ENVIRONMENTAL ASSESSMENT
THE OQUAWKA REACH:
LOCK 18 UPPER, FURNAL ISLAND, AND OQUAWKA DREDGE CUTS
UPPER MISSISSIPPI RIVER MILES 411.0-415.2

BACKGROUND INFORMATION

The District (U.S. Army Corps of Engineers, Rock Island District) is directed by Congress to maintain a 9-foot navigation channel on the UMR (Upper Mississippi River). The bottom sediments of the UMR are in a dynamic state, moving and rearranging as a result of natural fluvial processes. These sediments occasionally threaten navigation by causing the channel to become narrow and/or shallow at localized sites. Maintenance involves dredging of accumulated sediment to restore the channel to proper navigation dimensions.

The District's dredging program encompasses the planning, design, construction, operation, and maintenance of waterway projects to meet navigation needs. The District's responsibility includes developing and maintaining the Nation's waterways and harbors to meet emergency, national defense, and national interest requirements. Channel maintenance dredging is prioritized and scheduled based on soundings and hydrographic surveys performed throughout the navigation season and in response to emergency channel closures created by barge groundings.

This EA (Environmental Assessment) was prepared to address impacts associated with utilization of three new (non-historic) dredged material placement sites—Sites 3, 5, and 8—in compliance with NEPA (National Environmental Policy Act of 1969). A Section 404(b)(1) Evaluation (EA Appendix B) has been prepared, and Section 401 water quality certification would be obtained from both Iowa and Illinois to comply with the Clean Water Act prior to implementation of this project. Impacts of the actual dredging operation and the future use of historic placements sites have been addressed in the report entitled, *Operations and Maintenance, Upper Mississippi River, 9-Foot Navigation Channel, Final Environmental Impact Statement*, *(Pools 11 - 22)*, dated July 1974. This EA may be used in support of a base plan for a potential Henderson #3 Section 204 project. The purpose of the 204 program is to protect, restore, or create aquatic and wetland habitat in connection with dredging of a Federal navigation project. These sites may be used for the emergency placement of dredged material following the District's normal real estate procedures. This EA describes an interim strategy for dredged material placement that could be used until a long-term plan can be developed.

An OSIT (On-Site Inspection Team), which consists of personnel from both State and Federal agencies, performs a natural resources assessment of each dredging/placement operation. The OSIT reviews proposed sites on location and recommends areas that would minimize impacts to backwaters, wetlands, prime farmland, and other sensitive habitats. The OSIT participated in the development of this plan during an office and on-site meeting on October 29, 1999. The OSIT also holds a post-placement inspection of each year's dredged material placement sites. The OSIT serves in an advisory capacity and has no regulatory authority; however, OSIT concerns and opinions are integral to the District's decision making process. The District must notify the OSIT of any departures that it makes from the OSIT recommendations. Final authority on dredging projects rests with the District's DE (District Engineer).

I. AUTHORITY AND PURPOSE

The formal authorization for the U.S. Army Corps of Engineers to perform operation and maintenance activities on the UMR was given in the Rivers and Harbors Act of 1927; as modified by the Rivers and Harbors Acts of 1930, 1932, and 1935; and a Resolution of the House Committee on Flood Control of September 19, 1944. These Acts and Resolution authorize the construction, operation, and maintenance of the 9-foot navigation channel on the Mississippi River between the mouth of the Missouri River and St. Paul, Minnesota.

The purpose of the channel maintenance program is to maintain the commercial 9-foot navigation channel in such a manner as to avoid potential loss of life, personal injury, or property damage that may result from inadequate maintenance of the channel and subsequent groundings. The purpose of the project described in this EA is to find suitable placement sites for dredged material when considering operational feasibility, cost, and environmental sustainability. Long-term placement areas are needed to avert emergency dredging placement actions that may have high ecological and/or monetary costs. This report focuses on the Oquawka Reach because previously used placement sites in this portion of the river have been filled and future dredging predictions indicate new placement sites are required.

II. PROJECT LOCATION AND DESCRIPTION

The project area lies in the lower portion of Pool 18 of the Mississippi River, upstream of Burlington, Iowa, in Des Moines County and downstream of Oquawka, Illinois, in Henderson County (Figure EA-1). The project area consists of three non-historic sites—Sites 3, 5, and 8—located between RM (river mile) 412.1 and RM 414.4 (plate EA-1). Physical descriptions of these sites can be found in Table EA-1. The main channel areas associated with these placement sites are known as the Oquawka Reach: Lock 18 Upper, Furnal Island, and Oquawka dredge cuts (plate EA-1).

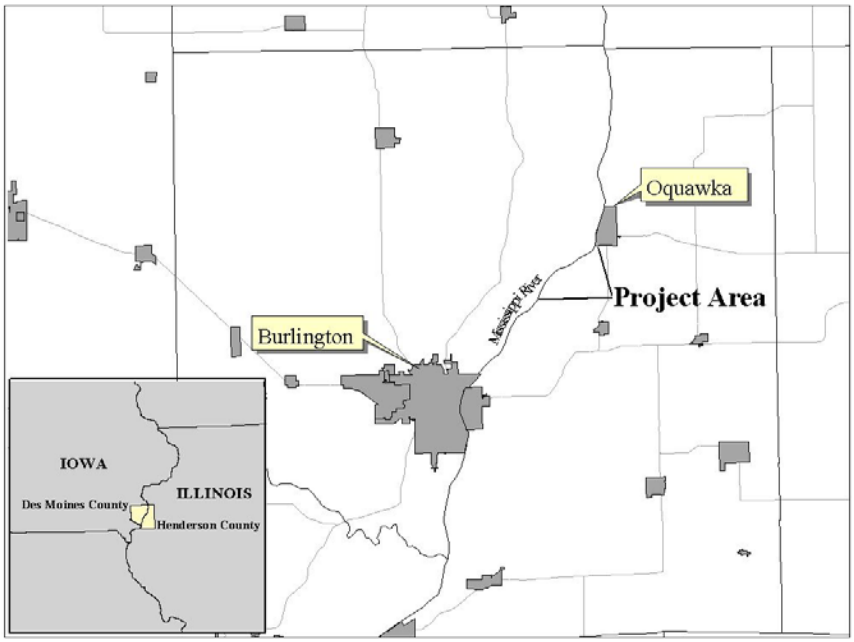

Figure EA-1. Location of project area

Table EA-1. Physical characteristics of dredged material placement sites

	Site 3	Site 5	Site 8
Length[1]	5,500 ft	755 ft	2,450 ft
Width[1]	90 ft	190 ft	Varies between 200-1,200 ft
Depth of material	12 ft	10 ft	10 ft
Terrestrial Encroachment	9.5 acres	1.5 acres	37 acres
Aquatic Encroachment	1.0 ac. wetland impacts	None	0.1 ac. wetland impacts for site access
Agricultural Encroachment	None	None	37 acres
Substrate Composition	Levee	Levee	Ag Field
Erodibility of Dredged Material	Minimal	Minimal	Minimal
Reason for New Placement	Accessible, cost effective, environmentally acceptable	Accessible, cost effective, environmentally acceptable	DMMP and potential beneficial use
Capacity	150,000 CY	20,800 CY	437,000 CY

[1] All sites are non-rectangular in shape; see plates EA-1, EA-3, and EA-4 for the actual shape.

Dredging is required regularly in this section of the main channel. The Lock and Dam 18 dredge cut, RM 411.0-412.4, has been dredged 5 times since 1941. These dredging events averaged approximately 72,119 CY (cubic yards), and totaled 360,593 CY. The Furnal Island dredge cut, RM 413.0-414.4, yielded 17,862 CY the only time it was dredged in 2001. The Oquawka dredge cut, RM 414.5-415.2, has been dredged twice since 1961. These dredging events averaged approximately 55,735 CY and totaled 111,470 CY. The total amount of material dredged at these three dredge cuts since 1941 is approximately 489,925 CY.

A total capacity of 510,000 CY is needed to meet the proposed volume of dredged material over the next 40 years. The projections for the Oquawka dredge cut are 1 event every 8 years with a quantity of 40,000 CY per event, the projections for the Lock and Dam 18 dredge cut are 1 event every 6 years with a quantity of 30,000 CY per event, and the projections for the Furnal Island dredge cut are 1 event every 10 years with a quantity of 25,000 CY per event. These are projections only and are subject to change due to the dynamic nature of sediment transport in the UMR. The District will perform dredging as necessary to maintain the 9-foot channel in the UMRS; actual quantities may therefore be greater or lesser. Previous placement of dredged materials has occurred at numerous locations near the dredge cuts, and the use of many of these historic placement areas in the present manner is no longer environmentally practicable. Dredged

material would be placed at Site 3 and Site 8 by both hydraulic and mechanical means and at Site 5 by mechanical means only.

Contaminant testing of the dredged material was done through a grain size analysis. Dredged material was classified into three categories: SP, medium to fine sand; SP, gravelly coarse to fine sand; and SP, medium to fine sand with gravel (Table EA-2). This material is likely to be free from chemical, biological, or other pollutants when it is composed primarily of sand, gravel, or other naturally occurring inert materials, as it is here. Further testing is not required because these samples were greater than 80% sand/gravel. An elutriate test would have been performed to determine if contaminants were present had the material been greater than 20% silt/clay. This would be done because contaminants have a greater affinity for smaller-sized particles. No other testing than a grain size analysis would be performed unless the District is made aware of another reason that this material may be contaminated.

Table EA-2. Grain size analysis of Mississippi River sediment samples for Lock and Dam 18 Upper and Oquawka Lower

		Percent Finer by Weight				
		Samples collected 28-Jul-99				
	Sample Numbers:	**MS-411.0R**	**MS-411.5R**	**MS-412.0R**	**MS-414.7R**	**MS-415.1R**
	1 1/2"	100.0%	100.0%	100.0%	100.0%	100.0%
S	**3/4"**	100.0%	100.0%	100.0%	100.0%	100.0%
I	**3/8"**	100.0%	100.0%	100.0%	100.0%	100.0%
E	**#4**	99.3%	99.5%	100.0%	99.9%	99.5%
V	**#10**	98.1%	97.9%	99.7%	97.9%	91.8%
E	**#16**	96.1%	95.3%	99.5%	92.3%	79.7%
	#30	83.3%	71.7%	98.0%	60.8%	46.3%
S	**#40**	60.7%	40.7%	88.8%	30.3%	21.1%
I	**#50**	24.1%	11.2%	46.2%	7.6%	4.3%
Z	**#70**	5.2%	2.1%	10.5%	1.3%	0.7%
E	**#100**	0.9%	0.5%	1.8%	0.4%	0.3%
S	**#200**	0.1%	0.2%	0.1%	0.2%	0.2%
	CLASSIFI-CATION:	SP, MEDIUM TO FINE SAND	SP, MEDIUM TO FINE SAND	SP, MEDIUM TO FINE SAND	SP, MEDIUM TO FINE SAND	SP, MEDIUM TO FINE SAND

Notes:

1. Visual classification of soils is in accordance with "The Unified Soils Classification System (USCS)."
2. Laboratory testing was performed in accordance with EM 1110-2-1906, dated 30 Nov 70, revised 1 May 80 and 20 Aug 86.
3. All samples were oven dried at 110 degrees Centigrade.

III. ALTERNATIVES

Through a multi-agency cooperative effort, the District considered 22 sites and selected a DMMP plan consisting of three sites—Site 3, Site 5, and Site 8. These sites make up Alternative E as shown in Table EA-3. These sites were selected as the final alternative (base plan) because they were operationally feasible and environmentally sustainable. The other alternatives considered each had either unacceptable wetland impacts or did not provide adequate hydraulic placement opportunities for the Oquawka reach dredge cuts. Table EA-4 summarizes all sites originally considered by the On-Site Inspection Team and the decision factor that was most considered for removal or inclusion in the base plan. Plate EA-2 shows the locations of each site considered. The section following the table describes the decision factors in greater detail.

Alternatives were given equal consideration given the limitations of current hydraulic and mechanical dredging technology. Required equipment for hydraulic dredging would include the Dredge Thompson, 1 booster, 6,200 feet of floating pipeline, up to 3,000 feet of shore pipe, and 2 to 3 bulldozers. Mechanical placement would require a minimum of 1 crane barge or backhoe, 1 tender boat, 2 material barges, and 1 end loader/bulldozer.

The distance of the placement area from the dredge cut and the site capacity are primary factors that influence cost. Differences in cost between alternatives for the same site are due to the use of mechanical or hydraulic dredging and the timing of site development during the life of the plan.

The following were considered in the selection process:

- Cost
- Threatened and endangered species
- Wetlands
- Prime farmland
- Property ownership (When a site on private property was considered, site alignment and the percentage of land acquired from an individual's total land ownership were evaluated.)
- Historic and cultural resources
- Floodplain and floodway effects
- Unique natural resources
- Hydraulic dredging return water corridors and effects on aquatic resources (spawning areas, ichthyoplankton, fish migration routes, sport fishing areas, mussel beds, aquatic plant communities, side channels, backwaters)
- Existing land-use plans and property liens

Table EA-3. Alternative placement site combinations considered			
	Alt A	**Alt B**	**Alt C_{exp}**
Alternative Life-years	40	40	40
Site Total Cost	*Site 2--* $1,077,405 *Site 3--* $593,917 *Sites 5 & 8--* $2,016,280	*Sites 5 & 8--* $3,313,704	*Site 1--* $664,382 *Site 2_{exp}--* $1,413,391 *Site 3--* $2,091,608
TOTAL COST (Present worth)	$3,687,602	$3,313,702	$4,169,382
TOTAL DREDGING REQUIREMENTS (CY)	510,000	510,000	510,000
Cost/CY	$7.23	$6.51	$8.18
Justification	Unacceptable wetland impacts	Inadequate hydraulic placement for Lock & Dam 18 dredge cut	Unacceptable wetland impacts; inadequate hydraulic placement for Oquawka dredge cut

	Alt D	**Alt E**
Alternative Life-years	40	40
Site Total Cost	*Site 2_{exp}--* $1,459,083 *Sites 5 & 8--* $2,016,280	*Site 3--* $1,505,146 *Sites 5 & 8--* -$2,238,484
TOTAL COST (Present worth)	$3,475,363	$3,743,631
TOTAL DREDGING REQUIREMENTS (CY)	510,000	510,000
Cost/CY	$6.81	$7.34
Justification	Unacceptable wetland impacts	Selected as base plan

Table EA-4. Synopsis of dredged material placement sites and alternatives considered for the Oquawka Reach dredge cuts (plate EA-2)

Sites Considered	Habitat Description-Land Use	Decision Factor
Site 1	Levee Right-of-Way (ROW)	Long transport distance
Site 2	Levee ROW/Agricultural Field	Wetland impacts
Site 2 Expanded	Levee ROW/Agricultural Field	Wetland impacts
Site 3*	Levee ROW	Convenient access, cost effective
Site 4	Levee ROW/Agricultural Field	Small site, not required
Site 5*	Levee ROW	Convenient access, cost effective
Site 6	Levee ROW	Poor river access
GREAT Site 18.36	Developed/Lowland Hardwoods	Long transport distance, limited access
GREAT Site 18.37	Agricultural Field	Restricted river access
GREAT Site 18.38	Agricultural Field	Restricted river access
GREAT Site 18.39	Agricultural Field	Restricted river access
GREAT Site 18.40	Developed	Severe erosion potential, low capacity
GREAT Site 18.41	Historic Placement Site; Dredged Material	Floodplain, wetland, mussel impacts
Site 7 (GREAT Site 18.42)	Agricultural Field	Operational infeasibility
GREAT Site 18.43	Agricultural Field	Long transport distance, limited access
Site 8* (GREAT Site 18.44)	Agricultural Field	Convenient access, wetland impacts
GREAT Site 18.45	Levee ROW/Agricultural Field	Long transport distance
Historic (HD)	Historic Placement Site; Dredged Material	Floodplain and wetland impacts
GREAT Site 18.46	Lowland Hardwoods	Floodplain and wetland impacts
GREAT Site 18.47	Historic Placement Site; Dredged Material	Used only upon OSIT recommendation
Historic (HD)	Historic Placement Site; Dredged Material	Floodplain and wetland impacts
GREAT Site 18.48	Agricultural Field	Restricted river access

* Incorporated into the preferred alternative

A. <u>No Project</u>. The No Project alternative would preclude Federal involvement in the project. Consequently, no dredging would occur. Without dredging, it is probable that shoaling would occur, resulting in the closure of the channel to commercial navigation. The No Project alternative is not feasible because it is contrary to the congressional mandate to maintain a commercial navigation channel.

B. <u>No Change</u>. The No Change alternative would mean "business as usual," and placement of dredged material would continue at various bankline, island, and inland stockpile areas that are now considered full. Continued long-term placement at the historically used placement sites at the historic rate would result in unacceptable terrestrial and aquatic habitat loss.

C. <u>Floodplain Placement</u>. This alternative proposes placing material on sites within the base floodplain near the dredge cuts. The preferred alternative of this project includes two floodplain sites—Sites 5 and 8 (plates EA-1 and EA-3). These sites are protected by a 50-year levee and are therefore considered to be in the floodplain. Site 3 is protected by a 100-year levee and is therefore considered to be an upland placement site.

The effect that implementing this project would have on flood heights was considered. The District performed a HEC-RAS (Hydrologic Engineering Center - River Analysis System) model run that indicated that the use of Sites 5 and 8 would have negligible impact on the floodplain.

Wetlands were located in some floodplain sites that were evaluated for this project. The District attempted first to avoid, then to minimize, and ultimately to mitigate for wetlands located in the proposed plan. See EA Appendix C for a detailed description of the Mitigation Plan. The cost of this mitigation and quality of the wetlands were considered in the site selection process before a final alternative was selected. The District avoided nearly all wetland impacts in the two floodplain placement sites. Approximately 0.1 acre of wetlands would be impacted for site access between Sites 5 and 8.

Site selection, alignment, and the percentage of land acquired from an individual's total land ownership were considered and evaluated. Site 8 is seasonally small-grain row cropped, typically with soybeans or corn. Site 5 is not farmed.

In addition to the two selected sites, eight floodplain sites were considered but not selected for this plan for various reasons. GREAT Site 18.40 was not selected because of severe erosion potential, low capacity, and because it has been developed. A wetland floodplain at Site 4, GREAT Sites 18.41 and 18.46, and two Historic Disposal (HD) sites precluded selection of these sites as part of the base plan. GREAT Sites 18.36 and 18.43 were not selected due to their long transport distance from the dredge cut.

D. <u>Bankline</u>. A bankline site is defined as a placement area that is contiguous to an existing shore and encroaches into the river, commonly a beach. One bankline site was considered but not selected. GREAT Site 18.47 is an HD site, but is located at the Oquawka State Wildlife Refuge, and was eliminated from consideration because it is considered to be an ecologically sensitive area.

E. <u>Upland</u>. Upland sites are defined as areas whose elevations are above the 100-year floodplain as determined by the Federal Emergency Management Agency, or those areas protected by a 100-year levee. Site 3 (plate EA-4) is located in the former floodplain of the Mississippi River, but is protected by a 100-year levee, and is therefore considered to be an upland site in this base plan.

Wetlands were located in some upland sites that were evaluated for this project. The District attempted first to avoid, then to minimize, and ultimately to mitigate for wetlands located in the proposed plan. See EA Appendix C for a detailed description of the Mitigation Plan. The cost of this mitigation and quality of the wetlands were considered in the site selection process before a final alternative was selected. Site 3 contains approximately 1.0 acre of wetlands that would be impacted and mitigated.

Of the remaining 10 upland sites, Site 1 and GREAT Site 18.45 were not selected due to a long transport distance from the dredge cut to the placement sites (see table EA-4). Wetland impacts at Sites 2 and 2 Expanded precluded their selection in the base plan, although the District would maintain Site 2 Expanded as a future option for placement due to its convenient location and easy access. Compliance with the National Environmental Policy Act and all other applicable laws and regulations would be documented for Site 2 Expanded if it were to be used in the future. GREAT Sites 18.37, 18.38, 18.39, and 18.48 were not selected due to restricted river access by equipment needed to transport the dredged material to the sites. Sites 6 and 7 (GREAT Site 18.42) are not included in the base plan because the capacity is not needed from Site 6 and it is operationally infeasible to utilize Site 7.

F. Thalweg. The thalweg is defined as the line following the deepest part of the river. Thalweg placement at the Oquawka Reach was eliminated from consideration because it would not meet recommendations made in the 1985 report, *Evaluation of Environmental Impacts of Thalweg Disposal of Dredged Material*.

IV. AFFECTED ENVIRONMENT

The environment affected by the scope of this EA consists of agricultural fields at Site 8 and land adjacent to existing levees at Sites 3 and 5. Site 5 would be used as river access to Site 8. Site 3 also contains a total of approximately 1 acre of small, scattered wetlands and has the potential for minor agricultural impacts. Approximately 0.1 acre of forested wetlands would be filled along a small channel between Sites 5 and 8 for equipment access from the river to Site 8. A culvert would be installed underneath the fill material to allow for maintenance of water flow through the channel. In addition, a narrow band of riparian corridor would be temporarily sacrificed to move the dredged material to Sites 3, 5, and 8. Return water would temporarily affect drainage ditches south of Site 8 and west of Site 3 during hydraulic dredging. However, these impacts would be minimal. Approximately 1.1 acres of compensatory wetland mitigation would be created at an agricultural field in Des Moines County, Iowa, at RM 422, within the Iowa River-Flint Creek Levee District No. 7. This mitigation would be accomplished through cessation of agricultural activity and plugging of existing drainage tiles.

V. ENVIRONMENTAL IMPACTS OF THE PREFERRED ALTERNATIVE

Effects of the preferred alternative on natural resources and historic properties are summarized in Table EA-5 on the next page.

Table EA-5. Effects of the preferred action on natural resources and historic properties, as well as the associated regulatory authorities

Types of Resources	Regulatory Authorities	Measurement of Effects
Air quality	Clean Air Act, as amended (42 U.S.C. 165h-7, et seq.)	No significant effect
Areas of particular concern within the coastal zone	Coastal Zone Management Act of 1972, as amended	Not present in planning area
Endangered and threatened species critical habitat	Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)	No significant impacts anticipated
Fish and wildlife	Fish and Wildlife Coordination Act (16 U.S.C. 661, et seq.)	No significant effect
Floodplains	Executive Order 11988, Floodplain Management	No significant effect
Historic and cultural properties	National Historic Preservation Act of 1966 as amended (16 U.S.C. 470, et seq.)	No effect
Prime and unique farmland	CEQ Memorandum of Aug. 11, 1980; Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act	Would result in loss of some prime farmland. Requirements met by minimizing agricultural impacts to extent consistent with the maintenance of safe navigation.
Water quality	Clean Water Act of 1977, as amended (33 U.S.C. 1251, et seq.)	No significant effect
Wetlands	Executive Order 11990, Protection of Wetlands, Clean Water Act of 1977, as amended (43 U.S.C. 1857h-7, et seq.)	1.1 acre of wetlands to be impacted would be mitigated
Wild and scenic rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271, et seq.)	Not present in planning area

A. <u>Historic Properties</u>. A January 2002 final report entitled, *Phase I Geoarchaeological Investigation of 108.2 Acres Near Oquawka, Henderson County, Illinois*, was prepared by Jim Snyder and Jeff Anderson with Michael J. McNerney, Principal Investigator, American Resources Group, Ltd., Carbondale, Illinois. This report covered Sites 5 and 8 and found three historic properties (11HE433, 434, & 435), all located in Site 8. Only one of these historic properties (11HE435) was found to be potentially eligible for inclusion in the National Register of Historic Places (see the District letter dated December 5, 2001, and the Illinois Historic Preservation Agency (IHPA) response dated December 31, 2001—both in EA Appendix A). As set out in the District and IHPA correspondence just cited, 11HE435 shall be avoided by developing DMMP Site 8 in such a way that a 50-foot buffer zone would be established around 11HE435 in order to avoid any activity within the area of 11HE435 or its buffer zone.

Site 3 is located within the existing disturbed zone of levee construction, and dredged material placement here is a type of activity that does not have the potential to affect historic properties, assuming such properties were present prior to the disturbance associated with levee construction. No further consideration of historic properties at Site 3 would be made under Section 106 of the National Historic Preservation Act.

If any undocumented historic properties are identified or encountered during the undertaking, the District would discontinue all dredging and/or dredged material placement in the affected area and resume coordination with either the Iowa or Illinois State Historic Preservation Offices to identify the significance of the historic property and determine potential effects under Section 106 of the National Historic Preservation Act of 1966 and 36 CFR Part 800.

B. Created Resources. The UMR has been changed from its natural condition. It has been modified to meet the needs of people in many ways, including locks, dams, and regulating structures for navigation; refuges for fish and wildlife management; levees and riprapping for flood and erosion control; highway and railroad embankments, barge terminals and bridges for transportation; and beaches and marinas for recreation. Returning the river to a natural free-flowing condition would not be practical.

Pool 18 of the UMR may be considered a created resource since it is a natural resource modified by humans to facilitate a 9-foot river channel for commercial navigation. The series of pools and channels were created and are controlled by the locks and dams in conjunction with the other components of the Mississippi River 9-Foot Navigation Channel Project. Channel maintenance dredging operations counteract the natural process of sediment aggradation that sometimes serves as an impediment to commercial navigation. The land at the new, proposed placement sites also would be considered created resources since they were once forested bottomlands and wetlands that were converted to managed farmland and levee systems.

C. Natural Resources. Site 3 contains 1 acre of wetland resources, but does not contain known critical wildlife habitats, sand beaches, water-oriented recreational facilities, public parks, recreational areas, or water sport areas. Sites 5 and 8 do not contain any of those natural resources, although the access area between Sites 5 and 8 would impact approximately 0.1 acre of wetlands. The District performed a HEC-RAS (Hydrologic Engineering Center-River Analysis System) model run that indicated that the runoff from the placement sites would be maintained within the banks and showed no indications that erosion would be a problem. No recreational benefits would be expected from placement at Sites 3, 5, and 8.

Through a multi-agency effort, the District considered 22 sites and selected a preferred alternative baseline plan with one site that would require the conversion of prime farmland (37 acres) and two sites that would not, although portions of Site 3 are adjacent to prime farmland, so a Farmland Conversion Impact Rating was done for this site in case minor unavoidable farmland impacts become necessary. The District recognizes that the widespread transformation of agricultural land is undesirable and has attempted to minimize agricultural impacts to the extent consistent with the maintenance of safe navigation.

Portions of the riparian zone adjacent to Sites 3, 5, and 8 would require woody and herbaceous understory vegetation clearing for dredged material access paths. Hydraulic dredging would require the creation of approximately 20-foot-wide paths for shore pipe access, and mechanical dredging would require clearing of an approximately 100-foot-wide path for offloading and movement of dredged material from barges to the site. Return water would flow overland and through existing drainage ditches to pump stations and finally into the UMR at approximate

RM 411.5. River access to Site 3 is potentially along the site's entire length. To minimize riparian zone impacts, the District would select and reuse paths that avoid large trees and utilize existing canopy breaks where feasible. These paths would naturally revegetate between dredging events, and the new openings in the forest canopy should quickly regenerate with tree species such as silver maple and cottonwood when the project is completed. Though no endangered species would be affected by this project, mature trees would not be cleared between April 1st and September 30th to avoid any potential for disturbance by Indiana bat habitat.

The Illinois DNR and the District performed a mussel survey on September 24, 2001, adjacent to Site 5. This survey found that the least harmful path to access shore pipe from the dredge cut to Site 5 and on to Site 8 would be at the most upstream side of Site 5. This area had the lowest density of mussels, but is the shallowest area and has potential for resuspended sediments to migrate down to the mussel bed downstream. The access area between Sites 5 and 8 has been located at the upstream end of Site 5 in order to avoid the higher quality mussel beds downstream of that area.

Other impacts from this project may include biota that utilize the crop fields at Site 8 for feeding, loafing, dusting, etc. Though habitat improvements are limited, turtle nesting may be facilitated as a result of this project, and the elevated floodplain placement site at Site 8 could function as a terrestrial refuge during floods. Several conclusions were reached in a report entitled, *Final Report, Natural Resource Survey of Fauna Inhabiting Dredged Material Disposal Sites in Pool 18 of the Upper Mississippi River,* February 1985. No significant difference was detected between the dredged material placement sites and the floodplain forest areas with respect to small mammal capture rates. Evidence of opossum and cottontail rabbit usage was only observed on dredged material placement sites. Fox squirrels and woodchuck signs were observed in both habitat types. Turtles, snakes, and toads were more abundant on dredged material placement sites.

D. <u>Cumulative Impacts</u>. The District identified wetlands and floodplain agricultural fields as the primary resources impacted by the placement of dredged material in this EA. These habitats were quantified by a query of land cover/use from 1989 landsat thematic mapper data using the United States Geological Survey's *Habitat Needs Assessment* (HNA) query tool. Systemic changes have been discussed in the *Ecological Status and Trends of the Upper Mississippi River System 1998,* and cumulative impacts of channel maintenance dredging have been discussed in the *Upper Mississippi River and Illinois Waterway Cumulative Effects Study*, dated April 2000 (WEST Consultants, Inc. Contract No. DACW25-97-R-0012).

The HNA information evaluation identified 16 landcover habitat types in addition to 33,502.8 acres of "No Photo Coverage" for a total of 134,450.1 acres in and around Pool 18. They are:

	Landcover Type	*Total Acres in Pool 18*
1.	Agriculture	56,913.5
2.	Developed	3,220.3
3.	Floating-leaved aquatic bed	739.0
4.	Grassland	174.4
5.	Mesic bottomland hardwood forest	5,438.9
6.	Open water	12,310.4
7.	Populus community	67.0
8.	Salix community	382.9
9.	Sand/mud	192.8

10.	Scrub/shrub	3,618.5
11.	Seasonally flooded emergent perennial	200.7
12.	Semi-permanently flooded emergent annual	0.0
13.	Semi-permanently flooded emergent perennial	839.9
14.	Submersed aquatic bed	889.5
15.	Wet floodplain forest	13,334.5
16.	Wet meadow	2,625.0

Past Actions: Dredged material has been placed on approximately 0.9% (8,535 acres) of aquatic and floodplain habitat throughout the Upper Mississippi River System (UMRS), including the St. Paul, Rock Island, and St. Louis Districts. Almost a third of this placement occurred within the Rock Island District. The proposed project discussed in this EA is in UMR Pool 18 where 12 historic and/or chronic dredge cuts are located. Six of these dredge cuts have been dredged since 1990. From 1940 to 2000, over 7 million CY of material has been dredged from Pool 18 and placed at numerous locations near each dredge cut in various habitats including floodplain forest, bankline, thalweg, urban, and wetland areas. Virtually no placement (2 acres placed between 1990 and 1998) of agricultural land has been used for placement of dredged material.

During the period from 1939 to 1989, of the approximately 134,450 acres evaluated for HNA coverage in Pool 18, approximately 450 acres (or 0.3%) was used for dredged material placement. The major percentage of impact occurred to open water (215 acres or 1.7% of total available in Pool 18), followed by wet floodplain forest (167 acres or 1.3% of total available in Pool 18). This accounts for 382 acres or 85% of the 450 acres used but less than 0.2% of the total land coverage evaluated in Pool 18. Other land coverage used for placement of dredged material (acres rounded to whole numbers): 19 acres of wet meadow (0.7% of total available in Pool 18), 18 acres of sand/mud (9.5% of total available in Pool 18), 12 acres of developed land (0.4% of total available in Pool 18), 11 acres of scrub/shrub (0.3% of total available in Pool 18), 4 acres of submersed aquatic bed (0.4% of total available in Pool 18), and the other cover types using 1 acre or less.

During the period from 1990 to 1998, of the approximately 134,450 acres evaluated for HNA coverage in Pool 18, approximately 46 acres (or less than 0.04%) was used for dredged material placement. The major percentage of impact still occurred to open water (18.5 acres or 0.2% of total available in Pool 18), followed by wet floodplain forest (13 acres or 0.1% of total available in Pool 18). This accounts for 31.5 acres or 68% of the 46 acres used during this time period for placement activities but less than 0.02% of the total land coverage evaluated. Other land coverage used for placement of dredged material: 0.1 acre of wet meadow (less than 0.1% of total available in Pool 18), 2.6 acres of sand/mud (1.4% of total available in Pool 18), 2.7 acres of developed land (0.1% of total available in Pool 18), 6.5 acres of scrub/shrub (0.2% of total available in Pool 18), 0.1 acre of submersed aquatic bed (less than 0.1% of total available in Pool 18) and 2 acres of agricultural land (less than 0.01% of total available in Pool 18). The rest of the landcover types were not used.

Present Actions: Present actions refer to the period of time from when long-term chronic site dredged material management plans (DMMPs) were initiated to the present.

DMMP Plans on the UMR from Guttenberg, IA to Saverton, MO (31 of 42 dredge cuts completed)
Total floodplain agricultural field conversion - 220 acres (0.05%)

DMMP Plans within Pool 18:

Keithsburg Reach (Keithsburg Lower/Huron Island and Keithsburg Upper DMMP combined)
Benton Island (completed)
Oquawka Reach

Current floodplain agricultural field converted for DMMP in Pool 18 – 17 acres (0.03%)

Total floodplain agricultural field conversion proposed by this plan – 31.8 acres for placement and 1.1 acres for mitigation (0.05%)

Reasonably Foreseeable Future Actions – Future projections indicate that dredging always will be required to maintain the 9-foot channel in the UMRS. The District plans to finalize the remaining UMR DMMPs within 2 years of the publication of this EA, and the remaining non-chronic dredged sites will begin to be addressed in Pool Plans within 2 years of the publication of this EA.

Reasonably Foreseeable Future Actions in Pool 18: These DMMPs and other future dredged material placement actions may affect additional floodplain agricultural fields and wetlands as well as other habitat. Placement sites within Pool 18 that have been addressed in previous plans or EAs, but have not yet been utilized, include limited placement on 12 acres of Kingston Bar and potential future placement on 20 acres of Johnson Island. The Keithsburg DMMP proposes to convert 28 acres of floodplain agricultural field for placement and 15 acres for compensatory wetland mitigation.

The Oquawka Reach of Pool 18 should not require additional dredged material placement areas for channel maintenance during the 40-year life of this plan, once it is implemented. Other dredging for the maintenance of harbors and industrial channels may still be required and would be addressed in other NEPA documentation. Projections of future dredging needs are subject to change due to the dynamic nature of sediment transport in the UMR, and future actions may impact previously used bankline or agricultural field habitat.

Associated Actions in Pool 18: There are a total of 126 wing dams, closing structures, and bankline protection structures, all but two of which were constructed in Pool 18 between 1889 and 1929. The most recent rock construction in Pool 18 includes two short wing dams (225' and 450') at RM 420 (L) in 1996. Additional work could be done in the lower portion of the pool in the future.

The District's regulatory database shows that 164 regulatory actions have occurred in and adjacent to Pool 18 from 1960 through 2000, with the majority of actions taking place over the last 20 years. These actions include Section 10 (construction of structures in navigable waters, not involving dredged or fill material) and Section 404 (construction projects that affect the waters of the United States) regulatory actions. A total of 41 or 25% of these projects have related directly to dredging, with 8.5% being Federal dredging projects (generally main channel dredging) and 16.5% being non-Federal dredging projects. (Prior to 1980, the District did not issue itself a permit for channel maintenance dredging.) The District evaluates the impact of these regulatory actions in combination with channel maintenance activity on a continuous and ongoing basis, actively soliciting responses to these actions from the public, State, and other Federal agencies through the Clean Water Act permit process.

The District continues to identify practical methods for the quantitative assessment of the cumulative impacts of dredging through impact analysis studies of mussels, plants, sedimentation,

invertebrates, and fish pursuant to Section 404 of the Clean Water Act. Findings from these studies will be used in the future consideration of placement site development and cumulative impacts of dredged material placement on many types of habitat.

The proposed project has identified and taken into account cumulative impacts, considered alternative actions that could lessen such adverse impacts, and is, to the extent practicable, compatible with State, unit of local government, and private programs and policies to protect floodplain agricultural field and wetland habitats. The proposed project would not cumulatively exceed any known biological or social thresholds.

E. Endangered Species. Early coordination with State and Federal resource agencies revealed no objections or concerns over potential impacts to any State or Federal threatened or endangered species. Three federally listed endangered or threatened species are known from the Pool 18 area:

Indiana Bat (*Myotis sodalis*) - Federally Endangered
The Indiana bat is listed to be present in Des Moines County in Iowa and Henderson County in Illinois. Indiana bats are not believed to occur in the project area. Indiana bat females move north in the spring to establish small maternity colonies within wooded riparian areas, floodplain forests, and upland woodlots and return to hibernacula in the late summer/early fall. While this bat may forage along the forested fringes and within nearby forested areas, this project would not affect foraging behavior or critical refugia (caves and roost trees).

Higgins' Eye Pearly Mussel (*Lampsilis higginsi*) - Federally Endangered
The Higgins' Eye Pearly Mussel is listed to be present in Des Moines County, Iowa, and Henderson County, Illinois. This species prefers sand/gravel substrates with swift currents and is most often in the main channel border or in open, side channel habitat. Site 5 borders the main channel, though Rock Island District and Illinois DNR staffs conducted a mussel survey at the main channel border of Site 5 on September 24, 2001, and did not locate any Higgins' Eye Pearly Mussels or suitable habitat for the species.

Bald Eagle (*Haliaeetus leucocephalus*) - Federally Threatened
The bald eagle is listed as wintering and breeding in Des Moines County, Iowa, and wintering in Henderson County, Illinois. It normally migrates south to overwinter along the UMR. Bald eagles begin to arrive in late November or early December after dredging activity has ceased for the year. They forage for fish where they can find open water, such as the tailwaters below the lock and dam complexes, and rest in the larger trees along the shoreline. These trees also provide excellent vantage points for fishing. Bald eagles seek roost trees for shelter from winter weather in the evening. This project does not involve significant clearing of mature trees and would not affect this species.

VI. ENVIRONMENTAL IMPACTS OF NONPREFERRED ALTERNATIVES

A. No Project. If no project were implemented, the natural resources of the area would gradually change as the main channel shallows over time. Channel closure from sedimentation would cause commercial navigation to cease, which leads to the conclusion that the No Project alternative is not practicable.

B. No Change. Under the No Change alternative, large quantities of dredged material would continue to be placed at historic sites. This would likely result in unacceptable natural resource destruction from over-utilization.

C. Floodplain. Implementation of the floodplain alternative solely in bottomland forest sites would result in the loss of some mature trees and all of the understory vegetation currently on these sites. These losses translate into greater wildlife habitat losses when compared to the preferred alternative. Wetlands were located in some floodplain sites that were evaluated for this project. Utilization of these sites would not comply with Executive Order 11990: Protection of the Wetlands unless these sites were mitigated. The quality of the wetland and the cost of this mitigation was considered in the site selection process before a final alternative was selected. Over-utilization of wetland sites would be ecologically unwise and not in compliance with Section 404 of the Clean Water Act.

D. Bankline. Implementation of a bankline alternative, where the bankline is utilized exclusively, would result in greater aquatic habitat disruption than the preferred alternative. In addition, permanent terrestrial encroachment into aquatic habitats would result in fisheries habitat losses and could threaten flow in side channels and chutes, thereby isolating backwaters.

E. Upland. Implementation of upland sites exclusively would be impractical, given the current limitations of dredging technology and the cost of placement. Few suitable upland sites exist within this region. Even if upland areas could be reached, many have highly erosive slopes or contain ecologically valuable bluffland forests.

F. Thalweg. No suitable thalweg sites exist in this area. Implementation of a thalweg alternative would not be in compliance with depth recommendations made in the 1985 *Evaluation of Environmental Impacts of Thalweg Disposal of Dredged Material*.

VII. PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED

A corridor from the river to the placement sites would be cleared of vegetation to allow heavy machinery to manipulate and install the dredge shorepipe. Understory vegetation would be temporarily lost during this and subsequent dredging events but should return after removal of the pipe when dredge work is completed.

There would be minor wildlife habitat loss from using Site 3, Site 5, and Site 8. The presence of crop fields in the vicinity of sites that affect agricultural fields minimizes loss of a potential food source in the conversion of land for dredged material placement.

Approximately 1.1 acres of wetland would be impacted at Site 3 and the access area between Sites 5 and 8. Wetland impacts have been minimized to the extent practicable, and the 1.1 acres of unavoidable wetland impact would be mitigated through restoration of 1.1 acres of tiled and drained farmland at RM 422R.

VIII. COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES

A summation of compliance with environmental statutes and regulations can be found in Table EA-6.

Table EA-6. Applicability and compliance with environmental protection statutes and other environmental requirements affecting the proposed project

Federal Environmental Protection Statutes and Requirements	Applicability/Compliance
Archaeological and Historic Preservation Act, 16 U.S.C. 469, et seq.	Full compliance
Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq.	Full compliance
Clean Water Act, Sections 404 and 401	Full compliance
Coastal Zone Management Act of 1972, as amended	Not applicable
Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq.	Full compliance
Environmental Effects Abroad of Major Federal Actions (Executive Order 12114)	Not applicable
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not applicable
Farmland Protection Policy Act. 7 U.S.C. 4201, et seq.	Full compliance
Federal Water Protection Recreation Act, 16 U.S.C. 460-1(12), et seq.	Full compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.	Full compliance
Floodplain Management (Executive Order 11988)	Full compliance
Land and Water Conservation Fund Act, 16 U.S.C. 460/-460/-11, et seq.	Not applicable
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not applicable
National Economic Development (NED) Plan	Full compliance
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full compliance
National Historic Preservation Act, 16 U.S.C. 470a, et seq.	Full compliance
Protection of Wetlands (Executive Order 11990)	Full compliance through mitigation
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Not applicable
Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.	Full compliance

- Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).
- Not applicable. No requirements for the statute required; compliance for the current stage of planning.

A. Archaeological and Historic Preservation Act. The project is in compliance with this act.

B. Clean Air Act, as amended. No aspect of the proposed project, neither short-term nor long-term, has been identified that would result in violations to air quality standards. The environment would not be exposed to contaminants/pollutants in such quantities and of such

duration as may be or tend to be injurious to human, plant, or animal life, or property, or which unreasonably interferes with the comfortable enjoyment of life, or property, or the conduct of business.

C. Clean Water Act (Sections 401 and 404), as amended. A Section 404(b)(1) Evaluation was prepared and is attached as EA Appendix B. Certification under Section 401 of this Act from the States of Illinois and Iowa would be obtained before utilization of the new site. Due to the unavoidable impacts to approximately 1.1 acres of wetlands located at Site 3 and the access area between Sites 5 and 8, compensatory mitigation would be provided. See EA Appendix C for the compensatory mitigation plan.

D. Endangered Species Act of 1973, as amended. As previously discussed, the proposed project would not impact any species listed or proposed for listing under the Federal Endangered Species Act.

E. Farmland Protection Policy Act of 1981. Federal, State, and local agencies have evaluated the proposed sites using the appropriate, approved criteria. The District and the NRCS State Soil Scientist for Illinois completed an AD-1006 Farmland Impact Conversion Rating (Table EA-7) for Site 8. The District and the NRCS Resource Soil Scientist for the Southeast Iowa Soil Resource Service Center completed an AD-1006 Farmland Impact Conversion Rating (Table EA-8) for Site 3. These Farmland Impact Conversion Ratings utilized an area larger than the expected size of the placement area to accommodate slight placement site realignment that is often necessary during later phases of the project. Failure to allow for these changes would result in duplicative effort and re-coordination for minor changes in the plan. Unfortunately, this often results in conflicting numbers between the AD-1006 Form (113.2 acres) and those used in the EA (37 acres). This change invariably results in less actual farmland conversion than the AD-1006 reports.

The District recognizes that the transformation of agricultural land, particularly prime farmland, is undesirable but sometimes necessary to meet the District's mandate of maintaining the navigation system. The proposed project would result in the conversion of approximately 37 acres of prime farmland to non-agricultural use. The proposed project has identified and taken into account the adverse effects, considered alternative actions that could lessen such adverse effects, and is, to the extent practicable, compatible with state, unit of local government, and private programs and policies to protect farmland.

F. Federal Water Project Recreational Act. No opportunities for recreational development or aspects of the proposed new site conducive to recreational development have been identified.

G. Fish and Wildlife Coordination Act. Project plans have been coordinated with the U.S. Fish and Wildlife Service, the Illinois Department of Natural Resources, and the Iowa Department of Natural Resources. The District's coordination letter and resource agency responses appear in EA Appendix A.

Table EA-7.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request: 6 December 2000
Name Of Project: Oquawka Reach DMMP	Federal Agency Involved: U.S. Army Corps of Engineers
Proposed Land Use: Dredged Material Placement Site	County And State: Henderson County, Illinois
PART II *(To be completed by SCS)*	Date Request Received By SCS: 20 December 2000

Does the site contain prime, unique, statewide or local important farmland? Yes ☒ No ☐
(If no, the FPPA does not apply — do not complete additional parts of this form).

Acres Irrigated: –
Average Farm Size: 372

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA
Corn, Soybeans, Wheat, Hay	Acres: 29,633,500 % 97	Acres: 27,695,900 % 91
Name Of Land Evaluation System Used	**Name Of Local Site Assessment System**	**Date Land Evaluation Returned By SCS**
Illinois	Statewide	21 December 2000

	Alternative Site Rating			
	Site A (6)	Site B (7)	Site C (8)	Site D
PART III *(To be completed by Federal Agency)*				
A. Total Acres To Be Converted Directly	0.5	101.2	108.2	
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	0.5	101.2	108.2	
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	0.5	101.5	108.2	
B. Total Acres Statewide And Local Important Farmland	–	–	–	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0	0.00036	0.00036	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	87.5	85.4	87.5	
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	98.0	97.0	98.0	
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)* — Maximum Points				
1. Area In Nonurban Use				
2. Perimeter In Nonurban Use				
3. Percent Of Site Being Farmed				
4. Protection Provided By State And Local Government				
5. Distance From Urban Builtup Area				
6. Distance To Urban Support Services	(see attached Illinois Statewide assessment factors)			
7. Size Of Present Farm Unit Compared To Average				
8. Creation Of Nonfarmable Farmland				
9. Availability Of Farm Support Services				
10. On-Farm Investments				
11. Effects Of Conversion On Farm Support Services				
12. Compatibility With Existing Agricultural Use				
TOTAL SITE ASSESSMENT POINTS — 200* — ~~160~~	136	126	148	
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland *(From Part V)* — 100	98	97	98	
Total Site Assessment *(From Part VI above or a local site assessment)* — 200* — ~~160~~	136	126	148	
TOTAL POINTS *(Total of above 2 lines)* — 300* — ~~260~~	234	223	246	

Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection

* When using the Illinois Site Assessment Factors, 200 points are assigned to the Site Assessment Section of the LESA system for a maximum score of 300 points

(See Instructions on reverse side) Form AD-1006 (10-83)

Illinois Site Assessment Score Sheet

PART VI-A Illinois Site Assessment Criteria	Maximum Points	Site 6*	Site 7*	Site 8
1. Land Use On The Site	20	10	20	20
2. Adjacent Land Use	20	16	8	12
3. General Character Of Area Within 1 ½ Miles Of Site	20	10	10	10
4. Distance To City	20	16	8	16
5. Zone Use Of Proposed Site	20	20	20	20
6. Zoned Use Of Land Adjacent To Proposed Site	20	20	20	20
7. Planned Land Use Of Proposed Site	20	20	20	20
8. Compatibility Of Proposed Use With Surrounding Land Uses	20	0	0	0
9. Alternative Sites Proposed On Less Productive Land	10	0	10	10
10. Availability Of Central Water System	10	6	0	4
11. Availability Of Central Waste Disposal System (Sewer)	10	8	4	8
12. Transportation	10	10	6	8
TOTAL SITE ASSESSMENT POINTS	**200**	**136**	**126**	**148**

* Sites 6 and 7 were eliminated from the final DMMP and would not be converted to non-agricultural land.

Table EA-8.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 1/23/02
Name Of Project Oquawka Reach DMMP	Federal Agency Involved U.S. Army Corps of Engineers
Proposed Land Use Dredged material placement site	County And State Des Moines County, Iowa
PART II *(To be completed by SCS)*	Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? Yes ☒ No ☐ *(If no, the FPPA does not apply – do not complete additional parts of this form).*

Acres Irrigated <1000 | Average Farm Size 305 ac.

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA
corn	Acres: 205,675 % 79	Acres: 147,320 % 56
Name Of Land Evaluation System Used: Des Moines Co	Name Of Local Site Assessment System: none – FPPA	Date Land Evaluation Returned By SCS: Jan. 28, 2002

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: Site 2 Expanded	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	20.5	15.0		
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	20.5	15.0		
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	20.5	15.0		
B. Total Acres Statewide And Local Important Farmland	0	0		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	<0.1	<0.1		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	44.9	48.2		
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	78.0	76.0		

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	15	15		
2. Perimeter In Nonurban Use	10	10	10		
3. Percent Of Site Being Farmed	20	20	20		
4. Protection Provided By State And Local Government	20	0	0		
5. Distance From Urban Builtup Area	15	15	15		
6. Distance To Urban Support Services	15	10	10		
7. Size Of Present Farm Unit Compared To Average	10	10	10		
8. Creation Of Nonfarmable Farmland	10	8	0		
9. Availability Of Farm Support Services	5	5	5		
10. On-Farm Investments	20	20	20		
11. Effects Of Conversion On Farm Support Services	10	0	0		
12. Compatibility With Existing Agricultural Use	10	0	0		
TOTAL SITE ASSESSMENT POINTS	160	113	105		
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	78	76		
Total Site Assessment *(From Part VI above or a local site assessment)*	160	113	105		
TOTAL POINTS *(Total of above 2 lines)*	260	191	181		

Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☒

Reason For Selection:

(See Instructions on reverse side) Form AD-1006 (10-83)

(Site 2 Expanded was eliminated from the final DMMP and would not be converted to non-agricultural land.)

H. Floodplain Management (Executive Order 11988). Implementation of the preferred alternative would avoid, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of the base floodplain. It also would avoid direct and indirect support of development or growth (construction of structures and/or facilities, habitable or otherwise) in the base floodplain wherever there is a practicable alternative. Based on HEC-RAS modeling, the use of the preferred alternative for dredged material placement would not significantly increase the water surface elevation for the 100-year event. The District would obtain and adhere to all stipulations of the Floodplain permit from the State of Illinois and the State of Iowa prior to implementation of this proposed project.

I. National Environmental Policy Act of 1969, as amended. The compilation of this EA and the signing of the Finding of No Significant Impact fulfill NEPA compliance.

J. National Historic Preservation Act of 1966. As previously discussed, the project would have no effect on historic properties as the only site potentially eligible for inclusion in the National Register of Historic Places shall be avoided.

K. Protection of Wetlands (Executive Order 11990). As previously discussed, approximately 1.1 acres of wetlands would be impacted as a result of this project. Compensatory mitigation would be provided in order to replace the functions and values of those wetlands through the creation of approximately 1.1 acres of wetlands. The proposed action includes all practicable measures to minimize harm to wetlands, which may result from dredged material placement.

L. Rivers and Harbors Act. The proposed plan would not place any obstruction across navigable water nor would it place obstructions to navigation outside established Federal lines.

M. Wild and Scenic Rivers Act of 1968, as amended. This section of the UMR is not listed in the (NRI) National Rivers Inventory. The NRI is used to identify rivers that may be designated by Congress to be component rivers in the National Wild and Scenic Rivers Systems.

IX. RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

The UMR is a vital component of the national transportation infrastructure. It will continue to serve long-term recreational, commercial, and environmental interests with timely and appropriate maintenance.

Dredging requirements would be reevaluated periodically during the 40-year project life.

X. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES IF PROJECT IS IMPLEMENTED

Fuel consumed, manpower expended, and the commitment of construction materials and equipment are considered irretrievable. The loss of agricultural productivity derived from Site 8 is considered irretrievable and irreversible. The loss of wetland vegetative and wildlife productivity within Site 3 and the access area between Sites 5 and 8 are also considered irretrievable and irreversible. No other aspects of the proposed action are considered irreversible.

XI. SOCIAL AND ECONOMIC EFFECTS OF PROPOSED ACTION

A. Community and Regional Growth. No adverse impacts to the growth of the community or region would be realized as a direct result of the proposed project. However, the Upper Mississippi River is a vital component of the national transportation infrastructure and has provided stimulus for the growth of river communities and the entire Midwest Region. Maintenance of the navigation channel would indirectly help provide for continued growth opportunities in the local communities and the region.

B. Community Cohesion. The use of these new placement sites would not affect overall community cohesion. No public opposition has been expressed, nor is any expected. All sites are located behind existing flood control levees, and the levee districts support the use of the proposed placement sites. The landowner at Site 8 may have some objections to the use of his land, depending on how the final plan is developed and the amount of land to be acquired.

C. Displacement of People. Use of these sites would not require any residential relocations.

D. Property Values and Tax Revenues. Material placement at these sites would remove the property from the levee districts' tax roles and result in a reduction in tax revenues.

E. Public Facilities and Services. Maintenance of the navigation channel provides positive impacts to public facilities and services. No other impacts to public facilities and services would occur; no new facilities would be added.

F. Life, Health, and Safety. The proposed plan would not adversely impact life, health, or safety issues.

G. Business and Industrial Growth. No significant impacts to business or industrial activity would result from the proposed project. No business or industrial relocations would be required.

H. Employment and Labor Force. No long-term impacts on employment or labor force in the project vicinity would result from the proposed project.

I. Farm Displacement. The conversion of prime farmland to non-agricultural uses would be required at one of the sites: Site 8 – 37 acres. In addition, there may be minor impacts to prime farmland at Site 3 if the dredged material goes beyond the existing site boundaries. However, no farms would be displaced as a result of the proposed project.

J. Noise Levels. Heavy machinery would temporarily increase noise levels during project construction. No permanent impacts are evident.

K. Aesthetics. No significant impacts to the overall aesthetic resources of the area are anticipated. There is one residence located approximately 800 feet west of Site 3. Visual impacts would be minimized by the buffer of trees between the site and the house.

XII. RELATIONSHIP TO LAND-USE PLANS

Currently there are no known land-use planning documents for the areas proposed for dredged material placement. Dredged material would be periodically placed on the three sites of the preferred alternative.

XIII. CONCLUSIONS

The UMR has national significance as an avenue for waterborne commerce that needs to be maintained for transportation of agricultural goods and other products. Unfortunately, there are unavoidable localized impacts associated with the placement of the large quantities of dredged material necessary to maintain the navigation corridor. Analysis of several alternatives for this project concluded that the utilization of the preferred alternative, floodplain placement at Sites 5 and 8 and upland placement at Site 3, best achieves the project's goals and objectives. This EA may be used in support of a base plan for a potential Henderson #3 Section 204 project. These sites may be used for the emergency placement of dredged material following the District's normal real estate procedures. This EA describes an interim strategy for dredged material placement that could be used until a long-term plan can be developed.

XIV. COORDINATION

The coordination letters from the Rock Island District for this project can be found in EA Appendix A followed by any responses received. Coordination was initiated early and continued throughout the planning process. The following agencies and individuals were contacted:

61 Landowners (see distribution list on page A-12 in Appendix A)
Two Rivers Levee & Drainage Association
Henderson County Drainage District 3
Illinois Department of Natural Resources
Illinois Environmental Protection Agency
Illinois Department of Agriculture
Illinois Corn Growers Association
Illinois State Historic Preservation Officer (Illinois Historic Preservation Agency)
Iowa Corn Growers Association
Iowa Department of Natural Resources
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency, Regions V & VII
U.S. Coast Guard
U.S. Department of Agriculture, Natural Resources Conservation Service

A listing of those who were provided with a copy of this EA is located in EA Appendix D.

Howard Pruett and John Robb, Henderson County Drainage District #3 (HCDD3), wrote a letter dated April 12, 2000, to express their concerns with potential problems caused by an ecosystem restoration project at HCDD3. Their concerns are that the newly flooded areas would lose their trees and vegetation from flooding, would increase erosion against a new set-back levee, would increase pumping costs for the drainage district, and would increase the size of the existing deer herd. **Response:** This Environmental Assessment addresses impacts associated with placement sites for the Oquawka Reach dredge cut, and does not address any potential future ecosystem

restoration project at HCDD3. If an ecosystem restoration project is initiated within the HCDD3, the District will coordinate further with the HCDD3 and all landowners affected by the project.

The Illinois Department of Natural Resources, Office of Water Resources, responded by letters dated October 25, 2000, and November 16, 2000, to coordination letters dated September 12, 2000, and November 6, 2000, stating that the proposed placement sites are behind existing levees and therefore out of the river "floodway" and that the dredging activities would comply with our existing Permit No. 17603.

The U.S. Environmental Protection Agency responded by letter dated October 27, 2000, to a coordination letter dated September 12, 2000, providing two website addresses that the EPA encourages the Corps of Engineers to utilize during preparation of the Environmental Assessment.

The Illinois Department of Natural Resources, Office of Realty and Environmental Planning, responded by letter dated October 30, 2000, and December 8, 2000, to coordination letters dated September 12, 2000, and November 6, 2000, stating that the Department strongly supports the proposed 204 project for the Henderson 3 Levee and Drainage District, that there are no records of threatened/endangered species or natural areas in the placement sites, and that a wetland delineation be done at Site 8 to evaluate a drainage ditch. **Response:** A wetland delineation was performed at Site 8 on June 11, 2001. All wetland impacts at Site 8 would be avoided, and the 0.1 acre of wetland impacts for the access area between Sites 5 and 8 would be mitigated. A mussel survey was performed by Illinois DNR and District staffs on September 24, 2001, adjacent to Site 5 to determine the most suitable location for shore pipe access into Site 5 and then on to Site 8. There was a consensus that the upstream side of Site 5 be used for shore pipe access, and that area is in line with the location of the access area between Sites 5 and 8.

George Hennenfent, Hattery, Simpson, West, attorney for Howard Pruett, wrote a letter dated April 27, 2001, to express his client's reluctance to allow dredged material to be placed where proposed on his property. He proposed an alternative placement site along the land side of the levee that borders his property. He also submitted a list of questions concerning the placement site construction proposal. **Response:** Patricia Dice, from the Rock Island District's Real Estate Division, responded to Mr. Hennenfent's questions in a letter dated May 22, 2001. Her letter also stated that the District would consider alternate placement sites that are environmentally feasible and cost effective. This evaluation has been done, and the proposed placement Site 8 is considered to be the most environmentally feasible and cost effective placement site location in the vicinity.

The Illinois Historic Preservation Agency responded by letter dated December 31, 2001 (responding to a District coordination letter dated December 5, 2001) agreeing with the District's opinion that the historic properties 11HE433 and 434 were not eligible for the National Register of Historic Places and that 11HE435 was eligible, but that the "avoidance plan for 11HE435, as described in the documentation you submitted, is adequate to avoid effects to this potentially eligible site."

The Natural Resources Conservation Service submitted a letter dated January 29, 2002, to provide a preliminary wetland determination on the potential wetland mitigation site property for Corps of Engineers purposes only. The landowner has not requested an official wetland determination for Food Security Act purposes. This preliminary wetland determination identified the entire potential wetland mitigation site as Prior Converted Cropland.

The U.S. Fish and Wildlife Service responded by letter dated February 14, 2002, to coordination letters dated September 12, 2000, November 6, 2000, and August 17, 2001, stating that three

federally threatened and endangered species—the Bald Eagle, the Higgins' Eye Pearly Mussel, and the Indiana Bat—occur in the same counties as the placement sites, but that the placement sites are not likely to adversely affect these species. The letter also states that the Fish and Wildlife Service understands that wetlands would be impacted at the placement sites, and would like to be involved in the review of the compensatory mitigation plan.

The Iowa Department of Natural Resources submitted a letter dated May 23, 2002, to state that they have no objections to the addition of Site 8 to the Oquawka Reach dredged material placement site plan. The letter also states that if wetlands are found, a mitigation plan will be needed.
Response: Site 8 was designed to avoid wetlands, although approximately 0.1 acre of wetlands will be impacted to create an access area to Site 8 from the river. This wetland loss will be mitigated in accordance with the attached mitigation plan in EA Appendix C.