce impacts and no long term adverse cumulative impacts are expected. Borrow sites have been evaluated during field trips to reduce environmental, cultural, and Tribal impacts. Temporary impacts from noise, air, and water pollution would occur as a result of PL 84-99 repair activities. However, repair sites are widely scattered throughout the St. Louis District and therefore the cumulative effects of these impacts would be negligible.

4.1 Relationship of Tentatively Selected Plan to Environmental Requirements

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

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

Environmental Requirement	Compliance
Bald Eagle Protection Act, 42 USC 4151-4157	FC
Clean Air Act, 42 USC 7401-7542	FC
Clean Water Act, 33 USC 1251-1375	FC
Comprehensive Environmental Response, Compensation, and Liability Act, (HTRW) 42 USC 9601-9675	FC
Endangered Species Act, 16 USC 1531-1543	FC
Farmland Protection Policy Act, 7 (Prime Farmland) USC 4201-4208	FC
Fish and Wildlife Coordination Act, 16 USC 661-666c	PC
Food Security Act of 1985 (Swampbuster), 7 USC varies	FC
Land and Water Conservation Fund Act, (Recreation) 16 USC 460d-4601	FC
National Environmental Policy Act, 42 USC 4321-4347	PC ²
National Historic Preservation Act, 16 USC 470 et seq.	FC
Noise Control Act of 1972, 42 USC 4901-4918	FC
Resource, Conservation, and Rehabilitation Act, (Solid Waste) 42 USC 6901-6987	FC
Rivers and Harbors Appropriation Act, (Sec. 10) 33 USC 401-413	FC
Water Resources Development Acts of 1986 and 1990 (Sec 906 – Mitigation; Sec 307 - No Net Loss - Wetlands)	FC
Floodplain Management (EO 11988 as amended by EO 12148)	FC
Federal Compliance with Pollution Control Standards (EO 12088)	FC
Protection and Enhancement of Environmental Quality (EIS Preparation) (EO 11991)	FC
Protection and Enhancement of the Cultural Environment (Register Nomination) (EO 11593)	FC ¹
Protection of Wetlands (EO 11990 as amended by EO 12608)	FC

FC = Full Compliance; PC¹ = Partial Compliance (on-going, will be accomplished prior to construction); PC² full compliance will be achieved upon signing of the NEPA document.

5.0 COORDINATION, PUBLIC VIEWS, AND RESPONSES

Notification of this Environmental Assessment and unsigned Finding of No Significant Impact will be sent to several relevant officials, agencies, organizations, and individuals for review and comment. Additionally, an electronic copy will be available on the St. Louis District's website during the public review period at:

<<https://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/BrevatorPL8499PublicReview.pdf>>.

Please note that the Finding of No Significant Impact is unsigned. These documents would be signed into effect only after having carefully considered comments received as a result of this public review. To assure compliance with the National Environmental Policy Act, Endangered Species Act, and other applicable environmental laws and regulations, coordination with these agencies will continue as required throughout the planning and construction phases of the proposed levee repairs.

Notification of Draft Environmental Assessment and unsigned Finding of No Significant Impact was sent to the following entities:

MVS External Agency Stakeholder

Environmental Protection Agency, Region 5 Melgin, Wendy

Environmental Protection Agency, Region 7 Westlake, Kenneth

State Employees

Illinois

Carney, Doug

Grider, Nathan

Mauer, Paul

Rawe, Adam

Minnesota

Amato, Joel

Missouri Dept. of Conservation

Boaz, Tracy

Brown, Doyle

Leary, Alan

Sternburg, Janet

Todd, Brian

Campbell-Allison, Jennifer

Vitello, Matt

Missouri Dept. of Natural Resources - Policy Unit

Beres, Audrey

Missouri Dept. of Natural Resources, Water Protection Program

Bax, Stacia

Missouri Dept. of Natural Resources - State Historic Preservation Office

Rubingh, Amy

National Oceanic and Atmospheric Administration

Buan, Steve

National Park Service

Lange, James

U.S. Fish and Wildlife Service, Missouri Office

Marquardt, Shauna

Ledwin, Jane

Herrington, Karen

U.S. Coast Guard

Morgan, Justin

SUMR Waterways

U.S. Fish and Wildlife Service, Illinois Office

Mangan, Matthew

McPeck, Kraig

U.S. Department of Agriculture-NRCS, MO Office

Lugo-Camacho, Jorge

MVS External Educational Stakeholder

Washington University

Goode, Peter

Hubertz, Elizabeth

Lipeles, Maxie

Mannion, Clare

Miller, Kenneth

MVS External Environmental Stakeholder

Ducks Unlimited

Held, Eric

Hillburn, Craig

Great Rivers Habitat Alliance

Stokes, David

Great Rivers Law

Morrison, Bruce
Skrukrud, Cindy
Missouri Coalition for the Environment
Fung, Jenny

MVS External Government Stakeholder

Academy Coordinator for Congresswoman Ann Wagner
Winship, Jaci
City of Portage des Sioux
Field Representative Manager for Congressman Sam Graves
Josh Hurlbert
Jefferson County, Missouri
Luchan, Janice
Staff Member with Senator Roy Blunt's Office
Lavalle, Tricia

MVS External Industry Stakeholder

American Waterways Operators (AWO)
Muench, Lynn
Werner, Paul
Tow Inc.
Alter Logistics
G, Jeff
Apex Oil Company
Caito, J
Hanneman, M
Archer Daniels Midland (ADM)
Burlingame, Chuck
Heroff, Bernard
Porter, Jason
Atlantic-Meeco Inc.
Fabrizio, Christi
Canal Barge Company
Poppewell, Micket
Tyson, J
Chain of Rocks WTP
Baldera, Patrick
Consolidated Grain & Barge Co. (CGB)

Jamison, Larry
Cultural Resource Analysts, Inc.
Niquette, Charles
Docks
Economy Boat Store
Zupan, T
Ecosystem Investment Partners
Urban, David
Ecosystems Insurance Associates
Spoth, Robert
Ergon Inc.
Cruse, Lester
Florida Marine
Marine, Louis
Gary Elmestad & Associates
Elmestad, Gary
Hanke Terminal Inc.
HMT Bell South
Hoppies Marine
Illinois Marine Towing
Barnes, Ryan
Ingram Barge Company
Dotts, Glenn
Henleben, Ed
Johnson, Frank
Kristen, John
International Dock Products
Teah, Phillip
J.F. Brennan Company Inc.
Pehler, Kent
JBS USA
JBS Chief
Kirby Corporation
Ebey, Mike
Koch Industries
Muir, T
Layne
Hunt, Henry

Luhr Bros., Inc.

S, Glenn

Missouri Corn Grower's Assoc.

Reitz & Jens

SCI Engineering

Harding, Scott

SEACOR Marine LLC

Coder, Justin

Slay Industries Inc.

Slay, Glen

Southeast Missouri Port Authority

Southern Illinois Transfer

Terra Technologies

Staten, Shane

Treated Wood Council

Miller, Jeff

Tri City Port District

ShahIman, Bill

Wilmsmeyer, Dennis

York Bridge Co.

Southwestern Power Administration (SWPA)

Corker, Ashley

BellSouth Telecommunications

MVS External Media Stakeholder

Banner Press

Chicago Commods

Republic Monitor Perry County, MO

Cox, Robert

Waterways Journal

Shoulberg, J

MVS External Tribe Stakeholder

Absentee-Shawnee Tribe

Devon Frazier

Caddo Nation

Historic Preservation Office

Chairman of Caddo Nation

Francis, Tamara
Citizen Potawatomi Nation
Kelli Mosteller
Delaware Nation of Oklahoma
Sonnie Allen
Delaware Tribe of Indians
Dr. Brice Obermeyer
Dr. Larry Heady
Eastern Shawnee Tribe of Oklahoma
Brett Barnes
Forest County Potawatomi
Melissa Cook
Hannahville Indian Community
Earl Meshigaud
Ho-Chunk Nation of Wisconsin
William Quackenbush
Iowa Tribe of Kansas and Nebraska
Lance Foster
Iowa Tribe of Oklahoma
Dr. Robert Fields
Kickapoo Tribe of Indians of Kansas
Fred Thomas
Kickapoo Tribe of Oklahoma
Kent Collier
Miami Tribe of Oklahoma
Diane Hunter
Nottawaseppi Band of Huron Potawatomi
Fred Jacko, JR
Peoria Tribe of Indians of Oklahoma
Logan Pappenfort
Pokagon Band of Potawatomi
Matthew Bussler
Prairie Band Potawatomi Nation
Warren Wahweotten
Sac & Fox Nation of Missouri in Kansas and Nebraska
Chairperson Tiauna Carnes
Sac & Fox Nation of Oklahoma
Principal Chief Kay Rhoads

Sac & Fox Tribe of the Mississippi in Iowa

Buffalo, Jonathon

Shawnee Tribe

Tonya Tipton

SOARRING Foundation

Joseph Standing Bear Schranz

The Osage Nation

Chief John Red

Dr. Andrea Hunter

The Quapaw Tribe of Indians

Everett Bandy

United Keetoowah Band of Cherokee of Oklahoma

Sheila Bird

Winnebago of Nebraska

Randy Tebeo

6.0 ENVIRONMENTAL ASSESSMENT PREPARERS

Teri C. Allen, Ph.D.; Chief – Environmental Compliance Section; Aquatic Ecologist

Role: EA Coordinator, Environmental Impact Analysis, NEPA and Environmental Compliance

Evan Hill, Wildlife Biologist

Role: Environmental Impact Analysis, NEPA and Environmental Compliance

Shane Simmons, Biologist

Role: Project Manager

Alan Edmondson, Regulatory Specialist

Role: Section 404/401 permit review

James Mills, P.E., Civil Engineer

Role: Technical Engineering Lead

Rick Archeski, Environmental Engineer

Role: Environmental Engineering, HTRW

Mark Smith, Archaeologist

Role: National Historic Preservation Act Analysis and Compliance

Meredith Trautt, Archeologist and Tribal Liaison Assistant

Role: National Historic Preservation Act Analysis and Compliance, Tribal consultation.

Evan Stewart, Economist

Role: Economist

7.0 REFERENCES

- Missouri Department of Conservation (MDC). 2019. Running Buffalo Clover (*Trifolium stoloniferum*) Species Profile <<https://nature.mdc.mo.gov/discover-nature/field-guide/running-buffalo-clover>> (Accessed 21 August 2019)
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- U. S. Fish and Wildlife Service (USFWS). 2007a. National Bald Eagle Management Guidelines. <<https://www.fws.gov/pacific/eagle/documents/NationalBaldEagleManagementGuidelines.pdf>>
- U. S. Fish and Wildlife Service (USFWS). 2007b. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp. Available: <https://www.fws.gov/midwest/endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf>
- U. S. Fish and Wildlife Service (USFWS). 2011. Running Buffalo Clover (*Trifolium stoloniferum*) 5-Year Review: Summary and Evaluation. Available: <<https://www.fws.gov/Midwest/endangered/plants/pdf/RunningBuffaloClover5YrReview2011.pdf>> (Accessed: 21 August 2019).

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<<https://www.fws.gov/midwest/endangered/mammals/nleb/nlebfactsheet.html>>
(Accessed: 21 November 2019).
- U. S. Fish and Wildlife Service (USFWS). 2016a. Gray Bat (*Myotis grisescens*) Fact Sheet.
<https://www.fws.gov/midwest/endangered/mammals/grbat_fc.html> (Accessed: 21 November 2019).
- U. S. Fish and Wildlife Service (USFWS). 2019a. Species Profile: Bald Eagle (*Haliaeetus leucocephalus*). Available at
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- U.S. Fish and Wildlife Service (USFWS). 2019b. Indiana Bat (*Myotis sodalis*) Fact Sheet.
<[fws.gov/midwest/endangered/mammals/inba/index.html](https://www.fws.gov/midwest/endangered/mammals/inba/index.html)> (Accessed: 21 November 2019).

8.0 FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99 BREVATOR DRAINAGE DISTRICT LINCOLN COUNTY, MISSOURI

1. I have reviewed the documents concerned with the proposed levee repairs to the Brevator Drainage District. The purpose of this project is to repair levee sections damaged by an extended high water event during the spring of 2019. Repairs would return the Drainage District to pre-flood conditions in an expedient manner.

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

- a. No Action Alternative – Under the no-action alternative, the federal government would not repair the flood damaged levees. It is assumed that, because of the cost of repairs, the levee district would not repair the levee.
- b. Nonstructural Alternative – Under PL 84-99, the Corps has the authority to pursue a non-structural alternative only if the project sponsor requests such an alternative. The Brevator Drainage District declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further consideration.
- c. Repair of Levees with Federal Assistance (Tentatively Selected Plan) – Under this alternative, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Brevator Drainage District is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99.

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

- a. The No Action Alternative was evaluated and subsequently rejected primarily based upon the higher potential for future flooding and damage to area agricultural fields, commercial structures, farm structures, residences, farmsteads, roads, ditches, utilities and infrastructure.

- b. Borrow for the final levee repair will come from one borrow area, an oldfield within the drainage district.
 - c. No appreciable effects to general environmental conditions (air quality, noise, water quality) would result from the tentatively selected plan.
 - d. The tentatively selected plan is not expected to cause significant adverse impacts to general fish and wildlife resources.
 - e. The tentatively selected plan is not expected to cause unacceptable adverse impacts to riparian habitat, bottomland hardwood forest, or other wetlands.
 - f. No Federally endangered or threatened species would be adversely impacted by the tentatively selected plan.
 - g. No prime farmland would be adversely impacted as a result of the tentatively selected plan.
 - h. No significant impacts to historic properties (cultural resources) are anticipated as a result of the tentatively selected plan.
 - i. No significant impacts to tribal resources are anticipated as a result of the tentatively selected plan.
 - j. Under the tentatively selected plan, local economies would benefit through an increased labor demand to carry out levee repairs. Agricultural land and structures within the Drainage District would be provided with pre-2019 flood protection.
 - k. The Contractor shall comply with all applicable federal, state, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. All disturbed areas would be reseeded following construction to reduce the potential for erosion.
4. Based upon the Environmental Assessment of the tentatively selected plan, no significant impacts on the environment are anticipated. The proposed action has been coordinated with appropriate resource agencies, and there are no significant unresolved issues. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with this action.

Date

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

Appendix 1



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181



In Reply Refer To:

February 06, 2020

Consultation Code: 03E14000-2020-SLI-1192

Event Code: 03E14000-2020-E-02992

Project Name: Brevator 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. **Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region [S7 Technical Assistance](#) website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features particularly within stream corridors, riparian areas, or associated upland woodlots gray bats could be affected.

Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags 5 inches diameter at breast height (dbh) for Indiana bat, and 3 inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
 - Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
 - A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
 - A stand of eastern red cedar shrubby vegetation with no potential roost trees.
-

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.

2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project other than bats (see #3 below) then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain [Life History Information for Listed and Candidate Species](#) through the S7 Technical Assistance website.

3. If IPaC returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:

- a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
- b. Any activity in or near the entrance to a cave or mine;
- c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
- d. Construction of one or more wind turbines; or
- e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on listed bat species. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of suitable forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the [Range-wide Indiana Bat Summer Survey Guidelines](#).

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed [voluntary guidelines for minimizing impacts](#).

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to [guidelines](#) developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's [Wind Energy Guidelines](#). In addition, please refer to the Service's [Eagle Conservation Plan Guidance](#), which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Karen Herrington

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office

101 Park Deville Drive

Suite A

Columbia, MO 65203-0057

(573) 234-2132

Project Summary

Consultation Code: 03E14000-2020-SLI-1192

Event Code: 03E14000-2020-E-02992

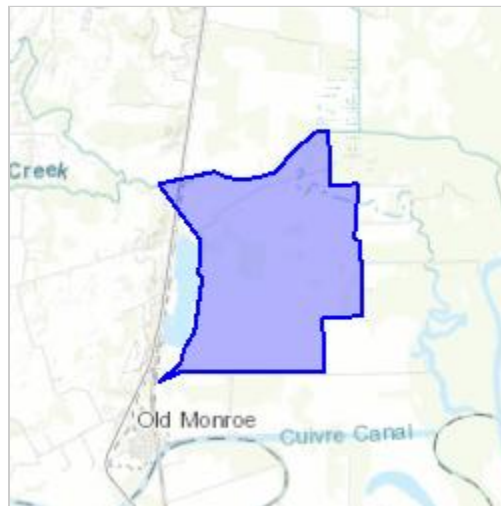
Project Name: Brevator 2019

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: Emergency levee repairs to Brevator levee near Old Monroe, MO (PL 84-99 2019)

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.9553688453053N90.72487668725815W>



Counties: Lincoln, MO

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Running Buffalo Clover <i>Trifolium stoloniferum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2529	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1C](#)
- [PEM1Cx](#)
- [PEM1F](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1A](#)
- [PFO1Ad](#)
- [PFO1Cd](#)

FRESHWATER POND

- [PUBG](#)
- [PUBGh](#)
- [PUBGx](#)

RIVERINE

- [R2UBG](#)
 - [R2UBGx](#)
 - [R4SBC](#)
-

Appendix 2

From: [Kelly, Kaitlyn J](#)
To: [Hill, Evan B CIV USARMY CEMVS \(USA\)](#)
Subject: [Non-DoD Source] Re: [EXTERNAL] RE: Brevator Levee System Consultation (UNCLASSIFIED)
Date: Wednesday, March 18, 2020 2:33:53 PM

Good afternoon Mr. Hill,

The U.S. Fish and Wildlife Service has reviewed your February 27, 2020 email requesting consultation on the proposed Bravator Levee System repairs in Lincoln County, Missouri and submits these comments pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Based on the information in your email, the Service concurs with your determinations that the proposed work is not likely to affect the Indiana bat, northern long-eared bat, gray bat, or running buffalo clover. If project plans change or portions of the proposed project were not evaluated, please contact our office with these changes.

Thank you for your interest in the conservation of threatened and endangered species.

If you have any questions regarding our comments, please contact me

Kaitlyn Kelly

Fish and Wildlife Biologist
U.S. Fish & Wildlife Service
Missouri Ecological Services Field Office
Office phone: (573) 234-5012

From: Hill, Evan B CIV USARMY CEMVS (USA) <Evan.B.Hill@usace.army.mil>
Sent: Wednesday, March 18, 2020 10:25 AM
To: Kelly, Kaitlyn J <kaitlyn_kelly@fws.gov>
Subject: [EXTERNAL] RE: Brevator Levee System Consultation (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Hi Kaitlyn,

I know you already were working on this, and I don't mean to pile up stuff for you!

Teri (my supervisor) would like me to change my species determinations from a "no effect" to a "may affect, but not likely to adversely affect" for the three bat species and the running buffalo clover. I know we had previously talked about how if there is no tree-clearing and no impacts to caves, that this would be a "no effect" to the bat species, but we want to give it a "may affect, not likely to adversely affect" because of indirect impacts from general construction disturbance. To be clear, there will be no impacts to caves, and no tree clearing, but we would still like to get concurrence for a "may affect, but not likely to adversely affect".

Please let me know if this is possible.

Evan Hill
Environmental Compliance Section
Wildlife Biologist
U.S. Army Corps of Engineers
1222 Spruce St
St. Louis, MO 63103

(314) 925-5004
evan.b.hill@usace.army.mil

-----Original Message-----

From: Kelly, Kaitlyn J [mailto:kaitlyn_kelly@fws.gov]

Sent: Tuesday, March 17, 2020 3:23 PM

To: Hill, Evan B CIV USARMY CEMVS (USA) <Evan.B.Hill@usace.army.mil>

Cc: Herrington, Karen <Karen_herrington@fws.gov>; Crabill, Trisha L <Trisha_Crabill@fws.gov>; Weber, John S <John_S_Weber@fws.gov>; Kuczynska, Iwona <iwona_kuczynska@fws.gov>

Subject: [Non-DoD Source] Brevator Levee System Consultation

Good afternoon Mr. Hill,

The U.S. Fish and Wildlife Service has reviewed your February 27, 2020 email requesting consultation on the proposed Bravator Levee System repairs in Lincoln County, Missouri and submits these comments pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Based on the information in your email, the Service concurs with your determinations that the proposed work is not likely to affect the Indiana bat and the northern long-eared bat. If project plans change or portions of the proposed project were not evaluated, please contact our office with these changes.

Thank you for your interest in the conservation of threatened and endangered species.

If you have any questions regarding our comments, please contact me

Kaitlyn Kelly

Fish and Wildlife Biologist

U.S. Fish & Wildlife Service

Missouri Ecological Services Field Office Office phone: (573) 234-5012

CLASSIFICATION: UNCLASSIFIED

Appendix 3

Missouri Department of Conservation

Missouri Department of Conservation's Mission is to protect and manage the forest, fish, and wildlife resources of the state and to facilitate and provide opportunities for all citizens to use, enjoy and learn about these resources.



Natural Heritage Review Level Three Report: Species Listed Under the Federal Endangered Species Act

There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

Foreword: Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this website is to provide information to federal, state and local agencies, organizations, municipalities, corporations and consultants regarding sensitive fish, wildlife, plants, natural communities and habitats to assist in planning, designing and permitting stages of projects.

PROJECT INFORMATION

Project Name and ID Number: Brevator Drainage District PL 84-99 2019 Damage Repairs #6180

Project Description: Levee repairs due to 2019 flood damages.

Project Type: Natural Disasters, Other

Contact Person: Teri Allen

Contact Information: Teri.C.Allen@usace.army.mil or 314-331-8084

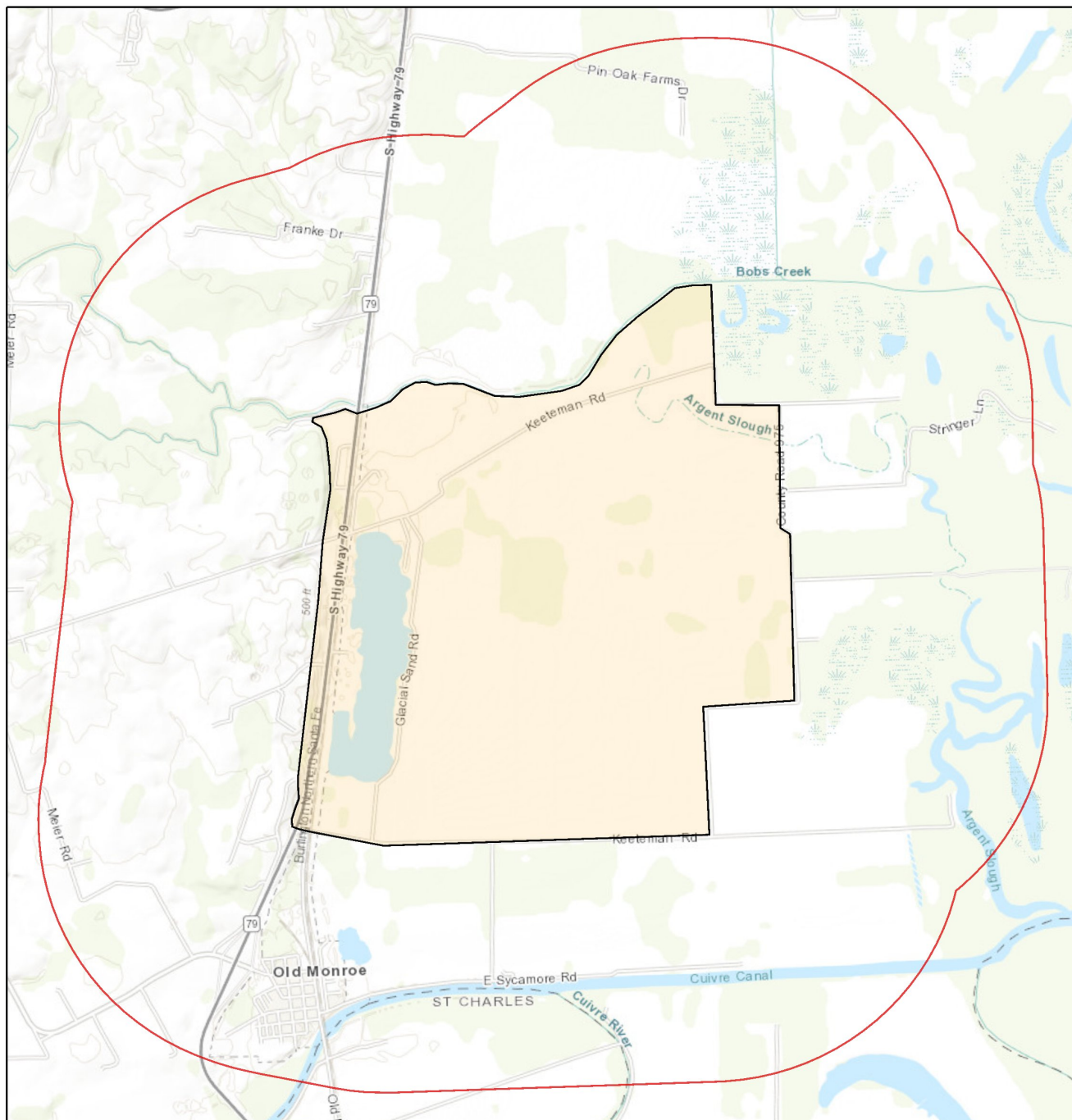
Disclaimer: The NATURAL HERITAGE REVIEW REPORT produced by this website identifies if a species tracked by the Natural Heritage Program is known to occur within or near the area submitted for your project, and shares suggested recommendations on ways to avoid or minimize project impacts to sensitive species or special habitats. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information. The Natural Heritage Program tracks occurrences of sensitive species and natural communities where the species or natural community has been found. Lack of an occurrence record does not mean that a sensitive plant, animal or natural community is not present on or near the project area. Depending on the project, current habitat conditions, and geographic location in the state, surveys may be necessary. Additionally, because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, Reports include information about records near but not necessarily on the project site.

The Natural Heritage Report is not a site clearance letter for the project. It provides an indication of whether or not public lands and sensitive resources are known to be (or are likely to be) located close to the proposed project. Incorporating information from the Natural Heritage Program into project plans is an important step that can help reduce unnecessary impacts to Missouri's sensitive fish, forest and wildlife resources. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts. Other types of information, such as wetland and soils maps and on-site inspections or surveys, should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination: Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. The information within this report is not intended to replace Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit the USFWS Information for Planning and Conservation (IPaC) website at <https://ecos.fws.gov/ipac/> for further information. This site was developed to help streamline the USFWS environmental review process and is a first step in ESA coordination. The Columbia Missouri Ecological Field Services Office may be reached at 573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203.

Transportation Projects: If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or www.modot.mo.gov/ehp/index.htm for additional information on recommendations.

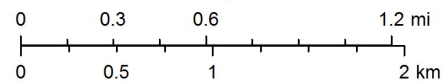
Brevator Drainage District PL 84-99 2019 Damage Repairs



August 29, 2019

1:35,774

- Project Boundary
- Buffered Project Boundary



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Species or Communities of Conservation Concern within the Area:

There are records for species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the the defined Project Area. Please contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

MDC Natural Heritage Review
Resource Science Division
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182
NaturalHeritageReview@mdc.mo.gov

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Other Special Search Results:

No results have been identified for this project location.

Project Type Recommendations:

Natural Disasters - Other should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate disturbed areas to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crownvetch and sericea lespedeza. Best management recommendations relating to streams and rivers may be found at: <https://mdc.mo.gov/property/pond-stream-care/streams-construction-best-practices>

Project Location and/or Species Recommendations:

Endangered Species Act Coordination - Indiana bats (*Myotis sodalis*, federal- and state-listed endangered) and **Northern long-eared bats** (*Myotis septentrionalis*, federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April. **If any trees need to be removed for your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.**

The project location submitted and evaluated is within the geographic range of nesting Bald Eagles in Missouri. Bald Eagles (*Haliaeetus leucocephalus*) may nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. Adults begin nesting activity in late December and January and young birds leave the nest in late spring to early summer. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: <http://www.fws.gov/midwest/MidwestBird/EaglePermits/index.html> if eagle nests are seen.

Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See <http://mdc.mo.gov/9633> for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (?140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

Streams and Wetlands – Clean Water Act Permits: Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (<http://www.nwk.usace.army.mil/Missions/RegulatoryBranch.aspx>) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification (<http://dnr.mo.gov/env/wpp/401/index.html>), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit <http://dnr.mo.gov/env/wpp/permits/index.html> for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below.

MDC Natural Heritage Review
Resource Science Division
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182
NaturalHeritageReview@mdc.mo.gov

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Miscellaneous Information

FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

Additional information on Missouri's sensitive species may be found at <http://mdc.mo.gov/discover-nature/field-guide/endangered-species>. Detailed information about the animals and some plants mentioned may be accessed at http://mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx. If you would like printed copies of best management practices cited as internet URLs, please contact the Missouri Department of Conservation.

Appendix 4

From: Matt Vitello
To: Hill, Evan B CIV USARMY CEMVS (USA)
Subject: [Non-DoD Source] RE: Brevator Levee System (UNCLASSIFIED)
Date: Tuesday, March 3, 2020 8:50:25 AM
Attachments: image001.png

Hi Evan,

There are two Bald Eagle nest locations, both approximately 2 miles from the project location, one on Turkey Island and one to the southeast along the Cuivre River. As for state listed species there are a number on Cuivre Island, but I don't foresee impacts from the work at Brevator on that area. Bob's Creek has occurrences of Mississippi silvery minnow (*Hybognathus nuchalis*, state rank S3S4 – vulnerable/apparently secure), but it appears the repair work will occur well south of Bob's Creek.

Let me know if you need additional information.

Matt Vitello, P.E.
Policy Coordinator
Missouri Department of Conservation
573-522-4115 ext. 3191
matt.vitello@mdc.mo.gov

From: Hill, Evan B CIV USARMY CEMVS (USA) <Evan.B.Hill@usace.army.mil>
Sent: Thursday, February 27, 2020 3:22 PM
To: Matt Vitello <Matt.Vitello@mdc.mo.gov>
Subject: Brevator Levee System (UNCLASSIFIED)

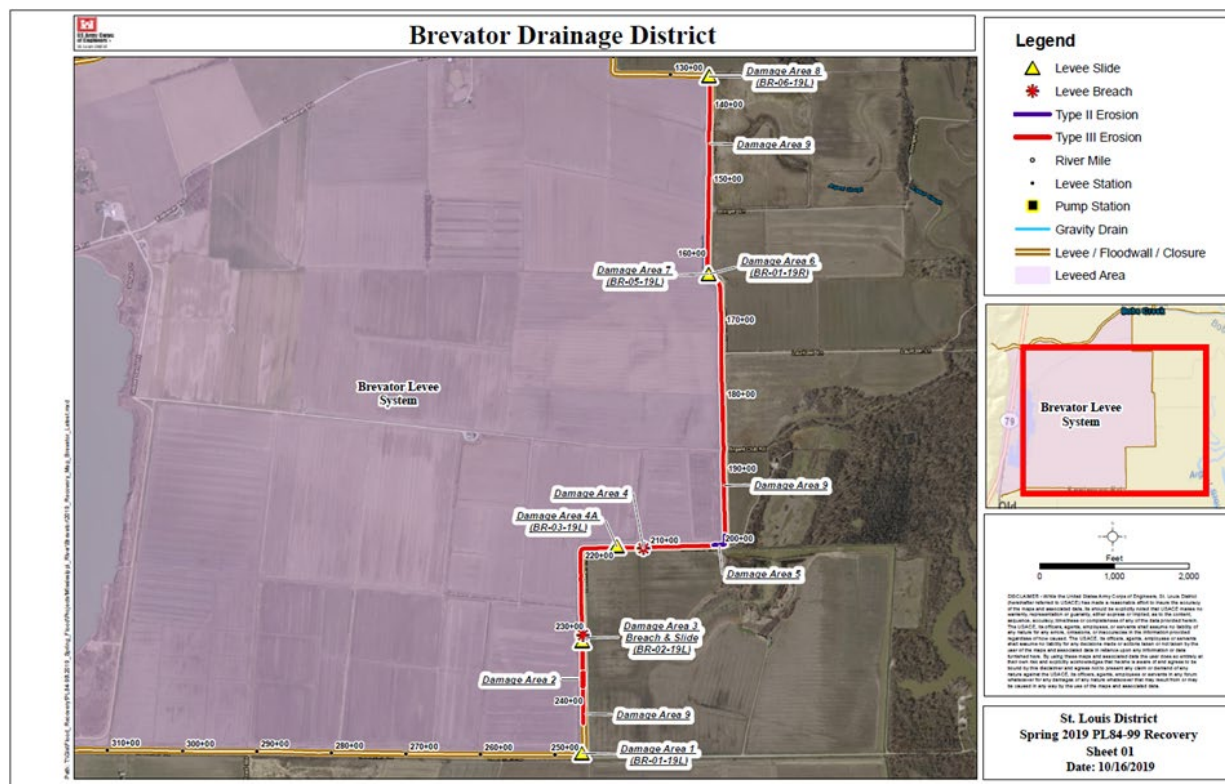
CLASSIFICATION: UNCLASSIFIED

Hi Matt,

I have generated a Natural Heritage Report for the emergency levee repairs to Brevator, and I wanted to know if there are any bald eagle nests or state-listed species to watch out for.

The Heritage Report has a map of the levee area.

There is a breach along the eastern side of the levee that is the major damage that will be repaired, aside from some erosion here and there. Let me know if you need more info/details.



Thanks,

Evan Hill
Environmental Compliance Section
Wildlife Biologist
U.S. Army Corps of Engineers
1222 Spruce St
St. Louis, MO 63103
(314) 925-5004
evan.b.hill@usace.army.mil

CLASSIFICATION: UNCLASSIFIED

Could you review my Regulatory paragraph for the Environmental Assessment? Let me know if there's anything I should edit or add.

"A site visit was conducted on 15 January 2020. The proposed borrow areas do not exhibit wetland characteristics, therefore a Clean Water Act Section 404 permit is not required. The levee repair work would potentially impact jurisdictional waters of the U.S., and would be fully covered under Regional General Permit 41."

Thanks,

Evan Hill

Environmental Compliance Section

Wildlife Biologist

U.S. Army Corps of Engineers

1222 Spruce St

St. Louis, MO 63103

(314) 925-5004

evan.b.hill@usace.army.mil

CLASSIFICATION: UNCLASSIFIED

CLASSIFICATION: UNCLASSIFIED

Appendix 5



REPLY TO
ATTENTION OF:

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

February 20, 2020

Engineering and Construction Division
Curation and Archives Analysis Branch

Amy Rubingh
Missouri State Historic Preservation Office
Missouri Department of Natural Resources
PO Box 176
Jefferson City, Missouri 65102

SUBJECT: PL 84-99 Levee Flood Damage Repairs, Brevator Levee District

Dear Ms. Rubingh:

We are contacting you in consultation for a proposed undertaking to repair flood damage to the Brevator Island Levee District, Lincoln County, Missouri, in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. Under Public Law 84-99, the Flood Control and Coastal Emergency Act, the Saint Louis District, U.S. Army Corps of Engineers, will be providing assistance to repair flood damage that took place in 2019.

The Brevator Island levee sustained a breach and erosion damage during a flood event in 2019. While the repair activity will be confined to the levee slopes, the extent of the damage will require borrow material. The levee district designated an appropriate borrow area and conducted an archaeological survey on February 18, 2020 (report enclosed). No historic properties were located and it is our opinion that the use of this borrow area for levee repairs will have no significant effect on historic properties. If any human remains or unrecorded archaeological sites are found during borrow pit activities, all work will be stopped and MO SHPO will be notified prior to any further ground disturbance activities.

If you have any questions or comments, please feel free to contact me at telephone number (314) 331-8855, or Mark Smith at telephone number (314) 331-8831, or e-mail at mark.a.smith4@usace.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Riordan", is written over the typed name.

For Jennifer Riordan
Chief, Curation and Archives
Analysis Branch

Enclosures

Appendix 6



Missouri Department of **NATURAL RESOURCES**

dnr.mo.gov

Michael L. Parson, Governor

Carol S. Comer, Director

March 10, 2020

Jennifer L. Riordan
Chief, Curation and Archives Analysis Branch
Department of the Army
St. Louis District Corps of Engineers
1222 Spruce Street
St. Louis, MO 63103-2833

Re: **SHPO Project No. 008-LN-20** – PL84-99 Levee Flood Damage Repairs, Brevator Levee District, Lincoln County, Missouri (USACE)

Dear Jennifer L. Riordan:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the Section 106 survey memo entitled *Phase I Archaeological Survey for PL84-99 Levee Flood Damage Repairs*. Based on this review it is evident that a thorough and adequate cultural resources survey has been conducted of the project area. Therefore, we concur with the recommendation that there will be no historic properties affected, and have no objection to the initiation of project activities.

Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

Jennifer L. Riordan

Page 2

If you have any questions, please write the State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 attention Review and Compliance, or call Jeffrey Alvey at (573) 751-7862. Please be sure to include the SHPO Project Number (008-LN-20) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Toni M. Prawl

Toni M. Prawl, Ph.D.
Director and Deputy State
Historic Preservation Officer



TMP:ja

Appendix 7

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

24 February 2020

Engineering and Construction Division
Curation and Archives Analysis Branch (EC-Z)

Ms. Tonya Tipton
Historic Preservation Office
Shawnee Tribe
P.O. Box 189
Miami, OK 74355

Subject: PL84-99 Levee Flood Damage Repairs, Brevator Island Levee District, Lincoln County, Missouri

Dear Ms. Tipton:

We are contacting your tribe to initiate consultation for a proposed undertaking to repair flood damage to the Brevator Island Levee District (LD), Lincoln County, Missouri, in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. Under Public Law 84-99, the Flood Control and Coastal Emergency Act, the U.S. Army Corps of Engineers, St. Louis District (District) will be providing assistance to the Brevator Island LD to repair damage that took place during the April/May 2019 water event.

The Brevator Island LD sustained a breach and erosion damage. While the repair activity will be confined to the levee slopes, the extent of the damage will require borrow material. A source of borrow material has been located and tentatively selected for use in the repairs (Figure 1). District personnel performed a cultural resource survey of the borrow area on 18 February 2020. No historic properties were located and it is the District's current opinion that the use of this borrow area for levee repairs will have no effect on historic properties.

If your tribe has any questions, comments, or areas of tribal concern, please feel free to contact me at (314) 331-8855, or Chris Koenig (Supervisory Archaeologist and Tribal Liaison) at (314) 331-8151 or email at Christopher.J.Koenig@usace.army.mil.

Thank you,

Jennifer L. Riordan
Chief, Curation and Archives Analysis Branch

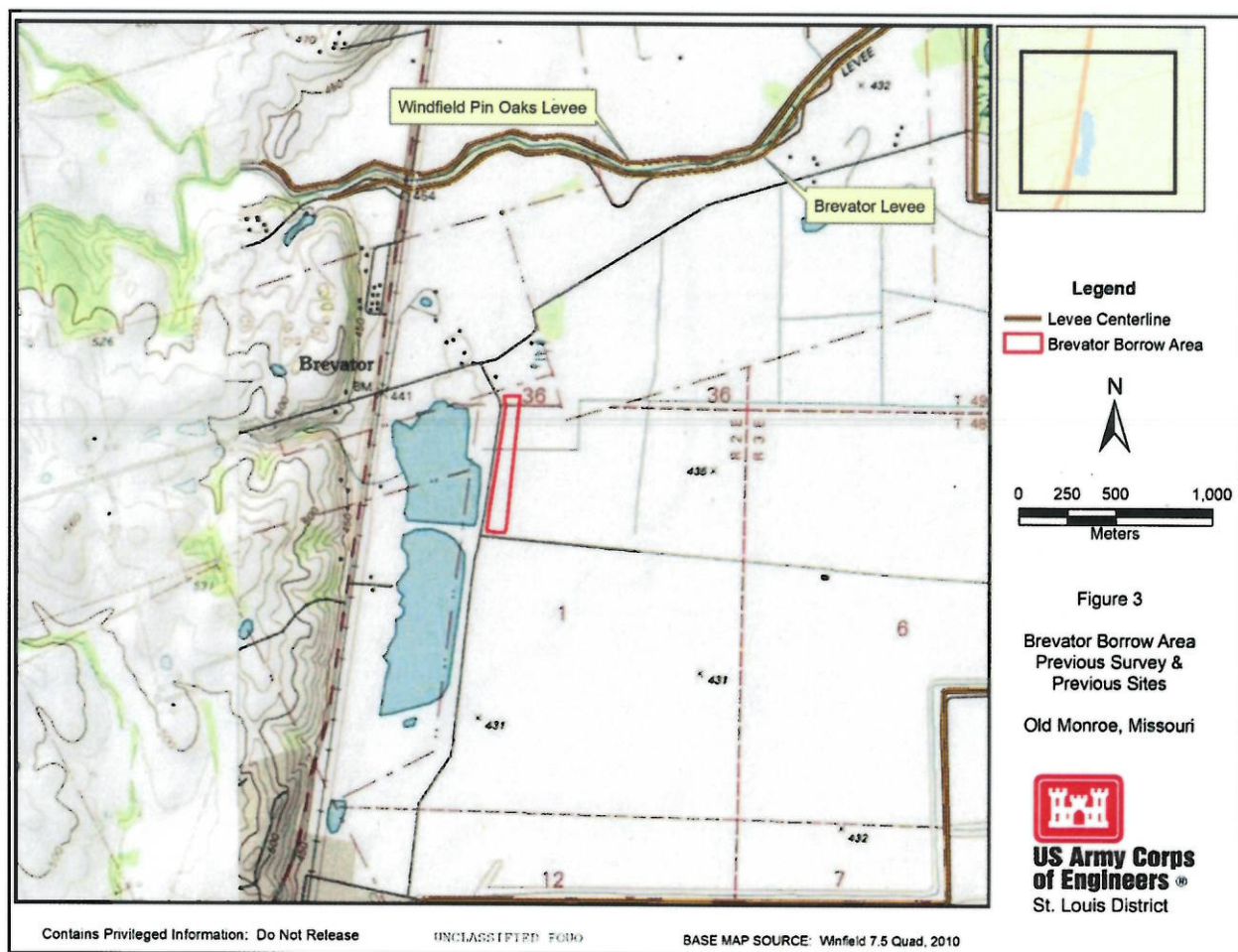


Figure 1: Location Map of Project Area



MISSOURI DEPARTMENT OF NATURAL RESOURCES
HISTORIC PRESERVATION PROGRAM
P.O. BOX 176, JEFFERSON CITY, MISSOURI 65102
(573) 751-7858

SECTION 106 SURVEY MEMO

SHPO USE ONLY	
REVIEWER	
DATE	SHPO LOG #
<input type="checkbox"/> ACCEPTED	<input type="checkbox"/> REJECTED

1) HPP 106 PROJECT #

LOCATION INFORMATION AND SURVEY CONDITIONS

2) COUNTY(S)

Lincoln County

3) QUADRANGLE

Winfield 7.5 Quad, 2010

4) PROJECT TYPE/TITLE

Phase I Archaeological Survey for PL84-99 Levee Flood Damage Repairs

5) FUNDING/PERMITTING FEDERAL AGENCY(S)

United States Army Corps of Engineers (USACE)

6) SECTION

Section 1 and Section 36

7) TOWNSHIP

T48 N and T49 N

8) RANGE

R02 E and R02 E

9) U.T.M.

15N 696004 4314533 15N 696068 4314537 15N 696022 4313996 15N 695952 4313999

10) PROJECT DESCRIPTION

Proposed borrow pit location for levee repair. Project area is 545 m (N/S) by 75 m (E/W). Figure 1&2

11) TOPOGRAPHY

Mississippian River floodplain deposits. Flat topography, no ridges or swales noted.

12) SOILS

Moniteau Soil Series

13) DRAINAGE

Upper Mississippi River Basin

14) LAND USE/GROUND COVER (INCLUDING % VISIBILITY)

Agriculture. Soybean chaff (25-75% visibility) 7.7 acres and Grass (25% visibility) 0.79 acres

15) SURVEY LIMITATIONS

N/A

HISTORICAL BACKGROUND INFORMATION

16) HPP - CULTURAL RESOURCE INVENTORY

☐

17) ARCHAEOLOGICAL SURVEY OF MISSOURI

☐

18) GIS DATABASE

☒

19) HISTORIC PLATS/ATLASES/SOURCES

1903, 1939, 1943, 1949, 1954, 1964 (Figures 3 to 8)

20) PREVIOUSLY REPORTED SITES

None Within Project Area. One-Mile Buffer: LN1, LN2, LN3, LN83, LN144 to LN152 (Figure 9)

21) PREVIOUS SURVEYS

None Within Project Area. One-Mile Buffer: LN15, LN17, LN19, LN27, LN107, LN120, LN139, LN168

22) REGIONAL SOURCES UTILIZED

N/A

23) MASTER PLAN RECOMMENDATION

24) INVESTIGATION TECHNIQUES

Pedestrian survey at 5 meters intervals in harvested agriculture field.

25) TIME EXPENDED

6

PERSON HOURS

26) HISTORIC PROPERTIES LOCATED

No historic properties located.

27) CULTURAL MATERIALS

No cultural materials located.

28) CURATED AT

N/A

29) COLLECTION TECHNIQUES

N/A

30) AREA SURVEYED (ACRES & SQUARE METERS)

8.49 acres 34,338 square meters

31) RESULTS OF INVESTIGATION AND RECOMMENDATIONS:

☒ a) No Historic Properties Located.☐ b) No National Register Eligible Historic Properties Located.☐ c) National Register Eligible Historic Properties Located.☐ d) Historic Properties May Meet Requirements For National Register Eligibility; Phase II Testing Is Recommended:

e) Comments: ~~Phase I archaeology survey for a proposed borrow pit area for emergency levee repairs. Pedestrian survey~~
 did not locate any archaeological resources.

CULTURAL RESOURCE MANAGEMENT CONTRACTOR INFORMATION

32) ARCHAEOLOGICAL CONSULTANT

United States Army Corps of Engineers (USACE) St. Louis Division

33) ADDRESS/PHONE

1222 Spruce Street. St. Louis, Missouri 63103

34) SURVEYOR(S)

Matthew Terry and Jim Barnes

35) SURVEY DATE(S)

2/18/20

36) REPORT COMPILED BY

Matthew Terry

37) DATE

2/19/20

38) SUBMITTED BY (SIGNATURE AND TITLE)

Mark Smith, PhD, RPA. Supervisory Archaeologist

39) ATTACHMENT CHECK LIST: (REQUIRED)

- ☒ 1) Relevant Portion of USGS 7.5' Topographic Quadrangle Map(s) Showing Project Location and Any Recorded Sites;
- ☒ 2) Project Map(s) Depicting Survey Limits and, when applicable, Approximate Site Limits, and Concentrations of Cultural Materials;
- ☐ 3) Site Form(s): One Copy of Each Form;
- ☒ 4) All Relevant Project Correspondence;
- ☒ 5) Additional Information Sheets as Necessary.

40) ADDRESS OF OWNER/AGENT/AGENCY TO WHOM SHPO COMMENT SHOULD BE MAILED

~~CEMVS-EC-Z~~
 1222 Spruce Street.
~~St. Louis Missouri 63103~~

41) CONTACT PERSON

Mark A. Smith, PhD, RPA

42) PHONE NUMBER

(314) 331-8831

REVIEWER COMMENTS

Brevator Levee Borrow Area Continuation Sheet

19) Historic Map Research

Prior to fieldwork, historic map research was conducted for the project area. Historic maps were observed for any previous structure locations or signs of historic occupation. A summary of the historic map research is summarized in Table 1 (Figures 3 to 8).

Table 4. Historic Map Research		
Year	Structure Present in Project Area	Map Source
1903	No structure present	U.S. Geological Survey, 1903
1939	No structure present	Brussels, MO-ILL 7.5 Quad, 1939
1943	No structure present	Brussels, MO-ILL 7.5 Quad, 1943
1949	No structure present	St. Louis, USACE, 1949
1954	No structure present	Brussels, MO-ILL 7.5 Quad, 1954
1964	No structure present	Brussels, MO-ILL 7.5 Quad, 1964

20) Previously Reported Sites

No previously recorded archaeology sites have been identified within the project area. A total of 13 sites have been identified within one mile of the project area (Figure 9). These sites are summarized in Table 2.

Table 2: Previously Reported Sites within One-Mile of the Project Area				
Site #	Cultural Affiliation	Site Type	Author	Date
LN1	Prehistoric	Habitation	Harl, Joseph	1986
LN2	Prehistoric	Habitation	Crampton, David	1983
LN3	Prehistoric	Not Reported	Simonds, Frank W.	n.d.
LN83	Prehistoric	Habitation	Harl, Joseph	1986
LN144	Prehistoric	Habitation	Harl, Joseph	1986
LN145	Prehistoric	Habitation	Harl, Joseph	1986
LN146	Prehistoric	Habitation	Harl, Joseph	1986
LN147	Prehistoric	Habitation	Harl, Joseph	1986
LN148	Prehistoric	Habitation	Harl, Joseph	1986
LN149	Prehistoric	Habitation	Harl, Joseph	1986
LN150	Prehistoric	Habitation	Harl, Joseph	1986
LN151	Prehistoric	Habitation	Harl, Joseph	1986
LN152	Prehistoric	Habitation	Harl, Joseph	1986

21) Previous Surveys

No previous surveys have been conducted within the project area. Nine surveys have been conducted within one mile of the project areas (Figure 9). These surveys are summarized in Table 3.

Table 3: Previous Surveys within One Mile of the Project Area					
Survey #	Title	Conducted By	Conducted For	Author(s)	Date

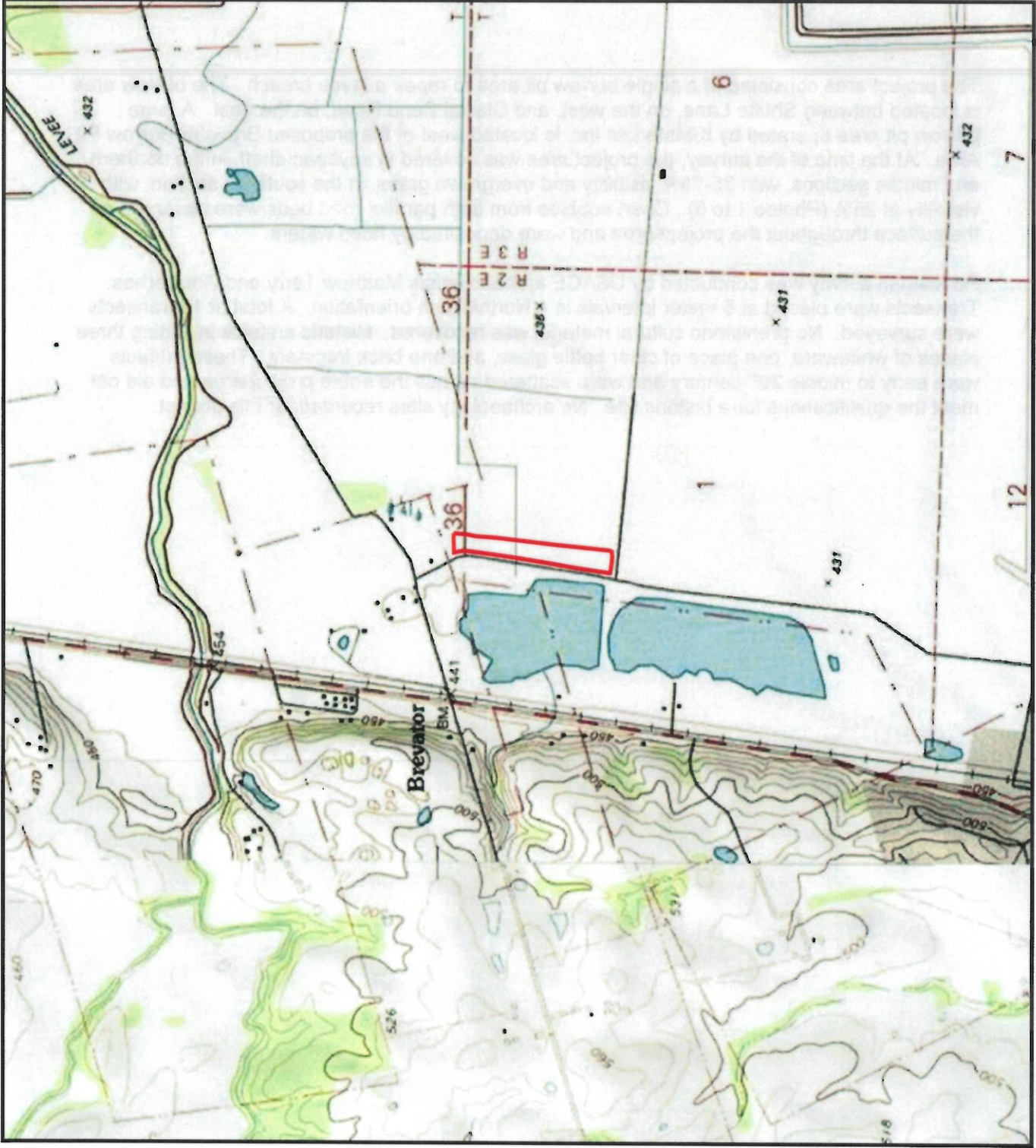
LN-15	Supporting Documentation for a Request of Determination of Eligibility for Sites 23LN5, 23LN104, and 23SC578, Route 79, Lincoln and St. Charles Counties, Missouri	MoDot/MHTD	Federal Highway Administration	Crampton, David	1981
LN-17	An Intensive Cultural Resources Survey of the Area to be Affected by the Proposed Construction of a Housing Development in the City of Winfield, Lincoln County, Missouri	Triad Research Services	FmHA	Walters, Gary Rex	1984
LN-19	Intensive Cultural Resource Survey of Archaeological Resources at the the Outfall for Several Tributaries onto the Mississippi River Floodplain, Lincoln and Pike Counties, Missouri	University of Missouri-St. Louis	HPF Grant	Harl, Joseph L.	1987
LN-27	Cultural Resource Investigations, Phase I Survey, Proposed Old Monroe Sewer Project, Lincoln County, Missouri	Environmental Research Center	MoCDBG	Sturdevant, Craig	1992
LN-107	National Historic Preservation Act (NHPA) Section 106, Cultural Resource Investigations, Phase I Cultural Resource Survey, NTCH-MO (dba Cleartalk) Tower Project "5041A-MO Old Monroe" Lincoln County, Missouri	K&K Environmental LLC	Federal Communications Commission	Kelly, Mark W.	2008
LN-120	Phase I Archaeological Survey of Borrow Pits, Levee Slides, Levee Breaches, & Type III Eroded Areas for USACE-St. Louis District: Brevator	Center for Archaeological Research	USACE	Thompson, Dustin A.	2008
LN-139	Bluebird Media LLC Northern Missouri Ultrahigh Capacity Middle Mile-Route 79 Corridor Survey, Lincoln County, Missouri	Burns & McDonnell Engineering Co., Inc.	Bluebird Media LLC	Latham, Mark A.	2011
LN-163	Archaeological & Historic Architecture records Review for the Burlington Northern Santa Fe Railway Company Positive Train Control Poles, Hannibal Subdivision Mile Posts 51.74, 53.3, 55.27, 57.85, 60.5, 62.9, 65.57, 68.70.01, & 72.45, TCNS	Quality Services, Inc.	Burlington Northern Santa Fe Railway Company	Larson, Jeffrey and Megan Leonard	2014

	#118895, Lincoln County, Missouri				
LN-168	Cultural Resource Investigation for Levee Repair (PL 84-99)	USACE, St. Louis District	Winfield-Pin Oaks Drainage and Levee District	Trimble, Michael K.	2017

31) Comments

The project area consisted of a single borrow pit area to repair a levee breach. The borrow area is located between Shulte Lane, on the west, and Glacial Sand Road, on the east. A large borrow pit area operated by KiMaterials Inc. is located west of the proposed Brevator Borrow Pit Area. At the time of the survey, the project area was covered in soybean chaff, in the northern and middle sections, with 25-75% visibility and overgrown grass, in the southern section, with visibility at 25% (Photos 1 to 6). Chert cobbles from both parallel road beds were observed on the surface throughout the project area and were deposited by flood waters.

Pedestrian survey was conducted by USACE archaeologists Matthew Terry and Jim Barnes. Transects were placed at 5 meter intervals in a North/South orientation. A total of 15 transects were surveyed. No prehistoric cultural material was recovered. Historic artifacts including three pieces of whiteware, one piece of clear bottle glass, and one brick fragment. These artifacts were early to middle 20th century and were scattered across the entire project area and did not meet the qualifications for a historic site. No archaeology sites recorded for this project.



Legend

Brevator Borrow Area



0 250 500 1,000
Meters

Figure 1

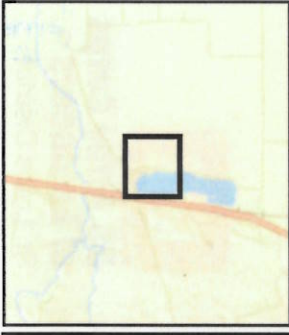
Brevator Borrow Area
Topographical Map

Old Monroe, Missouri




**US Army Corps
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St. Louis District



Legend

 Brevator Borrow Area

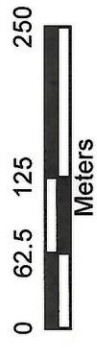
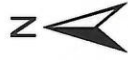


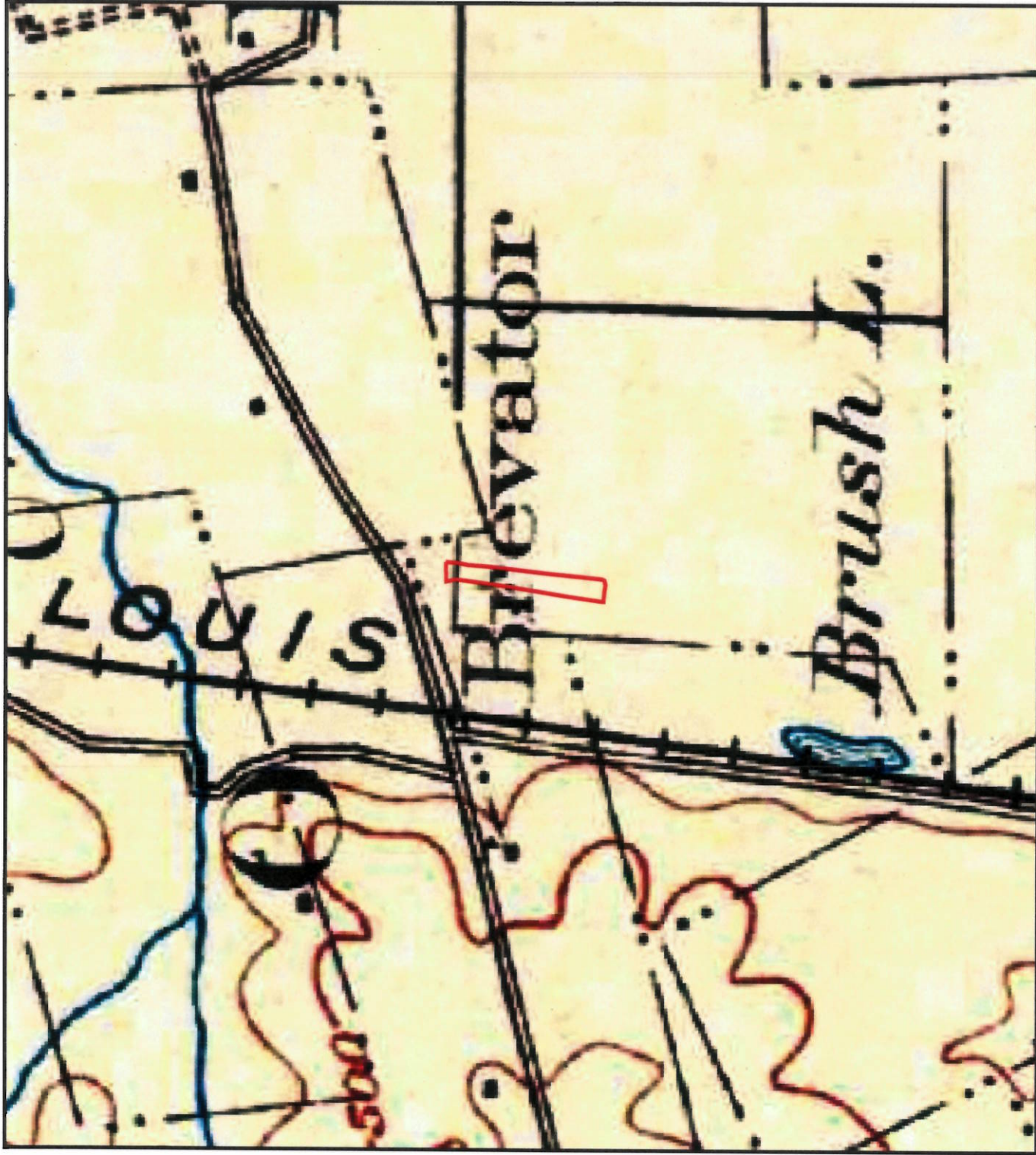
Figure 2

Brevator Borrow Area
Aerial Map

Old Monroe, Missouri



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St. Louis District



Legend

 Brevator Borrow Area



0 250 500 1,000
Meters

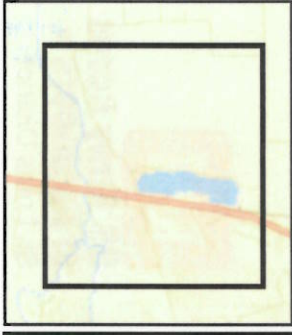
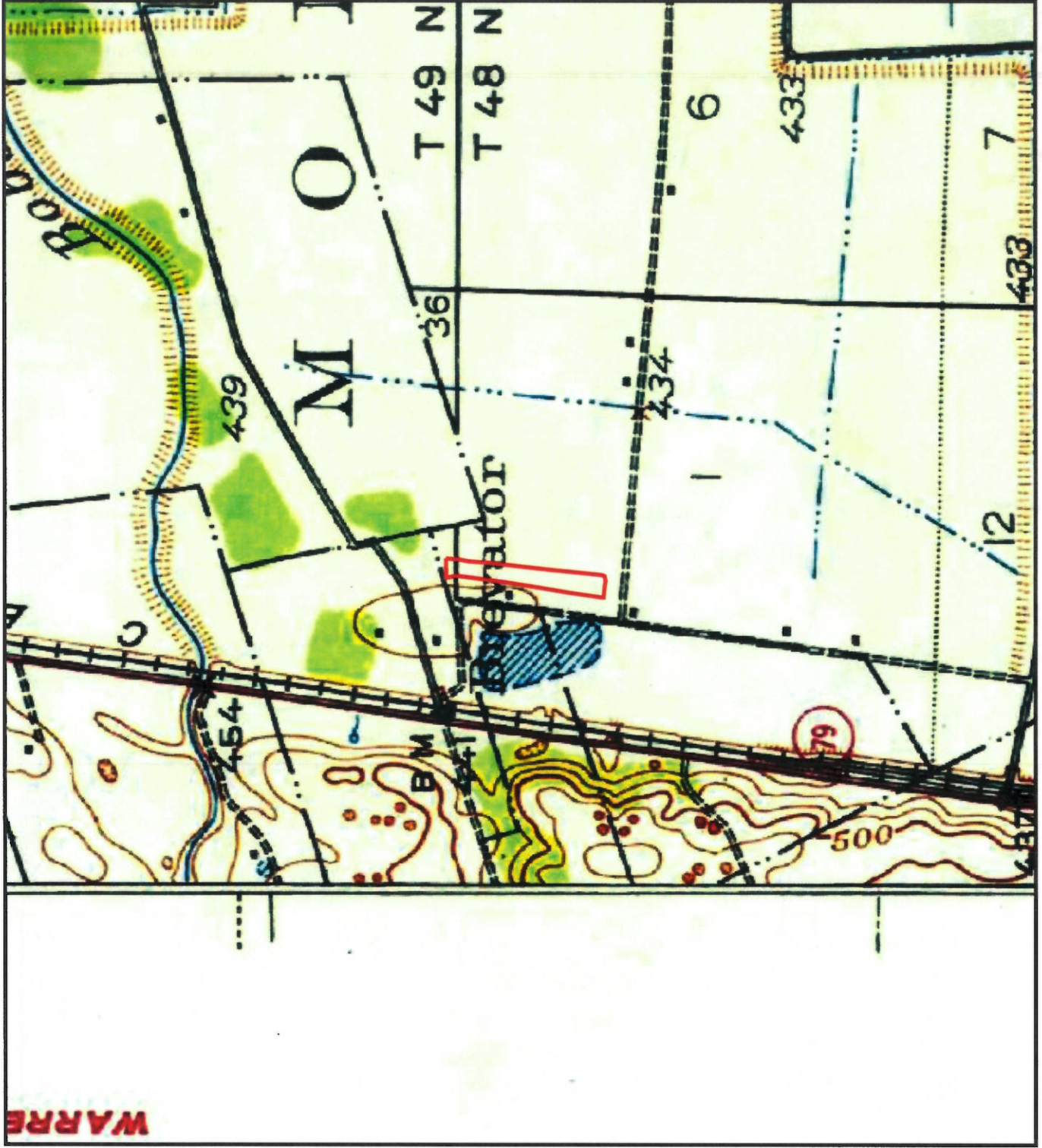
Figure 3

Brevator Borrow Area
1903 Map

Old Monroe, Missouri



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Legend

Brevator Borrow Area



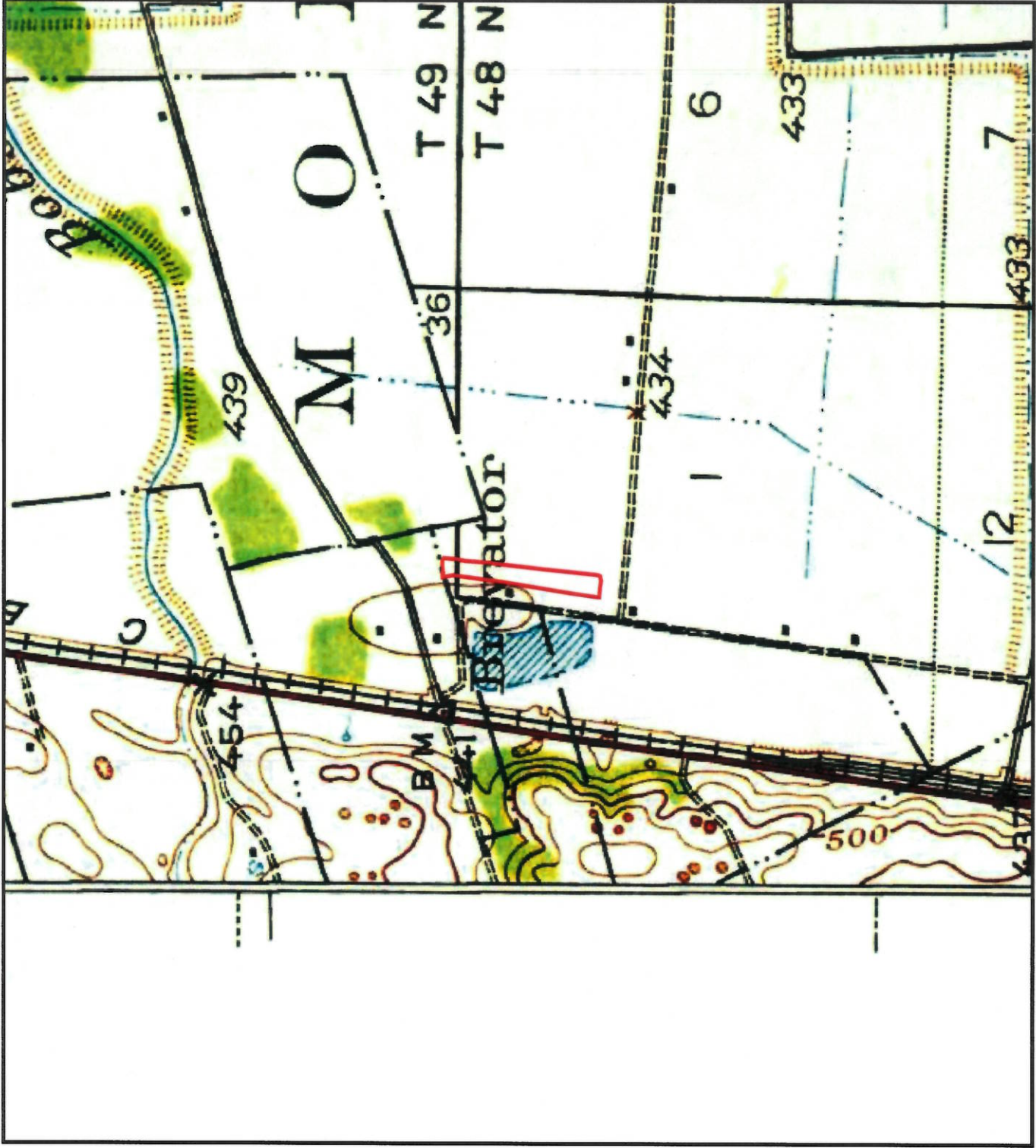
Figure 4

Brevator Borrow Area
1939 Map

Old Monroe, Missouri



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Legend

Brevator Borrow Area

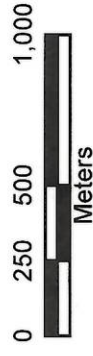


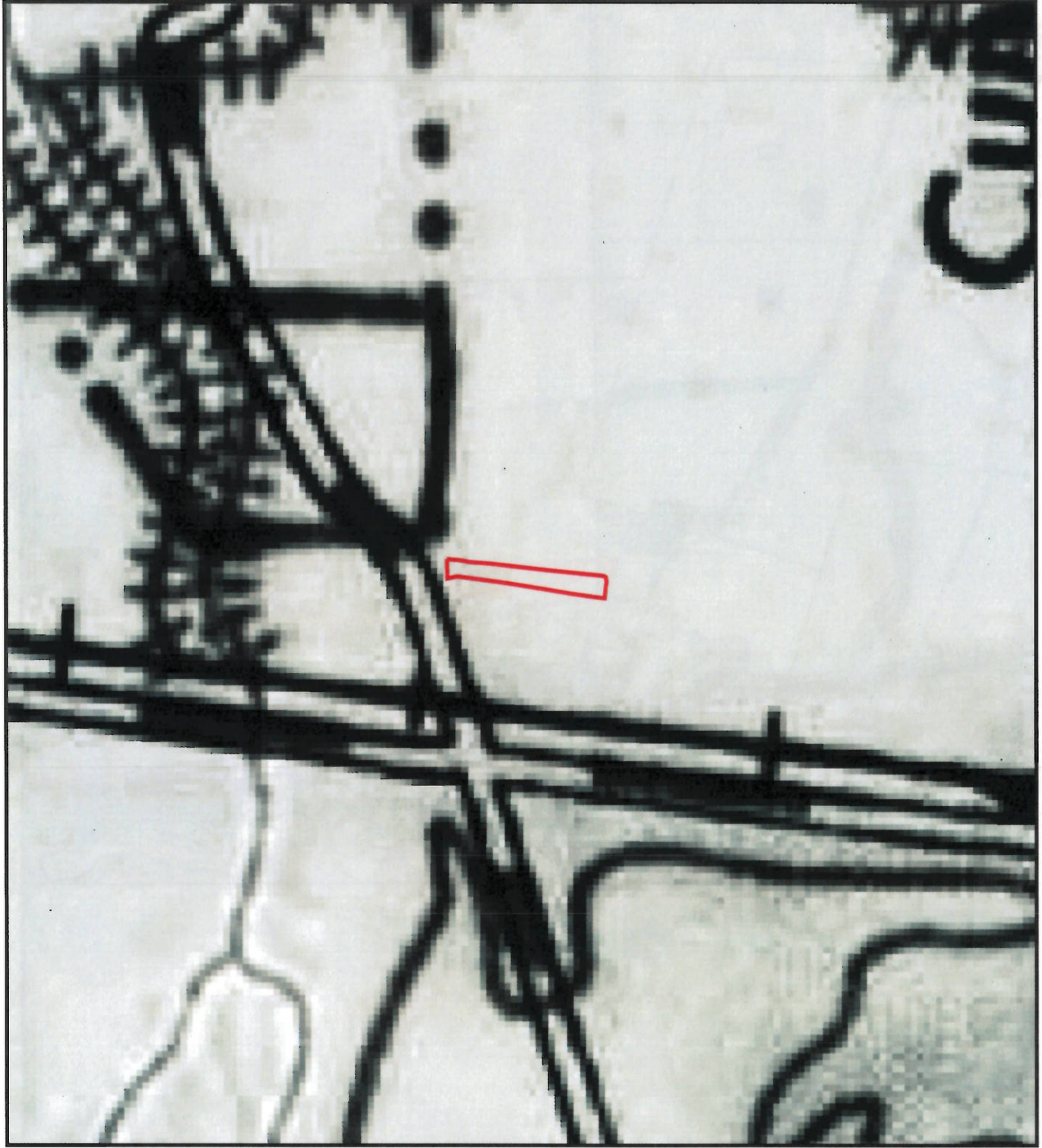
Figure 5

Brevator Borrow Area
1943 Map

Old Monroe, Missouri



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Legend

 Brevator Borrow Area

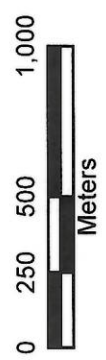


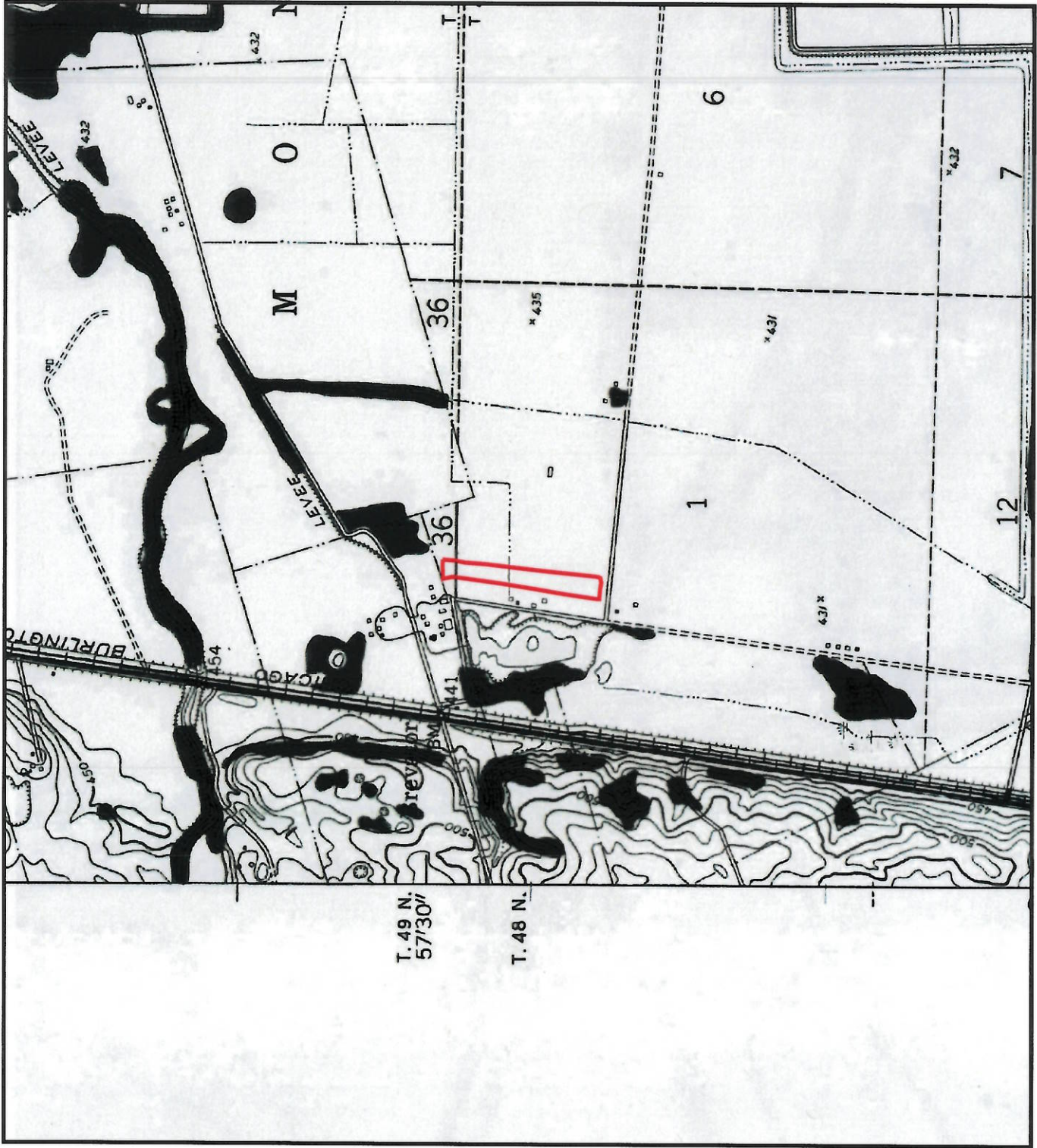
Figure 6

Brevator Borrow Area
1949 Map

Old Monroe, Missouri



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Legend

Brevator Borrow Area



0 250 500 1,000
Meters

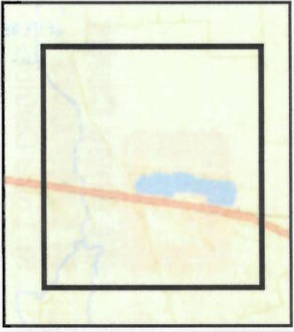
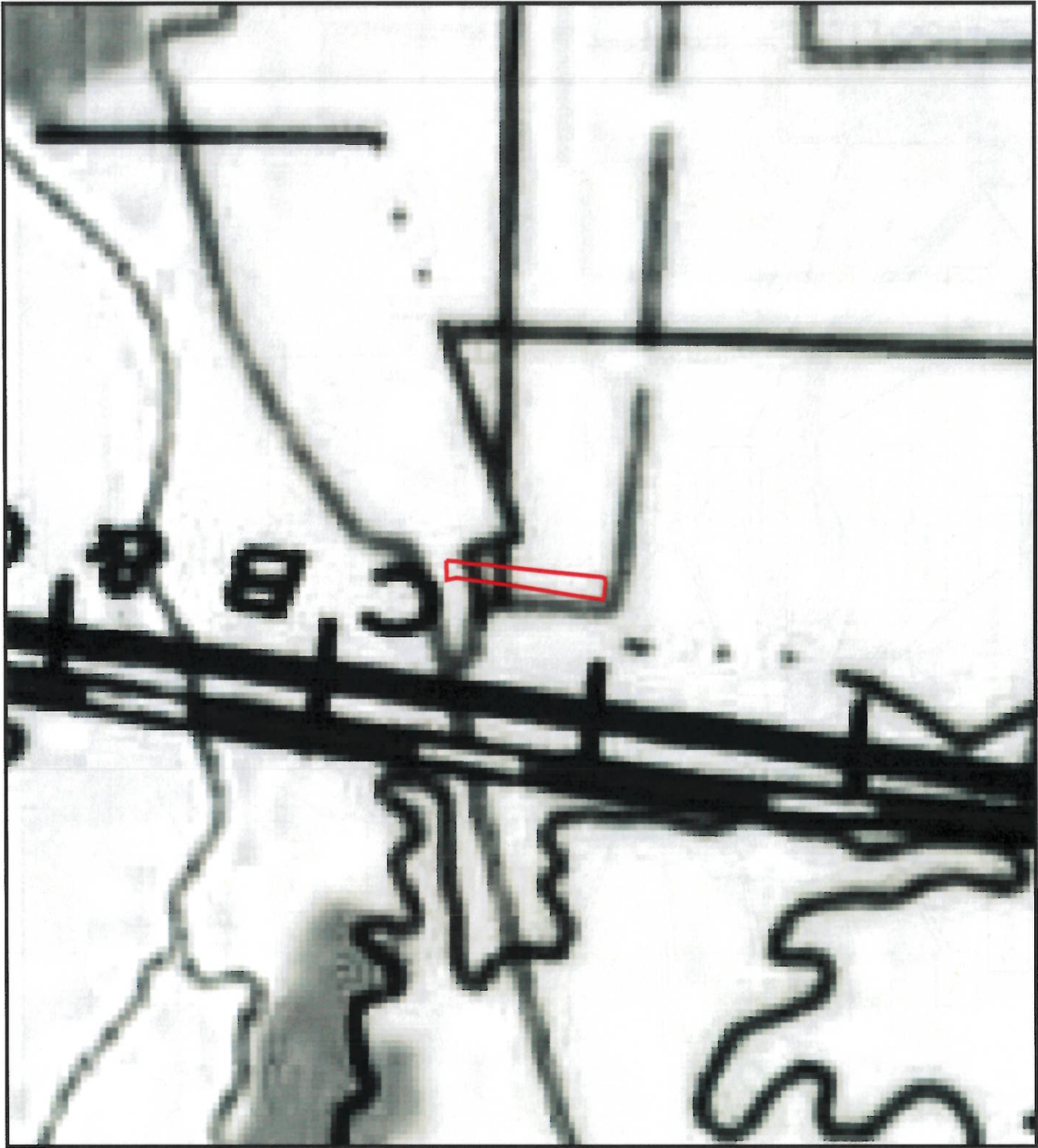
Figure 7

Brevator Borrow Area
1954 Map

Old Monroe, Missouri



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Legend

 Brevator Borrow Area



0 250 500 1,000
Meters

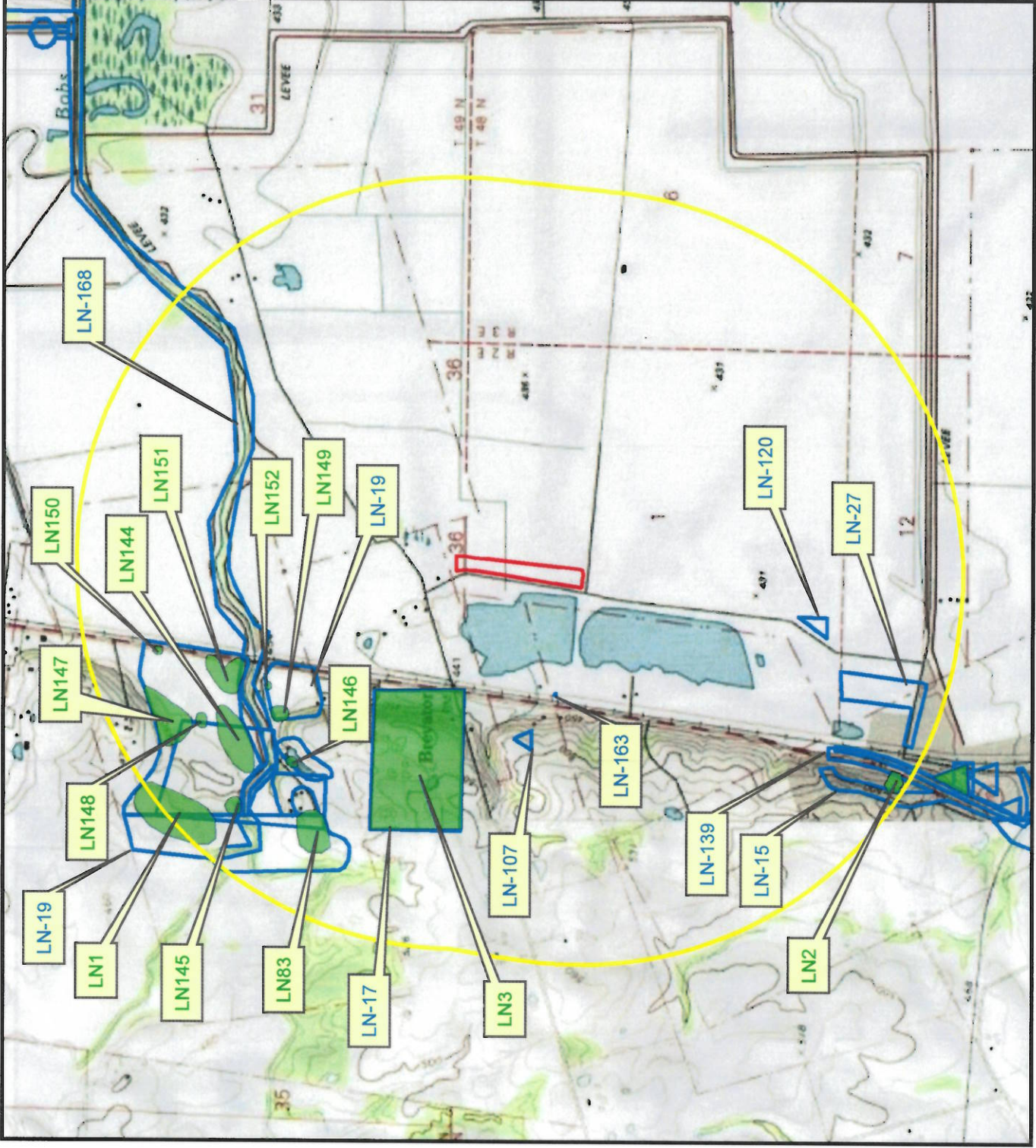
Figure 8

Brevator Borrow Area
1964 Map

Old Monroe, Missouri



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Legend

- Brevator Borrow Area
- 1 Mile Buffer
- Previous Survey
- Archaeology Site

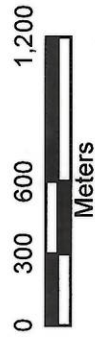


Figure 9

Brevator Borrow Area
Previous Survey &
Previous Sites

Old Monroe, Missouri



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Photo 1: Project Overview. North Area. View to North



Photo 2: Project Overview. North Area. View to West



Photo 3: Project Overview. Middle Area. View to North



Photo 4: Project Overview. Middle Area. View to South



Photo 5: Project Overview. Middle Area. View to West



Photo 6: Project Overview. Middle Area. View to North

MVS Leaders

Tribe	Title	Name (First, Middle, Last)	Last Name	Street Address	City	State	Zipcode	Furnished Copy
Absentee-Shawnee Tribe of Indians of Oklahoma	Governor	John Jorson	Johnson	2025 S. Gordon Cooper Drive	Shawnee	OK	74810-9381	Ms. Devon Frazier
Caddo Nation of Oklahoma	Chairman	Tanara Francis-Fourkiller	Francis-Fourkiller	P.O. Box 487	Binger	OK	73009	Mr. Phil Cross
Citizen Potawatomi Nation, Oklahoma	Chairman	John Barrett	Barrett	1601 S. Gordon Cooper Drive	Shawnee	OK	74801	Ms. Kelli Mosteller
Delaware Tribe of Indians	Chief	Chester Brooks	Brooks	5100 Tuedo Boulevard	Bartlesville	OK	74008	Dr. Brice Obermeyer
Eastern Shawnee Tribe of Oklahoma	Chief	Glenn J. Wallace	Wallace	P.O. Box 350	Seneca	MO	64865	Mr. Brett Barnes
Forest County Potawatomi Community, Wisconsin	Chairman	Ned Daniels	Daniels	P.O. Box 340	Crandon	WI	54820	Mr. Michael LaRonge
Hannahville Indian Community, Michigan	Chairman	Keneth Meshigaud	Meshigaud	N 14911 Hannahville B-1 Road	Wilson	MI	48895-9728	Mr. Earl Meshigaud
Ho-Chunk Nation of Wisconsin	President	Marion WhiteEagle	WhiteEagle	P.O. Box 687	Black River Falls	WI	54675	Mr. William Quackenbush
Iowa Tribe of Kansas and Nebraska	Chairman	Tim Rhoad	Rhoad	3345 Thrasher Road #8	White Cloud	KS	66094	Mr. Lance Foster
Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas	Chairman	Edward B. Kent, Jr.	Kent	Route 1, Box 721	Perkins	OK	74059	Dr. Robert Fields
Kickapoo Tribe of Oklahoma	Chairman	Lester Randall	Randall	824 11th Drive	Horton	KS	66439	Mr. Fred Thomas
Match-e-be-nash-she-wish Band of Potawatomi Indians of Michigan	Chairman	David Pacheco	Pacheco	P.O. Box 70	McCloud	OK	74851	Mr. Kent Collier
Miami Tribe of Oklahoma	Chief	Bob Peters	Peters	2872 Mission Dr.	Shelbyville	MI	49344	Mr. Lakota Pochedley
Neotaseopel Huron Band of the Potawatomi, Michigan	Chief	Douglas Lankford	Lankford	202 S. Eight Tribes Trail	Miami	OK	74355	Ms. Diane Hunter
Peoria Tribe of Indians of Oklahoma	Chief	James Stuck	Stuck	2221--1 & 1/2 Mile Road	Fulton	MI	49052	Mr. Douglas R. Taylor
Pokagon Band of Potawatomi Indians, Michigan and Indiana	Chairman	Craig Harper	Harper	118 S. Eight Tribes Trail	Miami	OK	74355	Mr. Logan Pappentfort
Prairie Band Potawatomi Nation	Chairman	Matt Wesaw	Wesaw	P.O. Box 180	Dowagiac	MI	49047	Mr. Matthew Bussler
Sac & Fox Nation of Missouri in Kansas and Nebraska	Chairman	Joseph Rupnick	Rupnick	Government Center	Mayetta	KS	66509	The Historic Preservation Office
Sac & Fox Nation, Oklahoma	Chairperson	Tiauna Carnes	Carnes	305 N. Main Street	Reserve	KS	66434	Ms. Lisa Montgomery
Sac & Fox Tribe of the Mississippi in Iowa	Principal Chief	Justin F. Woods	Woods	920883 S Highway 99	Stroud	OK	74079	Mr. Chris Boyd
Shawnee Tribe	Chairman	Troy Wanatee	Wanatee	349 Muskawaki Road	Tama	IA	52339	Mr. Jonathan Buffalo
The Osage Nation	Chairman	Benjamin J. Barnes	Barnes	P.O. Box 189	Miami	OK	74355	Ms. Tonya Tipton
The Quapaw Tribe of Indians	Principal Chief	Gregory Standing Bear	Standing Bear	P.O. Box 779	Pawhuska	OK	74056	Dr. Andrea Hunter
United Keelocwah Band of Cherokee of Oklahoma	Chairman	John Berrey	Berrey	P.O. Box 765	Quapaw	OK	74363	Mr. Everett Bandy
	Chief	Joia Bunch	Bunch	P.O. Box 746	Tahlequah	OK	74464	Ms. Whitney Warrior

MVS Reps

Absentee-Shawnee Tribe of Indians of Oklahoma	Ms. Devon Frazier	Frazier	Tribal Historic Preservation Officer	2025 S. Gordon Cooper Drive	Shawnee	OK	74810-9381
Caddo Nation of Oklahoma	Mr. Phil Cross	Cross	Acting Tribal Historic Preservation Officer	117 Memorial Lane	Binger	OK	73009
Citizen Potawatomi Nation, Oklahoma	Ms. Kelli Mosteller	Mosteller	Tribal Historic Preservation Officer	Cultural Heritage Center	Shawnee	OK	74801
Delaware Tribe of Indians	Dr. Brice Obermeyer	Obermeyer	Tribal Historic Preservation Officer	Roosevelt Hall, Room 212	Enola	KS	66801
Eastern Shawnee Tribe of Oklahoma	Mr. Brett Barnes	Barnes	Historic Preservation Office	P.O. Box 350	Seneca	MO	64865
Forest County Potawatomi Community, Wisconsin	Mr. Michael LaRonge	LaRonge	Tribal Historic Preservation Officer	Cultural Center, Library & Museum	Crandon	WI	54820
Hannahville Indian Community, Michigan	Mr. Earl Meshigaud	Meshigaud	Historic Preservation Office	P.O. Box 351, Highway 2 & 41	Harris	MI	48845
Ho-Chunk Nation of Wisconsin	Mr. William Quackenbush	Quackenbush	Historic Preservation Office	P.O. Box 687	Black River Falls	WI	54675
Iowa Tribe of Kansas and Nebraska	Mr. Lance Foster	Foster	Tribal Historic Preservation Officer	3345 Thrasher Road	White Cloud	KS	66094
Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas	Dr. Robert Fields	Fields	Historic Preservation Office	Route 1, Box 721	Perkins	OK	74059
Kickapoo Tribe of Oklahoma	Mr. Fred Thomas	Thomas	Historic Preservation Office	824 11th Drive	Horton	KS	66439
Match-e-be-nash-she-wish Band of Potawatomi Indians of Michigan	Mr. Kent Collier	Collier	Historic Preservation Office	P.O. Box 70	McCloud	OK	74851
Miami Tribe of Oklahoma	Mr. Lakota Pochedley	Pochedley	Tribal Historic Preservation Officer	2872 Mission Drive	Shelbyville	MI	49344
Neotaseopel Huron Band of the Potawatomi, Michigan	Ms. Diane Hunter	Hunter	Tribal Historic Preservation Officer	202 S. Eight Tribes Trail	Miami	OK	74355
Prairie Band Potawatomi Nation	Mr. Douglas R. Taylor	Taylor	Historic Preservation Office	1301 T Drive S	Fulton	MI	49052
Pokagon Band of Potawatomi Indians, Michigan and Indiana	Mr. Logan Pappentfort	Pappentfort	Historic Preservation Office	118 S. Eight Tribes Trail	Miami	OK	74355
Prairie Band Potawatomi Nation	Mr. Matthew Bussler	Bussler	Historic Preservation Office	P.O. Box 180	Dowagiac	MI	49047
Sac & Fox Nation of Missouri in Kansas and Nebraska	Ms. Lisa Montgomery	Montgomery	Tribal Council Member	Government Center	Mayetta	KS	66509
Sac & Fox Tribe of the Mississippi in Iowa	Mr. Chris Boyd	Boyd	Environmental Protection Agency Director	305 N. Main Street	Reserve	KS	66434
Shawnee Tribe	Mr. Jonathan Buffalo	Buffalo	Historic Preservation Office	920883 S. Highway 99	Stroud	OK	74079
The Osage Nation	Ms. Tonya Tipton	Tipton	Historic Preservation Office	349 Muskawaki Road	Tama	IA	52339
The Quapaw Tribe of Indians	Dr. Andrea Hunter	Hunter	Historic Preservation Office	P.O. Box 189	Miami	OK	74056
United Keelocwah Band of Cherokee of Oklahoma	Ms. Whitney Warrior	Warrior	Tribal Historic Preservation Officer	627 Grandview Avenue	Pawhuska	OK	74363
				P.O. Box 765	Quapaw	OK	74363
				P.O. Box 746	Tahlequah	OK	74464

Appendix 8

PHASE I ENVIRONMENTAL SITE ASSESSMENT Upper Mississippi River Basin Flood Protection Project

**Brevator Drainage & Levee District
Lincoln County, Missouri**

Prepared by:



US Army Corps of Engineers
St. Louis District
January 20, 2020

PHASE I – ENVIRONMENTAL SITE ASSESSMENT

Brevator Drainage & Levee District

Lincoln County, Missouri

Prepared for:
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis, MO 63103

Prepared by:

Richard D. Archeski
Environmental Engineer

Approved by:

Kevin P. Slattery
Chief, Environmental Quality
and HTRW Section

Date of Approval: _____

Executive Summary

The project is located just north of Old Monroe, Missouri in Lincoln County on the east side of Highway 79 and adjacent to Kimaterials. This project involves excavating material to use for the repair of the Brevator Levee which sustained one breach, type 2 and 3 erosion damage, and several slides during the flood events of 2019. The estimated borrow quantity for the breach, type 2 and 3 erosion, and slide repairs to the Brevator Levee is 10,760 cubic yards. The Brevator Drainage & Levee District is a 5.7 mile non-federal levee system protecting approximately 2,145 acres of agricultural fields and several residential and commercial structures.

The objective of the Phase I Environmental Site Assessment (ESA) is to satisfy the All Appropriate Inquiry (AAI) requirements by the Environmental Protection Agency to identify, to the extent feasible pursuant to the process described herein, recognized environmental conditions (RECs) in connection with a given property(s). This assessment revealed no evidence of RECs in connection with this project.

A modified Phase I was conducted in conformance with the scope and limitations of ASTM Practice E 1527 due to the emergency nature of these repairs.

I. Introduction

1.1 Purpose

The U.S. Army Corps of Engineers (USACE) regulations (ER 1165-2-132 and ER 200-2-3), and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential hazardous, toxic, or radioactive waste (HTRW) in reconnaissance, feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects by conducting HTRW Initial Hazard Assessments (IHA). USACE specifies that these assessments follow the process/standard practices for conducting Phase I Environmental Site Assessments (ESA) published by the American Society for Testing and Materials (ASTM).

This ESA has been modified due to the emergency nature of these repairs. However, this ESA has been conducted to meet the minimum standards as defined in the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments, ASTM E 1527-13 and the Standards and Practices for All Appropriate Inquiries, 40 CFR Part 312.

This assessment was prepared using the following ASTM Standards:

- E1527-13: Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment process
- E1528-06: Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (interview questionnaires)
- E2247-08 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property

The purpose of a Phase I ESA is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products.

The scope of this Phase I – Initial Site Assessment consists of the following four components: AAI (40 CFR Part 312) requires the following components:

- a. Records review
- b. Site reconnaissance
- c. Interviews
- d. Report

II. Project/Site Description

2.1 Location Description

The subject borrow site is located in Lincoln County, Missouri approximately 40 miles northwest of St. Louis, Missouri north of the town of Old Monroe. See Figure 1. The

levee is located along the Missouri side of the Mississippi River at approximately River Mile 237. There is 1 potential borrow site comprising this levee repair project. The borrow site is located to the east of Kimaterials on Hwy 79. See Figures 2, 3, & 4.

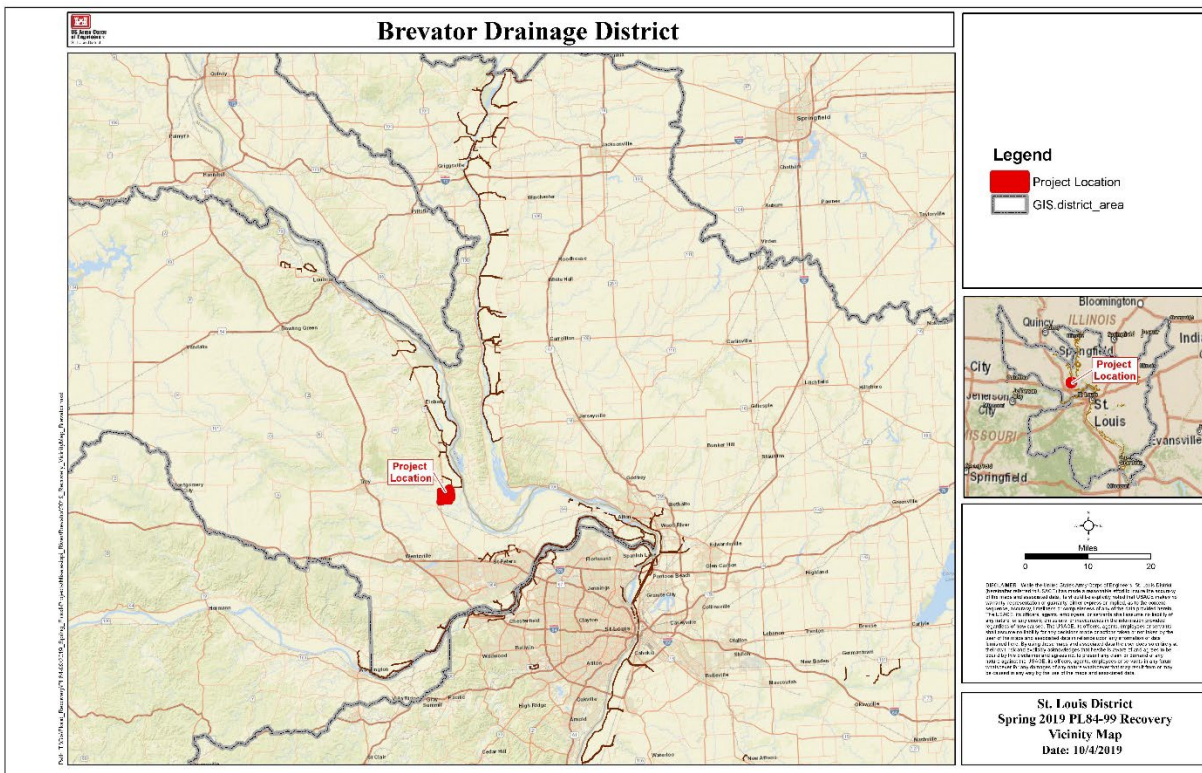


Figure 1
Locator Map for borrow site

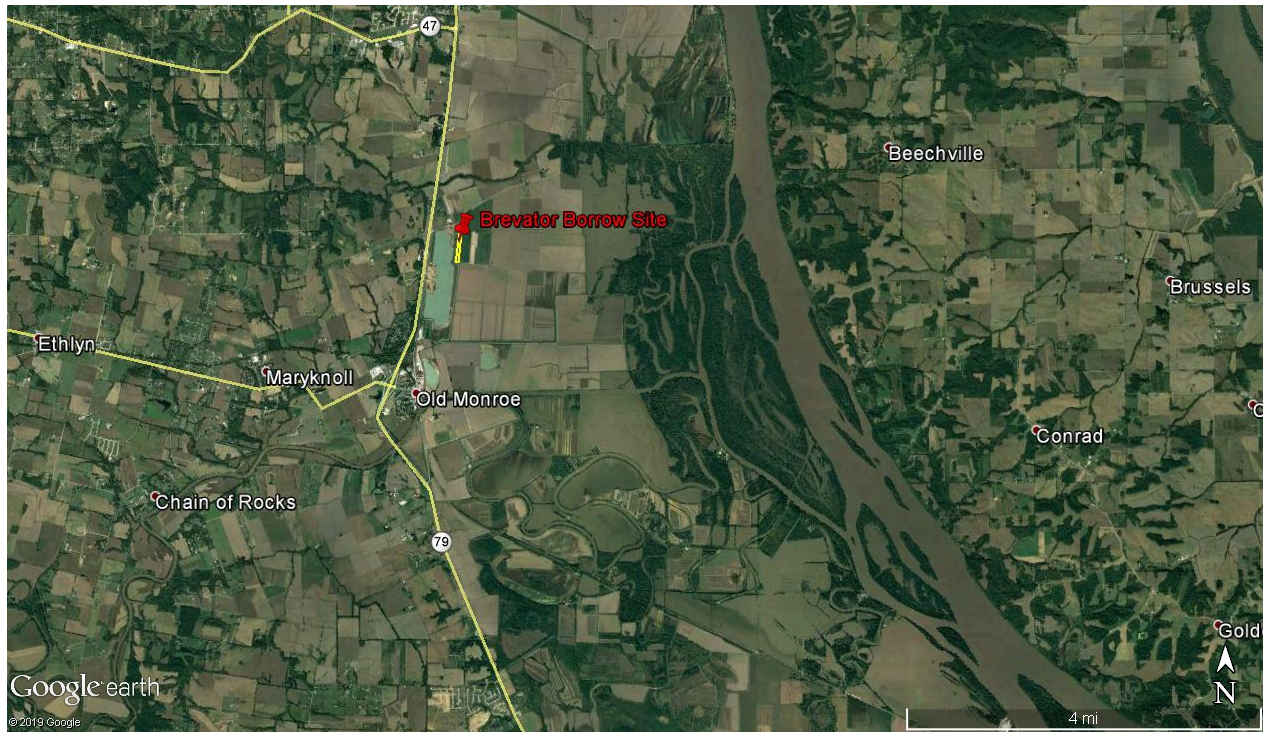


Figure 2
Location of borrow site

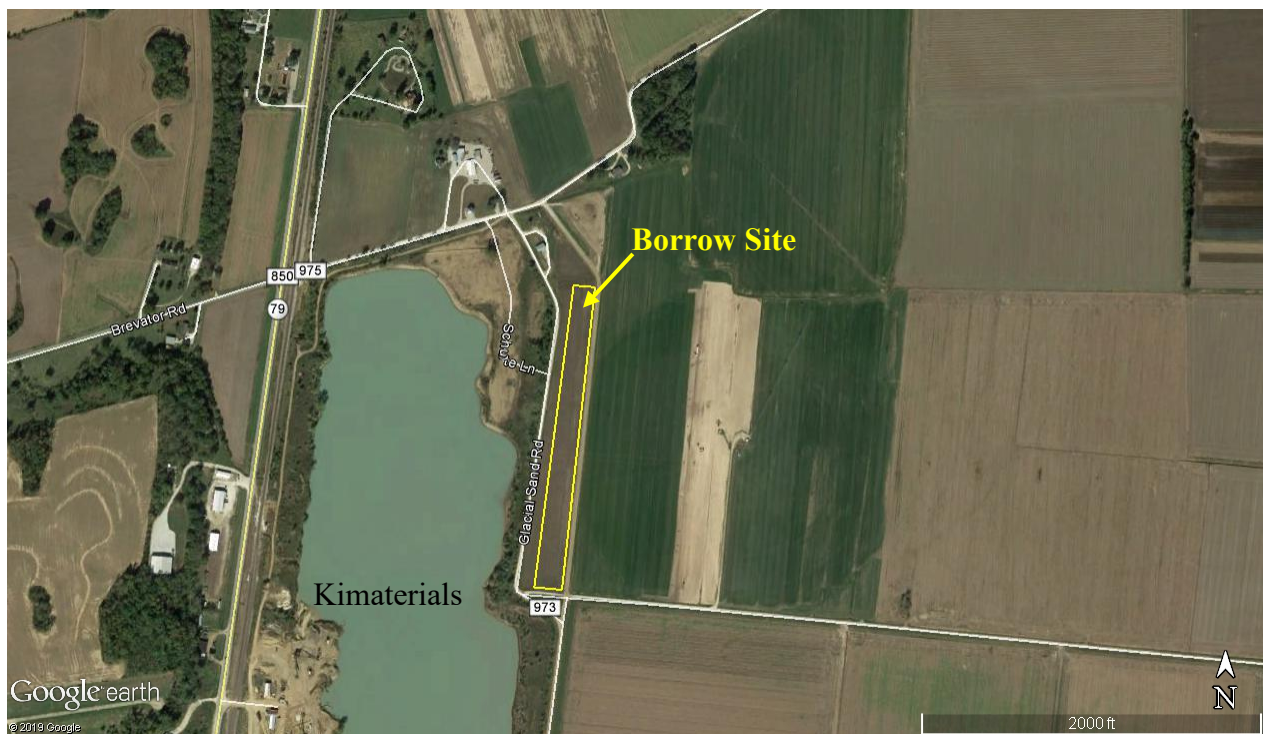


Figure 3
Borrow site location

Borrow area is adjacent to Kimaterials, a sand and gravel operation north of the city of Old Monroe in Lincoln County, Missouri. Total acreage is approximately 5.75 acres. Approximately 10,760 cubic yards of material will be taken from the site. The area is a reasonable and economically feasible haul distance to the repair areas. Before obtaining any material the vegetation will need to be stripped off, stockpiled, and then re-deposited.

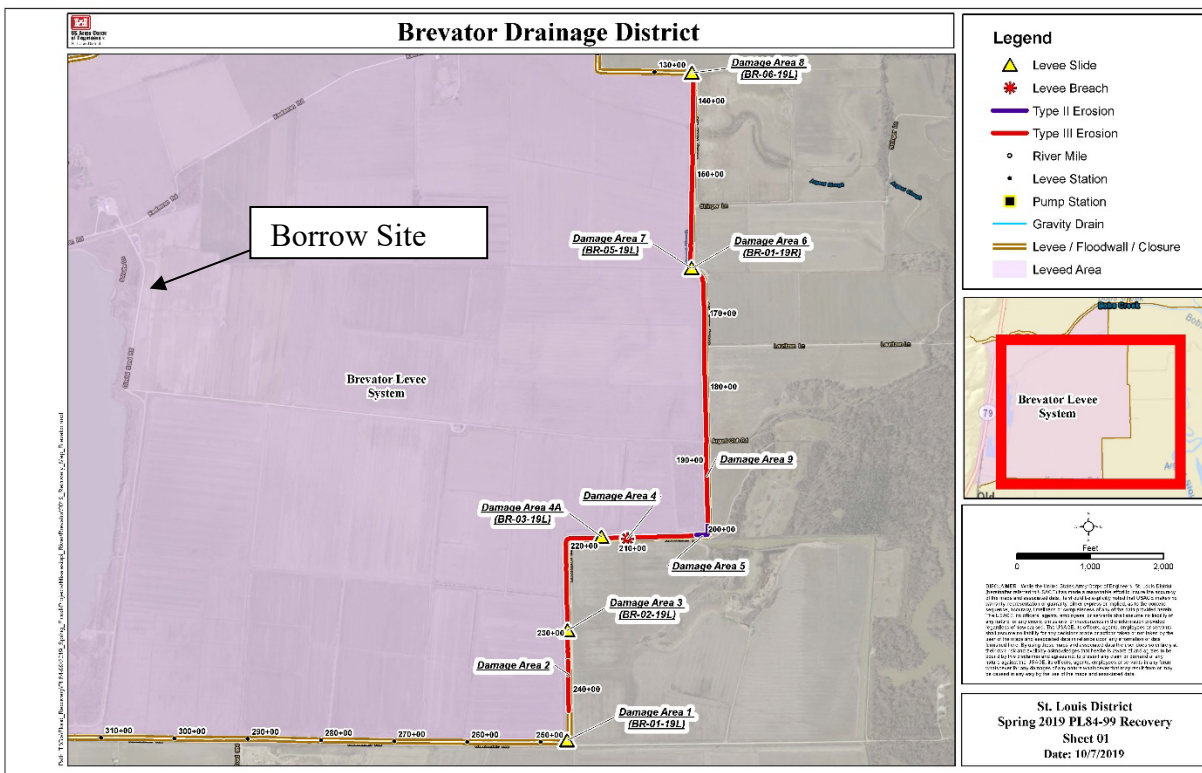


Figure 4
Location of borrow site in relation to levee

2.2 Project Description

This project involves excavating material to use for the repair of levees damaged in the flood events of 2019. The Brevator Drainage District is a 5.7 mile non-federal system protecting approximately 2,145 acres of agricultural fields, a few residences and commercial structures. The levee sustained 9 damaged areas consisting of 1 breach, type 2 and 3 erosion, and several slides. Actual cubic yards of borrow material was determined to be approximately 10,760 cubic yards.

2.3 Site/Vicinity Characteristics

Physical characteristics including topography, soil, geology, and hydrogeology were evaluated based on observation, published literature, and maps. The borrow site is located adjacent to Kimaterials a sand and gravel operation. The sand and gravel operation is to the west and agricultural fields to the north, east and south of the site. The site is level and

currently vegetated with grass. The levee system protects agricultural fields and a few residences and commercial facilities. The soil is suitable for levee repair.

III. User Provided Information

Site visits, records search, and personal interviews with persons familiar with the area revealed no reported HTRW issues.

The environmental impact for the migration of off-site contaminants onto the project property is negligible. A Site Health and Safety Plan, and a Quality Control Plan should be required, discussed and implemented to avoid any environmental hazards. If any evidence of REC's are discovered during construction activities, operations should cease until the Environmental Quality section of the St. Louis District Corps of Engineers is able to assess the project area.

IV. Records Review

In addition to the site visit, CEMVS-EC-EQ conducted an electronic review of readily available U.S. Environmental Protection Agency (USEPA) public databases, as well as U.S. Army records.

Missouri Environmental Emergency Response Tracking System (MEERTS)

Spill Number	Incident Location	County	City	Cause	Call Date
1201191132BWH	640 Aspen St5reet	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	1/19/2012
1201191132BWH	640 Aspen St5reet	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	1/19/2012
0910081147PAH	724 South Lindsey Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	10/8/2009
0909141448CMS	211 Main Street	Lincoln	Old Monroe	Fire/Explosion	9/14/2009
0901141536DLT	680 South Lindsey Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	1/14/2009
0806121330PAB	Lakeview Road at Meier Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	6/12/2008
0806021432PAB	724 South Lindsey Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	6/2/2008
0708061033BWH	Keetemen Road and Lauritzen Lane	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	8/6/2007
0705230950EJS	100 Second Terrace	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	5/23/2007
0705141406ADC	Carter Road (one mile South of Route OO)	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	5/14/2007
0610240855EJS	Mile Post 56	Lincoln	Old Monroe	Railroad Accident	10/24/2006
0606281905LJL	Flatwoods Road	St. Charles	Old Monroe	Mech. Malfunction/Failure	6/28/2006
0606281905LJL	Flatwoods Road	St. Charles	Old Monroe	Mech. Malfunction/Failure	6/28/2006

Spill Number	Incident Location	County	City	Cause	Call Date
0509081512KAH	Highway 79 (Quiver River)	Lincoln	Old Monroe	Other	9/8/2005
0507081415EJS	Main and Locust	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	7/8/2005
0506021330BJA	Route C and Highway 79	Lincoln	Old Monroe	Blockage/Bypass	6/2/2005
0505021107MDG	Highway 79 (South of Route C)	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	5/2/2005
0502011533MDG	Jordan Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	2/1/2005
0412271216DLT	158 MEIER Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	12/27/2004
0412271220DLT	Old Monroe Drive	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	12/27/2004
0312011545LDA	Highway 47 and LINDSEY Road	Lincoln	Old Monroe	Confiscated Drug Lab Mat.	12/1/2003
0207080940EJS	CUIVRE River Boat RAMP	Lincoln	Old Monroe	Operator Error	7/8/2002
0202181640LJL	584 Route OO (Abandoned GAS Station)	Lincoln	Old Monroe	Leaking Tank System	2/18/2002
0104080705ADC	236 North Main	Lincoln	Old Monroe	Intentional Act/Vandalism	4/8/2001
9712190855DLM	Corner of Main and LOCUST	Lincoln	Old Monroe	Leaking Tank System	12/19/1997

V. Site Reconnaissance

On, 15 January 2020 Mr. Benjamin Greeling, from CEMVS-EC-EQ visited the site. The site was walked and photographs were taken. There was no indication of hazardous substances spilled or disposed of on the borrow sites.

VI. Interviews

Interviews were conducted in order to obtain information indicating REC's in connection with this site. The content of the questions asked follow the questionnaire format of ASTM 1528. Interviews were conducted with the following person(s):

- Mr. Robert Jungermann – Brevator Levee District

The interviewee stated that to the best of his knowledge that no spills or incidences have occurred on the subject or adjacent properties. No REC's were identified as a result of this interview. Interviewee confirmed that historically the property has been used for agriculture. Kimaterials, adjacent to borrow site has been in operation for over 60 years. Before Kimaterials the area was used to raise hogs and cattle.

VII. Findings

Review of the readily available environmental records, interviews and observations made during the site visit indicated that hazardous materials were not spilled or disposed of on the real property in question.

VIII. Conclusions

Due to the emergency nature of this project, a modified Phase I Environmental Site Assessment was conducted in conformance with the scope and limitations of ASTM Practice E 1527 for the Brevator Drainage & Levee District 2019 borrow site. This assessment did not reveal any evidence of REC's in connection with this property. Pesticide application can be a potential REC for agricultural properties. However, the properties appear to be routinely farmed and still in production. Therefore, land management practices would include routine ground tilling that would induce phyto and biodegradation of residual pesticides thus are not likely to impact these sites. Therefore, no Phase II ESA is necessary for the proposed project.

IX. Limiting Conditions

U.S. Army Corps of Engineers, Environmental Quality Section, should be contacted with any known or suspected variations from the conditions described herein. If future development of the property indicates the presence of hazardous or toxic materials, USACE should be notified to perform a re-evaluation of the environmental conditions.

The scope of this assessment did not include any additional environmental investigation, not outlined herein, or analyses for the presence or absence of hazardous or toxic materials in the soil, ground water, surface water, or air, in on, under or above the subject tract.

This site assessment was performed in accordance with generally accepted practices of consultants undertaking similar studies at the same time and in the same geographical area, and USACE observed that degree of care and skill generally exercised by consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the environmental site assessment. No other warranty, express or implied, is made.

Specifically, USACE does not and cannot represent that the site contains no hazardous waste or material, oil (including petroleum products), or other latent condition beyond that observed by USACE during its site assessment.

The observations described in this report were made under the conditions stated herein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedure beyond the scope of described services or the time and budgetary constraints imposed by the client. Furthermore, such conclusions are based solely on site condition, and rules and regulations, which were in effect, at the time of the study.

In preparing this report, USACE relied on certain information provided by state and local officials and other parties referenced therein, and on information contained in the files of state and/or local agencies available to USACE at the time of the site assessment. Although there may have been some degree of overlap in the information provided by these various sources, an attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment was not made.

Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the site or to structures on the site was unavailable or limited, USACE renders no opinion as to the presence of indirect evidence relating to hazardous waste or material or oil, or other petroleum products in that portion of the site or structure. In addition, USACE renders no opinion as to the presence of hazardous waste or material, oil or other petroleum products or to the presence of indirect evidence relating to hazardous material, oil, or petroleum products where direct observation of the interior walls, floor, roof, or ceiling of a structure on a site was obstructed by objects or coverings on or over these surfaces.

Unless otherwise specified in the report, USACE did not perform testing or analyses to determine the presence or concentration of asbestos, radon, formaldehyde, lead-based paint, lead in drinking water, electromagnetic fields (EMFs) or polychlorinated biphenyls (PCBs) at the site or in the environment at the site.

The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous waste or material, oil, or petroleum products. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

X. Qualifications

USACE EC-HQ has the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject properties and declare that, to the best of our professional knowledge and belief meet the definitions of Environmental Professionals as defined under 40 CFR 312.

XI. Photographs



Looking south from southeast corner of borrow site.



Looking southwest from southeast corner of borrow site.



Looking west from the southeast corner of the borrow site.



Looking northwest from southeast corner of borrow site.



Looking northwest along Glacial Sand Road from southeast corner of borrow site.



Looking northeast from southeast corner of borrow site at adjacent turf field.



Looking east from southeast corner of borrow site at adjacent turf field.



Looking southeast from southeast corner of borrow site at adjacent turf field.



Looking west across borrow site from southeast corner of borrow site.



Looking northwest across borrow site from southeast corner of borrow site.



Looking north across borrow site from southwest corner of borrow site.



Looking east along east west access road from southwest corner of borrow site.



Looking south from southwest corner of borrow site.



Looking west from southwest corner of borrow site.



Looking southwest across borrow site from east side midpoint of borrow site.



Looking west across borrow site from east side midpoint of borrow site.



Looking northwest across borrow site from east side midpoint of borrow site.



Looking south from northeast corner of borrow site.



Looking west across borrow site from northeast corner of borrow site.



Looking north from northeast corner of borrow site at adjacent property.



Looking east from northeast corner of borrow site across adjacent field.

From: [Greeling, Benjamin A CIV USARMY CEMVS \(US\)](#)
To: [Hill, Evan B CIV USARMY CEMVS \(USA\)](#)
Subject: RE: Brevator update (UNCLASSIFIED)
Date: Wednesday, March 11, 2020 6:20:02 PM

Looks good

Sent with BlackBerry Work
(www.blackberry.com)

From: Hill, Evan B CIV USARMY CEMVS (USA) <Evan.B.Hill@usace.army.mil>
<<mailto:Evan.B.Hill@usace.army.mil>> >
Date: Wednesday, Mar 11, 2020, 3:41 PM
To: Greeling, Benjamin A CIV USARMY CEMVS (US) <Benjamin.Greeling@usace.army.mil>
<<mailto:Benjamin.Greeling@usace.army.mil>> >
Subject: RE: Brevator update (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Thanks Ben,

Does my HTRW paragraph for the Brevator EA look correct? Do you have anything to add or change?

" The U.S. Army Corps of Engineers (USACE) regulations (ER-1165-2-132, ER 200-2-3) and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential HTRW in reconnaissance, feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects by conducting Phase I Environmental Site Assessment (ESA). USACE specifies that these assessments follow the process/standard practices for conducting Phase I ESA's published by the American Society for Testing and Materials (ASTM).

The purpose of a Phase I ESA is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. Current policy is to avoid known HTRW sites. However, the Environmental Quality Section should be contacted immediately if HTRW material is encountered at any point during construction activities.

A Phase I study was performed on 15 January 2020 which did not find anything that would indicate a risk of HTRW contamination within the project area (Phase I report generated on 20 January 2020). There were no HTRW concerns for repair activities and borrow site usage. The likelihood of hazardous substances adversely affecting the project area due to the proposed levee repair activities is very low. There is still a potential of encountering hazardous substances during the proposed actions. If HTRW material is encountered at any point during the levee repairs, an environmental contractor should be contacted to assess the conditions. USACE does not and cannot represent that the site contains no hazardous waste or material, including petroleum products. "

Thanks again,

Evan Hill
Environmental Compliance Section
Wildlife Biologist
U.S. Army Corps of Engineers