

404(b)(1) EVALUATION
St. Francis Basin Maintenance
Fisk Scour Repair South of Railroad Bridge
Butler and Stoddard Counties, Missouri

I. Project Description

a. Location

The proposed scour repair measures are within the St. Francis River, located near the town of Fisk in Butler County, Missouri (Figure 1). The proposed action is south of the Missouri State Highway 51 Bridge and adjacent Union Pacific railroad bridge. The existing scour area is approximately 0.5 acre in size, proposed measures are anticipated to prevent the scour from propagating further upstream.

b. General Description

- 1) The proposed work calls for the repair of a scour site that has developed downstream of a railroad bridge south of the Missouri State Highway 51 bridge over the St. Francis River. The scour is approximately 150 downstream of the railroad bridge and is approximately 400 feet long, 360 feet wide, and 42 feet deep. Due to large flows and high velocities typical after rain events, head cutting has given rise to major scour problems along the St. Francis River. Because of the close proximity of the scour to the railroad and highway bridges, the scour problems have the potential to undermine and destabilize these bridges.

Proposed work is to use approximately 10,670 tons of R400 riprap, 1,425 tons of bedding material, and 3,890 tons of aggregate material.

All construction work would be conducted from the bank. R400 riprap would be placed in varying thicknesses of 30 inches to greater than 60 inches. The riprap thickness would be dependent on scour hole elevation with the final bottom elevation raised to an elevation of 275 NGVD. Riprap would be placed to armor both banks on a 2:1 slope to top bank. R400 riprap would tie into the existing R200 riprap at the upstream end of the scour.

No wetlands would be filled or otherwise affected.

Access to the project area would be from two haul roads (Figure 2); left descending bank access (East side) would be through the use of an existing gravel road off Old Highway 60, right descending bank access (West side) would be through the use of a temporary haul road specially constructed for this project. The constructed haul road would be 30 feet wide and run along the southern edge of an existing agricultural field (temporarily only during the construction period), crossing under existing overhead electric line, over an existing single track road, and through a section of woods to the project site. Heavy construction equipment

would be used to place riprap and achieve side slope aspects. Post-construction hydrology would be similar to pre-existing condition.

c. Authority and Purpose

The proposed action is authorized as part of St. Francis Maintenance in the Flood Control Acts of 1928 (P.L. 70-391), 1936 (P.L. 74-678), 1941, Section 3 (P.L. 77-228), 1946, Section 10 (P.L. 79-526), 1950, Section 204 (Title II of P.L. 81-516), 1965 (Title II of P.L. 89-298) and 1968 Section 203 (90-483); Water Resources Development Act of 2007, Section 3011 (P.L. 110-114).

d. General Description of Dredged or Fill Material

1) General Characteristics of Material

Riprap – Only R-400 riprap would be used for the scour locations. Bedding material would be placed underneath the R-400 riprap.

Backfill – Any excavated material from slope construction would be placed as semi-compacted backfill between the ordinary high water and top bank on either side of the river at a 2:1 slope. R-400 would then be placed to provide 30 inches of protection on the bank.

2) Quantity of Material

Riprap – Approximately 10,670 tons of R-400 riprap would be needed along with 1,425 tons of bedding material. Approximately 8,880 square yards of geotextile material would be required.

Backfill – Approximately of 6,990 cubic yards are expected to be excavated in repairs.

3) Source of Material – The riprap, bedding material, geotextile, and associated silt fencing and other site protection measures would be provided from commercial sources. The backfill would be obtained from the excavation required for scour repair.

e. Description of the Proposed Discharge Site(s)

1) Location – The project area is in Butler and Stoddard Counties, Missouri and would drain via the St. Francis River into the Mississippi River approximately six miles north of Helena, Arkansas. The existing channel to be modified is the St. Francis River, a permanent water body.

2) Size – The St. Francis River ranges in widths from about 120 – 600 feet with a bottom width of approximately 60 feet. Banks average 30 feet high and are steeply sloped. The St. Francis River Drainage Basin is approximately 7,550 square miles in size and 425 miles in length.

- 3) Type(s) of Habitat – Available in-stream habitat is sparse throughout the project area as there are few trees along the river to provide any allochthonous input. The stream sediment load consists of shifty sands and very little stable habitat. The immediate riparian zone is dominated by grasses and weed species with few trees or shrubs. Outside the immediate vicinity of the river, the surrounding vegetation is in agriculture.
- 4) Timing and Duration of Discharge – Construction is scheduled to commence in the immediate future. Construction would take place as soon as possible, but every effort would be made to construct during periods of low water and dry conditions. Best management practices would be applied.

f. Description of Disposal Method

A constructed haul road on the western side of the proposed project would be 30 feet wide and run along the southern edge of an existing agricultural field (removed after the construction period), crossing under existing overhead electric line, over an existing single track road, and through a section of woods to the project site. A section of early successional vegetation exists in the haul road right of way and an existing road through it would be widened by approximately 15 feet and allowed to revegetate after conclusion of construction. Minimal amounts of excavation of the channel bottom would be necessary to create the suitable slope and drainage flows required during key construction. Construction would take place during periods of low water.

II. Factual Determinations

a. Physical Substrate Determinations

- 1) Substrate Elevation and Slope – Slopes not steeper than 2H:1V would be created by the R-400 at the scour locations. Riprap would be placed on the existing bottom of the channel and brought up to an elevation of 275 feet.
- 2) Sediment Type – Sediment is composed exclusively of Falaya silt loam and Calhoun silt loam soils with some Dubbs silt loam and Amagon silt loam. These materials are generally considered to be occasionally (Falaya and Amagon soils) to rarely flooded (Calhoun and Dubbs soils). Dubbs soils are considered deep, well drained, somewhat permeable soils while the remaining soil types are considered deep, poorly drained, very slowly permeable soils.
- 3) Dredged/Fill Material Movement – Material would be excavated from the existing river banks and deposited adjacent to the river for associated scour repair on a 2:1 slope.
- 4) Physical Effects on Benthos – Excavation of sediment would have a minimal impact on benthos. Benthic communities would return to pre-existing conditions shortly after project completion.

5) Other Effects – not applicable.

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

- The recommended plan is the least environmentally damaging plan that is economically feasible.
- Effective erosion control would be in place prior to construction and maintained throughout the construction period.
- Construction would take place during periods of low rainfall and low water stages.
- Discharge material would be clean and free of pollutants, contaminants, toxic materials, hazardous substances, waste metal, construction debris and trash, and other wastes.
- Vegetation to be cleared would be the minimum necessary to allow for construction access.
- Work would be accomplished from one side of the river at a time.
- All disturbed areas would be seeded within 30 days after construction is completed.
- Heavy equipment shall be kept out of free flowing water.
- Construction debris would be kept from entering the river channel and shall be disposed of properly.
- Appropriate steps shall be taken to ensure that petroleum products or other chemical pollutants are prevented from entering the water.

b. Water Circulation, Fluctuation, and Salinity Determinations

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

- a) Salinity – not applicable.
- b) Water Chemistry – There would be no significant effects on water chemistry.
- c) Clarity – There would be limited disturbances to water clarity during construction due to minor increases in suspended particulates and turbidity levels. Water clarity is expected to return to pre-construction levels shortly after construction is completed.

- d) Color – Water color is not expected to change significantly.
- e) Odor – Odor of the water is not expected to change significantly.
- f) Taste – The taste of the water is not expected to change significantly.
- g) Dissolved Gas Levels – Dissolved gas levels are not expected to change significantly.
- h) Nutrients – Nutrients are not expected to change significantly.
- i) Eutrophication – No significant changes to eutrophication rates are expected from the discharge.
- j) Others - not applicable.

2) Current Patterns and Circulation

- a) Current Patterns and Flow – Current patterns and flows are not expected to be altered.
- b) Velocity – Water velocity is not expected to be affected. Average and low-flow conditions would not be affected.
- c) Stratification – No significant changes to stratification are expected from project construction.
- d) Hydrologic Regime – No significant changes to the hydraulic regime are expected.

3) Normal Water Level Fluctuations – The existing water levels in the river are determined by rainfall and channel capacity. No enlargement of the existing river is planned with the storage capacity within the river to remain the same. Water level fluctuations would remain the same.

4) Salinity Gradients – not applicable.

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

c. Suspended Particulate/Turbidity Determinations

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

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

- a) Light Penetration – Minor impacts are expected to light penetration due to an expected increase in turbidity levels during construction. Ambient conditions are expected to return shortly after completion of construction.
- b) Dissolved Oxygen – No change is expected due to the water depth and currents.
- c) Toxic Metals and Organics – No effect on toxic metals and organics are expected.
- d) Pathogens – not applicable.

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

- e) Others as Appropriate – None noted.

3) Effects on Biota

- a) Primary Production – Aquatic vegetation is limited within the existing river. The proposed work should have little effect on primary production after the banks revegetate.
- b) Suspension/Filter Feeders – Increased turbidity would be of short duration, and any organisms that are impacted should repopulate the area after project completion.
- c) Sight Feeders – Resident fish are adapted to turbidity increases that occur after every rainstorm. Project-related turbidity increases would be minor compared to these natural events. Since fish and other sight feeders are highly mobile, project impacts to sight-feeding organisms would be insignificant and short term.
- d) Actions taken to Minimize Impacts – Actions that would be implemented during construction to minimize impacts have been previously described in the Factual Determinations section above.

- d. Contaminant Determinations – It is not expected that any contaminants would be introduced or translocated due to construction. A hazardous, toxic, and radioactive waste survey has been conducted on the area. No potential sources of contamination were found. The discharge material would be clean and free of pollution. No testing of the discharge material is warranted.
- e. Aquatic Ecosystem and Organism Determinations

- 1) Effects on Plankton – Effect, if any, on plankton communities are expected to be insignificant and of short duration.
- 2) Effects on Benthos – Benthic organisms may be disturbed with the turbidity increase and construction activities, but no more than what would naturally occur during high flow events.
- 3) Effects on Nekton – Nekton would be temporarily displaced during construction, but would return shortly after project completion.
- 4) Effects on Aquatic Food Web – Temporary reductions in benthic and suspension/filter communities in such a small area should not significantly impact the aquatic food web during construction. These organisms would quickly recolonize the area after construction.
- 5) Effects on Special Aquatic Sites
 - a) Sanctuaries and Refuges – not applicable.
 - b) Wetlands – No wetlands exist within the project area.
 - c) Mud Flats – not applicable.
 - d) Vegetated Shallows – not applicable.
 - e) Coral Reefs – not applicable.
 - f) Riffle and Pool Complexes – not applicable.
- 6) Threatened and Endangered Species – According to information obtained from the U.S. Fish and Wildlife Service (USFWS), there are a total of three threatened, endangered, or candidate species that could potentially be found within the proposed project area. These species are the Indiana bat (*Myotis sodalis*), grey bat (*M. grisescens*), and northern long-eared bat (*M. septentrionalis*). Of these species, only the endangered Indiana bat and threatened northern long-eared bat would potentially utilize the forested habitat within the project areas. Grey bats are cave-dependent species, and caves are not found within the project area.

Any proposed tree clearing is of such small size and would be conducted in the winter tree clearing timeframe prior to project construction. Some trees were documented in the vicinity of the project as being larger than 3 inches diameter at breast height, although no evidence of suitable roost trees (snags or live trees with exfoliating bark, cracks, crevices, or hollows) were observed. Additionally, vegetative removal would be conducted in the winter tree clearing timeframe prior to project construction. Furthermore, habitat within the proposed project area is not considered critical habitat by USFWS for any other potential threatened or endangered species.

Additionally, no evidence of bald eagles, or their nests, were observed at the project location. No federally threatened or endangered aquatic organisms, including freshwater mussels have been collected or observed in the St. Francis River in the vicinity of the project. Therefore, USACE has determined that the proposed project would have no effect on any threatened or endangered species nor their critical habitats.

- 7) Other Wildlife – Terrestrial wildlife would be minimally impacted during construction activities, but should return to pre-construction levels after construction is completed.
- 8) Actions Taken to Minimize Impacts – Actions that would be implemented during construction to minimize impacts have been previously described in the Factual Determinations section above, chiefly construction would occur in low-flow periods and impact areas would be limited to the extent necessary for construction.

f. Proposed Disposal Site Determinations

- 1) Mixing Zone Determinations – not applicable.
- 2) Determination of Compliance with Applicable Water Quality Standards – A state water quality certification is being requested from the State of Missouri, Department of Natural Resources as part of this application process.
- 3) Potential Effects on Human Use Characteristic
 - a) Municipal and Private Water Supply – not applicable.
 - b) Recreational and Commercial Fisheries – not applicable.
 - c) Water Related Recreation – not applicable.
 - d) Aesthetics – Any construction activities would have minimal impacts to the aesthetics of the area.
 - e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves – not applicable.

g. Determination of Cumulative Effects on the Aquatic Ecosystem – With the stabilization of the stream banks and scour hole, scouring would be reduced potentially reduce the amount of sediment entering the system while propagation of the scour hole towards the railroad and highway bridge could be arrested.

h. Determination of Secondary Effects on the Aquatic Ecosystem – not applicable.

III. Findings of Compliance for Scour Control Measures

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

The 1973 Environmental Impact Statement (EIS) and subsequent documents have been previously completed that addresses flood control measures to be implemented along the St. Francis River. The recommended plan was determined to be the most cost effective and least environmentally damaging of the other alternatives studied in detail. The no action alternative was determined not to be practical. The proposed action would protect existing public infrastructure, and private homes and businesses. Without installation of scour control measures, the integrity of the Union Pacific and State Highway bridges would be compromised.

b. Compliance with Applicable State Water Quality Standards

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

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

Butler and Stoddard Counties are in attainment for all air quality standards. No significant impacts to air quality are expected. As equipment to be used during construction is a mobile source, best management practices shall be used throughout the construction to minimize air pollution.

d. Compliance with Endangered Species Act of 1973

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

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

Not applicable.

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

1) Significant Adverse Effects on Human Health and Welfare

- a) Municipal and Private Water Supplies – not applicable.
- b) Recreation and Commercial Fisheries – No significant impacts are expected.

- c) Plankton – No significant impacts are expected.
- d) Fish – No significant impacts are expected.
- e) Shellfish – not applicable.
- f) Wildlife – No significant impacts are expected.
- g) Special Aquatic Sites – not applicable.

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

No significant impacts are expected.

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

No significant impacts are expected.

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

No significant impacts are expected. Construction activities would have minimal impacts to the aesthetics of the area. Vegetation would regenerate following construction.

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

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

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

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

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

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

April 24, 2020

Date

Kevin R. Pigott
Biologist, USACE
CEMVN-PDC-UDC