

**SECTION 404(b)(1) EVALUATION  
FOR  
A NEW WITHIN-BANKS DISPOSAL AREA  
FOR  
OPHELIA DISPOSAL AREA ON THE BLACK WARRIOR RIVER  
IN TUSCALOOSA COUNTY, ALABAMA**

1. PROJECT DESCRIPTION:

a. Location. Black Warrior River portion of the Black Warrior-Tombigbee (BWT) Waterway, Tuscaloosa County, Alabama. The proposed site is located on the right descending bank of the Black Warrior River between River Miles 328.9 and 329.1 (See Figures 1 and 2).

b. General Description. The proposed project site is located in Tuscaloosa County, Alabama. The proposal calls for a within-bank disposal site on the right descending bank of the Black Warrior River between river miles 328.9 and 329.1. This project site is located between two previously approved within-banks disposal sites and adjacent to an existing upland disposal site. The site is also the location of two bank failures on 30 September and 01 October 2009. These bank failures altered the site from its natural and undisturbed condition. The sediment type on this reach of the river is a sand gravel mix; due to the bank failures the site conditions now consist of a steep unvegetated riverbank bordering the Black Warrior River. Little if any aquatic or riparian bank vegetation is present.

c. Authority and Purpose. The navigation project on the BWT was authorized by various Rivers and Harbors Acts, 1884-1960. The BWT Waterway provides for a channel 9 feet deep and 200 feet wide extending from the mouth of the Tombigbee River 45 miles above Mobile to the vicinity of Birmingham. The operation and maintenance of the BWT Waterway has been addressed in prior environmental documentation such as the Final Supplement to the Final Environmental Impact Statement for the Black Warrior and Tombigbee Rivers, Alabama (Maintenance), April 1987. The Black Warrior River portion of the BWT Waterway flows south from the confluence of the Mulberry and Locust Forks to the Tennessee-Tombigbee Waterway in Demopolis, Alabama. The proposed within-banks disposal site is located at river mile 329, connecting two contiguous existing within-banks disposal areas.

d. General Description of Dredge or Fill Material.

(1) General Characteristic of Material. Sediment analyses from the 1987 Black Warrior and Tombigbee Environmental Impact Statement have 2 sampling sites immediately upstream and downstream on the proposed within-banks disposal site. These samples show that less than 5% of the sediment sampled consisted of grain sizes smaller than that of sand. The dominant sediment type at the two sampling locations are sand and gravel which shifts more towards gravel at the sampling location upstream of the proposed within-banks disposal area.

(2) Quantity of Material. The new disposal area would receive approximately 9,000 cubic yards (CY) of dredge material every 4 years.

(3) Source of Material. The fill material will be dredged by hydraulic or mechanical dredge from the adjacent shoal area of the BWT Waterway navigation channel at previously approved locations in proximity to the proposed disposal area. The material being dredged is for maintenance of the waterway, not new construction dredging. The sand-gravel material being dredged is part of the alluvial bed material that is typical for these type of southeastern streams.

e. Description of the Proposed Discharge Site.

(1) Location. Black Warrior River portion of the BWT Waterway, Tuscaloosa County, Alabama. The proposed site is located on the right descending bank of the Black Warrior River between River Miles 328 and 329.

(2) Size. The proposed site is located at river mile 329 on the right descending bank of the Black Warrior River. The site is approximately 1,400 feet long and 75 feet wide.

(3) Type of Site. The proposed site is located between two existing within-banks sites and adjacent to an existing upland disposal area. The proposed within-banks site will be an unconfined disposal area along the bank of the river below the ordinary high water line. This proposed site will connect the two existing within-bank sites.

(4) Type of Habitat. The habitat at this location was typical of the steep riverbank bordering the Warrior River, but was disturbed by the two bank failures on 30 September and 01 October 2009. The current conditions at the site consist of steep disturbed riverbank in the downstream portion of the proposed within-bank disposal site that is devoid of significant vegetation. The upstream portion of the site is comprised of the steep river banks typically found throughout this reach of the Warrior River.

(5) Timing and Duration of Discharge. The discharges will occur during the dredging season which is normally between April and December. The duration of the discharge will vary from one day to several weeks depending on the quantity of material and river conditions.

f. Description of Disposal Method. The dredging in the navigation channel will be accomplished by hydraulic pipeline or mechanical dredge.

II. Factual Determinations:

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The elevation of the disposal sites will be temporarily increased; however, there should be no long term alteration of the channel configuration since the dredged material will normally be eroded from the within-banks disposal sites during flooding events, hence returning the sandy material back into the alluvial bedload of the Warrior River.

(2) Sediment Type. The dominate sediment type at this reach of the Warrior River consists of sand and gravel. The sediment type will not be altered because the dredged material is of similar composition since the dredging will occur nearby.

(3) Dredged/Fill Material Movement. The material will erode during the high water season and continue to move along the riverbed in a manner similar to that which occurs naturally in the proposed within-banks area.

(4) Physical Effects on the Benthos. The disposal at the site will cover the limited benthic community present at the site. Many of the benthic organisms will be smothered by the dredged material, while some of the more motile species will be capable of burrowing up through the sandy deposits and survive. Due to the similarities in the existing and placed material the benthic communities will begin to reestablish within a few months.

(5) Actions Taken to Minimize Impacts (Subpart H). Actions taken to minimize impacts include the selection of alternative construction methods, Best Management Practices (BMPs) and construction time period.

b. Water Circulation, Fluctuation, and Salinity Determinations.

(1) Salinity. Not applicable.

(2) Water Chemistry. The water chemistry for the Warrior River has not experienced highly elevated, anthropocentrically induced chemical levels. The disposal activities will not have any significant effects on water chemistry in this river reach due to the sandy nature of the dredged material and uncontaminated nature of these river sediments.

(3) Clarity. Water clarity will be temporarily decreased over a small area in the vicinity of the dredging and disposal activities. The ambient levels of water clarity will return to the area soon after the disposal operations cease.

(4) Color. Color will not be significantly affected.

(5) Taste. Taste will not be significantly affected..

(6) Dissolved Gas Levels. Dissolved gas levels should not be significantly affected.

(7) Nutrients. Nutrients will not be significantly changed as a result of this project.

(8) Eutrophication. Eutrophication will not be affected since nutrient levels will not be significantly changed.

c. Water Circulation, Fluctuation, and Salinity Gradient Determinations:

(1) Current Patterns and Circulation.

(a) Current Patterns and Flow. The river flow will not be affected by the dredging and disposal practiced.

(b) Velocity. Since the dredged material will be moved from one area of the river to another within the same reach, no significant effects on water velocity will be experienced.

(2) Stratification. Water quality management studies of the BWT Waterway by the U.S. Army Corps of Engineers have shown little stratification in the dredging reaches. The stratification that does occur in upper dredging reaches of the system is weak and would not be interrupted or influenced by the proposed action.

(3) Hydrologic Regime.  
The proposed action will not affect the hydrologic regime.

(4) Normal Water Level Fluctuations. River stages will not be affected by the proposed action.

d. Suspended Particulate/Turbidity Determinants.

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of the Disposal Site. There will be temporary increases in turbidity at the site during dredging and disposal activities. Levels should return to normal after activities subside. No significant long-term impacts will occur.

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

(a) Light Penetration. Refer to paragraph IIb(1)c.

(b) Dissolved Oxygen (DO). Refer to paragraph IIb(1)f.

(c) Toxic Metals and Organics. This project will not have an adverse effect on the amount of toxic metals and/or organics present since the sandy dredged material does not contain accumulations of toxic metals and organics that might be encountered if dealing with fine-grained silts and clays.

(d) Pathogens. Pathogen levels will not be affected as a result of this project.

(e) Aesthetics. The aesthetics at this site will most likely improve. The greatest change from the completion of this project will be the elimination of an unsightly collapsing bank of the river.

(3) Effects on biota.

(a) Primary Production, Photosynthesis. Primary productivity will be insignificantly lowered by the discharge at the site since the turbidity plume will only affect a very small portion of the BWT Waterway in immediate proximity to the proposed within-banks disposal site.

(b) Suspension/Filter Feeders. Suspension/Filter Feeders may be temporarily affected in the immediate area of the proposed action. However, these impacts will be insignificant.

(c) Sight Feeders. Sight dependant feeders may experience reduced feeding with the area of the turbidity plume during dredging and disposal activities. Long-term effects will be beneficial due to the improved benthic habitat.

(4) Actions taken to Minimize Impacts (Subpart H). No actions are considered to be necessary due to the low level of impacts that will occur.

e. Contaminant Determinations. The discharge will not significantly introduce or increase contaminants in the area since the dredge material is being removed from sandy dredging sites immediately adjacent to the proposed within-banks site.

f. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton. There may be temporary effects on plankton in the immediate vicinity of the discharge, but these effects would be localized and short-term.

(2) Effects on Benthos. Except for the smothering of some of the benthic organisms on the disposal site, there will be no significant impacts. Recolonization on these within-bank sites typically occurs within a few weeks to two months time.

(3) Effects on Nekton. Nekton will not be significantly impacted by the proposed project.

(4) Effects on Aquatic Food Web. The loss of benthic organisms on the within-banks disposal site will result in a slight temporary reduction in biomass within the foodweb.

(5) Effects on Special Aquatic Sites. There are no adverse effects to special aquatic sites anticipated in the vicinity of this project.

(a) Sanctuaries and Refuges. The project impact area will not affect any sanctuaries and/or refuges.

(b) Wetlands. The discharge of dredge material will impact benthic communities for a short time until recolonization occurs, but will not affect vegetated wetlands.

(c) Mud Flats. No mud flats will be impacted as a result of this project.

(d) Vegetated Shallows. Due to the location of this project and the reach of the river, there will be no significant impacts to vegetated shallows.

(e) Riffle and Pool Complexes. The BWT Waterway contains no steep gradient sections associated with riffles and associated pools.

(6) Threatened and Endangered Species. The Corps has evaluated potential to affect Federally-listed species and determined that the proposed action would have no affect on the listed species or critical habitat. Coordination of this determination has been coordinated with USFWS Daphne Field office and they concur with this analysis.

(7) Other Wildlife. There are no other significant adverse effects to wildlife species anticipated from this project.

f. Proposed Fill Site Determination.

(1) Mixing Zone Determination. This activity does not require a mixing zone determination. The nature of the dredged material and constituent concentrations preclude the need for a mixing zone determination.

(a) Depth of water at the disposal site. The water depth at this site varies significantly due to flow variations due to locally heavy rainfall events. A survey that best represents the depth at the project site shows a maximum depth of 3-20 feet during normal water levels.

(b) Current velocity, direction, and variability at the disposal site. The proposed activity would not affect the current velocity, variability and direction of the river at the proposed project location.

(c) Degree of turbulence. The degree of turbulence at this site varies significantly according to the stage of the river and would not be affected by the proposed project.

(d) Stratification attributable to cause such as obstructions, salinity or density profiles at the disposal site. Not applicable.

(e) Discharge vessel speed and direction, if appropriate. Discharge vessel would be stationary.

(f) Rate of discharge. Not applicable.

(g) Ambient concentration of constituents of interest. Not applicable.

(h) Dredged material characteristics, particularly concentrations of constituents, amount of material, type of material (sand, silt, clay, etc.) and settling velocities. The dredge material would be comprised of sand and gravel with a small percentage of silt and clay (less than 5%).

(i) Number of discharge actions per unit of time. The discharge will be approximately 9,000 CY every 4 years.

(1) Determination of Compliance with Applicable Water Quality Standards. The proposed action will comply with applicable water quality standards as established by the Alabama Department of Environmental Management. Water quality certification for the routine dredging and disposal activities on the BWT Waterway, including the disposal operations in the contiguous within-bank disposal sites was most recently issued by the State of Alabama on March 31, 2009.

(2) Potential Effects on Human Use Characteristics. This project will not result in significant adverse effects on human use characteristics along the reach of the river on which this project is located.

(a) Municipal and Private Water Supply. This project would not impact municipal or private water supplies.

(b) Recreation and Commercial Fisheries. Fishing activities at the proposed site would be temporarily interrupted during the dredge/fill operation. No long-term impacts are anticipated as a result of this project.

(c) Water Related Recreation. Water related recreation occurring at the proposed site would be temporarily interrupted during the dredge/fill operation. No long-term impacts are anticipated as a result of this project.

(d) Aesthetics. Aesthetics would be temporarily impacted during the dredging and disposal operations. Aesthetics would return to normal when the project is complete.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. No parks, national historic monuments, national seashores, wilderness areas, research sites and similar preserves in the vicinity will be adversely impacted as a result of this project.

(f) Other Effects. There are no other effects anticipated as a result of this project.

(3) Determination of Cumulative Effects on the Aquatic Ecosystem. Repeated use of this disposal site may result in cumulative impacts. However, the dredged material would be placed to enhance its suspension into the Black Warrior River water column and would erode between dredging events. The time and placement location between each dredging operation would reduce the cumulative impacts.

(4) Determination of Secondary Effects on the Aquatic Ecosystem. Temporary and localized secondary impacts may occur in the areas of the dredge

### III. Findings of Compliance or Noncompliance with the Restrictions on Discharge.

a. No significant adaptations of the guidelines were made relative to this evaluation.

b. The proposed discharge represents the least environmentally damaging practicable alternative that would accomplish the project objectives.

c. The planned disposal of dredged material would not violate any applicable State water quality standards nor would it violate the Toxic Effluent Standard of Section 307 of the Clean Water Act.

d. Use of the proposed disposal sites would not jeopardize the continued existence of any federally listed endangered or threatened species or their critical habitat.

e. The proposed discharge of fill material would not contribute to significant degradation of waters of the United States. Nor would it result in significant adverse effects on human health and welfare, including municipal and private water supplies,

recreation and commercial fishing; life stages of organisms dependent upon the aquatic ecosystem; ecosystem diversity, productivity and stability; or recreational, aesthetic or economic values.

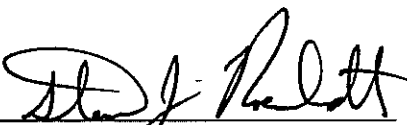
f. Appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem include:

(1) Locations, times and duration of the project will be selected to minimize potential adverse impacts to the aquatic ecosystem.

(2) An interdisciplinary team has evaluated sites, and project design altered per their recommendations.

(3) No sewage, oil, refuse or other pollutants shall be discharged into the watercourse.

DATE: 8 JUN 10

  
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