SITE PLAN FOR THE
HURRICANE ISLAND REACH

DREDGED MATERIAL MANAGEMENT PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

POOL 11
DUBUQUE COUNTY, IA AND GRANT COUNTY, WI
UPPER MISSISSIPPI RIVER, RIVER MILES 591-608

FINAL REPORT

AUGUST 2017

US Army Corps
of Engineers®
Rock Island District

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (Corps), Rock Island District (District), is currently proposing the long-term placement of dredged material for the Dredged Material Management Plan (DMMP) and integrated Environmental Assessment (EA) for the Hurricane Island Reach (Project). The Hurricane Island Dredge Cut and Finley's Landing Dredge Cut are located within Upper Mississippi River (UMR) navigation channel between River Miles (RM) 591 to 599, Dubuque County, Iowa and Grant County, Wisconsin.

One of the missions of both the Corps and the District is to provide a safe, reliable, efficient, and environmentally sustainable waterborne transportation system. Channel maintenance, including dredging and dredged material placement, supports this mission. In September 1999, the Rock Island District completed the *Dredged Material Management Plan for Dredged Material Placement, Upper Mississippi River Miles 598.7-599.1, Hurricane Island Dredge Cut* and in July 1999 the *Dredged Material Management Plan for Dredged Material Placement, Upper Mississippi River Miles 595.5-596.5, Finley's Landing Dredge Cut*.

Sloughs and backwater areas are present on both sides of the river, which provide additional water storage from the main channel. When the river flows into these areas, the main channel's water force necessary to move the sediment downstream is reduced, resulting in shoaling in the middle of the channel. Dredging is periodically required to remove the shoaling and to provide an adequate channel for tows to navigate the bends in the river. Historically, the dredged material in the Hurricane Island Reach has been placed on the left descending bank at Hurricane Island RM 599 and on the right descending bank at Finley's Landing RM 596.

The On-Site Inspection Team (OSIT) is a multi-agency group that assists the District with dredged material management decisions. The historic bankline placement sites within the Hurricane Island dredging reaches and other locations on the UMR are periodically used with OSIT approval. However, additional sites are required to be examined to accommodate for larger estimated dredging needs in a 20-year plan (200,000 cubic yards) or a 40-year plan (400,000 cubic yards). This DMMP report evaluates additional suitable long-term placement alternatives over 40 years for both mechanical and hydraulic dredging methods at the Hurricane Island Reach.

The No Action Alternative and multiple placement sites were initially evaluated using numerous factors including cost effectiveness, environmental acceptability and operational feasibility. Only one alternative met these criteria, and therefore has been selected as the Preferred Alternative (Figure ES-1). This Preferred Alternative consists of temporary placement on approximately 11 acres at an existing island within Corps property boundary (RM 594L) with relocation of material to farm field/quarry as the permanent placement site (RM 592L). The temporary site will be designed as a "bathtub" with the inner circle filled as the cut is dredged and placed to hold approximately 200,000 cubic yards of dredged material. Once this bathtub is near full capacity, the District will relocate the material to a permanent location on a nearby farm field/quarry site at RM 592L. This Plan includes both hydraulic and mechanical dredging.

The total cost estimate for the project over the projected 40 years is approximately $17 million for the combination of mechanical and hydraulic dredging, including an estimated $8,881,000 for the bathtub site (with distance from dredge cuts taken into account), and $6,372,000 for offloading to the farm fields with and an estimated $2,073,000 for the required compensatory mitigation.

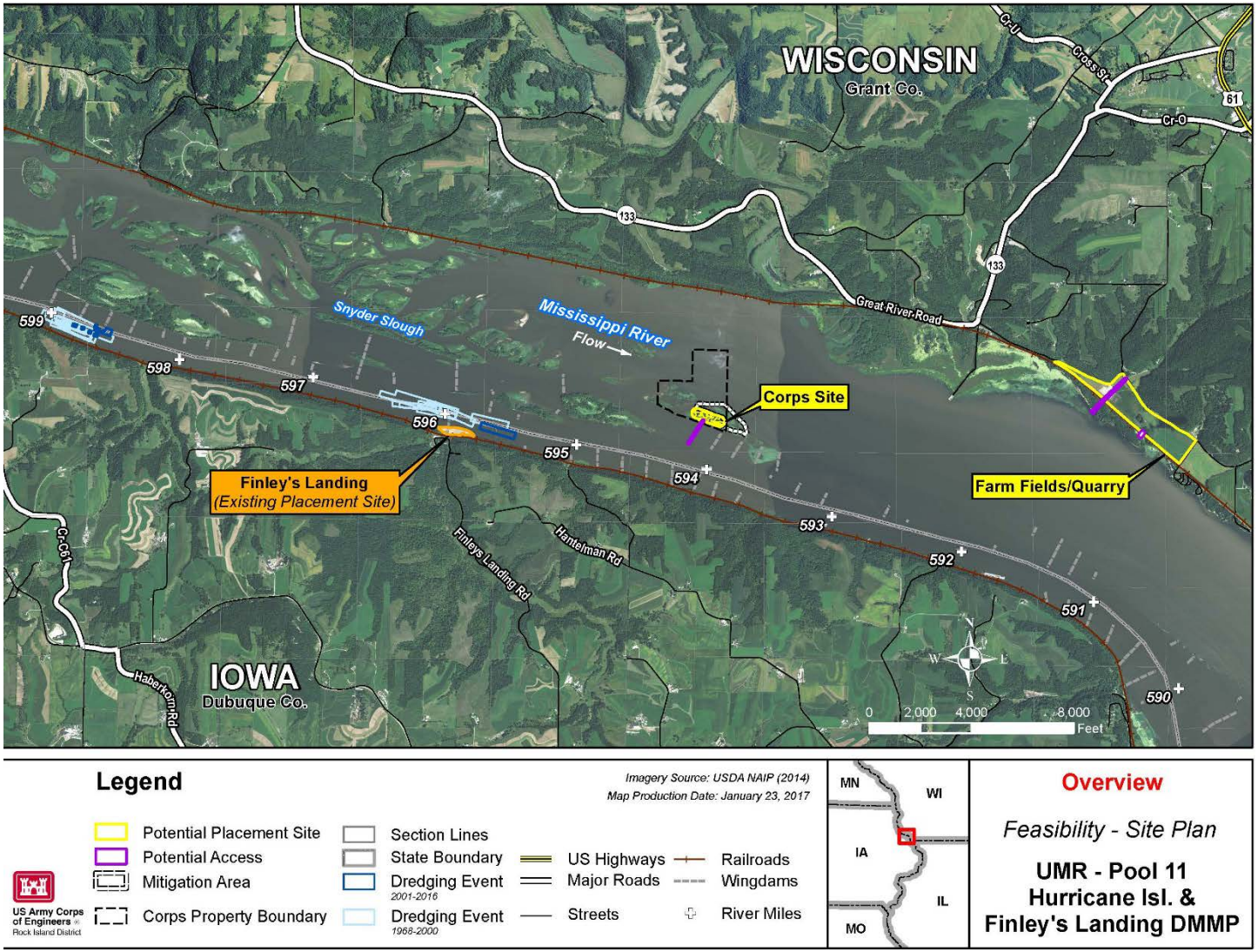

Figure ES-1: Preferred Alternative

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PUBLIC REVIEW DRAFT

* Denotes section required for Environmental Assessment/NEPA Compliance

FINDING OF NO SIGNIFICANT IMPACT*

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SITE PLAN FOR THE HURRICANE ISLAND REACH

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SECTION 1. PROJECT DESCRIPTION

1.1. Purpose. The US Army Corps of Engineers (Corps), Rock Island District (District) is mandated to maintain a 9-foot navigation channel on the Upper Mississippi River (UMR). Part of those responsibilities is to find suitable long-term placement sites for dredged material as described in the *Long-Term Management Strategy for Dredged Material Placement, Upper Mississippi River Miles 300-614, Main Report* (August 1990). The District's dredged material placement alternatives determined to be environmentally acceptable and operationally feasible will be recommended for future placement in a dredged material management plan (DMMP) report. This DMMP outlines the District's planning efforts for the Hurricane Island Reach.

1.2. Location. The Hurricane Island Reach is located in Pool 11 on the UMR between river miles (RM) 591 and 608 (Figure ES-1, Project Location). This reach is managed by the U.S. Fish and Wildlife Service (USFWS) Upper Mississippi River National Wildlife Refuge. For the District's management purposes, this study area includes: 1) the DMMP reach river miles defined by the dredging area and 2) existing and potential placement sites proximate to the dredging area which are used to support the projected dredging activities.

1.3. Scope of Study. One of the missions of Corps and District is to provide a safe, reliable, efficient, and environmentally sustainable waterborne transportation system. Channel maintenance, including dredging and dredged material placement, supports this mission. This report uses the Corps' six-step planning process:

1. Identify Problems and Opportunities
2. Inventory and Forecast Conditions
3. Formulate Alternative Plans
4. Evaluate Alternative Plans
5. Compare Alternative Plans
6. Select a Plan

This DMMP report focuses on the Hurricane Island Reach dredge cuts and the potential placement sites over a minimum of a 40-year period. The Hurricane Island Reach also encompasses both the historic Hurricane Island Reach and Finley's Landing Reach in Pool 11.

1.4. Authorization. The Rivers and Harbors Acts of January 12, 1927; July 3, 1930; February 1932; and August 30, 1935; and a Resolution of the House Committee on Flood Control of September 18, 1944, authorized the 9-foot navigation channel and subsequent channel maintenance dredging on the UMR between the mouth of the Missouri River and St. Paul, Minnesota. Under the authority delegated by the Secretary of the Army and in accordance with Section 404 of the Clean Water Act (CWA) of 1977, as amended, the Corps regulates the discharge of dredged or fill material into waters of the United States. In addition, the Corps is guided by the dredging regulations published in the Code of Federal Regulations (CFR), 33 CFR Parts 335-338. This CFR includes language encouraging the Corps to pursue a Long-Term Management Strategy for dredged material placement. The regulation states, "District Engineers should identify and develop dredged material management strategies that satisfy the long term (greater than 10 years) needs for Corps projects."

The Corps regulation providing guidance for the conduct of Civil Works Planning Studies is contained in Engineering Regulation (ER) 1105-2-100. Plans to meet dredging needs for a minimum of 20 years are to be developed. In order to allow for long-term flexibility, the District's preference is to develop 40-year plans, where feasible.

1.5. **Historic Channel Maintenance Dredging.** The dredge cuts in the Hurricane Island Reach have been dredged 29 times since 1968. Hurricane Island cuts have been dredged 11 times from 1968 to 2007, for a total of 233,509 cubic yards (cy) and placed at inland, bankline, and upland placement sites (Table 1). The Finley's Landing cut has been dredged 18 times from 1974 to 2016, for a total of 451,011 cy to bankline, open water, and upland placement sites (Table 1). The average amount per event for Hurricane Island is 21,228 cy and 25,056 cy for Finley's Landing.

Table 1. Hurricane Island Reach Historical Dredging 1968 to 2012

Hurricane Island		Year	CYs	Dredge Site	Placement Site	Placement Type
Total CYs	233,509	1968	43,600	598.7-598.9	598.8-599.0L	Bankline
# of Events	11	1971	43,966	598.7-599.0	598.9-599.0L	Bankline
Avg per Event	21,228	1973	47,122	598.7-599.1	598.6-598.8L	Bankline
		1974	10,926	598.8-599.0	598.7-598.8L	Bankline
		1981	15,392	598.7-598.9	Cassville, WI	Inland
		1989	29,963	598.6-598.9	598.6-599.0L	Bankline
		1995	23,982	598.5-598.8	598.7-599.0L	Bankline
		1998	2,526	598.6-598.8	606.1L (Dairyland DMMP site)	Upland
		2001	6,275	598.6-598.7	606.1L (Dairyland DMMP site)	Upland
		2006	7,601	598.6-598.8	598.8-599.0L	Bankline
		2007	2,156	598.3-598.5	610.3-610.4L	Bankline

Finley's Landing		Year	CYs	Dredge Site	Placement Site	Placement Type
Total CYs	451,011	1974	124,332	595.5-596.5	595.7-596.0R	Bankline
# of Events	18	1983	12,578	596.0-596.2	595.8-596.0R	Bankline
Avg per Event	25,056	1985	27,326	596.0-596.4	595.8-596.0R	Bankline
		1988	26,451	596.0-596.3	596.1-596.3R	Bankline
		1993	21,167	595.7-596.0	595.5R	Bankline
		1994	29,243	595.5-595.6	595.9L (Sand Pad for Closing Dam)	Open Water
		1999	22,022	595.4-595.5	RM 608.0L (WI Light & Power DMMP site)	Upland
		2003	15,471	594.5-595.6	606.1L (Dairyland DMMP site)	Upland
		2004	20,274	594.9-595.6	606.1L (Dairyland DMMP site)	Upland
		2006	33,481	594.8-595.7	595.7-596.0R	Bankline
		2007	9,642	596.5-596.7	599.0L 4,061, 610.3-610.4L	Bankline
		2007	5,775	596.0-596.2	610.3-610.4L	Bankline
		2008	5,611	595.5-595.7	596.0R	Bankline
		2008	15,908	594.8-595.1	596.0R	Bankline
		2009	9,617	595.4-595.7	598.8L	Bankline
		2010	17,834	595.4-595.7	598.8L	Bankline
		2012	35,577	594.7-595.6	596.0R, 598.8-599.0L	Bankline
		2016	18,702	594.7-595.7	596.0R	Bankline

The following are previous pertinent studies in reference to historic dredging in Pool 11 and the UMR:

- *Final Environmental Impact Statement Continued Operation and Maintenance Nine-Foot Navigation Channel Upper Mississippi River-- Pools 11 Through 22, U.S. Army Corps of Engineers, Rock Island District,* October, 1974. This report deals with the environmental impacts of the continued operation and maintenance of the 9-foot channel navigation system on the UMR within the Rock Island District.

- *GREAT II Channel Maintenance Handbook "Supplement to the GREAT II Main Report" Upper Mississippi River (Guttenberg, Iowa to Saverton, Missouri),* December 1980. The purpose of

the Great River Environmental Action Team (GREAT) II was to develop a total river resource management plan for the UMR and in particular to resolve inter-agency disputes relative to channel maintenance activities. One concern was long-term bankline placement allows for material to be reintroduced to the waterway during high water events. The GREAT II recommendations included creating long-term sites and reducing impacts to the floodplain, with the goal to place more material out of the river system and on to upland sites.

- *Pool 11 Dredged Material Disposal Plan Mississippi River, River Miles 583.0-615.1,* Mar 1987.

- *Environmental Assessment Wing Dam Improvements at Finley's Landing Pool 11, Mississippi River Grant County, Wisconsin*, Jul 1992.

- *Dredged Material Management Plan for Dredged Material Placement Upper Mississippi River Miles 595.5-596.5, Pool 11 Site Plan for the Finley's Landing Dredge Cut*, Jul 1999.

- *Dredged Material Management Plan for Dredged Material Placement Upper Mississippi River Miles 598.7-599.1 Pool 11 Site Plan for the Hurricane Island Dredge Cut*, Sept 1999.

- *Summary of Cumulative Dredging, Dredged Material Placement Actions, and Programmatic Environmental Assessment for Future Dredged Material Placement Associated with Channel Maintenance Activities Mississippi River, River Miles 300-614 and Illinois Waterway, River Miles 80-286,* Feb 2003.

- *Evaluating Environmental Effects of Dredged Material Management Alternatives – A Technical Framework,* Revised May 2004.

- *The 404 Studies - Summary Assessment of Dredged Material Placement Along the Upper Mississippi River and Illinois Waterway, Final Report,* Mar 2009.

1.6. Assessment of Dredged Material. Samples collected in 2015 from dredge cut locations were classified in accordance with the Unified Soil Classification System. Samples were all medium to fine sand. The District also routinely performs a grain size analysis for the historic dredge cuts. One computation derived from this analysis is the percent by weight of the material that passes through a #200 sieve (0.075 mm). This grain size is generally regarded as the dividing point between fine-grained (i.e., silt or clay) and coarse-grained (i.e., sand or gravel) material. Grain size data from the 2015 sample indicated the material in the Finley's Landing (AKA Rosebrook) dredge cut contained very little to no fine material. The amount passing the #200 sieve was 0.0 percent for three of the samples and 0.1 percent for two of the samples (Appendix A, *Additional Information*). Additional testing was also performed for select metals, inorganics, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls for background data.

1.7. Future Dredging Requirements. Future projections for channel maintenance dredging are determined through application of the District's knowledge and expertise based on historic dredging and current conditions. These projections are an estimate of future dredging needs. Because of the dynamic nature of the river, actual dredging events could be different from the projections.

Dredging events occur often enough for both Hurricane Island and the Finley's Landing dredge cuts to be considered chronic dredge cuts by the District. The chronic dredge cut designation is given to dredge cuts with dredging frequencies greater than 20 percent. The frequency is the number of dredging events divided by the period of analysis.

Hurricane Island dredge cut was first dredged in 1968. The dredging frequency since that time is approximately every 0.22 years or 22 percent over the 49 years (*11 events/49 years = 22 percent*). However, the Hurricane Island dredge cut has reduced dredging quantities since 1996. Only 18,558 cy have been dredged over the past 20 years and no maintenance dredging has occurred within the cut since 2007. Finley's Landing dredge cut was first dredged in 1974 and has since had a dredging frequency of approximately every 0.42 years or 42 percent over the 43 years (*18 events/43 years = 42 percent*). The frequency has been increasing but the average quantity has been decreasing since approximately the year 2000. Between 1974 and 1999, the frequency was 28 percent with an average quantity of 37,588 cy. Between 2000 and 2016, the frequency was 69 percent with an average quantity of 17,081 cy.

The District anticipates dredging at the Hurricane Island Dredge cut every 5 years (20 percent frequency). Estimated average quantities are expected to remain relatively low. An average per event of 5,800 cy was used (*average between 1996 and 2016+25 percent contingency*).

The District has not been able to dredge to authorized channel dimensions within the Finley's Landing dredge cut due to lack of OSIT approved placement. In 2015 the District deferred dredging of 12,150 cy because of lack of OSIT approved placement. During 2016 a channel closure occurred within the Finley's Landing Dredge cut, shutting down navigation traffic. The District identified approximately 32,000 cy to be dredged. Only 18,702 cy were dredged due to the lack of OSIT approved placement.

The District anticipates dredging frequencies and quantities will initially be relatively high for Finley's Landing dredge cut after implementation of a new DMMP. The District anticipates dredging will occur once every year (100 percent frequency) for the first 5 years with an average quantity near 25,000 cy per event. After deferred maintenance dredging is addressed within the Finley's Landing dredge cut, the average quantities per event will be lower. The District anticipates dredging every 4 years (25 percent frequency) for year 6 through 40 with an average quantity per event near 25,000 cy.

The estimated 40-year dredging quantity for both the Hurricane Island Reach dredge cuts is approximately 400,000 cy (Table 2).

Table 2. 40-year Dredging Projections for Hurricane Island Reach Dredge Cuts

	Years	Estimated Dredging Frequency (% of Years)	Events	Estimated cy per Event	Total cy
Hurricane Island Dredge Cut	1 thru 40	20%	8	5,800	46,400
Finley's Landing Dredge Cut	1 thru 5	100%	5	25,000	125,000
	6 thru 40	25%	9	25,000	225,000
				TOTAL	**396,400**

1.8. Projections of Future Conditions Without DMMP. Throughout the Hurricane Island Reach, there are limited potential placement sites along the UMR. Currently, historic bankline placement sites are the only placement sites available without long transport distances when dredging at the Hurricane Island Reach. On the right descending bank, an existing bankline placement site at Finley's Landing near RM 596.0R is at full capacity (Photograph 1). Placement at this location last occurred in 2016. The other existing bankline placement site is on Hurricane Island near RM 599.0L. Placement at this location last occurred in 2012. Adequate space has been available at the historic Hurricane Island bankline site to handle most of the dredge material placement need over the past two dredging seasons. However, the OSIT has not approved placement at this location due to the State of Wisconsin's concerns for sediment migration. It is likely that dredged material will no longer continue to be placed at the historic Hurricane Island bankline site because of the State of Wisconsin's concerns. Currently, adequate space is available at Hurricane Island to support a minimum of a 30,000 cubic yard placement event.

Photograph 1. Finley's Landing at Full Capacity

1.9. Problems and Opportunities

Problems

- Sedimentation causes shoaling within the 9-foot navigation channel resulting in chronic dredging. Removal of significant amounts of sediment is necessary to maintain full project width and depth.
- The existing bankline placement at Finley's Landing is at full capacity.
- The existing bankline site at Hurricane Island is not OSIT approved because of concerns for sediment migration during high water events.

- Emergency closures of the navigation channel have occurred recently.

Opportunities

- Evaluate and recommend long-term placement site alternatives for this dredged area that offer reduced natural resource impacts.
- Consider any beneficial use opportunities, both environmental and commercial.
- Evaluate and recommend cost-effective alternatives, potentially reducing navigation operations and maintenance (O&M) costs.
- Coordinate information among local, state, and Federal agencies and the affected public to facilitate prudent decisions on the placement of dredged material.

1.10. Beneficial Use. Dredged material is a manageable resource suitable for beneficial use, such as natural resource habitat development (e.g., island creation or enhancement). Potential fish or wildlife restoration and enhancement projects that could utilize dredged material would be pursued under UMR Restoration program, Section 1135, Section 204, or Section 206 program authority. These programs are authorized by various Water Resources Development Acts and require a non-Federal Sponsor to cost-share a percentage of project costs. Cost share varies among programs. Multiple interests have been established for beneficial use in the project area, specifically for island creation (e.g., Rosebrook Island, Snyder Slough). Other beneficial use options outside of the floodplain have been identified in the local industrial and commercial businesses. However, these options are not a permanent solution for long-term placement over the projected 40 years.

1.11. Objectives and Constraints. Title 33 of the CFR part 335.7 defines the Federal Standard as those dredged material placement alternative or alternatives identified by the Corps which represent the least costly alternatives consistent with sound engineering practices and meeting environmental standards. The following objectives and constraints assist the District in identifying the Federal Standard:

Objectives

- Maintain the 9-foot navigation channel in such a manner as to avoid the potential loss of life or personal injury, or property damage that may result from inadequate maintenance of the channel and subsequent channel closures and groundings.
- Reduce O&M costs where possible.
- Identify, evaluate, and recommend long-term placement alternatives that meet the Federal Standard.
- Avoid, or minimize, adverse effects to the environment.
- Maximize beneficial use of dredged material.
- Investigate and recommend other non-dredging measures to maintain the navigation channel.

- Provide valuable information for future decisions and allow for adaptive management of dredged material in the Hurricane Island Reach.
- Strive to find suitable placement site options providing dredged material placement capacity for at least 40 years of maintenance dredging where feasible.
- Enable rapid response dredging and material removal while minimizing impacts to Pool 11 activities and navigation traffic.

Constraints

- Identify a plan to meet the projected dredging volumes for a minimum of 20 years as stated in ER 1105-2-100.
- Assess site access and the Dredge Goetz equipment limitations. Current hydraulic dredging allows for placement of a maximum of 10,000 feet of distance from dredge cut, should not exceed 1,000 feet inland from the dredge cut, and should not exceed +/- 28 feet in height up a slope from the dredge cut.
- Feasible placement sites are scarce.
- Final Plan will provide for both hydraulic and mechanical placement options.
- Placement Site opportunities are limited by hydraulic and environmental impacts.
- Many sites near the Hurricane Island Reach cuts were identified to have listed species concerns, resulting in efforts to avoid and minimize impacts.
- Multi-agency resource management goals.
- Maintain compliance with Federal and state laws and policies, such as wetland and floodplain impacts.
- Efforts to reduce sediment load from contributing tributaries (noted in Figure ES-1, Project Location) is outside the authorities provided to the Corps to perform operation and maintenance of the 9-foot navigation channel on the UMR.

1.12. Strategies. The overall DMMP would identify, evaluate and acquire placement sites meeting the District's needs for a minimum of 20 years, and ideally for 40 years or longer, using the three-phase interagency DMMP process as follows:

Phase 1: Preliminary assessment and site/alternative identification and screening

Phase 2: Alternative evaluation, including environmental assessment, and engineering and cost considerations

Phase 3: Acquisition of placement sites (as needed) and implementation of the Recommended Plan.

This report represents completion of Phase 1 and Phase 2 of the process for the Hurricane Island Reach DMMP. Upon review, final approval, and availability of funding, the District will begin Phase 3.

SECTION 2. AFFECTED ENVIRONMENT

The District performed a preliminary search of existing databases, maps and other sources to identify any known issues or concerns including:

- environmental acceptability (wetlands, threatened or endangered species, water quality, aquatic and terrestrial resources);
- floodway conveyance, flood height, and flood storage impacts;
- prime and unique farmland;
- existing land use (land use plans, local zoning ordinances, private, commercial, municipal, county or state development);
- social impacts;
- cultural resources;
- hazardous, toxic, or radioactive waste (HTRW);
- recreation potential;
- commercial navigation (channel maintenance, fleeting areas);
- beneficial use potential; and
- features consistent with best planning and engineering practice.

2.1. Cultural Resources. The District's archival search for cultural resources followed the Policy and Procedures for the Conduct of Underwater Historic Resource Surveys for Maintenance Dredging and Corps Activities (DGL-89-01, March 1989, Appendix D-2, *NHPA Coordination*). The District queried the Iowa Geographic Information Systems site file database and the Wisconsin Historic Preservation Database and reviewed the report entitled *An Investigation of the Submerged Historic Properties in the Upper Mississippi River and Illinois Waterway,* dated October 1997, for cultural resources potentially affected by Project actions.

The Affected Environment for cultural resources includes the dredge cut locations, the bathtub temporary stockpile location and adjacent compensatory wetland mitigation area, the access to the bathtub, and the farm field/quarry permanent dredged material stockpile. However, because a permanent stockpile will not be required for another 20 years, the provisions of an existing long-term DMMP Programmatic Agreement (PA) will ensure District compliance with Section 106 of the National Historic Preservation Act (NHPA) at action areas where plans have not been fully developed.

2.1.1. Existing Programmatic Agreement. Mississippi River channel maintenance dredging is required to provide a safe and adequate channel for navigation. DMMPs for various river reaches often span a long (40+ years) period, with exact project specifications uncertain or subject to change over time. Because of these sometimes ambiguous parameters, the District sought to satisfy its responsibilities under Section 106 of the NHPA (54 U.S.C. § 306108) and its implementing regulations (36 CFR Part 800) by authoring a long-term DMMP PA (Appendix C, *Programmatic*

Agreement) in consultation with the Advisory Council on Historic Preservation (ACHP) and the affected State Historic Preservation Officers (SHPO).

On December 7, 1995, the District signed the *Programmatic Agreement among the Rock Island District of the U.S. Army Corps of Engineers, the Advisory Council on Historic Preservation, and the Illinois State Historic Preservation Officer, the Iowa State Historic Preservation Officer, the Missouri State Historic Preservation Officer, and the Wisconsin State Historic Preservation Officer regarding implementation of the Long-Term Management Strategy for Dredged Material Placement* (Appendix C). The PA's other signatories signed between January 3 and April 29, 1996. The PA provides for the protection of known and unknown historic properties throughout DMMP project planning, assessment, and implementation and covers the IWW between RM 80.0 and 327.0 and the Mississippi River between RM 300.0 and 614.0.

By letter dated October 7, 1999, the District notified about 70 tribes the District, the ACHP, and the Illinois, Iowa, Missouri, and Wisconsin SHPOs signed a PA regarding implementation of the long-term management strategy for the DMMP. The Tribes were asked to provide comment on the PA. The Menominee Indian Tribe of Wisconsin at Keshena, Wisconsin; the Citizen Potawatomi Nation at Shawnee, Oklahoma; and the Delaware Tribe of Western Oklahoma at Anadarko, Oklahoma, all provided comments to the District. In addition, the tribes and the PA-signatory SHPOs were asked to review a tribal distribution list for corrections and/or additions.

Because the District has not fully determined the Project's scope of activity and because plans are subject to change over the 40+ year span of the Project, the terms and stipulations of the District's existing DMMP PA would satisfy Section 106 responsibilities for all future individual actions associated with the Project.

2.1.2. Bathtub Site and Dredge Cuts. The Project's imminent actions include dredge cuts and temporary dredged material placement at the bathtub with adjacent compensatory wetland mitigation area (Figure ES-1). The bathtub, wetland mitigation area, and dredge cuts contain no recorded archeological sites, architectural properties, or prior archeological surveys that overlap the area (Appendix D-2, *NHPA Coordination*). One documented shipwreck occurred within the Hurricane Island Reach. The wooden-hulled packet, *Gen. J. M. Harrison*, was lost in 1872 at Sprecht's Ferry near RM 592. It is unknown whether any traces of this wreck remain. The wreck's location is at least 1.7 miles distant.

The Landform Sediment Assemblages (LSA) (1996) at the bathtub site and dredge cuts are limited to "channel" at the dredging locales, "Early-Middle Holocene channel belt" at the bathtub site and a portion of the compensatory wetland mitigation area, and seasonally inundated Yazoo meander belt at the remainder of the compensatory wetland mitigation area. Mapped soil at 6.7 acres of the bathtub is Aquents, sandy, poorly drained; the remaining 40 percent of the bathtub and all of the compensatory wetland mitigation area are mapped as Water, with historic aerial photographs indicating seasonal or year-round inundation. LSA designations are based on the report entitled *Landform Sediment Assemblage (LSA) Units in the Upper Mississippi River Valley, United States Army Corps of Engineers, Rock Island District, Vol. 1 and 2*, dated 1996.

The District proposes no archeological investigations at the proposed dredging locales: there are no known submerged resources nearby and, the bulk of the dredging locales have been subjected to historic dredging. No archeological investigations are proposed at the bathtub and compensatory wetland mitigation areas due to low archeological potential.

2.1.3. Farm Field/Quarry Permanent Dredged Material Placement Site. The farm field/quarry LSA is mapped as tributary fan, alluvial fan/colluvial slope, and Kingston Terrace, all landforms with moderate-to-high potential to contain prehistoric cultural resources. There are five archeological sites recorded within the farm field/quarry, and several overlapping prior surveys (Appendix D-2, *NHPA Coordination*).

A 1974 survey overlaps with all the farm field/quarry, but survey methods do not meet the Secretary of the Interior's *Standards and Guidelines for Identification and Evaluation* (48 FR 44720-23). The remaining surveys discussed below do meet the *Standards.* The 1974 survey by the University of Wisconsin-Platteville is summarized in Clarence R. Geier and Michael K. Loftus' article entitled "Settlement Pattern Data from the Lower Platte and Platte Rivers and Adjacent Sections of Mississippi River Bottoms," published in 1975 *The Wisconsin Archeologist* 56(2):78-151. Additional survey information is found in the report *Archaeological Reconnaissance of the Lower Big Platte and Platte Rivers and Associated Sections of Remnant Mississippi River Bottomlands: A Catalog of Sites*, (Geier, 1974). The survey identified dozens of sites during pedestrian walkover covering several thousand acres, including three sites recorded at the farm field/quarry (47GT0269, 47GT0272, 47GT0273).

A 0.01-acre area along the north edge of the farm field/quarry has been surveyed and the results documented in the report entitled *WDOT Archaeological Survey Field Report: River Lane Road, Reagan Branch Bridge Structure P-22-0242, Grant County, Wisconsin*, published in 2013 by Archaeological Research, Inc., of Chicago. David Keene authored this report. Keene revisited the edge of site 47GT0269 but found no traces; there had been a recent application of field fertilizer.

About 24 acres near the center of the farm field/quarry was surveyed and the results documented in the report *An Archaeological Phase I Survey and Phase II Evaluation of the Proposed Kowalski-Keiler Gravel Pit, Potosi, Grant County, Wisconsin*, (Mississippi Valley Archaeology Center at the University of Wisconsin-La Crosse Report 734), authored in 2008 by Robert Boszhardt and Beth Hall. The authors investigated three sites: 47GT0272, 47GT0273, and 47GT0459. At the two latter sites, based on the presence of intact subsurface deposits which, at site 47GT0459 included storage pits, hearths and a possible house basin, Boszhardt and Hall recommended site avoidance or data recovery excavations. Site 47GT0272 pedestrian survey and mechanical trenching failed to locate traces of the site. The authors recommended that gravel quarrying could occur on their surveyed area, except at sites 47GT0273 and 47GT0459. Aerial photographs suggest that all or most of 47GT0273 has been destroyed by quarry operations since the survey.

A 2015 survey documented a in the report *Phase I Archaeological Survey of the BNSF Railway Universal Crossover Project near Potosi in Grant County, Wisconsin*, dated 2015 (Mississippi Valley Archaeology Center at the University of Wisconsin-La Crosse Report 1039) and authored by Jean Dowiasch, recorded site 47GT0769 at the farm field/quarry, although the survey corridor only borders on, and does not overlap with, the proposed permanent placement area (2015). Dowiasch recommended no further work was necessary at 47GT0769.

The *Gen. J. M. Harrison* shipwreck is at least 1.0 mile distant from the farm field/quarry. The farm field/quarry contains five recorded archeological sites (47GT0269, 47GT0272, 47GT0273, 47GT0459; 47GT0769; respectively, four prehistoric campsites/villages and one, an isolated chert flake find), none of which have been received National Register of Historic Places (NRHP) eligibility determinations. Prior Phase II testing indicates at least two (47GT0273, 47GT0459) are likely NRHP-eligible, due to the presence of intact prehistoric features, although 47GT0273 may now be destroyed by quarrying.

2.2. Natural Resources. Natural resources in this project area include the lands, water, fauna, and flora of the Upper Mississippi Basin and its floodplain in Dubuque County, IA and Grant County, WI. Habitats with potential impacts by dredged material placement include herbaceous wetlands, riverine, bankline, wetland forest, and forested uplands.

2.2.1. Soils. In general, soils found in this area of the UMR are frequently flooded, poorly drained soil formed in herbaceous organic materials, which are typical of backwaters and floodplains. Dredged material has been analyzed and consists of dominantly sand. Samples collected from the Finley's Landing dredge cut in 2015 were classified in accordance with the Unified Soil Classification System. Samples were all medium to fine sand. Additional testing was also performed for select metals, inorganics, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls for background data. Lab results indicated the collected samples were all below State of Wisconsin-published standards.

2.2.2. Prime and Unique Farmland Farms are and have already been displaced by the ongoing quarry operations from a separate entity.

2.2.3. Land Cover/Land Use. Land within the project area is within the historic floodplain of the UMR. Extensive human activity has manipulated vegetation and land use. The District utilized the National Land Cover Database 2011 to generate land use coverage for this area. The dominant cover class types were forested, pasture/hay, cultivated crops, and open water within the vicinity of the project area.

2.2.4. Waters/Wetlands. The USEPA listed Pool 11 of the Mississippi River as impaired under the Clean Water Act (CWA), Section 303(d). According to data from 2014, this reach of the Mississippi River is listed as impaired due to aluminum levels. In a draft report with additional data from 2016, total phosphorus, PCBs, and mercury were other pollutants increasing the impairment of Pool 11. This degraded water quality has led to fish consumption and other use restrictions. Total Maximum Daily Loads (TMDLs) have not yet been established for this reach of the river. TMDLs are pollution reduction plans that assign the maximum amount of a pollutant a waterbody can receive and still meet water quality standards.

The entire UMR has undergone dramatic changes in the extent, composition, and structure of its wetland forests over the last two centuries. Lack of mast-tree regeneration, reduction of species diversity, and increased tree mortality can be directly attributed to the increase in flood frequency and duration over time. Rosebrook Island has limiting wetland forests that are unique to this area. In verbal communication with the UMR National Wildlife and Fish Refuge, U.S. Fish and Wildlife Service (USFWS), pin oaks (*Quercus palustris*) were observed on Rosebrook. According to the Wisconsin Department of Natural Resources (WI DNR), pin oaks have few occurrences in the state

and is of the highest priority for conservation. Other islands in this reach consist of a mix of herbaceous wetlands and wetland forests. Wetland forest composition consisting of cottonwood; silver maple; honey locust; black cherry; red and white mulberry; American elm; green ash; boxelder; sycamore; gray dogwood; amur bush honeysuckle; common hackberry; and black willow is common.

A site visit was conducted on October 14, 2016, and the observed dominant vegetation species at the bathtub were cattail (*Typha sp.*) and swamp milkweed (*Asclepias incarnata*), both wetland obligate species (Midwest 2016 Regional Wetland Plant List). According to the Corps' National Wetland Plant List and Indicator Rating Definitions, obligate indicator status is defined as occurring at a 99 percent rating under natural conditions in wetlands. Therefore, it has been determined the entire 11-acre bathtub site is a wetland. Photographs 2 and 3 show the typical wetland community at the proposed bathtub site.

Photograph 2. Typical Sedge Meadow Vegetation at Proposed Bathtub Site

Photograph 3: Typical Deep/Shallow Marsh Vegetation at Proposed Bathtub Site

The different wetland types were categorized using the WI DNR definitions based on soil type and saturation levels (https://dnr.wi.gov/topic/wetlands/types.html). The bathtub site consists of a mix of shallow/deep marsh and sedge meadow wetlands. The acreage amounts for each wetland type were determined using hydraulic data (1912 MSL Datum) from this site. Under the Corps' Wetland Delineation Manual (https://www.usace.army.mil/Portals/2/docs/civilworks/ reg_supp/erdc-el-tr-10-16.pdf), the standard of defining a wetland requires 14 or more consecutive days of flooding or ponding during the growing season. Analyzing the last 30 years of hydraulic elevation data at the bathtub site, a 25 percent exceedance was determined to be at elevation 604 feet. Emergent wetlands are considered any vegetation from the 25 percent exceedance of 604 feet minus 3 feet (verbal communication with the District's Regulatory office). Therefore, deep/shallow marshes are considered at an elevation at and below 604 (9.7 acres) and any area at and above 605 (1.4 acres) is considered a sedge meadow community. Please refer to Figure 1 for acreages at each elevation.

2.2.5. Biota. Typical floodplain wildlife, riverine and backwater aquatic communities are common throughout the project area. Additionally, bald eagle *(Haliaeetus leucocephalus),* heron rookeries, waterfowl, and neotropical migratory birds are the typical avian community found in this area.

2.2.6. Endangered Species. Due to the potential presence of the federally listed Higgins-eye pearly mussel (*Lampsilis higginsii*) habitat adjacent to the proposed bathtub site, in October 2016, the District retained Ecological Specialists, Inc. (ESI) to conduct a mussel survey. The field investigations focused in the waters surrounding the bathtub site as well as waters adjacent to the Hurricane Island placement site (Figure 2). The survey included quantitative and qualitative sampling procedures per the 2013 USFWS's UMR Mussel Sampling Guidelines. The survey team collected 20 mussel species, including the Wisconsin and/or Iowa state-listed species *Quadrula nodulata, Truncilla donaciformis, Lampsilis teres, Ellipsaria lineolata, Arcidens confragosa.* In addition, four individual Higgins-eye pearly mussels at four separate sample sites were collected. These sample sites ranged from 900 feet (downstream of approach channel) to over 2,000 feet (downstream of mitigation area boundary, Figures 3a and 3b).

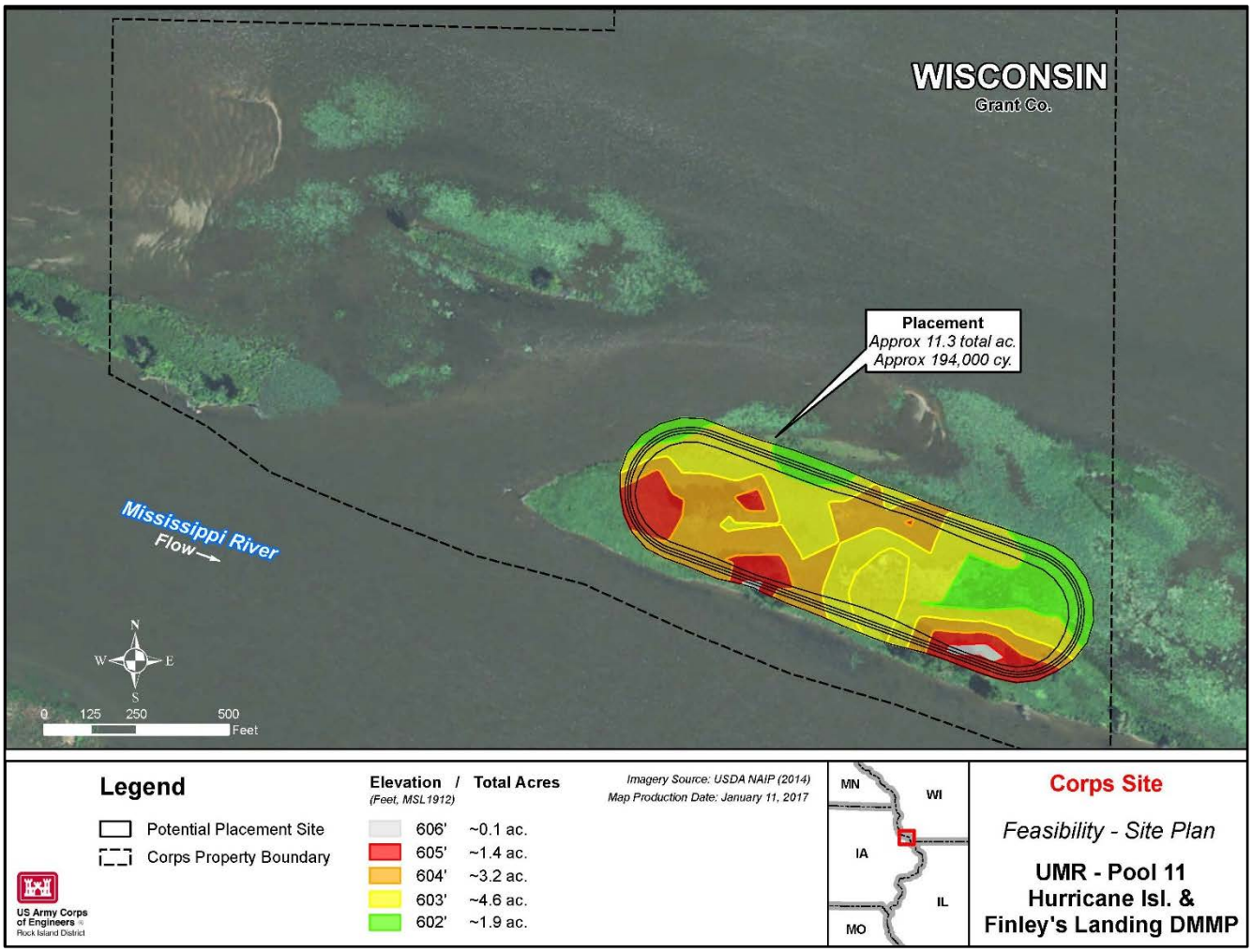

Figure 1. Bathtub Contours

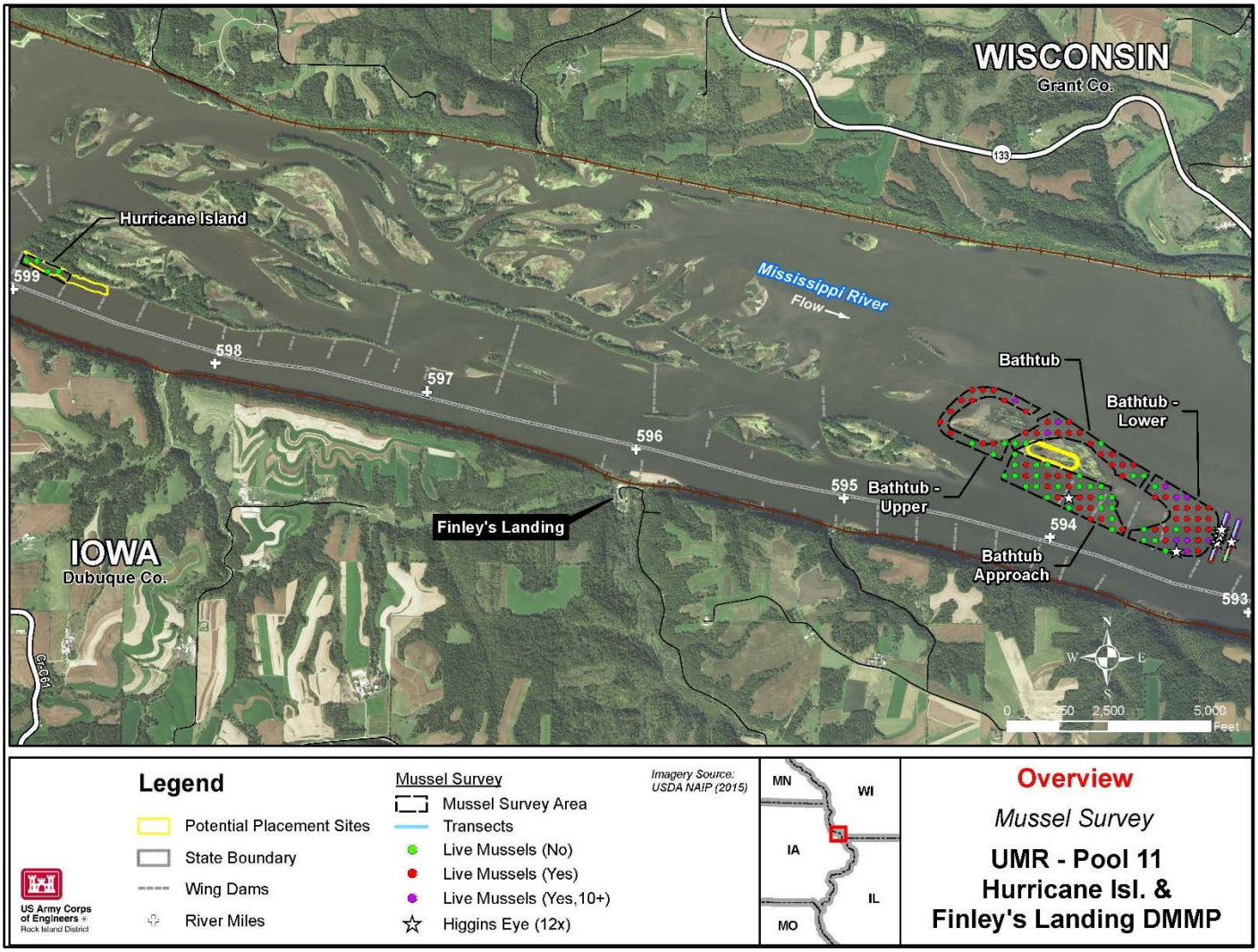

Figure 2. Mussel Survey Sample Sites

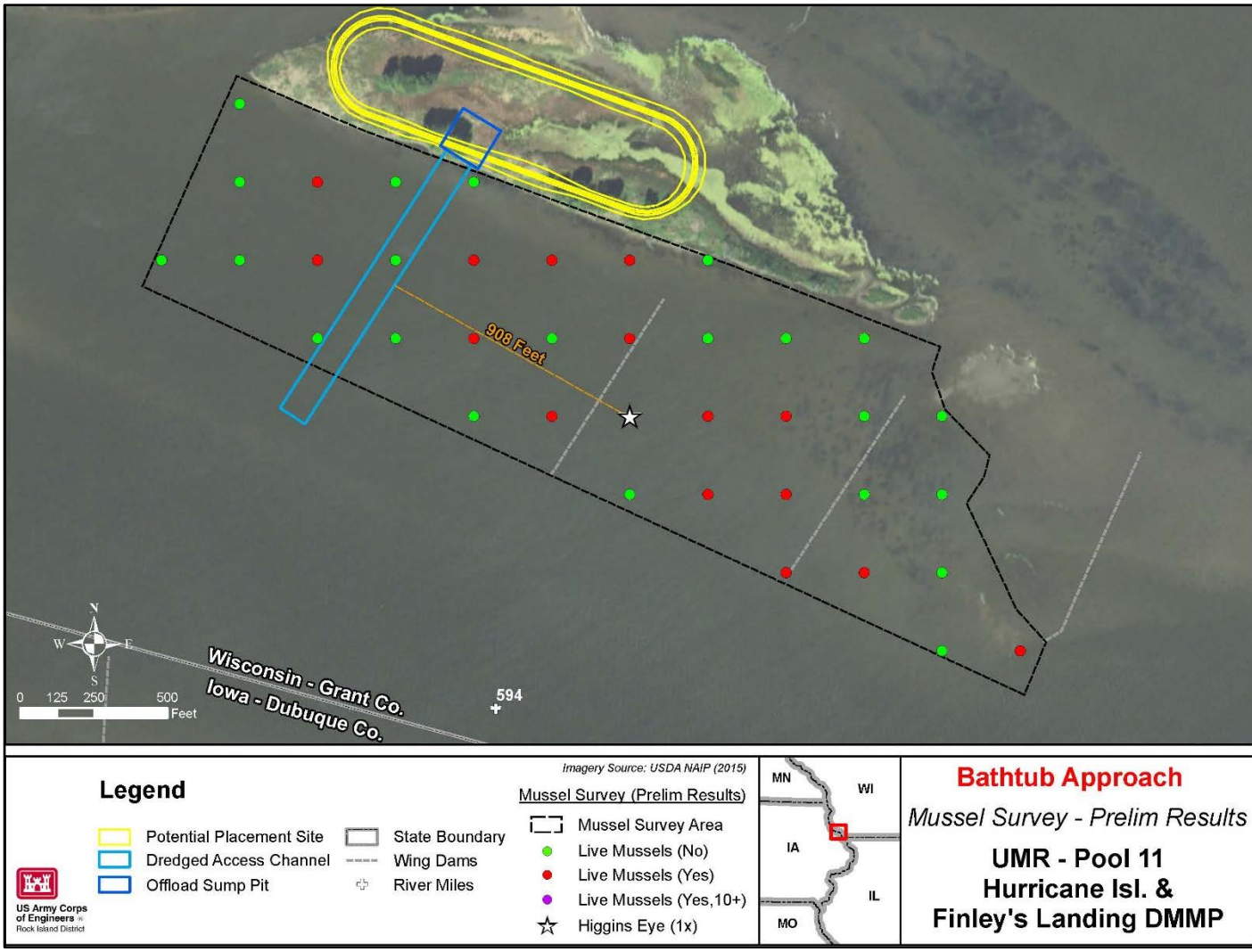

Figure 3a. Mussel Survey – Bathtub Approach

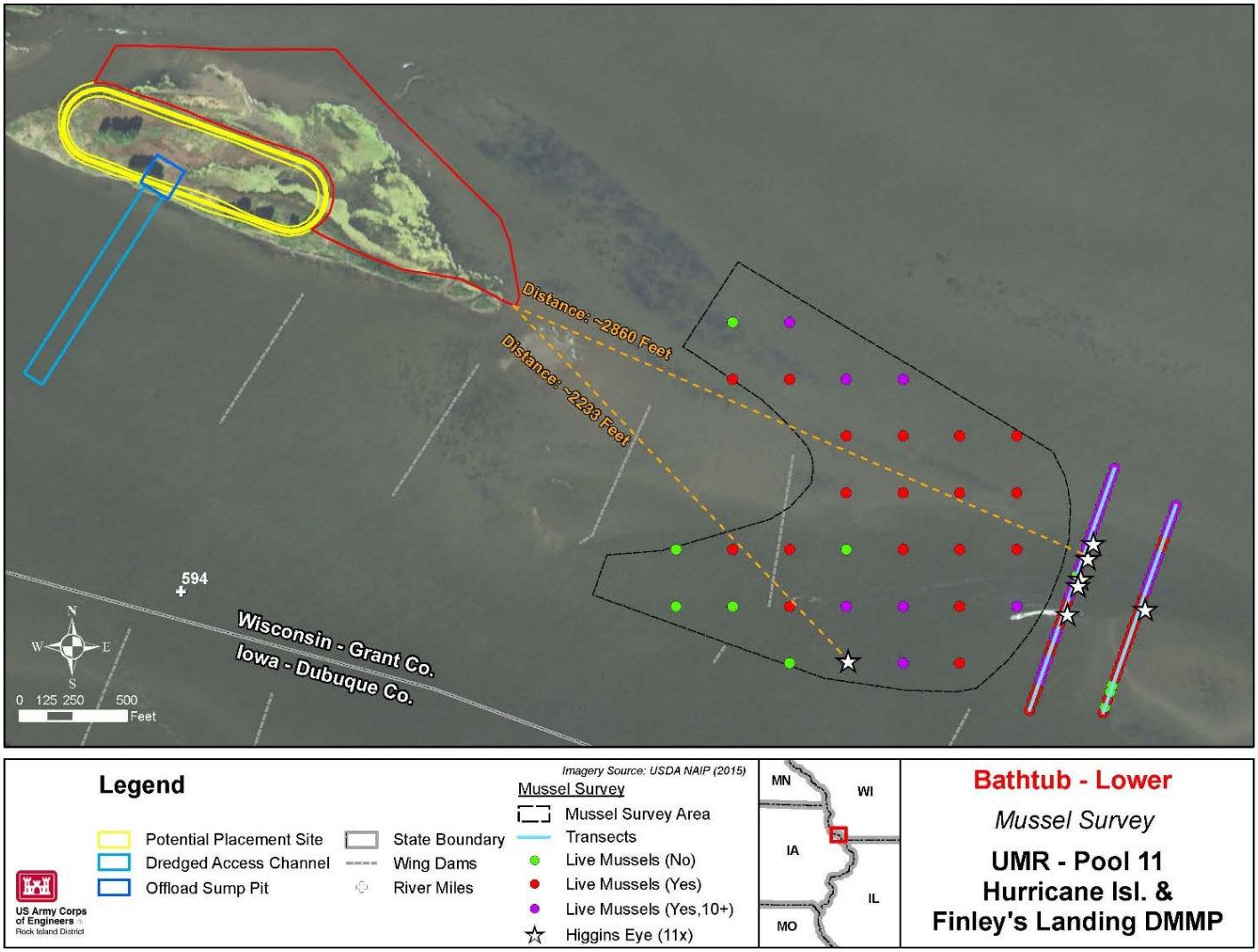

Figure 3b. Mussel Survey – Bathtub Lower

The District used the USFWS Information for Planning and Conservation website to identify federally-listed species potentially occurring in Dubuque County, Iowa and Grant County, Wisconsin (Table 3).

The District also used the Wisconsin Department of Natural Resources (WI DNR) and Iowa DNR natural resource inventories to identify state-listed species potentially occurring in Dubuque and Grant Counties (Appendix B, *State Species Lists*).

A unique black walnut forest community exist on the Wisconsin left descending bank near a farm field/quarry at RM 592. Walnut has always been a noted resource on the UMR and protected for its limited distribution and occurrence. Usually the walnut trees are scattered and spread out on the

islands and back water areas. They do occur mostly on micro-ridges on islands and primarily near confluences of streams and rivers that drain into the Mississippi River. Additional planted trees through the USFWS and the District's Operations Division funding are located in the same area.

2.3. Social and Economic Resources. This area is dominated by agriculture and industry with few residential properties. Navigation and transportation of commodities contributes to the economic growth of this region. Recreation use is common in this area. Finley's Landing is a popular recreational area and is at full capacity, allowing limited space for the local residents to enjoy.

2.4. Human-Constructed Resources. Due to the agricultural character of this area, the infrastructure of the 9-Foot Channel Navigation System is the primary human-constructed resource within this area. Other notable human-constructed structures include the railroad near the farm field/quarry and near Finley's Landing, Upper Mississippi River National Wildlife and Fish Refuge (USFWS), and local parks.

Table 3. Generated List of Federally-listed Species from USFWS Information for Planning and Conservation in 2017
(Source: http://ecos.fws.gov/ipac/gettingStarted/map)

Species	Scientific Name	Status	Habitat Types
Northern Long-Eared Bat	*Myotis septentrionalis*	Threatened	During the winter, caves and mines; during the summer, underneath flaky bark, in cavities or in crevices of both live trees and snags (dead trees).
Higgins Eye Pearlymussel	*Lampsilis higginsii*	Endangered	Larger rivers with deep water and moderate currents[1]
Spectaclecase	*Cumberlandia monodonta*	Endangered	Large rivers where they live in areas sheltered from the main force of the river current, such as beneath rock slabs, between boulders and even under tree roots.
Mead's Milkweed	*Asclepias meadii*	Threatened	Moderately wet (mesic) to moderately dry (dry mesic) upland tallgrass prairie or glade/barren habitat characterized by vegetation adapted for drought and fire.
Northern Wild Monkshood	*Aconitum noveboracense*	Threatened	Shaded to partially shaded cliffs, algific talus slopes, or on cool, streamside sites.
Prairie Bush Clover	*Lespedeza leptostachya*	Threatened	Found only in the tallgrass prairie region
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened	Occur most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches.
Iowa Pleistocene Snail	*Discus macclintocki*	Endangered	Leaf litter of special cool and moist hillsides or algific talus slopes.
Hine's Emerald Dragonfly	*Somatochlora hineana*	Endangered	Spring-fed marshes and sedge meadows overlaying dolomite bedrock.
Rusty Patched Bumble Bee	*Bombus affinis*	Endangered	Grasslands and tallgrass prairies of the Upper Midwest and Northeast. Need areas that provide nectar and pollen from flowers, nesting sites (underground and abandoned rodent cavities or clumps of grasses), and overwintering sites for hibernating queens (undisturbed soil).

[1] denotes potential habitat located at project area

2.5. Physical Environment

2.5.1. Climate. The published soil surveys (2012) for this area indicate a mean annual temperature ranges from 8.9 to 11.7 degrees C (48 to 53 degrees F) and mean annual precipitation ranges from 762 to 1092 mm (30 to 43 inches). Frost-free period is 120 to 180 days. Elevation is 177 to 466 meters (580 to 1,530 feet) above mean sea level.

2.5.2. Air Quality. The USEPA *Green Book Nonattainment Areas for Criteria Pollutants* (Green Book) maintains a list of all areas within the United States that are currently designated nonattainment areas with respect to one or more air pollutants. Nonattainment areas are listed by county or metropolitan statistical area and are areas considered to have air quality worse than the National Ambient Air Quality Standards as defined in the Clean Air Act Amendments of 1970 (P.L. 91-604, Sec. 109). Review of the Green Book indicates that Grant and Dubuque Counties are not listed as in nonattainment. (2016).

2.5.3. Noise. The project study area is in an industry dominant location where noise levels can potentially be at medium levels. Lack of nearby residential properties or human sensitive receptors contributes to minimal noise impacts.

2.5.4. Hazardous, Toxic, and Radioactive Waste (HTRW). An Environmental Site Assessment (ESA) Transaction Screening Process was completed on October 31, 2016 for the proposed dredged material placement area located at RM 594, Pool 11 of the Mississippi River in accordance with ASTM E 1528-06 Practices; ER 1165-2-132; and MVD DIVR 1165-2-9. The inquiry consisted of an inspection of aerial photographs (1940, 1995, 2005, 2006, 2007, 2009, 2010, 2011, 2012, and 2015), topographic maps (1900, 1908, 1940, 2010, and 2015), Corps, WI DNR, and USEPA records research. These inquiry activities revealed no evidence of Recognized Environmental Conditions, hazardous substances, HTRW, or other regulated contaminants in connection within the proposed easement area. Therefore, no further HTRW Environmental Site Assessments are recommended.

SECTION 3. ALTERNATIVE PLANS

The first step in the alternative planning process is to identify sites for screening (See Section 3.1). Sites meeting these criteria are evaluated for additional considerations concerning capacity, natural resources, cultural resources, hydraulic impacts, operability and socio-economic impacts. Alternative plans are then developed from sites having met the criteria and have remained feasible after further evaluation (See Section 3.2). These alternative plans are further evaluated, ultimately resulting in the selection of the “Preferred Alternative”. The Preferred Alternative is considered as the least costly solution consistent with sound engineering practice and meeting all Federal environmental standards (See Section 3.4).

3.1. Site Identification and Screening Process. Based on the Hurricane Island DMMP, as applicable, potential dredged material placement sites are identified and screened in this initial phase of the alternative development process:

- The District estimated available capacities of historic placement sites to determine the additional placement capacity required for the plan life. The District and OSIT agreed suitable bankline placement capacity is not available for the long-term, except on an event-by-event basis with the OSIT's recommendation to include bankline protection. In addition, new placement sites would be needed for the entire projected volume of approximately 400,000 cy over the next 40 years.
- The District assembled historic placement site information along with potential new placement site information. Potential placement sites were identified from analysis of the dredging density by river mile. The Project Delivery Team (PDT) and applicable members from state and Federal natural resource and regulatory agencies met to review the preliminary information and to provide input on these and any other sites proposed. Members of this multi-agency review team discussed potential environmental, cultural and other impacts of each site. Preference was given to site(s) having the least adverse impacts to natural and cultural resources and/or impacting the smallest area that also were cost efficient. Any site(s) not meeting these requirements were eliminated from consideration as part of the initial screening process.
- The District reviewed the identified placement sites in the GREAT II Channel Maintenance Handbook for the Hurricane Island and Finley's Landing dredge cuts (Figure 4). The seven GREAT II Sites (GS) resulted in no new placement options for the following:
    - GS 11.13 Gravel pit; trucking required
    - GS 11.14 Gravel pit; trucking required
    - GS 11.15 Agricultural; trucking required
    - GS 11.16 Developed; RR tracks to cross
    - GS 11.17 Developed; RR tracks to cross
    - GS 11.18 Historic Disposal Site; beach bordered by hardwoods (RM 595.8R)
    - GS 11.19 Trucking required.

3.2. Description of Potential Sites for Further Study. Channel maintenance personnel from the District's Operations Division evaluated each potential site to ensure operational feasibility. Reasons for sites being considered operationally infeasible include but are not limited to, unsuitable site access for equipment to deliver/unload dredged material; site dimensions not large enough for material containment and/or drainage capabilities; and locations too far from the dredge cut to allow for hydraulic or manageable mechanical dredging operations. Any site(s) not meeting these requirements were eliminated from consideration as part of the initial screening process. Additionally, PDT and applicable members from the state and Federal natural resource and regulatory agencies also reviewed the preliminary site information for potential environmental, cultural and other impacts of each site. Preference was given to site(s) having the least adverse impacts to natural and cultural resources and/or impacting the smallest area. Any site(s) not meeting these requirements were eliminated from consideration as part of the initial screening process. Table 4 and Figure 5 show the new sites evaluated, a brief reason for elimination, and the sites included for further analysis. The existing sites at Finley's Landing and Hurricane Island are not included, since they will continue to be used with OSIT approval.

Table 4. New Placement Sites Considered

Site Name	River Mile	Remarks	Reason Withdrawn
Farm Fields/Quarry	591L	Currently being used as a quarry.	Future Consideration
Alliant Energy, Nelson Dewey Plant (formerly Wisconsin Power and Light Company) RM 608. Dairyland Power Cooperative RM 606	608 and 606	Used on an as-needed basis within the power plants management activities	Not enough capacity for long-term placement and more than the maximum allowed 10,000 feet away from the dredge cuts. Could still be used for beneficial use.
Farm Fields	595R	Trucking required from the Finley's Landing.	The roads between Finley's Landing and the farm fields have weight restrictions preventing the trucking required.
USACE fee-title Bathtub Island	594L	Entire aquatic site	Avoidance of environmental impacts
USFWS fee-title Bathtub Islands	595.5L and 596.7L	Existing Islands	Not enough capacity for long-term placement. Could still be used for beneficial use.
USFWS fee-title Bathtub Island	594.1L	Existing Island	Future Consideration

Pool 11
Dubuque County, IA and Grant County, WI
Upper Mississippi River, River Miles 591-608

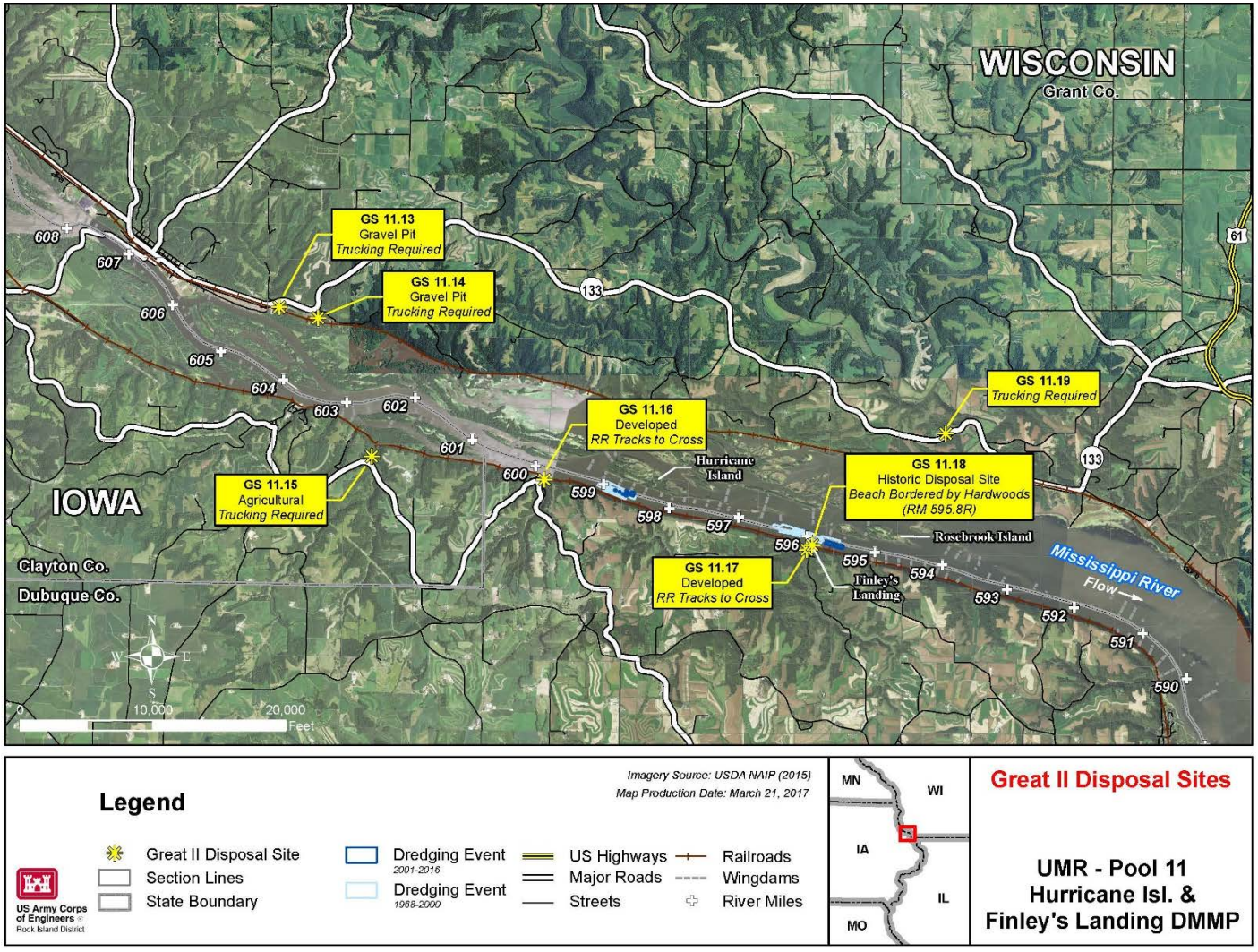

Figure 4. Great River Environmental Action Team II Disposal Sites

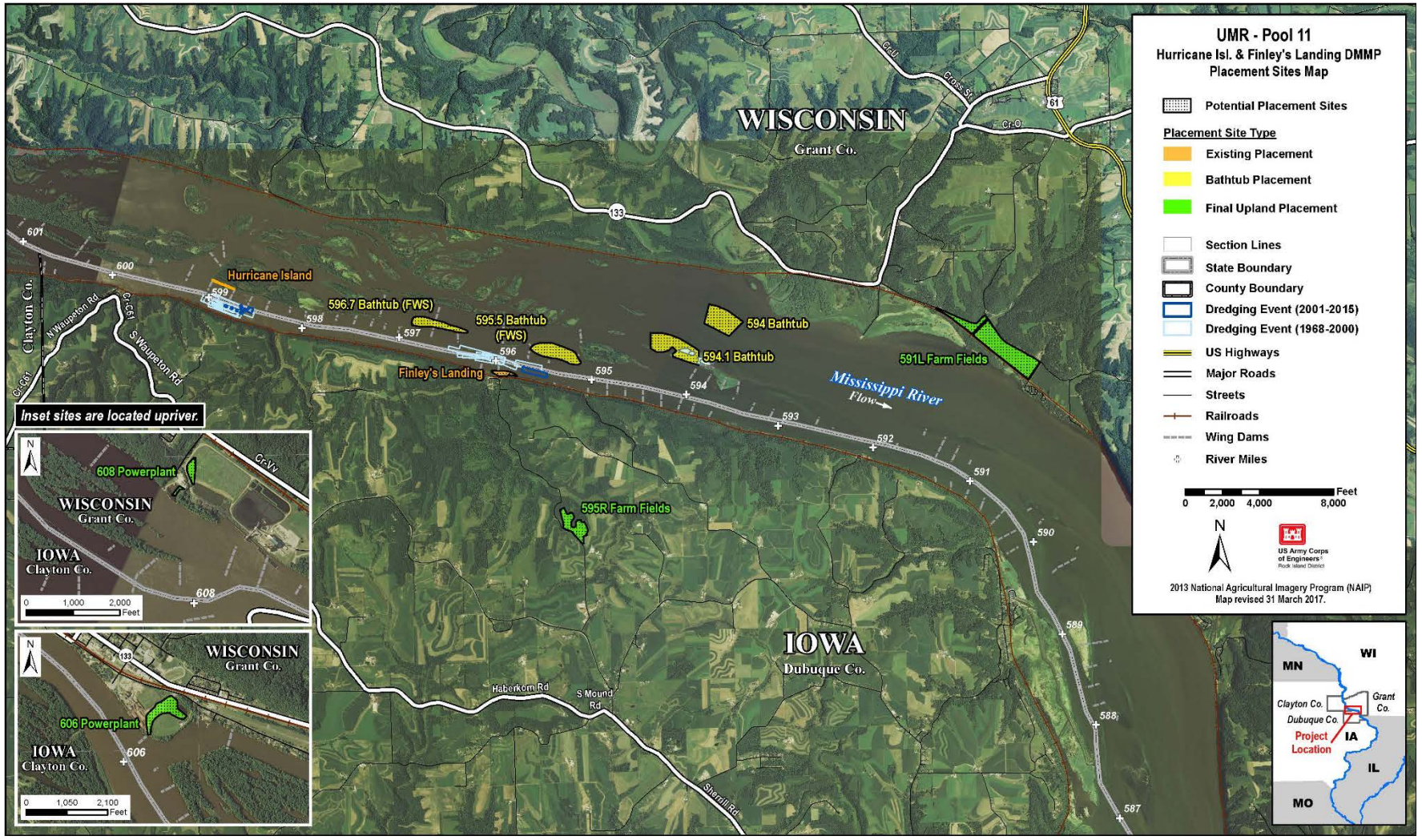

Figure 5. Potential Placement Sites

3.3. Alternative Plan Development. Alternative plans were developed using the available placement sites discussed in Section 3.2. The Preferred Plan is considered as the least costly solution consistent with sound engineering practice and meeting all Federal environmental standards. Further discussion of the Preferred Plan can be found in Section 3.4.

3.3.1. Preliminary Alternative Screening Process. The PDT reviewed the potential sites to determine which potential site or group of potential sites met the minimum plan life of 20 years, while striving for a preferred 40-year or longer plan capacity. The PDT decided to screen multiple alternatives using the following criteria:

- For operational flexibility, responsiveness, efficiency and cost effectiveness, each potential alternative considers both hydraulic and mechanical dredging options for each dredge cut.
- Hydraulic placement sites must be within close proximity (10,000 feet) to the dredge cuts.
- River access for each placement site should provide sufficient flexibility as appropriate so additional shoaling, dredging, or other changes in the river would not reduce or eliminate site access and/or capacity.
- Potential alternatives must consider the timing and order of dredging and placement events to ensure consistent comparison and reliable implementation.
- Overall cost effectiveness.
- Opportunities for beneficial use, including land access via public roads.
- Avoid and minimize environmental impacts.

3.3.2. Evaluation of Alternative Plans

- **Alternative A – No Action.** In compliance with the National Environmental Policy Act (NEPA), the No Action Alternative is to be considered along with the alternatives developed and documented in this report. The No Action Alternative is understood to be defined as “no change” or “business as usual”. Dredging would continue as has been done in the past without a new plan. Complying with the Federal mandate to maintain commercial navigation, the District would continue to place material on historic bankline locations with the concurrence of the OSIT. The No Action Alternative will be considered as Alternative A.

- **Alternative B- Bathtub and Farm Fields/Quarry.** After obtaining local landowner interest in the use of the material nearby the cut, the RM 591.0L farm fields/quarry site remained for future consideration for long-term placement. However, due to the approximately 15,000 feet of distance from the cuts to the farm fields/quarry site, a temporary stockpile site will have to be in place in order to meet operation criteria. This stockpile site would be designed in the form of a “bathtub” with outer berms constructed as the interior is filled. The staging area and berms would be constructed using the existing sand on Finley’s Landing, dredged material from the approach channel, and/or from the dredge cuts. Once the site reaches near full capacity, which is

estimated at Year 20 or 200,000 cy, material would be hydraulically pumped to the final long-term placement site, identified as the farm fields/quarry at RM 591.0L. Since the bathtub site is located in a high saturated area, there are anticipated wetland impacts. Appendix G-3, *Compensatory Wetland Mitigation Plan*, details the mitigation alternatives screening and the final mitigation design in detail.

3.4. Selection of the Preferred Alternative. Minimization and avoidance of federally-listed endangered mussels, wetland, and floodplain impacts were heavily considered when evaluating the alternatives. The temporary bathtub site needed to be able to store the necessary amount of dredged material, which was another consideration in evaluating the alternatives. Ultimately, Alternative B has been determined as the Preferred Alternative with compensatory wetland mitigation requirements (Figure ES-1). The OSIT worked cooperatively to development permittee-responsible mitigation (PRM) plans meeting the wetland mitigation goals (Appendix G-3). Following full consideration of all DMMP planning, policies, and procedures, any or all of this area may be considered as proposed for dredged material placement.

SECTION 4. ENVIRONMENTAL CONSEQUENCES

4.1. Effects of the Preferred Alternative. Impacts of the Preferred Alternative to natural resources, cultural resources, and other aspects and features of the human environment are summarized in this section. The preliminary screening of potential placement sites, and the subsequent formulation of alternative combinations of feasible placement sites, was conducted with the intent to minimize or reduce adverse effects, and to avoid potentially significant impacts where feasible. No significant adverse impacts are anticipated to result from implementation of the preferred alternative.

4.1.1. Social and Economic Resources

4.1.2.1. Environmental Justice/Community Cohesion. Due to the rural character of the area and a lack of a residential community, no impacts to community cohesion are anticipated as a result of the project. The proposed action will not result in any change in land use or other impacts that would disproportionately affect minority or low-income populations.

4.1.2.2. Employment and Labor Force. No significant impacts on employment or labor force would be expected to occur in the project vicinity.

4.1.2.3. Business and Industrial Activity. No long-term impacts to business or industrial activity would result from the proposed project. No business or industrial relocations would be required.

4.1.2.4. 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 UMR 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. Dredged material is always available to the general public at no cost. Placing the material at the farm fields/quarry can add a boost to the local economy by providing a free commodity.

4.1.2.5. Displacement of People. There are no residential properties in the study area that would be displaced by the proposed Project.

4.1.2.6. Property Values and Tax Revenues. The long-term placement at the farm field/quarry site is privately owned. A portion of this site is currently being mined and the owners anticipate the entire area being converted from farming to mining operations. No properties or methods to revenue taxes will be disrupted.

4.1.2.7. Public Facilities and Services. Maintenance of the channel for commercial, recreational, and environmental interests would positively impact public facilities and services. For example, Finley's Landing is a popular recreational area and is at full capacity, allowing limited space for the local residents to enjoy. Sand would be removed from Finley's Landing, reducing the pile of sand to an OSIT approved level for residents to continue to use.

4.1.2.8. Life, Health, and Safety. The purpose of the project is to maintain the commercial navigation channel in such a manner as to avoid potential personal injury or property damage that may result from inadequate maintenance of the channel and subsequent groundings.

4.1.2.9. Farm Displacement/Soils. Farms are and have already been displaced by the ongoing quarry operations from a separate entity.

4.1.2.10. Aesthetic Values. No permanent impacts to aesthetic values would result from placement of dredged material. Finley's Landing is a popular recreational area and is at full capacity, allowing limited space for the local residents to enjoy. Sand would be removed from Finley's Landing, reducing the pile of sand to an OSIT approved level for residents continued use. Given that Finley's Landing is an existing sand pile and the local community is accustomed to channel maintenance activities, the proposed project would not significantly alter the overall existing aesthetics. Additionally, the relatively rural character of the surrounding area would remain unchanged, especially since the bathtub's berms will revegetate. Therefore, no significant decline in aesthetic values would be anticipated.

4.1.2.11. Noise Levels. Heavy machinery would temporarily increase noise levels in the immediate project area during construction activity and placement operations. No permanent changes in ambient noise levels would be expected to result from dredged material placement.

4.1.2.12. Air Quality. Heavy machinery would temporarily increase air pollutants in the immediate project area during construction activity. No permanent changes in air quality are anticipated from dredged material placement.

4.1.2. Cultural Resources. By letter dated January 31, 2017, the District coordinated the Project with the Wisconsin and Iowa SHPOs and with 50 representatives of 25 tribes, requesting comments and seeking information regarding concerns about potential effects of the Project on significant cultural resources and, particularly, the tribes' concerns with identifying properties that may be of religious and cultural significance to them and which may be eligible for the NRHP listing. Coordination is ongoing. Responses can be found in Appendix D-2, *NHPA Coordination*.

The coordination letter noted the District proposes no archeological investigations at the proposed dredging locales: there are no known submerged resources nearby and, the bulk of the dredging locales have been subjected to historic dredging. No archeological investigations are proposed at the bathtub and compensatory wetland mitigation areas due to low archeological potential.

The District evaluated the dredge cuts, dredge approach to the bathtub, the bathtub, and the seasonally inundated, compensatory wetland mitigation area adjacent to the bathtub as having low potential for intact cultural resources. The District determined the undertaking will have No Effect on historic properties due to low archeological potential in accordance with 36 CFR 800.4(d)(1). Any possible effects related to the farm field/quarry permanent dredged material placement site or other Project actions, such as possible wetland mitigations would be coordinated in compliance with the existing DMMP PA to ensure the protection of known and unknown significant cultural resources throughout the Project planning, assessment, and implementation.

In addition to sites within the action area, the permanent stockpile may cause effects to cultural resources outside the stockpile, but within its viewshed. Presently, the height of the stockpile is unknown and visual effects cannot be ascertained. The stockpile may have visual effects on nearby NRHP-listed or determined eligible prehistoric campsites/villages (47GT0200, 47GT0270; 47GT0274; 47GT0024) and to mounds/mound groups (47GT0095, 47GT0218) that may be NRHP-eligible. The mounds may be contributing elements to the NRHP Multiple Property Listing *Prehistoric Mounds of the Quad-State Region of the Upper Mississippi River Valley*, accepted as a multiple property cover by the National Park Service in 1990. It is also possible an existing quarry has already degraded the viewshed of nearby cultural resources.

The bathtub will serve as a temporary placement site for 20 years, after which a permanent dredged material placement site will be needed. In the meantime, expanding quarry activities may impact nearby archeological sites. Because plans to utilize the farm field/quarry are uncertain, the DMMP PA will address concerns related to significant cultural resources. If the farm field/quarry is chosen, every effort should be made to avoid significant effects at NRHP-listed or eligible cultural resources, per the provisions of the PA.

Throughout the planning process, the District has integrated the NHPA into the NEPA and planning processes and the DMMP PA is referenced in the Finding of No Significant Impact. Site location information is protected under Section 304 of the NHPA and any request for site location information must be addressed to the Wisconsin Historical Society in Madison or the Iowa SHPO in Des Moines.

4.1.3. Natural Resources

4.1.3.1. Wetlands. Impacts to the existing bathtub site's wetlands require compensatory mitigation. According to the 2008 Compensatory Mitigation for Losses of Aquatic Resources (Mitigation Rule), proposed activities are evaluated to determine a net improvement of the function of the site. This is further defined as restoration (re-establishment or rehabilitation), enhancement, establishment (creation), buffer, or preservation (http://www.sac.usace.army.mil/Portals/43/docs/regulatory/Guidelines_for_Preparing_a_Compensatory_Mitigation_Planf.pdf). Preservation is defined as "removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection

and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanism. Preservation does not result in a gain of aquatic resource area or functions." Appendix G-3, *Compensatory Wetland Mitigation Plan*, details the mitigation alternatives screening. In response to a thorough coordination effort with the OSIT, the District has integrated the OSIT's Option 3, Bathtub Mudflat Wetland Mitigation, as the compensatory wetland mitigation plan (Figure 6). In order to fulfill Section 404 requirements, the District's Regulatory staff has conducted a delineation, and a Public Notice has been released for the required Individual Permit.

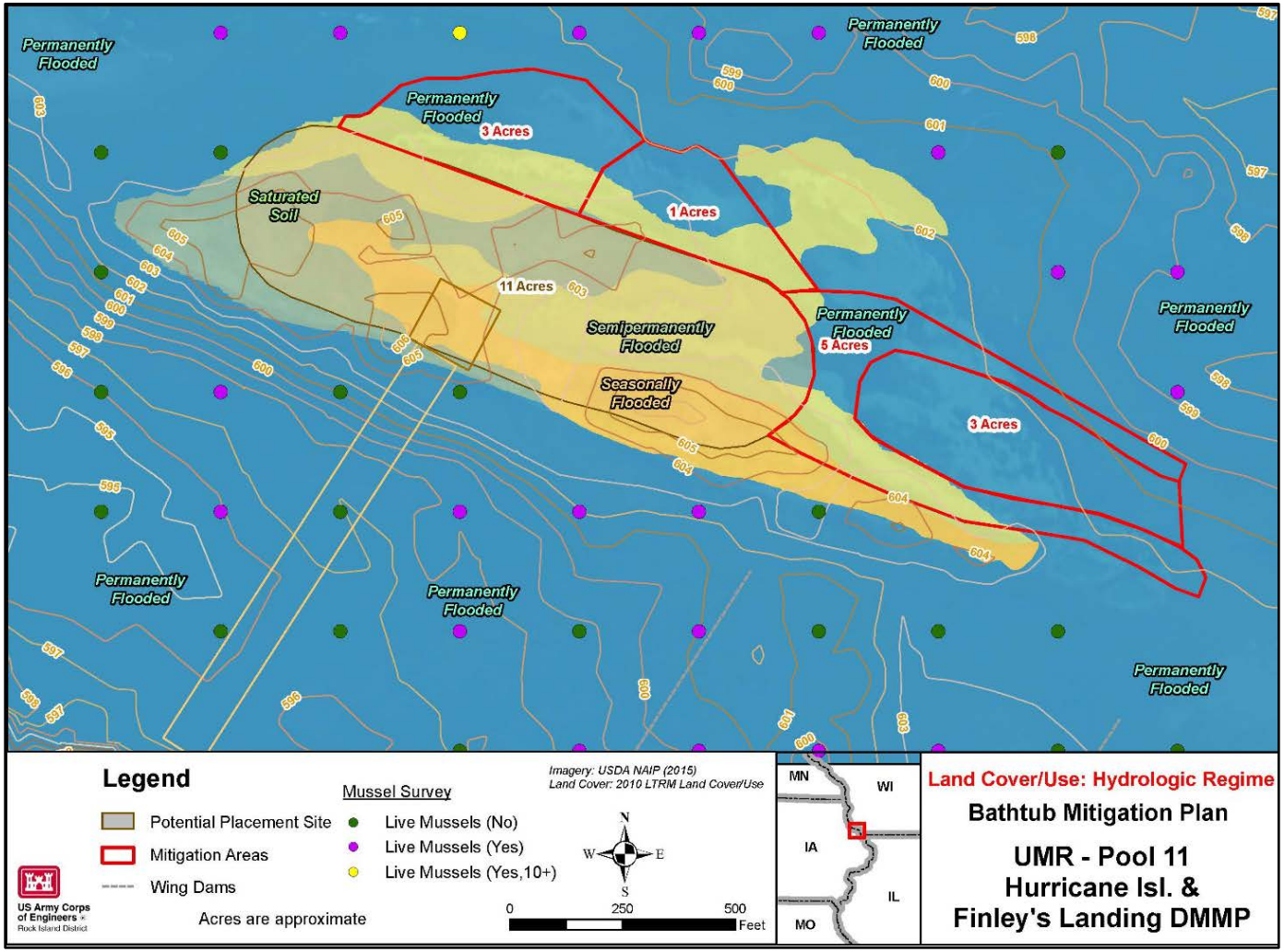

Figure 6. Compensatory Mitigation Plan

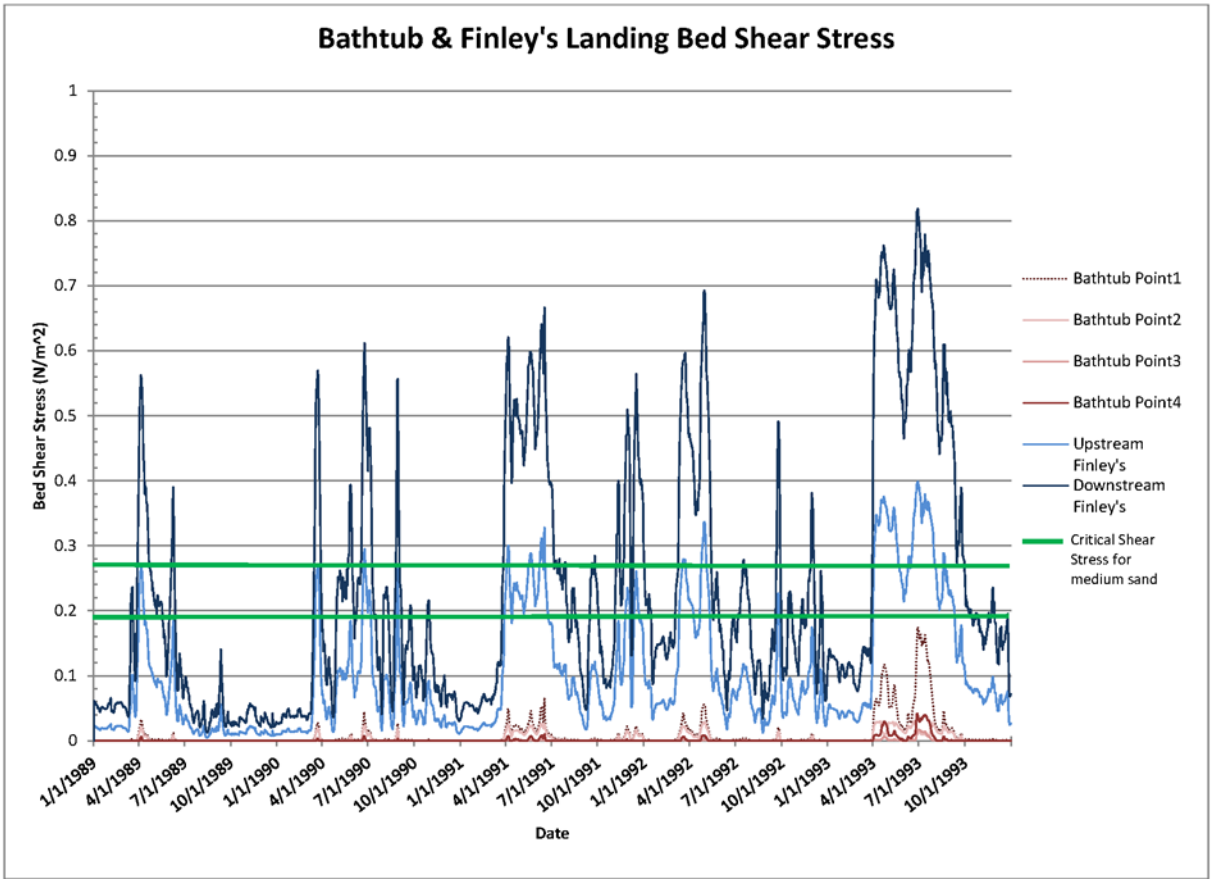

Figure 7. Bed Shear Stress for Hurricane Island DMMP

4.1.3.2. Endangered Species. The District was concerned with the potential bankline erosion and its effects on downstream mussels. Therefore, the District analyzed historic hydraulic data to determine the bed shear stress and elevations necessary to prevent erosion and sand migration. The District determined a berm height of elevation 608 mean sea level (msl) is necessary to reduce erosion during high water for this particular area of the UMR. Depth averaged velocity results for the five-year period beginning January 1989 through December 1993 were used to compute bed shear stress (Figure 7). The green line shows the range in critical shear stress required to mobilize a medium sand-sized particle (0.19-0.27 N/m^2). As shown in the plot, bed shear stress at the bathtub site does not reach critical shear stress during the five-year period. In contrast, bed shear stress at two locations within the Finley's Landing placement site exceeds critical shear stress numerous times throughout the five-year period. With these low rates, erosion of dredged material is not anticipated at the bathtub site. However, erosion of the dredged material is possible from wind wave forces for river stages exceeding the berm height and for high wind conditions. If these conditions occur when the bathtub is partially full, eroded sand should remain within the bathtub contained by the berm. If these conditions occur when the bathtub is full, the material should be trapped in the capped and vegetated berm.

According to the "Evaluating Environmental Effects of Dredged Material Management Alternatives-A Technical Framework", United States Environmental Protection Agency (USEPA) and Corps, May

2004, any discharge from mechanical dredging has been determined to be minimal. Utilizing mechanical dredging for the bathtub approach reduces impacts to the local water column and its associated aquatic communities. Placement on an existing island utilizes the higher land reduces impacts to the aquatic community. Berms will be constructed to contain the material as the interior is filled. The berms have been designed at an elevation high enough (608 ft msl) to reduce erosion during high water. The berms will then be capped with clay and a seed mix applied to ensure stabilization.

The proposed wetland mitigation area includes a 50-foot buffer between the edge of mitigation area and the existing mussels to further reduce any impacts to nearby mussel communities. Additionally, the mitigation area can serve as a buffer itself between the bathtub and adjacent mussels, capturing drifted sediment, in the case of a berm overtopping. In designing the bathtub and approach channel, care was taken to avoid and minimize impacts to mussels in the area. The approach channel was moved to an area with few to no mussels based on the 2016 survey results (Figure 3a).

In planning and coordination efforts, the District will take the aforementioned conservation measures to minimize and avoid impacts to listed species for the Hurricane Island DMMP. It is determined the proposed Project is not likely to adversely affect any threatened or endangered species or their critical habitat (Table 5). In a letter dated March 23, 2017, the USFWS concurred with the District's findings. This coordination is in compliance with the legal requirements set forth under Section 7 of the Endangered Species Act (15 U.S.C. 1536 (c)) and applicable guidance documents.

Table 5. Determination of Effects for Federally-listed Species

Species	Scientific Name	Status	Determination of Impacts
Northern Long-Eared Bat	*Myotis septentrionalis*	Threatened	No Effect
Higgins Eye Pearlymussel	*Lampsilis higginsii*	Endangered	Not Likely to Adversely Affect
Spectaclecase	*Cumberlandia monodonta*	Endangered	No Effect
Mead's Milkweed	*Asclepias meadii*	Threatened	No Effect
Northern Wild Monkshood	*Aconitum noveboracense*	Threatened	No Effect
Prairie Bush Clover	*Lespedeza leptostachya*	Threatened	No Effect
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened	No Effect
Iowa Pleistocene Snail	*Discus macclintocki*	Endangered	No Effect
Hine's Emerald Dragonfly	*Somatochlora hineana*	Endangered	No Effect
Rusty Patched Bumble Bee	*Bombus affinis*	Endangered	No Effect

4.2. Hydrology and Hydraulics. The entire placement site and mitigation areas are within the UMR. Placement at an existing island reduces potential floodplain impacts and utilizes the existing higher land as berms to prevent sand movement during and after construction. A preliminary floodplain model has predicted impacts to remain within the State of Wisconsin-accepted level of less than 0.00 ft at the 100-year flood event. Final design will ensure this level is maintained. Additionally, final

placement at the farm field/quarry is protected from the raised bank and would not cause floodplain impacts.

4.3. Hazardous, Toxic and Radioactive Waste. A review of environmental data indicates there are no recognized environmental conditions that have been identified at any of the proposed placement sites or access easements. Therefore, no further HTRW Environmental Site Assessments are recommended. However, the utilization of fine grains materials for capping the berms raises concerns of potentials sediment contamination. It is recommended that representative samples of the sediments be collected and analyzed for HTRW parameters prior to use. The source of fine sediments would come from routine operation activity (ex: Lock and Dam clean outs) or from the bathtub site's interior. Stockpile of fine sediments would be at the bathtub site or another OSIT existing approved site.

4.4. Effects of the Non-Preferred Alternatives. Environmental impacts of the non-preferred alternatives would generally be increased due to the associated aquatic habitat types. Additional costs and challenges to operation would be anticipated with those alternatives. Dredging needs would not be met and navigation would continue to experience blockages in the main channel.

4.5. Cumulative Impacts. Cumulative effects occur when a relationship exists between a proposed action and other actions which have occurred, are occurring, or are expected to occur in a similar location. By selecting placement sites that have been screened through the OSIT process to avoid environmentally sensitive areas, the District attempted to minimize the individual and cumulative impact of dredged material placement. The District determined that the primary resources impacted by the Preferred Alternative are wetland areas; however, based on the District's mitigation plan, wetland impacts should be minimal and not significant. The District assessed the cumulative impacts at the systemic, District, river, and project levels. As explained below, the proposed project would not individually or cumulatively exceed any known biological or social thresholds.

At the systemic, or UMR scale, the no-project or baseline condition was derived from the United States Geological Survey report, *Ecological Status and Trends of the Upper Mississippi River System 1998*, which suggests the river is already degraded and needs continuing attention if the current ecological benefits are to be maintained and degraded conditions restored.

The 2003 Programmatic Environmental Assessment (PEA) for Future Dredged Material Placement Associated with Channel Maintenance Activities identified six "site-types" as potential environmentally-acceptable placement areas. The corresponding Finding of No Significant Impact (FONSI) of this PEA states that these sites, such as agricultural fields, behind levees, levees, temporary stockpiles, rehandle sites, and disturbed sites, would not significantly affect the quality of the human environment. Therefore, the preferred placement site at the farm fields/quarry is located in fields that have recently been utilized for agriculture and are considered environmentally acceptable for placement. This same PEA also comprehensively addressed cumulative floodplain impacts associated with the placement of dredged material resulting from channel maintenance activities. It discussed historical dredging and placement impacts; projections for potential future dredging; and

placement, including incremental impacts resulting from placement actions associated with the six programmatic placement site-types.

Additional cumulative effects studies in relation to 9-foot navigation were conducted and presented in the *Upper Mississippi River and Illinois Waterway Cumulative Effects Study, dated April 2000* (WEST Consultants, Inc. Contract No. DACW25-97-R-0012). This study identified other additional sources of human-induced stressors to the UMR ecosystem, such as levees and floodplain drainage, tiling and ditching, land use, point and non-point source discharges, and invasive species. It was concluded dredging to affect only small areas (1.6 percent of main channel in St. Paul and Rock Island Districts). Habitat Restoration and Enhancement Projects (HREP) have increased floodplain and aquatic habitat throughout the UMR.

SECTION 5. DESCRIPTION OF THE RECOMMENDED PLAN

5.1. General Description. Due to location and capacity needs, Alternative B is the Preferred Alternative. The bathtub area consists for dredged material placement of approximately 11 acres with the maximum depth of placement at the Bathtub site at approximately 26 feet high. Following full consideration of all DMMP planning, policies, and procedures, any or all of this 11 acres area may be considered as proposed for dredged material placement. Beneficial use is an ongoing effort and future planning and environmental review will be conducted whenever a user is identified.

5.2. Design Implementation. The period of analysis for this study is Federal fiscal years 2017 to 2057. The District anticipates implementation of this DMMP could occur during the FY 2017 dredging season. Design consideration assessed the location of the historic dredge cut in the Hurricane Island River Reach DMMP and the capability of reaching adjacent placement sites for the dredged material. Historical dredge cut information was checked to determine the range of potential placement sites within the reach. Each potential placement site of the Preferred Alternative was designed to provide adequate capacity and flexibility to handle the uncertainty of actual dredging requirements. Plans and specification documentations shall be prepared to support the implementation of the Preferred Alternative.

5.3. Geotechnical. Geotechnical borings were taken in 2014 adjacent to the placement site (Appendix E, *Engineering*). These borings show suitable material for constructing the berms. Significant settlement caused by the weight of dredged material will occur. It is expected that the placement of excessive dredged material makes the sandy clay (CL) and the sandy lean to fat clay (CL-CH) layers consolidate/drain; hence, it increases the strength of the soil to an average of 450 pounds per square feet (psf) for CL and over 320 psf for CL-CH in less than 20 years. The District will conduct a geotechnical reassessment before placing new layer of dredged material every 5 years.

5.4. Construction and Implementation. With the proposed bathtub design, dredged material will be excavated at near full capacity, approximately year 20. This ensures that the material is out of the Pool 11 aquatic system, which minimizes and avoids further environmental impacts. Minor disturbance of local natural resources would be expected during construction (dredging and placement

activity); however, these impacts would be minimal and are not anticipated to be significant. All placement sites would be accessed by the river during dredging operations with the following steps:

Step 1 - Gain Access to Bathtub: The first step for construction of the bathtub would be to gain access to the site. While the site is relatively close to the channel, some dredging will be required to allow access to dredge and construction equipment. The proposed access channel is 100 feet wide by up to 6 feet deep. Along with the access channel, a 150x150x8-foot area will be excavated from the interior of the bathtub, adjacent to the access channel. This will facilitate in offloading the bathtub when it reaches capacity by allowing a hydraulic dredge more maneuverability at the site. Additionally, this excavated material may provide fines for capping the containment berms (sediment testing is required to determine if fines are present). This is to be performed using mechanical dredging equipment. A typical mechanical dredging operation involves a crane with a clamshell bucket loading material onto a deck barge. Once the barge has been filled, it is transported to the offload site (in this case, the bathtub site). The deck barge is pushed as close to the offload site as possible to minimize encroachment of material. The front-end loader on board pushes the material off the deck barge, creating a pile of material. An excavator is sometimes required to reach out and grab the material. At other times, the excavator is not needed, and the dozers are able to push the material (Photographs 4, 5, and 6). Once the enough material is onsite, equipment will be offloaded to begin to move the material. Excavated material from the bathtub access would be used for construction at the proposed bathtub site or stored at another existing approved placement site.

Photograph 4. Mechanical Dredge Placing Material on Deck Barge

Photograph 5. Typical Mechanical Dredging Offload

Photograph 6. Mechanical Placement of Fine Materials With Sand Berms at the Edges to Contain the Fines While They Decant

Step 2 – Build Work Pad: The second step would be construction of a work pad as a base to support heavy equipment in such highly saturated conditions. Dredged material brought over from the approach channel, Finley's Landing, and/or the dredge cut would be used to create a work pad. This will include equipment onsite to move material as was described in Step 1.

Step 3 – Initial Working of the Material into Berms: Once enough material has been placed for a work pad, equipment could be offloaded at the bathtub. The equipment could start construction of the containment berms (building an "L" shape). This enables the berms and work pads to be used for transportation of equipment to further work material.

Step 4 - Continue to Expand Work Pads and Berms: As more material is brought to the site, equipment would continue to expand the work pad and push up berms. Since having the berms and the work pad in place would allow more control for hydraulic dredging, either mechanical or hydraulic dredging equipment could be used to bring additional material to the site at this point.

***Step 5 - Material to the Mitigation Area*:** Material is placed within the mitigation area boundaries and worked to get to the preferred wetland elevation. Once that elevation is reached, capping with fine material is needed for vegetation to reestablish. Dredging of fines would likely be performed mechanically, using locally obtained fine (silts and clays) material from the bathtub's interior or from removing fine material from lock and dam maintenance. Dredged fine materials tend to have a high water content. To achieve the desired shape and thickness, the fine material would likely need time to decant at an existing approved placement site. Once the fine material is dried enough to use, the area will be capped and a seed mix will be applied. After the mitigation area is constructed, monitoring will be conducted over 5 years to determine success. See Appendix G-3, *Compensatory Wetland Mitigation Plan*, for seed mixture and additional mitigation plan information.

Step 6 – Continue to Fill, Complete and Capping of Berms: As material is transported to the interior of the bathtub site, the remaining berms will be constructed. Using the same fine material used at the mitigation area, the berms will be capped and seed mix will be applied. All constructed berms will be completed with fine materials and seeded, prior to demobilization from site after each placement per USFWS recommendations. The District would use a standard seed mix appropriate for the elevation and relationship to river conditions.

5.4.1. Additional Dredged Material Placement Considerations. Dredged material placement for the preferred alternative may occur by both hydraulic and mechanical methods. The bathtub and farm fields/quarry sites will be prepared for dredged material placement in accordance with the Design Plates located in Appendix E; subsequent plans and specifications to support both mechanical and hydraulic dredged material placement operations and maintenance will follow. Overall, the site preparation consists of delineating the site boundaries for the construction limits. Containment berms would be constructed to control material placement along with the water released from the hydraulic dredging operations and to ensure that no dredged material is allowed offsite per the Section 401 permit. Berms would most likely be constructed from sand from Finley's Landing but may also come directly from the dredge cuts and approach channel. Berms would be constructed to a maximum height of 5 feet above the existing ground.

Hydraulic dredging utilizes a cutterhead in combination with a centrifugal pump to entrain dredged solid materials in high velocity water. Dredged material is then pumped in slurry via floating discharge lines and onto the deposition areas through movable shorepipe. Shorepipe is positioned by use of bulldozers and pipe handlers to deposit the dredged material where desired. Booster pumps are

sometimes required when insufficient horsepower exists to move material the desired distance. The booster pump may be placed in the line to maintain flow of material through the pipe.

5.4.2. Return Water from Hydraulic Dredging. The dredge slurry is approximately 80 percent water and 20 percent material. Within the riverine environment return water from the hydraulic dredging is directed back to the river by gravity flow. Increased retention times allow for additional material to fall out of suspension. Construction of berms at the bathtub, as well as constructed sand weirs as material is being pumped, will slow and direct water flow to increase retention times as water is released back through a gap left in the berm. At the quarry site, the dredge slurry will be pumped into a location surrounded by a containment berm. The ponded dredge slurry will be routed to a sump area within the site using sand weirs to slow the water down as needed. The water will then be pumped into the existing ditch to the west of the quarry. Total suspended solids of the return water will be monitored at the outfall of "bathtub" and quarry site during dredging operations. Grab samples will be taken weekly and compared to the 80mg/L daily maximum, as listed within the Memorandum of Understanding (MOU) between WI DNR and the District.

5.4.3. Post-Placement Considerations. All placement site shaping and grading would be performed after each dredging event to ensure proper drainage and slope stability. Resident soil would provide a more suitable growth medium than the dredged material. The source of fine sediments would come from the interior of the bathtub and/or routine operation activity (Lock and Dam clean outs). Stockpile of fine sediments would be at an existing approved site. As-built drawings would be created as specified in the plans and specifications. Compensatory mitigation is necessary for anticipated wetland impacts at the bathtub site. See Appendix G-3 for information on Adaptive Management of mitigation area. Additional planning and environmental review will be required close to Year 20 with future offloading to farm fields/quarry. As Year 40 approaches, the District will reevaluate the bathtub site to determine whether the site should be decommissioned or continue its use with OSIT coordination.

5.4.4. Permits

5.4.4.1. Clean Water Act Section 404 and 401. A signed MOU would satisfy all requirements of the CWA Section 401 certification. The State of Wisconsin has indicated that both Clean Water Act Section 401 Certification and a signed MOU with the District would be needed to satisfy Clean Water Act requirements. Certification, waiver thereof, and/or an MOU would be obtained prior to initiation of dredging or placement. The District prepared a CWA, Section 404(b)(1) Evaluation for the proposed action (Appendix G-1). The proposed project would impact approximately 11 wetland acres and to compensate for this wetland loss, the District prepared a Compensatory Wetland Mitigation Plan (Appendix G-3). The District's Regulatory Branch has provided concurrence with proposed mitigation (Appendix D-3).

5.4.4.2. Floodway Permit. The entire placement site and mitigation sites are within the UMR. Placement at an existing island reduces potential floodplain impacts and utilizes the existing higher land as berms to prevent sand movement during and after construction. A preliminary floodplain model has predicted impacts to remain within the State of Wisconsin-accepted level of 0.00 ft at the 100-year flood event, as per FEMA minimum floodway standards CFR 60.3(d)(3). Final

design will ensure this level is maintained for the necessary permit. Additionally, final placement at the farm field/quarry is protected from the raised bank and would not cause floodplain impacts.

5.4.4.3. National Pollutant Discharge Elimination System (NPDES) Permit. This permit will be covered under the MOU between WI DNR and the District, per Wisconsin Statute 30.202 (3) and (4).

5.5. Operation, Maintenance, Repair, Rehabilitation, and Replacement. An O&M Manual will be produced for the Preferred Alternative during the implementation phase of the Project.

5.5.1. Operation. In general, operation requirements will be limited to routine annual inspections to ensure that the berms are performing as designed. The estimated annual operation costs are provided in Appendix F, *Cost Estimates of Alternatives*.

5.5.2. Maintenance. The Project will have low annual maintenance requirements. The maintenance scope will include items such as mowing, spraying, minor weeding and reshaping of material, invasive species control at 25 percent colonization ratio on the berms to native vegetation, and any other work that may be required during the plan life to facilitate use as a placement site. Estimated annual maintenance costs are presented in Appendix F. Maintenance requirements will be further detailed in the Project's O&M Manual, which will be published when construction is finished.

5.5.3. Repair, Rehabilitation and Replacement Considerations. Repair, rehabilitation and replacement of the project will be completed by the Corps as needed. As Year 40 approaches, the District will reevaluate this site to determine whether the site should be decommissioned or continue its use. Costs for either option will be the responsibility of the Corps.

5.5.4. Cost Estimates. Reference Appendix F for description of costs by operation for Alternative B, including bathtub construction, offloading to the farm fields, and mitigation.

Bathtub Site: The total cost estimate for the construction of at the bathtub site in the Hurricane Island DMMP project is approximately $513,000. This includes the following costs:

Excavation of Bathtub Site: 7,000CY = $105,000
Dredged Material for Containment Berms: 10,083CY = $156,000
Berm construction: 10,083CY = $52,000
Clay Cap: 5,700CY = $190,000
Seeding: 2.5 acres = $9,700

Other costs at the bathtub site include construction support of dredging an access channel, and dredging material and shaping material for a suitable work pad. Those costs are estimated at $485,000 as follows:

Access Channel Construction: 1 5,000CY = $225,000
Workpad Construction (Dredged Material): 13,000CY = $195,000
Workpad Shaping: 13,000CY = $65,000

The bathtub site is designed to hold 194,000CY of material, at a total dredging cost of $1,963,000.

The site is considered to have a "first cost" for the first 20 years of operation, and a "second cost" for the second 20 years of operation. There is also a "third cost" for bathtub decommission when deemed appropriate. The first cost includes construction and construction support costs, one filling (194,000cy) event over 20 years, contingencies, engineering and design, and construction management costs. The second cost includes one filling (194,000CY) over 20 years and contingency. Decommissioning includes restoring the bathtub to its current state.

Total First Cost: $3,890,000
Total Second Cost: $2,453,000
Total Third Cost: $2,106,000

Containment berm maintenance is assumed to take place one week for each year of life, for ¼ of the years of life, in this case, 70 days total. The cost for this is $385,000 for the life of the project.

Lastly, geotechnical analysis is assumed to be performed every 5 years (8 times for the project) for a total cost of $48,000 for the life of the project.

This equates to a total of approximately $8,881,000 for the cost of the bathtub site.

Farm Fields/Sand Quarry: The bathtub site will need to be offloaded once it reaches capacity. At this time, the area is being actively quarried, and the owner has expressed interest in receiving the offloaded dredged material (Appendix D-4). Because of this, it is assumed that there will be no cost for acquiring land or easement rights.

The site will require containment berms and seepage ditches to be constructed. It is estimated that this will include the following costs:

Dredged Material for Containment Berms: 17,000CY = $255,000
Containment Berm Construction: 17,000CY = $85,000
Seepage Ditch Construction: 5,000CY = $15,000

Mobilization and demobilization of equipment for ditch clearing, as well as maintain the ditches will also be required with the following costs:

Mobilization and Demobilization: 1 EA = $2,400
Maintain Ditches: 1 EA = $100

The site is designed to take 400,000CY. Not double counting the material for the berms this leaves the following dredge cost, plus the use of two booster pumps:

Dredged Material: 383,000CY = $4,485,000
Booster Pumps: 2 EA = $200,000

Including contingency, engineering and design, and construction management, the total cost for offloading the bathtub twice to the farmfield quarry site is $6,372,000.

Onsite Mitigation: Lastly, the mitigation for the bathtub site is estimated to be approximately $2,073,000. The scope of work includes clearing, containment berm construction, clay, fine material capping, and seeding. It is assumed in-house hired labor crews would begin by mechanical dredging

the approach channel and building a work pad for equipment to construct the containment berm that will be used to contain the dredged material. It is also assumed a contractor will be required to shape and seed the mitigation area.

In total, the cost for the project is estimated at approximately $17.3 million, which includes $8,881,000 for the cost of the bathtub site, $6,372,000 for the cost of offloading to the farmfield/quarry site, and $2,073,000 for the mitigation of the bathtub.

5.6. Real Estate Considerations. The bathtub site consists of utilizing a portion of Tract No. FW-73, containing approximately 136 acres, and located in Grant County, WI. The United States Government, through the U.S. Army Corps of Engineers, acquired Tract No. FW-73 in Fee to support improvement for navigation in the UMR. The bathtub site borders and is located immediately upstream of USFWS Fee land. Any impact to adjacent Service land will require a Memorandum of Agreement (MOA) between the Department of the Army and the United States Department of the Interior. A MOA is used to establish the relationships, arrangements, and general procedures under which the Corps and the Service will operate in constructing, maintaining, repairing, and rehabilitating a portion of the dredged material placement project. An MOA will need to be executed prior to construction activities.

As the bathtub site reaches capacity, the dredged material will need to be relocated to an upland location. The offload action would involve placing a hydraulic pipe up an existing creek channel or an existing culvert along the left descending bank, near RM 591.5, and pumping material from the bathtub into an upland site (Figure 8). The future upland placement sites are currently utilized as agricultural fields and a sand quarry operation. Multiple landowners in this location have voluntarily expressed interest in accepting dredged material. It is anticipated that placement of material to this upland site would be accomplished by a temporary Dredged Material Placement Permit. An additional temporary permit will also need to be obtained from the BNSF Railway as their right-of-way will be crossed by dredged material equipment during placement activities. All lands located riverward of the railroad in this location are owned by the Government. The Corps may pursue acquisition of permanent real estate interests as necessary to support placement actions.

The following is general District Real Estate Regulations and Policies information concerning dredged material placement and the ownership and disposition of dredged material after it has been removed from the channel and placed in the placement site:

- **Dredged Material Placement on Non-Federal Land.** Dredged material placed on land not owned or administered by the Corps is the property of the landowner, unless there is a written agreement with the landowner that specifies that other parties can remove the material. If the Corps desires to place dredged material on non-Federal land and be able to remove, sell, or allow others to remove the material, an agreement between the landowner and the Corps, which contains the necessary rights and conditions, must be negotiated.

- **Sale or Removal of Dredged Material.** Dredged material stockpiled on property of the United States remains the property of the United States under the control of the Corps. The Federal Property Management Regulations and the Corps' Real Estate Regulations both indicate that gravel, sand or stone that has been excavated by or for the Federal Government is

classified as personal property of the United States. Dredged material stockpiled for beneficial use may be given away free for the hauling. Property, such as dredged material, also can be donated to eligible agencies or groups in certain circumstances.

- **Disposal of Timber.** If the use of any of the sites would require removal of any forest resources on Corps land, this should be coordinated with the Plan's Forester for a determination if there is any merchantable timber to be sold. This determination should be made well in advance to allow adequate time to accomplish a sale of the timber, if needed.

- **Real Estate Implementation Schedule.** The implementation schedule for the Preferred Alternative will be developed when the bathtub site approaches capacity and needs to be offloaded. Site implementation may vary based on funding, river conditions, and temporary permit negotiations.

5.7. Consistency with the Preferred Plan. Engineering Regulation 1105-2-100 provides the overall direction for the Corps to place dredged material from maintenance dredging of navigation projects in the least costly manner, consistent with sound engineering practice and meeting all Federal environmental standards, including standards established by Section 404 of the CWA of 1977, as amended. This constitutes the "Preferred Plan" for the navigation purpose.

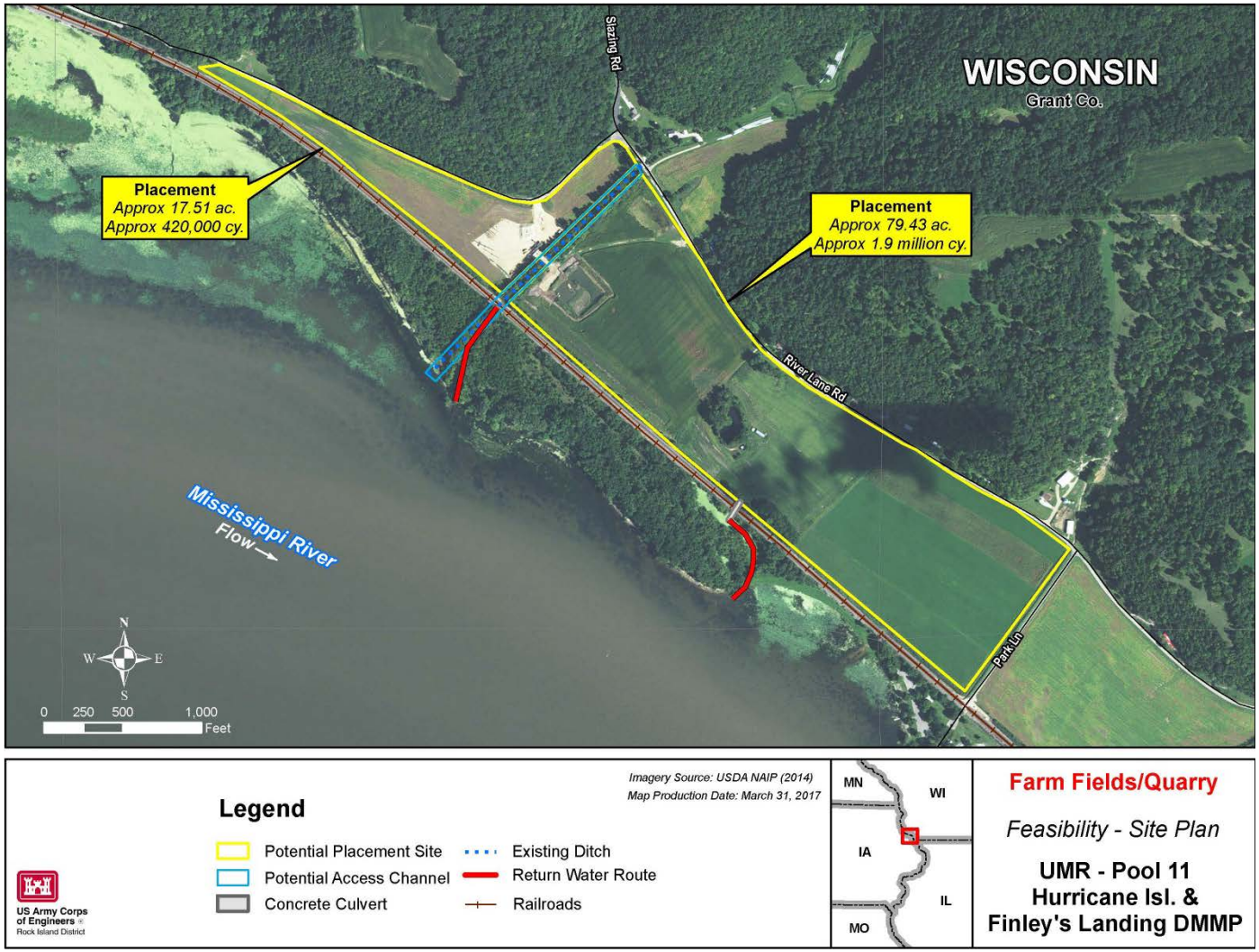

Figure 8. Off-loading Access

SECTION 6. COMPLIANCE WITH APPLICABLE FEDERAL LAWS (Table 6)

Table 6. Compliance with Environmental Protection Statutes and Other Requirements

Federal Environmental Protection Statutes and Requirements	Applicability/ Compliance[1]
Bald and Golden Eagle Protection Act/Migratory Bird Treaty Act	Full 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
CWA, Sections 404 and 401	Full Compliance
Corps of Engineers Planning Guidance Handbook (ER 1105-2-100)/Environmental Operating Principles (2012)	Full Compliance
Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq.	Full Compliance
Executive Order 11988, *Floodplain Management*	Full Compliance
Executive Order 11990, *Protection of Wetlands*	Full Compliance
Executive Order 12898, *Environmental Justice*	Full Compliance
Executive Order 13112, *Invasive Species*	Full Compliance
Executive Order 13653, *Preparing the U.S. for the Impacts of Climate Change*	Full Compliance
Executive Order 13423—Strengthening Federal Environmental, Energy, and Transportation Management	Full Compliance
Executive Order 13514—Federal Leadership in Environmental, Energy, and Economic Performance	Full Compliance
Farmland Protection Policy Act. 7 U.S.C. 4201, et seq.	Full Compliance
Federal Water Protection Recreation Act, 16 U.S.C. 460-(12), et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 601, et seq.	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
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance

[1] Full Compliance = having met all requirements of the statute for the current stage of planning;
Not Applicable = no requirements for the statute required.

6.1. Endangered Species Act. The District determined the proposed action is not likely to adversely affect any federally-listed endangered or threatened species or their habitats. This determination has been coordinated with the USFWS, Iowa/Illinois Ecological Services Field Office during informal consultation with that agency and is in full compliance.

6.2. Archaeological and Historic Preservation Act. The District determined, and the Wisconsin SHPO concurred, no historic properties would be affected by proposed dredging or dredged material placement in full compliance with the Archaeological and Historic Preservation Act. Any future actions will be coordinated per the terms of the PA. The Iowa SHPO did not issue a concurrence or dissent letter in response to the District's request for comment.

6.3. National Historic Preservation Act of 1966, as amended. This Act became law on October 15, 1966 (Public Law 89-665; 54 U.S.C. § 306101 et seq.). This is an Act to establish a program for the preservation of additional historic properties throughout the Nation, and for other purposes, approved

October 15, 1966 (Public Law 89-665; 54 U.S.C. § 306101 et seq.). Section 106 (54 U.S.C. § 306108) of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations 36 CFR Part 800, "Protection of Historic Properties," establishes the primary policy, authority for preservation activities, and compliance procedures. The NHPA ensures early consideration of historic properties preservation in Federal undertakings and the integration of these values in to each agency's mission. The Act declares Federal policy to protect historic sites and values in cooperation with other nations, states, and local governments. The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally-assisted undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking, take into account the effect of the undertaking of any district, site building, structure, or object that is included in or eligible for inclusion in the NRHP. The head of any such Federal agency shall afford the ACHP a reasonable opportunity to comment with regard to such undertaking.

Allowing for tribal review and comment contributes to fulfilling obligations as set forth in the NHPA (PL 89-665), as amended; the NEPA of 1969 (PL 91-190); Executive Order (EO) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeological and Historical Preservation Act of 1974 (PL 93-291); the regulations (36 CFR Part 800) implementing Section 106 of the NHPA; and the applicable National Park Service and District regulations.

Although the PA assures the District will comply with the NHPA and no historic properties will be affected by the dredge cuts and proposed dredged material placement, if any undocumented cultural materials of potential significance are encountered during the undertaking, the District will discontinue all dredging or dredged material placement activities and resume coordination with the appropriate SHPO/THPOs to assess the significance of the find and determine potential effects under the PA, Stipulation VI.

6.4. Clean Air Act. The proposed action is expected to be in compliance with the Act. Mobile source emissions will be temporary and limited to the construction period, and are expected to be *de minimis* for criteria air pollutants. Based on these findings, the proposed project demonstrates conformity.

6.5. Clean Water Act. The District prepared a Section 404(b)(1) Evaluation for the proposed action and is attached as Appendix G-1. Wetland impacts are anticipated and The District has applied for the WI DNR ILF Program but was denied (Appendix D-3, *NHPA Correspondenc*e). Appendix G-3, *Compensatory Wetland Mitigation Plan,* outlines the District's on-site mitigation. The State of Wisconsin indicated the preference to enter into a Memorandum of Understanding (MOU) with the District instead of issuing a CWA Section 401 certification. A signed MOU would satisfy all requirements of the CWA Section 401 certification. Certification, waiver thereof, or an MOU would be obtained prior to initiation of dredging or placement.

6.6. Executive Order 11988 Floodplain Management. The entire placement site and mitigation areas are within the UMR. A preliminary floodplain model has predicted impacts to remain within the State of Wisconsin-accepted level of less than 0.00 ft at the 100-year flood event. Final design will ensure this level is maintained for the necessary permit. Additionally, final placement at the farm field/quarry is protected from the raised bank and would not cause floodplain impacts.

6.7. Federal Water Project Recreation Act. No increases or decreases in current public recreational opportunities would be realized if this project is implemented. The proposed action is in full compliance.

6.9. Fish and Wildlife Coordination Act. Project plans have been coordinated with the USFWS. Coordination responses can be found in Appendix D-2, *NHPA Coordination*. The proposed action is in full compliance.

6.10. Bald and Golden Eagle Protection Act/Migratory Bird Treaty Act. During a site visit on May 10, 2017, an active eagle nest was encountered within the project boundary at the southwest corner of the bathtub site. A letter dated May 26, 2017 from USFWS requires restrictions on all channel maintenance activity to maintain a buffer of 600 feet during nesting season (approximately mid-January to June). Clear cutting of trees and removal of nest will not be allowed. Implementing the aforementioned conservation measures will ensure the proposed action to be in full compliance.

6.11. Farmland Protection Policy Act of 1981. In accordance with the provisions of this law, the preferred alternative has little to no impacts on prime farmland. The farm field/quarry site is currently being mined and the owners anticipate the entire area being converted from farming to mining operations. The preferred alternative would be in full compliance.

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

6.13. Executive Order 11990, Protection of Wetlands. Wetland impacts are anticipated and the District has applied for the WI DNR ILF Program but was denied. Appendix G-3, *Compensatory Wetland Mitigation Plan,* outlines the District's on-site mitigation.

6.14. Executive Order 13112 and Executive Order 13751, Invasive Species. On February 3, 1999, President Clinton issued EO 13112, with amendment EO 13751 on December 5, 2016, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause by establishing the National Invasive Species Council. The proposed action is consistent with EO 13112 as it will use relevant programs and authorities to prevent the introduction of invasive species and not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere.

6.15. Executive Order 12898, Environmental Justice. Executive Order 12898 of 1994 and the Department of Defense's Strategy on Environmental Justice of 1995, which direct Federal agencies to identify and address any disproportionately high adverse human health or environmental effects of Federal actions to minority and/or low-income populations. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population.

Low-income populations as of 2014 cover those whose income is $24,230 for a family of four and are identified using the Census Bureau's statistical poverty threshold. The Census Bureau defines a "poverty area" as a Census tract with 20 percent or more of its residents below the poverty threshold and an "extreme poverty area" as one with 40 percent or more below the poverty level. This is updated annually at http://aspe.hhs.gov/poverty/14poverty.cfm

A potential disproportionate impact may occur when the percent minority (50 percent) and/or percent low-income (20 percent) population in an Environmental Justice study area are greater than those in the reference community. No minority or low-income populations are present in the project study area. The proposed action will not result in any change in land use or other impacts that would disproportionately affect minority or low-income populations, and is therefore considered to be in compliance with this EO.

6.16. Executive Order 13653, Preparing the U.S. for the Impacts of Climate Change. EO 13653 requires Federal agencies to undertake actions enhancing climate preparedness and resilience, including the identification and assessment of climate change related impacts on and risks to the agency's ability to accomplish its missions, operations, and programs.

The Corps' ECB 2016-25, *Incorporating Climate Change Impacts to Inland Hydrology Guidance*, provides information to support a qualitative assessment of the impacts of climate change in hydrologic analyses in accordance with the Corps overarching climate change adaptation policy that requires consideration of climate change in all current and future studies to reduce vulnerabilities and enhance the resilience of our water-resource infrastructure. More quantitative guidance will be developed as actionable science evolves.

A qualitative analysis of the project site was accomplished using both the Corps Nonstationarity Detection Tool and the Corps Climate Hydrology Assessment Tool. The Corps' ECB 2016-25, issued September 2016, expires September 2018. USGS gage data for the Mississippi River gages at McGregor, IA and at Clinton, IA were analyzed; the analysis did not find any statistically significant trend in the maximum annual flow. While the observed annual peak instantaneous streamflow did not have any statistically significant trends, the projected annual maximum monthly flows did show a significant positive trend. The results from the Corps Climate Hydrology Assessment Tool analysis of the observed and projected changes indicate there is potential for higher flood risk in the future for the Mississippi River near Pool 11. Clear consensus in the literature is lacking, with some studies projecting an increase in future streamflow (as a result of increased precipitation) in the study region, while others project a decrease in flows (as a result of increased evapotranspiration).

Seasonally, multiple studies suggest increased flows in the winter and spring and decreased flows in the summer. *Corps, Climate Preparedness and Resilience, Recent US Climate Change and Hydrology Literature Applicable to US Army Corps of Engineers Missions, Upper Mississippi Region 7, June 2015,* Conclusion:. Climate change impacts to magnitude and frequency of flood risk are equivocal with respect to future magnitude and frequency flood risk. While there is a reasonable chance that some storm events may occasionally deliver large quantities of precipitation to the watershed, the likelihood and magnitude of this change cannot be assessed with the current information. The District has considered and evaluated the risk associated with climate change on the effectiveness of the proposed action and is therefore considered to be in compliance with this EO.

6.17. Environmental Operating Principles (2012). Throughout the study, the PDT incorporated the seven Corps EOPs by:

- fostering sustainability;
- considering the environmental consequences of the alternatives;
- creating mutually supporting economic and environmentally sustainable solutions;
- continuing to meet our corporate responsibility and accounting for activities which may impact human and natural environments;
- employing a risk management and systems approach to the environment;
- using scientific, economic, and social knowledge to understand the environmental context and effects of the District's actions in a collaborative manner; and,
- employing an open, transparent process that respects views of individuals and groups interested in the District's activities.

SECTION 7. COORDINATION WITH LOCAL, STATE, AND FEDERAL AGENCIES

Letters of coordination from Federal and state agencies and Tribes are included in Appendix D, *Coordination.* These letters help document the review process in identifying and evaluating the extent of significant environmental resources, historical properties, and other economic or social resources to discuss potential future conditions.

7.1. National Historic Preservation Act. Cultural resources coordination included informational letters containing invitations to consult, mailed to 50 representatives of 25 tribes and to the Iowa and Wisconsin SHPO. Table 7 lists cultural resources-related coordination contacts and responses, if any. All responding parties concurred with the District's No Historic Properties Affected determination or voiced no objections to the project as proposed.

Table 7. Cultural Resources-Related Notified Agencies and Tribes and Response Summary

Entity, Agency or Tribe	Contact Mailed	Contact Responded	Response Summary
Iowa SHPO	1/31/2017	2/2/2017	Acknowledge receipt of the District's request for comment.
Wisconsin SHPO	1/31/2017	2/2/2017	Concur that No Historic Properties will be affected. On 3/29/2017, mailed a second letter notifying office of location of proposed compensatory wetland mitigation and requesting comment.
USFWS (Regional Historic Preservation Officer)	3/30/2017		
Citizen Potawatomi Nation	1/31/2017		
Delaware Nation	1/31/2017		
Delaware Tribe of Indians of Oklahoma	1/31/2017		
Forest County Potawatomi Community	1/31/2017		
Ho-Chunk Nation	1/31/2017		
Iowa Tribe of Kansas and Nebraska	1/31/2017		
Iowa Tribe of Oklahoma	1/31/2017		
Kickapoo Tribe in Kansas	1/31/2017		
Kickapoo Tribe of Oklahoma	1/31/2017		
Menominee Indian Tribe of Wisconsin	1/31/2017		
Miami Nation of Indians in Indiana	1/31/2017		
Miami Tribe of Oklahoma	1/31/2017	2/10/2017	No objections to proposed project. Unaware of any Miami cultural or historic sites linked to the project area. Request copies of any reports performed as project moves forward. On 3/29/2017, mailed a second letter notifying tribe of location of proposed compensatory wetland mitigation
Omaha Tribe of Nebraska	1/31/2017		
Oneida Tribe of Indians of Wisconsin	1/31/2017		
Osage Nation	1/31/2017		
Otoe-Missouri Tribe	1/31/2017		
Pokagon Band of Potawatomi Indians	1/31/2017		
Ponca Tribe of Nebraska	1/31/2017		
Ponca Tribe of Oklahoma	1/31/2017		
Prairie Bank Potawatomi Nation	1/31/2017		
Sac & Fox Nation of Missouri in Kansas & Nebraska	1/31/2017		
Sac & Fox Nation of Oklahoma	1/31/2017		
Sac & Fox Tribe of the Mississippi in Iowa	1/31/2017		
Stockbridge-Munsee Band Community Band of Mohican Indians	1/31/2017	2/6/2017	This project is not within Mohican area of interest.
Winnebago Tribe of Nebraska	1/31/2017		

7.2. On-Site Inspection Team (OSIT). The OSIT is a coordinating team formed during the 1970s. It consists of state and Federal natural resource and regulatory agency representatives, as well as the District. The purpose of the OSIT is to discuss and recommend alternatives for dredged material placement. The OSIT is involved with plan formulation and continued monitoring and implementation of this DMMP. The PDT collaborated with the OSIT closely throughout the planning process for this Project. Communication with state and Federal agencies has been conducted through meetings, bi-weekly phone calls, letters and emails (Appendix D-3, *OSIT Coordination*). The District's involvement with OSIT, specifically the WI DNR, over the past 6 years is as follows:

2011

January: PDT Meeting No. 1, discussion on site identification for placement sites.

***March*:** PDT and OSIT meeting to discuss identified sites.

2013

***May*:** PDT and OSIT meeting to discuss site alternatives.

July: MOU between the District and the WI DNR expired

2014

***July*:** PDT and OSIT meeting to discuss measures/alternatives and combining the Hurricane and Finley's DMMP with the Snyder Slough HREP within the Environmental Management Program.

September: District's Section 401, WQC application denied by WI DNR.

2015

***March*:** PDT and OSIT meeting to further discuss combining Snyder Slough HREP and the DMMP. This idea was dropped due to lack of interest from partner agencies, especially WI DNR. WI DNR was concerned funds designated for a restoration project in the State of Wisconsin through the Environmental Management Program would go toward addressing any channel maintenance. Rosebrook Island restoration was proposed by USFWS. The USFWS initiated an Environmental Assessment for Rosebrook and McMillan Islands bottomland hardwood restoration.

***March* 26:** The WI DNR identified that dredged material may require additional "solid waste" permitting.

***April*:** PDT and OSIT onsite meeting. The OSIT recommended placing the material at the Wisconsin Power and Light (WPL). This is an upland site and therefore would not require a 401 certification. The District agreed to place material at the WPL site as recommended by the OSIT. The OSIT also agreed that if an emergency dredging occurred, 10,000 cy could be placed at Finley's Landing and up to 10,000 cy could be placed at Hurricane Island.

May: Wisconsin would require additional testing beyond the typical sampling procedures performed by the District for "solid waste" permitting. The WI DNR also indicated additional testing of all dredge cuts would be needed to approve the new MOU.

July: Grain size and elutriate analysis samples collected and analyzed for placement at the WPL as requested by WI DNR.

***October*:** Additional sampling provided results to WI DNR demonstrating that material met all the necessary State standards.

November: Conversation between District and WPL Plant Manager suggest applying for the additional permits and the time involved would make the usage of the material infeasible for the Plant.

2016

***January*:** PDT and OSIT meeting to update on status of planning process. Discussed site locations, design of placement sites, beneficial use of material to USFWS for island restoration. The District requested feedback for habitat modeling.

***May*:** PDT and OSIT meeting to update the status of the planning process. Discussed design of placement sites, necessary mitigation, and habitat and hydrologic modeling results. The WI DNR did not support the conversion of an isolated wetland on Rosebrook Island to forest habitat restoration.

May: Channel closure: Total 32,000 cy needed to be removed, only 18,000 cy was dredged and placed at Finley's Landing, IA. An email letter was provided by the State of Wisconsin stating any placement in Wisconsin waters, including Hurricane Island, would be a violation of water quality standards.

***June*:** The District established bi-weekly conference calls to closely integrate the WI DNR into the project planning process.

October-External agency meeting to discuss mussel survey results and update on current design of bathtub. The District updated the OSIT on the mitigation option of the approved WI DNR ILF Program.

2017

January: The District applies for the WI DNR ILF Program.

***February*:** PDT and OSIT meeting to discuss the OSIT preferred mitigation options. The OSIT agreed that a combination of the onsite mitigation options with the ILF Program would be considered.

February: Draft DMMP report is sent to OSIT for a complimentary review.

March: WI DNR denies the District use of the ILF Program (Appendix D-3, *OSIT Coordination*).

March: District receives a letter from the OSIT, documenting the mitigation recommendations that were discussed at the February meeting (Appendix D-1, *Endangered Species Act Coordination*).

April: The District sent the WI DNR a letter on April 18, 2017, requesting the WI DNR to reconsider their position on the ILF Program if on site mitigation cannot meet state and Federal regulations or meet mitigation success criteria.

In addition to the aforementioned meetings/site visits/conference calls, the District also provided a complimentary review of this DMMP report to the OSIT to gather any recommendations or comments prior to public review (Appendix D-3*)*. The following are the comments received from USEPA, WI DNR, and USFWS and the District's responses to those comments.

Environmental Protection Agency Letter Dated February 17, 2017:

Comment: The USEPA recommends the description and/or the legend for Figure 1 [Figure 5 in this revised report] be clarified to indicate the number of bathtubs that will be created under the proposed project and the appropriate location(s) in Figure 1 [Figure 5]. Additionally, the two bathtubs indicated with "(FWS)" should be clearly explained in the EA.

Response: Table 4 in Section 3.2 has been revised to demonstrate the sites (including FWS bathtubs) that were evaluated and either brought forward or not for future consideration. Section 3.4 explains the preferred alternative as Alternative B with only the bathtub at RM 594.1 to farm fields/quarry.

Comment: The USEPA recommends USACE commit in the FONSI to ensuring native vegetation establishes, with a minimum of non-native, invasive plant species. Also, greater clarification regarding whether resident soil will be used to provide a more suitable growth medium than the dredged material.

Response: Revised Section 5.7, *Operations and Maintenance Considerations,* to include in the O&M Manual invasive species control at a 25 percent colonization ratio on the berms to native vegetation. Dredging of fines would likely be performed mechanically, using locally obtained fine (silts and clays) material from the bathtub's interior or from routine lock and dam maintenance. Revisions have been made to the report to implement active seeding of native species. See Section 5.4, *Construction and Implementation*, Steps 5 and 6, for additional information.

Comment: The USEPA recommends USACE mitigation wetland impacts by replacing the same ecological type as the impacted resource (in-kind mitigation).

Response: All compensatory mitigation will be in-kind to ensure no net loss of these wetland types. Appendix G-3, *Compensatory Wetland Mitigation Plan,* outlines the baseline conditions appropriate mitigation ratios, and construction limitations to build in-kind wetlands.

Comment: The USEPA recommends the issue of coordinating the beneficial use of dredged material be explained in greater detail. For example, will coordination take place with "multiple interest" before annual dredging commences or might coordination cover a longer duration and several projects? How might USACE alert potential users that material is available once it has been

permanently placed in the upland site? Lastly, USEPA recommends USACE commit in the FONSI to actively pursue beneficial use, as appropriate.

Response: Section 1.10 was revised to include more examples of potential usage of material. Beneficial use is limited to the local interest and ability to transport material. Ongoing efforts are being made by the District to research users (ex: Mackinaw River, Illinois, dredged material to soil for construction purposes).

Wisconsin Department of Natural Resources Letter Dated March 3, 2017:

Comment: Overall, the Department expected to see greater assessment of alternatives that would locate permanent placement for the dredged material outside the floodplain and its habitats.

Response: Figures 4 and 5, and Table 4 show all the upland sites considered for this project. Table 4 describes the feasibility of each site and reasons they were dropped or carried forward for further consideration.

Comment: Utilization of dredged material for beneficial use such as landfill capping, road sanding, construction fill and similar uses is an option that minimizes wetland impacts while making material available for other economic benefits. This type of beneficial use was not described in the Draft DMMP Section 1.10, presumably due to equipment related constraints raised in Section 1.11.

Response: Section 1.10 was revised to include more examples of potential usage of material. Beneficial use is limited to the local interest and ability to transport material. Ongoing efforts are being made by the District to research users (ex: Mackinaw River, Illinois, dredged material to soil for construction purposes).

Comment (Bathtub Site-site specific): The Department recommends the footprint of the entire bathtub site be shifted to the east to remove the upstream end of the containment berms from extending into the backwater channel.

Response: It is understood this concern is based on orthoimagery showing the proposed bathtub site in relation to the existing island mass. The orthoimagery was taken at a snapshot in time when water elevations may not adequately convey the topography of the island and surrounding river. Using contours of the area, the elevation on the northwest edge of the bathtub is considerably flat and does not vary significantly. Survey data shows the portion of the containment berm in question would be constructed at a location with elevation higher than 602ft MSL1912, and thus is less than 1 foot below flat pool of 603ft (Figure 9).

Comment: Throughout the letter, WI DNR recommends that the District pre-excavates the bathtub interior. This will provide water quality benefits, minimize wetland impacts and increase offload efficiencies.

Response: The District is purposing to pre-excavate the bathtub interior to provide additional area (approximately 0.5 acre) for the offload operation.

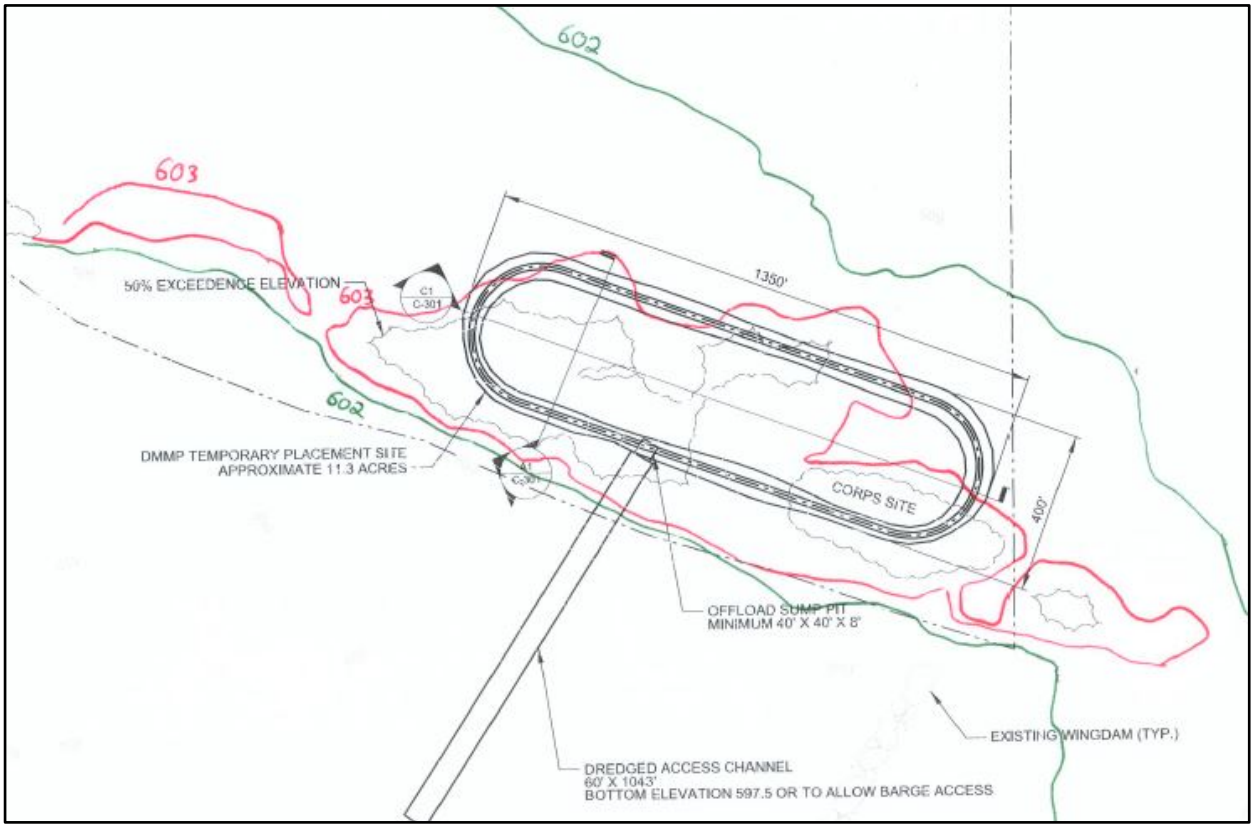

Figure 9. Elevations at Preferred Bathtub Site

Comment (Farm Field/Quarry Site): The long-term dredge material placement solution identified in the DMMP is to construct a temporary dredge material placement site (Bathtub) which is to be offloaded to Farm Field/Quarry (RM 591L) in 20 years. However, the MVR has not secured the long-term use for Farm Field/Quarry (RM 591L) site or any other upland placement sites. It is understood that current requirements necessitate that the Dredge Material Management Plan must be completed before land acquisition negotiations can take place. However, waiting 15 years before beginning these negotiations is not an acceptable option. These negotiations need to take place as soon as possible.

Response: Acquisition in not required with a willing landowner wanting to accept the dredged material. Section 1.12 explains three-phase interagency DMMP process with Phase 3: Acquisition of placement sites (as needed) and implementation of the Recommended Plan. Communication with the existing landowners has been conducted (See Appendix D-4, *Public Coordination*, for email) and has

expressed interested in receiving the material. Future communication will be conducted on a 5-year basis to ensure the landowners are still interested. This communication will be coordinated through the OSIT as part of the draft MOU (Appendix G-2).

Comment (Hurricane Island Beach Site): Consequently, if the Hurricane Island placement site is going to be utilized in the future, the DMMP needs to include a stabilization plan to address all of these concerns. This plan will need to, at minimum, incorporate the use of rock, fine material, erosion controls and vegetation to stabilize the site. Even if the proper stabilization is installed, this site should still only be considered a one-time placement location of dredge material for recreation purposes. The plans developed within the DMMP, once approved by the Department, will be incorporated into the MOU.

Response: The District has evaluated rebuilding wing dams near the Hurricane Bankline. Hydraulic modeling did not demonstrate a reduction in velocities along the Hurricane Island bankline with wing dams restored to original design grade or elevated to 3 feet below flat pool. The District also evaluated construction of rock groins, rock vanes, and blanket riprap. A blanket riprap option required more rock, resulting in a higher expense than a rock groin or rock vane option. Blanket riprap was also the least preferable to the District because it essentially removes any recreational use the Hurricane Island bankline site has had since 1968. *The Upper Mississippi River Restoration, Environmental Management Program, Environmental Design Handbook, December 2012* was used for design standards of newly proposed rock groins and vanes. Rock groins and rock veins showed a flood surface profile impact above the State of Wisconsin standard. Currently no measures (rock, fine materials, erosion controls, and planting) have been identified that meet the State of Wisconsin's minimum requirements for stabilization, and are under the threshold for the State of Wisconsin's flood surface profile impacts, and also allow the District to effectively use the bankline site for placement of dredged material. A one-time use site would not allow the District to meet the needs of anticipated future dredging quantities. Therefore, other sites were identified as part of the preferred alternative. While likely the State of Wisconsin will not approve placement without all of the stated minimum requirement, the District wishes to keep the Hurricane Island bankline as a potential placement option in the event a suitable stabilization method can be found or the State of Wisconsin requests placement at the bankline site with an exemption to the flood surface profile impact regulations.

Starting in 1998, the District agreed to perform monitoring erosion rates at Hurricane Island bankline. Monitoring was performed on the Hurricane Island bankline using hydrographic survey vessels starting in 1999. The limiting factor for collection of data is the river stage. In order to collect data closer to shore, elevated river stages are needed. A total of 40 surveys were performed between 1999 and 2015. Select surveys were used and a two-foot contour was selected to attempt to get more comparable survey data. Figure 10 shows a summary of this data.

The percent loss of material over a 3- or 4-year period is not able to be captured by this data. This data seems to suggest that material at the two-foot contour does move but has the potential to stay for longer periods under some channel conditions. Sediment contributions from upstream of the site also are not evident in this survey data.

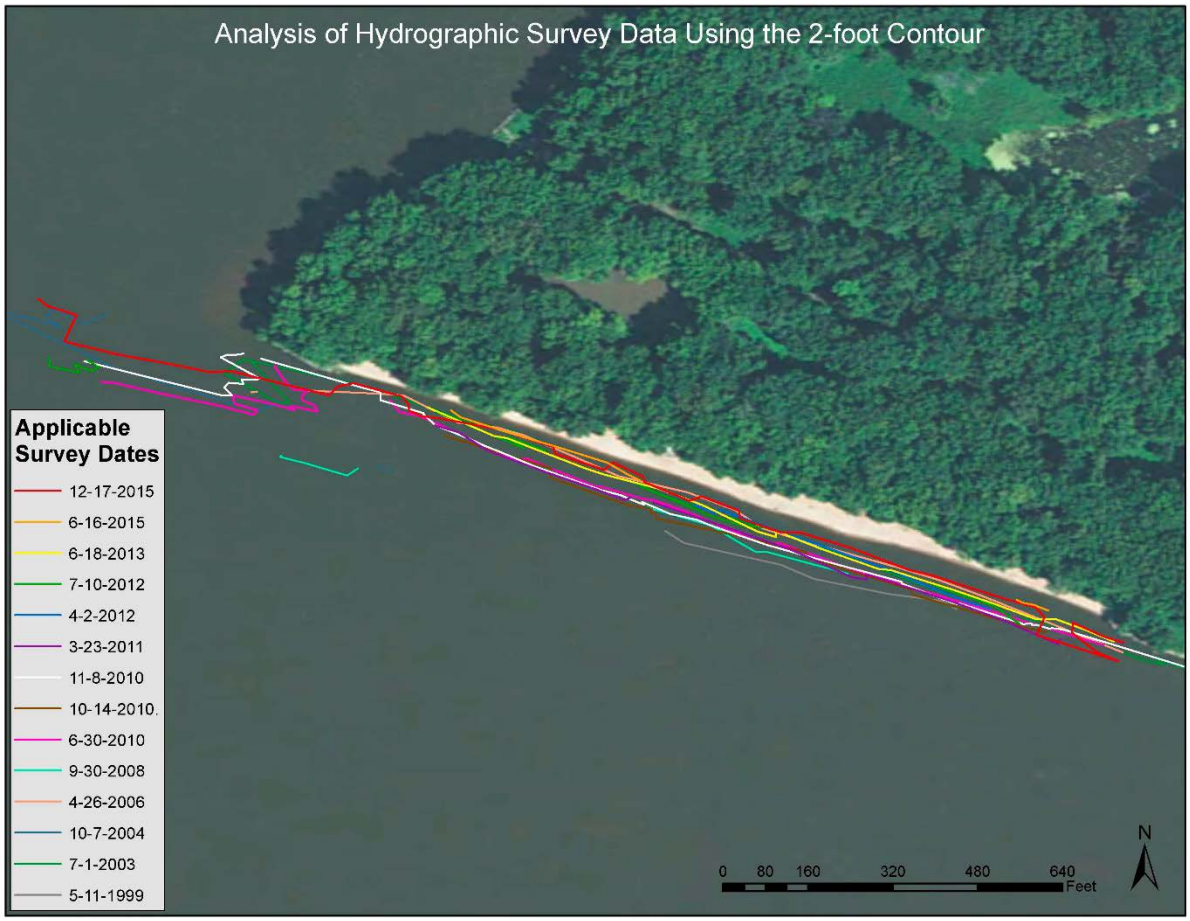

Figure 10: Hurricane Island

Comment (Capping Material Borrow Sites): Borrow sites will require sediment samples to be collected and analyzed for potential contaminants.

Response: The District will use agreed upon sampling methods listed within the pending MOU.

Comment (Cassville Power Plants): The DMMP identifies the Cassville power plants (606 and 608) but states that they were not carried forward for review.

Response: The Cassville Power Plants were not carried for further review for long-term placement sites, but are examples of beneficial use sites. These sites are subject to the plant management objectives and need for the material. Future coordination will be necessary to ensure NEPA compliance. The District anticipates the MOU would address and clear any additional regulatory permits or encumbrances with using this site.

Comment (Bathtub Access Design): Before the dredging begins, sediment samples will need to be collected and analyzed for potential contaminants. Does the 60 foot width (stated in original report) represent the top or the bottom of the trapezoid shape channel to be excavated? According to Section

5.5.1, sediment is to be excavated and hauled to an existing approved placement site for offload. What offload site is intended to be used? Due to the length of the access channel, WI DNR recommends excavating a turning basin for the barges.

Response: The District will use agreed upon sampling methods listed within the pending MOU. The width is the bottom of the channel to be excavated. In communication with the District's dredging staff, the access channel needs to be at least 100 feet to fit barges. Care was taken to keep the channel in a path where no mussels were present to avoid impacts. A turning basin is not recommended because it would further increase mussel impacts and it is not required to perform the proposed actions. The dredged material from the approach channel can go temporarily on Finley's or directly to the bathtub site dependent on the methods and circumstances. The District is purposing to pre-excavate the bathtub interior to provide additional area (approximately 0.5 acre) for the offload operation.

Comment (Bathtub Construction):

1. The Geotechnical Engineering Report states that the berm will be "approximately 5 feet high and constructed with existing clay on the island". However, Section 5.5.1 of the DMMP indicates that the berms are to be constructed using dredge material from Finley's Landing placement site. Please clarify.
2. The Hurricane DMMP is inconsistent on the planting requirements for the berm. The berms need to be seeded upon completion of the clay cap. The establishment of woody vegetation will help stabilize the site, provide an aesthetic screen, reduce wind erosion on the site and decrease the possibility for this area turning into a high density recreation area
3. Section 5.5.3 states "during hydraulic placement operations at the bathtub, a gap would be left to allow the release of water". This is not an adequate outlet for the return water and could result in adverse erosion issues. The bathtub should have a designed outlet or weir capable of providing adequate detention time to assist in the removal of suspended solids.
4. The hydraulic modeling for the bathtub site demonstrates stable conditions for the bathtub during high water conditions and resistance to wind and wave action. WI DNR recommends that a routine inspection and maintenance plan be developed. This plan should be adaptive in nature with the understanding that riprap or other erosion control measures may be required in the future.
5. Section 5.7 of the DMMP approximates the cost for the bathtub construction at $196,466 while the Executive Summary states $300,000. Please clarify.

Response:

1. The berms are to be constructed to elevation 608.0. They are constructed of a dredged sand core (2-foot to 4-foot height) with a clay cap (1 foot). On the channel side of the containment berm the height of the berm is less than 3 feet in places. In those locations the berm will be entirely constructed of clay. Geotechnical Engineering Report has been updated to reflect this. The berm has been modeled as a clay berm as that is more representative of how it will behave than a sand berm. The geotechnical modeling was completed with narrower berm widths and steeper side slopes than used in the final berm design. As the underlying material—not the berm design—was the limiting factor of the modeling, the model was not redone with final

design dimensions. The slope of the sand placement will be limited to a slope of 7H:1V until the clay layer under the sand has compacted enough to support a steeper slope. It is recommended that borings be taken by the District and the model rerun if steeper slopes are desired.

2. See Step 5 under section 5.4. The containment berms will be constructed and capped as material is dredged. A seed mix will be applied to duplicate the sedge meadow habitat and does not include woody vegetation. A cost of $9,700 for the seeding is included in the cost estimate.
3. Construction of berms at the bathtub, as well as constructed sand weirs as material is being pumped, will slow and direct water flow to increase retention times as water is released back through a gap left in the berm. Total suspended solids (TSS) of the return water will be monitored at the outfall of "bathtub" and quarry site during dredging operations. Grab samples will be taken weekly and compared to the 80mg/L daily maximum, as listed within the Memorandum of Understanding (MOU) between WI DNR and the District. The berms are maintained and monitored one week for each year of life, for ¼ of the years of life to ensure berm sustainability.
4. Containment berm maintenance is assumed to take place one week for each year of life, for ¼ of the years of life to ensure berm sustainability. If visual inspection reveals erosion of the berms, necessary measures will be implemented.
5. The costs in the main report and Appendix F have been updated for consistencies.

Comment (Farm Field/Quarry Design): Section 5.9 of the DMMP states that the “offload action would involve placing a hydraulic pipe up an existing creek channel along the left descending bank, near RM 591.5, and pumping material into an upland site”. The actions described in this section may warrant additional environmental review.

Response: Additional coordination and environmental review will be necessary close to offloading at Year 20, as stated in the FONSI.

Comment (Dredging Quantities): Section 1.7 of the DMMP recognizes the deferred dredging but fails to provide explanation of why the initial “clean out” is extended over 5 years of dredging at 25,000 cy per year and what this quantity represents. Is this the necessary quantity of dredging to restore recommended widths and depths through the area of deferred maintenance broken up over a 5 year implementation? How is the “clean out” dredging functionally changing the deposition rates within this section of channel such that it arrives back at historic frequencies after 5 years? It appears that some of the increased frequency of dredging at Finley’s is a result of reduced dredging at Hurricane, but it is not clear how that shift is accounted for within the plans for the “clean out” and the future estimated quantities. If the channel has been adequately navigated at historic frequencies, what is the benefit of the “clean out” dredging with its associated costs and impacts?

Response: The numbers provided in Section 1.7 are purely estimates and no guarantee of any material quantities that may result from channel maintenance dredging at any particular time. Historical dredging quantities and frequencies were used as the basis for these estimates. The dynamic nature of the river system will cause quantities to vary. Channel maintenance dredging was deferred in both

2015 and 2016 and these quantities are known. In general, reduced maintenance dredging has been performed in this reach due to the lack of available placement sites. The District anticipates both dredging frequency and quantities to remain relatively high for the first approximately 5 years. This would allow the District to address any deferred or past reduced dredging, while also effectively using both District and regional equipment to maintain a safe and navigable channel for all river miles under our jurisdiction. Evaluating available hydrographic survey data, there is currently and estimated quantity between 80,000 and 100,000 cy within this reach if the channel were to be dredged at the maximum authorized dimensions. The 25,000 cy per year for the first 5 years is roughly representing this quantity of material. Once the channel dimension is restored with adequate placement available, any necessary maintenance dredging could be performed. The additional space allows for an increased amount of time before dredging is required due to reduced channel widths impacting navigation, resulting in a decrease in dredging frequency.

It is possible that reduced dredging at the Hurricane Island Dredge Cut may be correlated to increased frequencies at Finley's Landing Dredge Cut. With the potential array of sediment contributors and the complex nature of the transport of sediment in the Mississippi River, more data is needed to support this conclusion.

The existing conditions in this reach are not adequate for a safe and effective navigation channel. Except for an emergency closure in 2016, the District has kept a channel open for navigation despite the lack of adequate placement sites. Closures and a reduction in channel width both have cost to the navigation industry.

Comment (Aesthetics): Efforts need to be taken to preserve the natural scenic beauty of the Mississippi River. Section 4.1.2.10 of the Hurricane Island DMMP does not mention the aesthetic impacts of adding a large pile of dredge material in Pool 11.

Response: Section 4.1.2.10 describes the potential impacts to the area's aesthetic values. Since the berm would quickly revegetate and with the current sand pile at Finley's Landing, it is anticipated there will be little to no changes from the current state to aesthetics.

Comment (Future Offload): According to the Hurricane Island DMMP, the bathtub is projected to be offloaded two times in the next 40 years. The DMMP does not account for any of the logistics for a future hydraulic or mechanical offload. It is understood that these factors may be subject to change in the future but the DMMP should attempt to anticipate future hydraulic pipeline routes, account for access dredging and mobilization of equipment for both routine placements and offloads and document any potential aquatic resource concerns associated with those operations.

Response: In an effort to account for some of the known concerns at this point in time, measures have been taken to avoid and minimize impacts to the area surrounding the farm fields/quarry. For example, floating pipe will be used to transport material and an existing creek and/or an existing culvert will be used as a path for the pipe. These are methods to avoid and minimize tree clearing and access dredging as much as possible. The appropriate figures have been revised to note access into this area.

Comment (Water Quality Standards):

1. In Section 2.23 Waters/Wetlands, aluminum impairment was reported, but Pool 11 also has impairments for PCBs, mercury and total phosphorus and has fish consumption advisories stemming from PCB contaminated tissue. Sampling in 2016 found total phosphorus levels exceeding listing criteria for Fish and Aquatic Life use.
2. Sediment characterization conducted in 2015 found main channel dredged material to be uncontaminated based on Wisconsin's "Consensus-Based Sediment Quality Guidelines" (CBSQG) Threshold Effect Concentration (TEC), making it compatible with a surface water effluent limitation for total suspended solids of 80 mg/L. This is a daily maximum limit and grab samples must be collected weekly from the outfall discharge point.
3. Wisconsin's Runoff Management program (Wisconsin Administrative Code NR 151) outlines Best Management Practices to manage total suspended solids (TSS), nutrients, temperature, pollutants and erosion through the application of erosion prevention measures, infiltrating practices and nutrient management. The bathtub design needs to provide adequate time and area for the total suspended solids in the effluent to drop out of solution before entering the river during construction, dredge placement activities and material offload activities. Extra care must be taken to ensure that the mussel beds thriving near the proposed bathtub area are given an adequate level of protection, particularly as these mussel beds include endangered Higgin's eye mussels.
4. The Draft Hurricane DMMP (Section 6.1.5) indicates that a 401 Water Quality Certification is pending with the Department and that the Department will enter into the MOU in lieu of issuing a Water Quality Certification. In fact, a Water Quality Certification will be required for this DMMP.
5. The Department recommends that the DMMP outline a plan for water quality monitoring during the construction phase of this project.

Response:

1. Revised Section 2.23 to reflect the additional sampling from the draft report in 2016.
2. Total suspended solids (TSS) of the return water will be monitored as per the 401 WQC. Grab samples will be taken weekly and compared to the 80mg/L daily maximum, as listed within the pending MOU.
3. Operations will ensure enough distance for material to settle out prior to release to main channel by the construction of weirs and ponding areas. Additionally, the mitigation area can act as an additional buffer between the bathtub and adjacent mussels, capturing drifted sediment reaching adjacent mussels, in the case of a berm overtopping. Please see Section 4.1.3 for more information on additional conservation measures and coordination for mussel impacts.
4. Additional coordination with WI DNR is required to determine the process with WQC.
5. Water Quality monitoring during construction phase will be conducted as per the 401 WQC. Based upon an example provided by WINDR for Spring Lake Islands in Pool 5, TSS will likely be monitored to ensure that the daily maximum does not exceed 400mg/L 500ft

downstream of the carriage water discharge in the effluent plume. If background concentrations are greater than this valued, the background concentrations shall be met.

Comment (Long Term Plan): The Corps should develop a long-range plan for the lifespan of the bathtub that includes anticipated need, renewed capacity and if no longer needed, decommissioning that returns the site to a natural condition.

Response: The District's Operations office annually evaluates the main channel to determine short term and long term dredging needs and concerns. The bathtub site is anticipated to be in use for approximately 40 years to hold the necessary capacity after an offload to the permanent location at approximately Year 20 or 200,000 cy. As Year 40 approaches, the District will reevaluate this site to determine whether the site should be decommissioned or continue its use. The District would include the WI DNR and the OSIT in all of these decisions at that time.

Comment (Wetland Mitigation):

1. For the impacts that cannot be minimized, Wisconsin would like to see the compensatory mitigation be completed within Pool 11 of the Mississippi River.
2. Beyond that, the Great II Channel Maintenance Handbook identifies that the Fish and Wildlife Interagency Committee (FWIC) should be involved in the development of the compensatory mitigation requirements for the establishment of new dredge material disposal sites. Chapter IV Section D of the Handbook states the following: "Since the established policy for the Rock Island Engineers District is to use the GREAT II primary sites whenever possible, the OSIT will have to have strong rationale and vote by consensus for recommending the use of new or alternative sites. The procedures and priorities outlined in Section IV. B. above must be used by the OSIT in the selection of any new sites, and site preparation and mitigation recommendations should be in accordance with Section IV. C. and D above and Section IV. E. and G. below."
3. On February 14, 2017 the OSIT and members of the FWIC met to discuss alternative compensatory wetland mitigation options that were not considered in the draft DMMP document. The partnership outlined and agreed upon three alternative permittee-responsible compensatory mitigation options for further consideration.

Response:

1. The District has evaluated areas within Pool 11 for compensatory mitigation. Per the OSIT's on-site mitigation recommendation, the District developed a Compensatory Wetland Mitigation Plan (Appendix G-3). This appendix outlines several mitigation alternatives considered but not selected based on floodplain impacts, not meeting the in-kind replacement need, operational limitations, and endangered mussel impacts.
2. Please see Section 7.2 for the thorough coordination the District has had with the OSIT, which currently consists of the same members from the FWIC. The current onsite mitigation plan has been designed to compensate in compliance with Clean Water Act, Section 404 Federal regulations. The GREAT II Handbook was developed prior to these Federal regulations. For example, the 2008 Compensatory Mitigation Rule sets standards for mitigation measures and ratios with monitoring requirements necessary to fulfill Section 404. Any comments

pertaining to the procedural recommendations of the interagency teams is outside the scope of this report. The District will coordinate any deviation from the Compensatory Wetland Mitigation Plan, outlined in Appendix G-3, through the OSIT chairperson.

3. According to the 2008 Compensatory Mitigation for Losses of Aquatic Resources (Mitigation Rule), which was implemented after the GREAT II Handbook was issued, proposed activities are evaluated to determine a net improvement of the function of the site. This is further defined as restoration (re-establishment or rehabilitation), enhancement, establishment (creation), buffer, or preservation (http://www.sac.usace.army.mil/Portals/43/docs/regulatory/Guidelines_for_Preparing_a_Compensatory_Mitigation_Planf.pdf). Preservation is defined as "removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanism. Preservation does NOT result in a gain of aquatic resource area or functions." Therefore, preference was given to the OSIT Option 3, Bathtub Mudflat (see Appendix D-3). In coordination with District's Regulatory office, The District used the OSIT's Option 3 as a basis of acceptable in-kind mitigation. In order to analyze these areas in more detail to fulfill Section 404 requirements, the District's Regulatory staff has conducted a delineation and a Public Notice has been released for the required Individual Permit.

U.S. Fish and Wildlife Service: Endangered Species Act Concurrence Letter Dated March 23, 2017

Comment: Page 1, Section 1.4 Authorization: Update Illinois Waterway to Upper Mississippi River

Response: Concur. This has been revised accordingly.

Comment: Page 1, Section 1.4, Authorizations: Please consider a statement identifying management of the project area by the Upper Mississippi River NWR.

Response: Concur. Revised Section 1.2, *Project Location*, to identify USFWS Upper Mississippi NWR, as well as Section IV, C of the Appendix G-3, *Compensatory Wetland Mitigation Plan*.

Comment: Page 7, Section 1.11 Objectives and Constraints: Under the Constraints section, please consider updating the text of "Many sites near the Hurricane Island Dredge Cut include impacts to federally-listed species and cannot be disturbed" to "Many sites near the Hurricane Island Dredge Cut were identified to have listed species concerns, resulting in efforts to avoid and minimize impacts."

Response: Concur. This has been revised accordingly.

Comment: Page 11, Section 2.2.4 Biota: Update county names.

Response: Concur. This has been revised accordingly.

Comment: Pages 14-19, Alternative Plans: Please consider references to FWS fee-titled land, as appropriate.

Response: Concur. Updated table with new sites considered to include fee-title entities, as well as revised Section V in Appendix G-3, *Compensatory Wetland Mitigation Plan*.

Comment: Pages 16-19, Section 3.2 Evaluation of Alternative Plans: Please include updated mitigation discussions and options throughout the report, as presented in the OSIT's letter of March 1, 2017.

Response: Please see Appendix G-3, *Compensatory Wetland Mitigation Plan,* which has been added to provide more detail on the mitigation alternatives, with emphasis on the OSIT recommendations.

Comment: Page 31, Section 5.5, Step 5- Complete and Capping of Berms: Please include a discussion regarding where the dredged fines will be obtained.

Response: Please see revised Section 5.6, Step 5. Dredging of fines would likely be performed mechanically, using locally obtained fine (silts and clays) material from the bathtub's interior or from removing fine material from lock and dam maintenance**.**

Comment: Page 34, Sections 6.1.2 and 6.1.3: Consider adding reference to USFWS Regional Historic Preservation Officer coordination for alternatives on FWS fee-titled land, as appropriate.

Response: Concur. Additional coordination was conducted and have been added to Appendix D-2, *OSIT Coordination.*

7.3. River Resources Coordination Team. Also formed in the 1970s, the RRCT is an interagency coordination committee that makes recommendations to the District Engineer for the DMMP site plans. This team approves the DMMP reports as part of the planning process.

7.4. Periodic Review. The DMMP documentation is subject to periodic review and subsequent modification. A periodic reevaluation of the individual management plans may be required due to changes in regulation, significant changes in the navigation channel, economic or environmental conditions, or changes in dredge plant availability or capability. Reevaluation also would be required when the preferred dredged material placement alternative approaches the end of its useful capacity. The District may initiate a reevaluation, or the OSIT or other participating Federal or state agency may request a reevaluation. Justification for the reevaluation would be reviewed by the District to determine if reevaluation is warranted. Modification would be subject to the same review and approval process as the DMMP.

7.5. Public Views and Comments. Throughout a feasibility study, the Corps strives to inform, educate, and involve the many groups who may have an interest in the study. This coordination is assures that all interested parties have the opportunity to be part of the study process. One process used for coordination is the public involvement process. Public involvement is the exchange of information with various segments of the public. It attempts to reduce unnecessary conflict and achieve consensus. The goal of public involvement and coordination is to open and maintain channels

of communication with the public in order to give full consideration to public views and information in the planning process (ER 1105-2-100, Appendix C, *Public Involvement, Collaboration and Coordination*). The study report was circulated for an approximate 30-day public and agency review. The following are the comments received from USEPA, WI DNR, IA DNR and USFWS (Appendix D-3) and the District's responses to those comments.

USEPA Letter dated May 22, 2017 - Response to Comments

PROJECT CONSTRAINTS

Comment 1: The EA indicates a project planning constraint is the effort to reduce sediment load from contributing tributaries, as this is outside the authorities provided to U.S. Army Corps of Engineers (USACE) to operate and maintain a 9-foot navigational channel in the Upper Mississippi River.
Recommendation: While EPA acknowledges the extent of USACE authorities, it is reasonable to include in the analysis information attributed to other Federal and/or state agencies to reduce sediment load from overland and tributary sources. Therefore, EPA recommends the analysis address efforts by any entity to reduce sediment in this area of the Upper Mississippi River (e.g., use of bedload interceptors, etc.).

Response: At this time, the District does not know of any other agency actions that either contribute to increased erosion or decrease tributary sediment. Presently, there are no agencies or private parties using bedload interceptors in the project area. The District is currently investigating the feasibility to utilize bedload interceptors in the Turkey River, Iowa, but has made no formal decisions on their applicability and no conclusion concerning their overall impact to this DMMP project.

PLACEMENT SITES

Comment 2: Table 4 of the EA, New Placement Sites Considered, indicates three sites, Alliant Energy, Nelson Dewey Plant at RM 608; Dairyland Power Cooperative at RM 606; and U.S. Fish and Wildlife Service (USFWS) fee-title Bathtub Islands at RM 595.5L and 596.7L, do not provide sufficient capacity for long-term placement, but could still be used for beneficial use.
Recommendation: While EPA acknowledges the EA indicates these sites would not provide sufficient capacity and the first two sites are located further than the allowable 10,000 feet away from dredge cuts, the EA is unclear as to whether these two sites will be incorporated into the Preferred Alternative (and ultimately the Finding of No Significant Impact (FONSI)). This comment is based on the idea that these three sites may provide a means of beneficially reusing dredged material. Therefore, EPA recommends the analysis address whether these three locations will be included in the Preferred Alternative and FONSI, in addition to the bathtub and upland permanent placement proposal.

Response: Beneficial use does save costs by extending the life of the existing placement sites. However, the identified beneficial users are not able to take the material at this time. The District has been in frequent contact with the Project Managers involved with the closure of the Alliant Energy, Nelson Dewey Plant. Although they are still considering incorporating channel maintenance sand into their closure process, they have not been able to commit to accepting material or guaranteeing a

specific amount of available space. If these or other sites become available at a later date, the District will coordinate with the OSIT.

WETLAND MITIGATION

Comment 3: Section 5.5.2 of the EA, Maintenance, indicates the maintenance scope of the project will include non-native, invasive plant species (NNIS) control at 25 percent colonization ratio on the berms to native vegetation. Appendix G-3, Compensatory Wetland Mitigation Plan, indicates physical removal or chemical treatment of NNIS will occur if NNIS colonize 50 percent of the mitigation site prior to colonization by preferred wetland plants.
Recommendation: EPA recommends the analysis clearly state what the maximum allowable percentage of NNIS will be at the entire site in order for mitigation to be deemed successful.

Response: Based on the existing conditions at the bathtub site (nearly 100% reed canary grass), the District realizes the challenges in managing this invasive species at the mitigation site. In an attempt to lower establishment potential, active seeding will be implemented. Annual monitoring will be over 5 years post construction with the 50% management during those 5 years.

AIR QUALITY AND DIESEL EMISSIONS REDUCTION

Comment 4: EPA acknowledges the air quality analysis found in the EA. We recommend the protective measures outlined in the enclosure, EPA's Suggested Construction Emission Controls, are evaluated and applicable measures become commitments in the FONSI in an effort to improve health outcomes and lower the project's greenhouse gas footprint.

Response: The District and Corps of Engineers is committed to greenhouse gas reduction and community health concerns near project sites. Every project is required to comply with Executive Order 13423—Strengthening Federal Environmental, Energy, and Transportation Management (improve energy efficiency and reduce greenhouse gas emissions) and Executive Order 13514—Federal Leadership in Environmental, Energy, and Economic Performance (preparing and implementing the Strategic Sustainability Performance Plan). The Main Report now reflects these executive orders (Table 6), and by default are engrained in the Finding of No Significant Impact.

THREATENED AND ENDANGERED SPECIES

Comment 5: Appendix D-1, Endangered Species Act Coordination, includes correspondence from USFWS regarding Federally-listed species. However, neither the EA nor the appendices address coordination regarding state-listed threatened and endangered species listed in Section 4.1.3.2., Endangered Species.
Recommendation: EPA recommends the results of coordination with the Wisconsin and Iowa Departments of Natural Resources concerning state-listed species are included in the project analysis.

Response: The District solicited baseline data from the Iowa Department of Natural Resources and Wisconsin Department of Natural Resources' state heritage databases (Appendix B). The District provided each agency a pre public review draft of the DMMP report for their comment. Neither state commented on their state listed species. Additionally, the District coordinated with the US Fish and

Wildlife Service via the Fish and Wildlife Coordination Act, whereby the USFWS solicits from the states any information on significant state resources. The District did not receive any project issues concerning state listed species.

While the Corps of Engineers is not bound by a state's endangered species regulations, the District would treat any state listed species encountered before or during construction in accordance with our standard best management practices for federally protected species.

WI DNR Letter dated May 25, 2017 - Response to Comments

MAIN REPORT

Main Report Page ES-II: The total cost estimate for the project is approximately $12.8 million, including an estimated $6,235,500 for the bathtub site, and $4,927,000 for offloading to the farm fields with and an estimated
$1,658,000 for the required compensatory mitigation.

Comment: Recommend specifying the lifespan for this plan. Do the total costs listed on page ES-II reflect a 20- year (200,000 cy) or 40-year (400,000 cy) plan? Do the total costs for the plan include an offload at year 40?

Response: Concur. Revised to specify the projected 40 year plan on page ES-II.

Main Report Page 5: The District has not been able to dredge to authorized channel dimensions within the Finley's Landing dredge cut due to lack of OSIT approved placement. In 2015 the District deferred dredging of 12,150 cubic yards because of lack of OSIT approved placement. During 2016 a channel closure occurred within the Finley's Landing Dredge cut, shutting down navigation traffic. The District identified approximately 32,000 cubic yards to be dredged. Only 18,702 cubic yards were dredged due to the lack of OSIT approved placement.

Comment: The Rock Island District has not been able to place dredge material in Wisconsin due to an expired Memorandum of Agreement with the Department. The most recent Memorandum of Understanding (MOU) expired in July of 2013. That agreement was a two-year extension to the ten-year (2001-2010) MOU that expired in December of 2010. The 2011 two-year MOU extension contained the following provision: "The Corps will continue to work with the WI DNR and other members of the On Site Inspection Team (OSIT) to develop alternatives that will meet the long-term (40-year) needs of both channel maintenance and environmental restoration in Pool 11. The goal will be to develop the following prior to implementing any subsequent MOU:

i. Bathymetric maps identifying preferred placement sites approved by the River Resources Coordinating Team. Preferred sites will include estimates of site capacities, methods of transfer, frequency of use, and final site conditions.

ii. A list of approvals or steps required to implement placement at the preferred sites."

Recommend changing "due to lack of OSIT approved placement" to "due to the lack of an approved dredge material management plan that would meet the long-term needs of channel maintenance and address the concerns raised by the OSIT".

Response: Comment noted. The OSIT consists of partner agencies and the District, which all contribute to the approval of placement sites.

Main Report Page 6 – Projections of Future Conditions without DMMP: However, the OSIT has not approved placement at this location due to the State of Wisconsin's concerns for sediment migration. It is likely that dredged material will no longer continue to be placed at the historic Hurricane Island bankline site because of the State of Wisconsin's concerns.

Comment: The Pool 11 Dredged material Disposal Plan from March of 1987 indicates that "this historic disposal site is capable of handling a single-event of 30,000 cy. Thereafter, the site only will be available as a beach nourishment site, based upon OSIT inspection and recommendation." However, a total of 96,882 cy were placed (7 events) on Hurricane Island beach since that time. The renewed capacity at this beach site area appears to be a function of excessive erosion rates. The WI DNR is interested in maintaining the site for recreation with dredge material placement for beach nourishment and the installation of proper bank stabilization.

Response: The sections from the 1987 report in the comment are accurately quoted. The District also agrees that approximately 96,882 cy were placed at the Hurricane Island placement site in 7 separate events since 1987. All 7 single-event placements at Hurricane Island placement site mentioned above were done so with OSIT approval. All 7 single-event placements were less than 30,000 cy. Please note that subsequent NEPA documents, DMMP plans, and MOUs between the Department and District define the Hurricane Island placement site as 2,300 feet long by approximately 220 feet wide with a capacity of 75,000 cy.

The District has yet to find a stabilization measure that would be in compliance with all State of Wisconsin standards. Stabilization measures at Hurricane Island have created a flood height impact over the State of Wisconsin standard of 0.00. Future efforts could be incorporated to define proper stabilization. For example, there are currently additional efforts by the Corps in Pool 11, outside of this DMMP, to attempt to clarify management goal and identify steps to address sediment related challenges. We look forward to working with the State of Wisconsin and other partners to create possible solutions to achieve the identified goals.

Main Report Page 7 – Beneficial Use: Multiple interests have been established for beneficial use in the project area, specifically for island creation (e.g., Rosebrook Island, Snyder Slough). Other beneficial use options outside of the floodplain have been identified in the local industrial and commercial businesses. However, these options are not a permanent solution for long-term placement over the projected 40 years.

Comment: The report overlooks the opportunities for beneficial use to meet the 40 year placement need. As noted below, double handling material is an expensive approach over the long term, particularly as offload costs rise due to increases in construction and real estate costs. While more expensive initially, direct placement to upland or on-shore transfer sites may be more cost-effective

long-term. In light of the interest from the power plants at Cassville, the opportunity to lease or acquire an offload site as those plants decommission and the interest from Bard Materials to utilize the dredged material for their clients, there could be sufficient capacity to meet the 400,000 cy volume. The level of analysis of those alternatives within this plan does not allow for comparing potential cost-efficiencies of combining multiple beneficial use opportunities to meet the 40-yr need.

Response: When additional beneficial users are identified, a separate environmental review will be conducted with at that time. This DMMP is to identify a long-term placement site at present. The District concurs that if/when additional beneficial users become available, this will extend the life of the preferred alternative.

*Main Report Page 7 Objectives**:** Reduce O&M costs where possible.*

Comment: The MVR should also consider that the rising costs of dredging and double-handling of material at "bathtub" sites is increasingly posing challenges for the St. Paul District Corps of Engineers (MVP), and that direct placement to upland sites or on-shore transfer sites may be a more cost-effective long-term solution. The draft Pool 4 DMMP states "Temporarily storing the material on islands saves initial cost because the cost of moving the material to a final placement site is deferred to the future. However, managing dredged material in this manner is very costly long term due to "double-handling" of the material. Placing dredged material on an island site and later moving it to a permanent site ("double handling") increases the life-cycle cost of the operation by approximately $2 million annually in Lower Pool 4." We encourage you to discuss these issues and potential solutions with the MVP.

Response: Thank you for the comment and recommendation. The District is interested in finding better ways to handle the placement of dredged material. If the State of Wisconsin is aware of sites that allow for direct placement to upland or to an on-shore transfer site within the existing constraints, please provide those sites to the District for consideration.

*Main Report Page 8 – Constraints**:** Assess site access and the Dredge Goetz equipment limitations. Current dredging allows for placement of a maximum of 10,000 feet of distance from dredge cut, should not exceed 1,000 feet inland from the dredge cut, and should not exceed +/- 28 feet in height up a slope from the dredge cut.*

Comment: The Hurricane Island dredge cut is more than 10,000 feet from the bathtub site. This material (46,400cy) will need to be mechanically dredged or will require hydraulic equipment other than the Goetz. This material does not appear to be represented by mechanical dredging or contracted hydraulic dredging in the cost estimates. Please clarify where this material is going and what the cost will be. Presumably, if material is barged to the bathtub, the incremental difference is about 4 additional miles of hauling to reach Cassville (8.5 miles from Hurricane cut).

Response: The comment references the operational constraints of the Government *hydraulic* Dredge Goetz, so all operation will be mechanical. For the purposes of this study and the preferred alternative, the estimated dredging volumes from the Hurricane Island Dredge Cut will be barged to the bathtub location. The Cassville site is a potential option for beneficial use, if it becomes feasible at the time dredging is required.

*Main Report Page 8 – Strategies**:** The overall DMMP would identify, evaluate and acquire placement sites meeting the District's needs for a minimum of 20 years, and ideally for 40 years or longer, using the three-phase interagency DMMP process as follows**:***
*Phase 1**:** Preliminary assessment and site/alternative identification and screening*
*Phase 2**:** Alternative evaluation, including environmental assessment, and engineering and cost considerations*
*Phase 3**:** Acquisition of placement sites (as needed) and implementation of the Recommended Plan.*
This report represents completion of Phase 1 and Phase 2 of the process for the Hurricane Island Reach DMMP. Upon review, final approval, and availability of funding, the District will begin Phase 3.

Comment: It is understood that there is currently a landowner/business that has expressed an interest in accepting the dredge material at the farm field permanent placement site. It is also understood that current requirements necessitate that the Dredge Material Management Plan must be completed before land acquisition negotiations can take place. Acquisition of upland dredge material placement sites on Pool 11 needs to be the top priority for the MVR. The shortage of land acquisition for dredge material has been an historic problem for the Army Corps of Engineers throughout the Upper Mississippi River system. Rock Island District's Implementation Report for Great II Study (June 1981) identifies the importance of land acquisition. It ranks the acquisition of disposal sites or the rights for disposal at the earliest date possible as a High Implementation Priority Action. We recommend beginning negotiations for acquisition of the property as soon as possible to ensure the site is available for long- term use.

Response: Further coordination for real estate will begin when offload action is anticipated.

*Main Report Page 8**:** This report represents completion of Phase 1 and Phase 2 of the process for the Hurricane Island Reach DMMP. Upon review, final approval, and availability of funding, the District will begin Phase 3.*

Comment: What is the expected timeline for final approval and availability of funding for Phase 3? If construction work is likely to be spread over multiple fiscal years, can you provide an anticipated schedule of activities?

Response: End of FY17 if MOU is finalized. Out-year dredging needs are very hard to predict. The District anticipates dredging every 4 years (25 percent frequency) for year 6 through 40 with an average quantity per event near 25,000 cy.

*Main Report Page 12- Farm Field/Quarry Permanent Dredged Material Placement Site**:** The Gen. J. M. Harrison shipwreck is at least 1.0 mile distant from the farm field/quarry. The farm field/quarry contains five recorded archeological sites (47GT0269, 47GT0272, 47GT0273, 47GT0459; 47GT0769; respectively, four prehistoric campsites/villages and one, an isolated chert flake find), none of which have been received National Register of Historic Places (NRHP) eligibility determinations. Prior Phase II testing indicates at least two (47GT0273, 47GT0459) are likely NRHP-eligible, due to the presence of intact prehistoric features, although 47GT0273 may now be destroyed by quarrying.*

Question: Will the existing archaeological sites, and the fact that site 47GT0273 may have been destroyed, create issues for permanent dredge material placement at the farm field/quarry site in the future?

Response: Use of the farm field/quarry site will require detailed consultation with the Wisconsin State Historic Preservation Office, Tribal Historic Preservation Office(s), and other interested parties. As plans for the permanent dredge material placement site are refined, the existing *Programmatic Agreement among the Rock Island District of the U.S. Army Corps of Engineers, the Advisory Council on Historic Preservation, and the Illinois State Historic Preservation Officer, the Iowa State Historic Preservation Officer, the Missouri State Historic Preservation Officer, and the Wisconsin State Historic Preservation Officer regarding implementation of the Long-Term Management Strategy for Dredged Material Placement* will be utilized to meet the District's Section 106 responsibilities.

*Main Report Page 12 – Waters/Wetlands**: The USEPA listed Pool 11 of the Mississippi River as impaired under the Clean Water Act (CWA), Section 303(d). According to data from 2014, this reach of the Mississippi River is listed as impaired due to aluminum levels. In a draft report with additional data from 2016, total phosphorus, PCBs, and mercury were other pollutants increasing the impairment of Pool 11. This degraded water quality has led to fish consumption and other use restrictions. Total maximum daily loads, which is the maximum pollutant a water body can receive while still meeting water quality standards, apply.*

Comment: The 2014 Section 303d impaired waters list also has this reach of the Mississippi River as impaired for PCB's in fish tissue and the water column and for mercury in the water column in Wisconsin. Please see table below. Recommend replacing the last sentence with the following**:** "Total Maximum Daily Loads (TMDL's) have not yet been established for this reach of the river. TMDL's are pollution reduction plans that assign the maximum amount of a pollutant a waterbody can receive and still meet water quality standards."

UMRBA DRAFT
1/31/2017

2014 and 2016 Impaired Waters Listings and Approved TMDLs on the Upper Mississippi River
(impaired designated uses indicated in superscript)

MINNESOTA[1]			WISCONSIN[2]	
2014	2016		2016	2014
PCBs (Fish Tissue)[FC] Total Suspended Solids[AL] Nutrients (L. Pepin)[AR] *TMDLs approved:* Mercury (Fish Tissue)[FC] Mercury (Water)[FC]	PCBs (Fish Tissue)[FC] Total Suspended Solids[AL] Nutrients/Eutrophication/Biological Indicators (L.Pepin)[AR] *TMDLs approved:* Mercury (Fish Tissue)[FC] Mercury (Water)[FC]	St. Croix River Reach 1 (48 mi)	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] Total Suspended Solids[AL] PFOS (Fish Tissue)[FC] Total Phosphorus[AL]	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] Total Suspended Solids[AL] PFOS (Fish Tissue)[FC] Total Phosphorus[AL]
PCBs (Fish Tissue)[FC] *TMDLs approved:* Mercury (Fish Tissue)[FC]	PCBs (Fish Tissue)[FC] *TMDLs approved:* Mercury (Fish Tissue)[FC]	Chippewa River Reach 2 (49 mi)	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] PFOS (Fish Tissue)[FC] Total Phosphorus[AL]	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] PFOS (Fish Tissue)[FC] Total Phosphorus[AL]
PCBs (Fish Tissue)[FC] *TMDLs approved:* Mercury (Fish Tissue)[FC]	PCBs (Fish Tissue)[FC] *TMDLs approved:* Mercury (Fish Tissue)[FC]	Lock & Dam 6 Reach 3 (21 mi)	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] Total Phosphorus[AL]	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] Total Phosphorus[AL]
PCBs (Fish Tissue)[FC] *TMDLs approved:* Mercury (Fish Tissue)[FC]	PCBs (Fish Tissue)[FC] *TMDLs approved:* Mercury (Fish Tissue)[FC]	Root River Reach 4 (63 mi)	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] - Pool 8 and Pool 10 Mercury (Fish Tissue)[FC] - Pool 9 Total Phosphorus[AL]	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] - Pool 8 and Pool 10 Mercury (Fish Tissue)[FC] - Pool 9 Total Phosphorus[AL]
IOWA[3]				
No listing	No listing	Wisconsin River Reach 5 (46 mi)	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] Total Phosphorus[AL]	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC]
Aluminum[AL]	Aluminum[AL]	Lock & Dam 11 Reach 6 (61 mi)	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC] Total Phosphorus[AL]	PCBs (Fish Tissue)[FC] PCBs (Water)[FC] Mercury (Water)[FC]
No listing	No listing	Lock & Dam 13	**ILLINOIS[4]**	
			PCBs (Fish Tissue)[FC] Mercury (Fish Tissue)[FC]	PCBs (Fish Tissue)[FC] Mercury (Fish Tissue)[FC]

E-1

Response: Concur, will revise accordingly.

*Main Report Page 14 – Waters/Wetlands**:** A unique black walnut forest community exist on the left descending bank near RM 592. Walnut has always been a noted resource on the UMR and protected for its limited distribution and occurrence. Usually the walnut trees are scattered and*

spread out on the islands and back water areas. They do occur mostly on micro-ridges on islands and primarily near confluences of streams and rivers that drain into the Mississippi River. Additional planted trees through the USFWS and the District's Operations Division funding are located in the same area.

Comment: Recommend moving to the Biota section (2.2.5). The State of Wisconsin 2016 Wetland Plant List identifies black walnut as FACU plant. Where exactly is this unique area located and will it be impacted by the future offload activities?

Response: Concur, moved to Section 2.2.5. Impacts to the black walnut area is not included in this report, as additional planning and environmental review will be required close to Year 20 with future offloading to farm fields/quarry.

*Main Report Page 17 – Alternative Plans**:** The first step in the alternative planning process is to identify sites for screening (See Section 3.1). Sites meeting these criteria are evaluated for additional considerations concerning capacity, natural resources, cultural resources, hydraulic impacts, operability and socio-economic impacts.*
Alternative plans are then developed from sites having met the criteria and have remained feasible after further evaluation (See Section 3.2). These alternative plans are further evaluated, ultimately resulting in the selection of the "Preferred Alternative". The Preferred Alternative is considered as the least costly solution consistent with sound engineering practice and meeting all Federal environmental standards (See Section 3.4).

Comment: The Department expected to see greater assessment of alternatives that would locate permanent placement for the dredged material outside the floodplain and its habitats. The preferred alternative identified in this plan relies on temporary placement at the bathtub island site and a deferred offload to the farm field/quarry site at year 20.
Again, please note that temporarily storing the material on islands saves initial cost because the cost of moving the material to a final placement site is deferred to the future. However, managing dredged material in this manner is very costly long term due to "double-handling" of the material. Also, the projected cost does not include cost of decommissioning the bathtub site in year 40 to an approved reclamation plan.

Response: Upland sites are not available in this area and using the bathtub as temporary storage is necessary to ultimately offload to outside the floodplain and its habitats. Costs have been revised to include decommission of the bathtub site (See Appendix F).

*Main Report Page 18 – Site Identification and Screening Process**:** "The District and OSIT agreed suitable bankline placement capacity is available for the long-term, except on an event-by-event basis with OSIT recommendation."*

Comment: Recommend editing to read**:** "The District and OSIT agreed suitable bankline placement capacity is not available for the long-term, except on an event-by-event basis with OSIT recommendation." Please also note that bank stabilization for dredge material placed at the Hurricane Island bankline site will be required.

Response: Concur, will revise accordingly.

*Main Report Page 19 – Table 4. New Placement Sites Considered**:** Alliant Energy, Nelson Dewey Plant, Dairyland Power Cooperative-- Not enough capacity for long-term placement and more than the maximum allowed 10,000 feet away from the dredge cuts. Could still be used for beneficial use.*

Comment: The 10,000' distance limitation should only be applied to hydraulic sites, as it is a specific equipment limitation that does not apply to a mechanical dredging operation. The Department requests that these sites be updated with quantity information and placement costs per cubic yard so that they may be considered for placement needs during the next 40 years.

Response: Comment noted. Beneficial use does save costs by extending the life of the existing placement sites. However, the identified beneficial users are not able to take the material at this time. The District has been in frequent contact with the Project Managers involved with the closure of the Alliant Energy, Nelson Dewey Plant. Although they are still considering incorporating channel maintenance sand into their closure process, they have not been able to commit to accepting material or guaranteeing a specific amount of available space. If these sites are able to take the material at a later date, the District will coordinate with the OSIT.

*Main Report Page 22 – Alternative B – Bathtub and Farm Fields/Quarry**:***
The staging area and berms would be constructed using the existing sand on Finley's Landing, dredged material from the approach channel, and/or from the dredge cuts.

Comment: Detailed plans and specifications will need to be developed before the WI DNR will issue non-wetland Water Quality Certification (WQC) for the construction of the bathtub and the permittee-responsible mitigation (PRM). New placement sites, expansions of existing sites and new major projects must be reviewed for consistency with Wisconsin's water quality standards. Water Quality Certification is also required for all HREP projects in Wisconsin waters. Before the WQC evaluation can begin, construction plans, operational information and detailed mitigation plans will need to be developed.

Response: This DMMP feasibility report contains enough information to make decisions pertaining to the District's preferred alternative. Generally these feasibility reports contain enough specific information to go straight into construction. However for this project, the District is preparing more detailed plans and specifications to meet Wisconsin's Clean Water Act, Section 401 needs.

*Main Report Page 23 – Selection of the Preferred Alternative**:** If PRM does not fully compensate for all mitigation loss, the District would attempt to meet the full mitigation need by combining PRM with the Wisconsin Wetland Conservation Trust (WWCT), a wetland mitigation In-Lieu Fee (ILF) Program.*

Comment: Under Wisconsin State law, mitigation is only required for discharges to wetlands authorized under State statute 281.36. For individual permits authorized under state statute 281.36 mitigation is required to replace the lost functional values of the wetland being impacted. State statute Ch. 30 regulates removal of material and placement of structures and material below the Ordinary

High Water Mark (OHWM) in Navigable waters. Under Ch. 30 there is no mitigation requirement for activities regulated under the chapter. Since the activity proposed is wholly below the OHWM, there is no mechanism in state law to trigger and allow for mitigation, thus the Corps cannot utilize the WI DNR In-Lieu Fee Program to address the mitigation needs for wetland impacts from construction and use of the proposed dredge material placement site.

Response: Comment noted. Permittee responsible mitigation has been revised to reflect as the preferred alternative for compensatory mitigation.

*Main Report Page 24 – Public Facilities and Service**:** Maintenance of the channel for commercial, recreational, and environmental interests would positively impact public facilities and services. For example, Finley's Landing is a popular recreational area and is at full capacity, allowing limited space for the local residents to enjoy. Sand would be removed from Finley's Landing, reducing the pile of sand to an OSIT approved level for residents to continue to use.*

Comment: The sand removal from Finley's Landing is not consistent throughout the report. Please revise accordingly. If the sand is to be used in the construction of bathtub or wetland mitigation site please include that information in the detailed plans and specifications that will be required prior to construction.

Response: Concur. The plans for the DMMP report are at a feasibility level of design. During design phase the plans and specifications (if work is to be done be a contractor)/SOW (if work is to be constructed by USACE crews) will be developed to a 100% level of design.

*Main Report Page 24 – Aesthetic Values**:** No permanent impacts to aesthetic values would result from placement of dredged material. Finley's Landing is a popular recreational area and is at full capacity, allowing limited space for the local residents to enjoy. Sand would be removed from Finley's Landing, reducing the pile of sand to an OSIT approved level for residents continued use. Given that Finley's Landing is an existing sand pile, the proposed project would not significantly alter the overall existing aesthetics. Additionally, the relatively rural character of the surrounding area would remain unchanged, so no significant decline in aesthetic values would be anticipated.*

Comment: The sand removal from Finley's Landing is not consistent throughout the report. Please revise accordingly. If the sand is to be used in the construction of bathtub or wetland mitigation site please include that information in the detailed plans and specifications that will be required prior to construction. A new 14-acre dredge material placement site will affect the aesthetic value. Please clarify.

Response: The existing placement of dredged material at Finley's Landing has previously impacted the natural aesthetics of the area. The bathtub site will be offloaded to the farm fields and eventually decommissioned, reducing the significant and permanent impacts to aesthetics.

The plans for the DMMP report are at a feasibility level of design. During design phase the plans and specifications (if work is to be done be a contractor)/SOW (if work is to be constructed by USACE crews) will be developed to a 100% level of design.

Main Report Page 31 - The District determined a berm height of elevation 608 mean sea level (msl) is necessary to reduce erosion during high water for this particular area of the UMR. In addition, maximum flow velocities for sand movement at the bathtub is 1.5 ft/sec (Figure 7, Sites H-J) which means sand at the bathtub will not migrate at the 0.85 ft/sec of a 100-year flood event. The maximum flow velocities for clay at the bathtub is 3ft/sec, which means the berms will erode only at well above a 100-year flood event. With these low rates, erosion of dredged material from flow velocity is not anticipated at the bathtub site. However, erosion of the dredged material is possible from wind wave forces for river stages exceeding the berm height and for high wind conditions. If these conditions occur when the bathtub is partially full, eroded sand should remain within the bathtub contained by the berm. If these conditions occur when the bathtub is full, the material should be trapped in the vegetated berm.

Comment: In light of existing bank erosion at the bathtub site at present, the Department feels that protection from wave action may be warranted, particularly once the berm is created.

Response: Figure 7 was replaced with a figure showing bed shear stress. Section 4.1.3.2 describes Figure 7 indicating the low erosion potential at the Bathtub Site. Containment berm maintenance is assumed to take place one week for each year of life. This entails a visual inspection of the berms and spraying or mowing if necessary. If erosion is observed that threatens the stability of the containment berm, bank line protection structures will be added.

Main Report Page 32 - Berms will be constructed to contain the material as the interior is filled. The berms have been designed at an elevation high enough (608 ft msl) to reduce erosion during high water. The berms will then be capped with fine materials (silt and clay) and allowed to vegetate to ensure stabilization.

Comment: To prevent erosion from the berms, they should be capped and actively vegetated to ensure slopes are protected from erosion as the site is being established. Direct seeding of the berm is described in other sections of the report and in response to previous comments. Please update this section to match the final plans.

Response: Concur. A seed mix will be applied to the berm, as recommended.

*Main Report Page 32 – Endangered Species**:** The berms will then be capped with fine materials (silt and clay) and allowed to vegetate to ensure stabilization.*

Comment: The geotechnical report and associated modeling identify the capping material as clay. Please clarify.

Response: The berms will be capped with clay. Report revised to reflect this.

*Main Report Page 32-33 – Hazardous, Toxic and Radioactive Waste**:** However, the utilization of fine grains materials for capping the berms raises concerns of potentials sediment contamination. It is recommended that representative samples of the sediments be collected and analyzed for HTRW parameters prior to use. The source of fine sediments would come from routine operation activity (ex**:** Lock and Dam clean outs) or from the bathtub site's interior. Stockpile of fine sediments would be at the bathtub site or another OSIT existing approved site.*

Comment: The Department agrees that representative samples of the fine grain sediments for capping the berms and used in the wetland mitigation area need to be collected and analyzed. The sediment in the access channel to the bathtub will also need to be characterized. Please work with the WI DNR to develop site specific sediment sampling plans for these areas.

Response: The District will work with WI DNR to complete necessary details for WQC and MOU.

*Main Report Page 34 – Step 1 Gain Access to the Bathtub**:** Once the barge has been filled, it is transported to the offload site. The deck barge is pushed as close to the offload site as possible to minimize encroachment of material. The front-end loader on board pushes the material off the deck barge, creating a pile of material.*
Equipment sitting at the offload site will then begin to move the material. An excavator is sometimes required to reach out and grab the material. At other times, the excavator is not needed, and the dozers are able to push the material (Photographs 4, 5, and 6). Excavated sand from the bathtub access would be used for construction at the proposed bathtub site or stored at another existing approved placement site.

Comment: The sediment in the access channel to the bathtub will need to be characterized prior to dredging. Please work with the WI DNR to develop a site specific sediment sampling plans for this area. In order to complete Water Quality Certification, detailed plans and specifications need to be developed that identify the offload site for the access channel material.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. Material from the access channel would be stored at the bathtub or other existing approved placement sites in compliance with all water quality requirements under federal law.

The plans for the DMMP report are at a feasibility level of design. During design phase the plans and specifications (if work is to be done be a contractor)/SOW (if work is to be constructed by USACE crews) will be developed to a 100% level of design.

*Main Report Page 36 – Step 3 – Initial Working of the Material into Berms**:** Once enough material has been placed for a work pad, equipment could be offloaded at the bathtub. The equipment could start construction of the containment berms (building an "L" shape). This enables the berms and work pads to be used for transportation of equipment to further work material.*

Questions: When will the berms be capped with fine material? Will the capping occur in phases? What is the proposed timeline for the construction of the bathtub and associated wetland mitigation project? Is there funding available to begin this work in 2017? In order to complete Water Quality Certification, detailed plans and specifications need to be developed that address berm construction, erosion protection measures and integration of wetland creation and berm construction.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. Berms will be capped as soon as constructed. All constructed berms will be completed with clay, fine material and seeded prior to demobilization from site after each placement per USFWS recommendations. Initial efforts for bathtub staging and adjacent mitigation will be conducted at the end of 2017, if MOU is final and WQC is approved.

The plans for the DMMP report are at a feasibility level of design. During design phase the plans and specifications (if work is to be done be a contractor)/SOW (if work is to be constructed by USACE crews) will be developed to a 100% level of design.

Main Report Page 37 – Additional Dredged Material Placement Considerations: Containment berms would be constructed to control material placement along with the water released from the hydraulic dredging operations and to ensure that no dredged material is allowed offsite per the Section 401 permit. Berms would most likely be constructed from sand from Finley's Landing but may also come directly from the dredge cuts and approach channel. Berms would be constructed to a maximum height of 5 feet above the existing ground.

Question/Comment: What steps will be taken to reduce the sediment discharge to surface waters before the berms are completely constructed? It is recommended that the interior of the bathtub be pre-excavated. This will provide water quality benefits, minimize wetland impacts and increase offload efficiencies. Prior to Water Quality Certification, detailed plans and specifications need to be developed that identify the where the berm material will originate.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. Section 5.4.2 states the following as an attempt to reduce sediment discharge: The dredge slurry is approximately 80 percent water and 20 percent material. Within the riverine environment return water from the hydraulic dredging is directed back to the river by gravity flow. Increased retention times allow for additional material to fall out of suspension. Construction of berms at the bathtub, as well as constructed sand weirs as material is being pumped, will slow and direct water flow to increase retention times as water is released back through a gap left in the berm.

The plans for the DMMP report are at a feasibility level of design. During design phase the plans and specifications (if work is to be done be a contractor)/SOW (if work is to be constructed by USACE crews) will be developed to a 100% level of design.

Main Report Page 37 – Return Water from Hydraulic Dredging: The dredge slurry is approximately 80 percent water and 20 percent material. Within the riverine environment return water from the hydraulic dredging is directed back to the river by gravity flow. Increased retention times allow for additional material to fall out of suspension. Construction of berms at the bathtub, as well as constructed sand weirs as material is being pumped, will slow and direct water flow to increase retention times as water is released back through a gap left in the berm. At the quarry site, the dredge slurry will be pumped into a location surrounded by a containment berm. The ponded dredge slurry will be routed to a sump area within the site using sand weirs to slow the water down as needed. The water will then be pumped into the existing ditch to the west of the quarry. Total suspended solids of the return water will be monitored at the outfall of "bathtub" and quarry site during dredging operations. Grab samples will be taken weekly and compared to the 80mg/L daily maximum, as listed within the Memorandum of Understanding (MOU) between WI DNR and the District.

Comment: Please provide details on the gap left in the berm and the sump area within the site. Again, it is recommended the interior of the bathtub be pre-excavated. This will provide water quality benefits by increasing retention time, minimizing wetland impacts and increasing offload

efficiencies. It is also recommended that the bathtub have a designed outlet or weir capable of providing adequate detention time to assist in the removal of suspended solids. Information on the type of structure and the discharge location should be included in the DMMP or provided within detailed plans for Water Quality Certification. Please add the word "draft" to "the Memorandum of Understanding (MOU) between WI DNR and the District". Please note that the "existing ditch to the west of the quarry" is an intermittent stream in the Hog Hollow drainage and it does support aquatic life.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. Section 5.4.2 states the following in an attempt to treat the water release at the farm fields prior to discharge: At the quarry site, the dredge slurry will be pumped into a location surrounded by a containment berm. The ponded dredge slurry will be routed to a sump area within the site using sand weirs to slow the water down as needed. The water will then be pumped into the existing ditch to the west of the quarry.

Main Report Page 38 – 5.4.4.1 Clean Water Act Section 404 and 401: A signed MOU would satisfy all requirements of the CWA Section 401 certification. The State of Wisconsin has indicated that both Clean Water Act Section 401 Certification and a signed MOU with the District would be needed to satisfy Clean Water Act requirements. Certification, waiver thereof, and/or an MOU would be obtained prior to initiation of dredging or placement. The District prepared a CWA, Section 404(b)(1) Evaluation for the proposed action (Appendix G-1). The proposed project would impact approximately 11 wetland acres and to compensate for this wetland loss, the District prepared a Compensatory Wetland Mitigation Plan (Appendix G-3).

Comment: Wisconsin State Statue 30.202 allows the Department to enter into a MOU with the USACE concerning the dredging of the Mississippi River and the disposal of these dredge spoils. Any memorandum of understanding shall specify approved sites where dredge spoils may be deposited and shall specify conditions and standards which are required for use of an approved site. "Approved sites" need to be endorsed by the River Resources Coordinating Team and then added to the MOU. New placement sites, expansions of existing sites and new major projects go beyond the normal scope of dredge and place at an approved site and must be reviewed for consistency with Wisconsin's water quality standards. Therefore, Wisconsin will not be waiving its right to issue Water Quality Certification for the construction of the bathtub and PRM wetland mitigation. This is consistent with the Water Quality Certification requirement for all HREP projects in Wisconsin waters. Before the Water Quality Certification evaluation can begin, construction plans, operational information and detailed mitigation plans will all need to be developed.

> 30.202 Dredge disposal in and near the Mississippi, St. Croix and Black rivers by the U.S. Army Corps of Engineers
> (1) MEMORANDUM OF UNDERSTANDING. The department may enter into a memorandum of understanding with the U.S. corps of engineers concerning the dredging of the Mississippi, St. Croix and Black rivers and the disposal of these dredge spoils. Any memorandum of understanding shall specify approved sites where dredge spoils may be deposited and shall specify conditions and standards which are required for use of an approved site. A memorandum of understanding may contain recommended or required dredge disposal methods, equipment and policies.

(2) AUTHORIZATION FOR DREDGING AND DREDGE SPOIL DISPOSAL. If the department enters into a memorandum of understanding with the U.S. corps of engineers under sub. (1), the U.S. corps of engineers may deposit dredge spoils from dredging the Mississippi, St. Croix and Black rivers at approved sites according to specified conditions and standards including any special conditions and standards established under sub. (4).
(3) EXEMPTION FROM STATUTES AND RULES. Dredge spoil disposal activities authorized under sub. (2) are exempt from any prohibition, restriction, requirement, permit, license, approval, authorization, fee, notice, hearing, procedure or penalty specified under s. 29.601, 30.01 to 30.20, 30.21 to 30.99, 59.692 or 87.30 or chs. 281 to 285 or 289 to 299 or specified in any rule promulgated, order issued or ordinance adopted under those sections or chapters.
(4) HAZARDOUS WASTE DREDGE SPOIL DISPOSAL. In consultation with the U.S. corps of engineers, the department shall establish special conditions and standards for the disposal of dredge spoils which are hazardous waste, as defined under s. 291.01 (7). These special conditions and standards shall be established to ensure that public health and the environment are protected.

History**:** 1981 c. 240; 1995 a. 201, 227; 1997 a. 35, 248; 2005 a. 347.
NOTE**:** Chapter 240, laws of 1981, which created this section, has "legislative findings" in section 1. NOTE**:** 2005 Wis. Act 347, which affected this section, contains extensive explanatory notes.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

*Main Report Page 38 – Floodway Permit**:** A preliminary floodplain model has predicted impacts to remain within the State of Wisconsin-accepted level of less than 0.00 ft at the 100-year flood event, as per Wisconsin Statute 30.202 (3) and (4).*

Comment: Recommend editing to read**:** "A preliminary floodplain model has predicted impacts to remain within the State of Wisconsin-accepted level of 0.00 ft at the 100-year flood event, as per FEMA minimum floodway standards CFR 60.3(d)(3)."

Response: Concur, the main report has been updated.

*Main Report Page 38 – NPDES Permit**:** This permit will be covered under the MOU between WI DNR and the District, per Wisconsin Statute 30.202 (3) and (4).*

Comment: The MOU will cover NPDES permitting concerns related to routine placement operations. Additional planning will be required at the time of the offload.

Response: Section 5.4.3 states the following to address the additional planning required at offload**:** Additional planning and environmental review will be required close to Year 20 with future offloading to farm fields/quarry. As Year 40 approaches, the District will reevaluate the bathtub site to determine whether the site should be decommissioned or continue its use with OSIT coordination.

Main Report Page 39 – Costs

Comment: The costs in this section are difficult to interpret. The dredging cost for the bathtub should represent both hydraulic and mechanical costs. The budget should include a second offload at year 40, otherwise it should include a restoration or decommissioning cost that restores the site to permanent condition. It is not apparent to the Department that "assum[ed]ing that there will be no cost for acquiring land or easement rights" is reasonable. Could it not be considered equally feasible that the land comes under new ownership, becomes developed or that a landowner may request payment to allow the material to be placed at his/her site?

Response: The cost estimates have been updated to reflect hydraulic and mechanical dredging costs where required. The cost estimates do include the cost of the second offload at year 40. This is shown in the costs for the Farm Fields Post-Bathtub site as *Hydraulic Dredging Operations (Contract)*. Cost estimates have been updated to reflect decommissioning the bathtub site, which includes regrading, clay capping, and seeding to exhibit current, pre-construction conditions.

*Main Report Page 40 – Onsite Mitigation**:** Lastly, the mitigation for the bathtub site is estimated to be approximately $1,658,000. The scope of work includes clearing, containment berm construction, clay capping, and seeding. It is assumed that in-house hired labor crews would begin by mechanical dredging the approach channel and building a work pad for equipment to construct the containment berm that will be used to contain the dredged material. A contractor is required to shape and seed the mitigation area. Main Report Page 36-37 – Material to the Mitigation Area**:** Once the fine material is dried enough to use, the area will be capped and natural vegetation will be allowed to reestablish. The District anticipates immediate vegetation response from the existing seed bank. Typical invader species include smartweed, (polygonum sp.) cottonwood (Populus deltoids), silver maple (Acer saccharinum), cattail (Typha sp.) and swamp milkweed (Asclepias incarnata). If OSIT deems the natural vegetation a success, no active planting or seeding would occur. If the natural seeding is not successful, the District would initiate planting native wetland plant species. After the mitigation area is constructed, monitoring will be conducted over 5 years to determine success. See Appendix G-3, Compensatory Wetland Mitigation Plan, for seed mixture and additional mitigation plan information.*

Comment: Inconsistent wetland planting procedures. Please clarify.

Response: Concur, The report and appendices have been updated and are now consistent.

*Main Report Pages 40-41 – Real Estate Considerations**:** As the bathtub site reaches capacity, the dredged material will need to be relocated to an upland location. The offload action would involve placing a hydraulic pipe up an existing creek channel or an existing culvert along the left descending bank, near RM 591.5, and pumping material from the bathtub into an upland site (Figure 8). The future upland placement sites are currently utilized as agricultural fields and a sand quarry operation. Multiple landowners in this location have voluntarily expressed interest in accepting dredged material. It is anticipated that placement of material to this upland site would be accomplished by a temporary Dredged Material Placement Permit. An additional temporary permit will also need to be obtained from the BNSF Railway as their right-of-way will be crossed by dredged material equipment during placement activities. All lands located riverward of the railroad in this location are owned by the Government. The Corps may pursue acquisition of permanent real estate interests as necessary to support placement actions.*

Comment: Placing the hydraulic offload pipe up the existing creek and the discharge of the return water will likely result in impacts to the Unnamed Tributary to the Mississippi River (Water Body Identification Code 955800). Please note, the discharge of Mississippi River carriage water to a different surface water may require water quality based effluent limitations. Recommend additional environmental review for the proposed offload procedures and options for the return water.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. Section 5.4.3 states the following to address the additional planning required at offload: Additional planning and environmental review will be required close to Year 20 with future offloading to farm fields/quarry. As Year 40 approaches, the District will reevaluate the bathtub site to determine whether the site should be decommissioned or continue its use with OSIT coordination.

Comment: Acquisition of upland dredge material placement sites on Pool 11 needs to be the top priority for the MVR. The shortage of land acquisition for dredge material has been an historic problem for the Army Corps of Engineers throughout the Upper Mississippi River Basin. Rock Island District's Implementation Report for Great II Study (June 1981) identifies the importance of land acquisition. It ranks the acquisition of disposal sites or the rights for disposal at the earliest date possible as a High Implementation Priority Action. Recommend beginning negotiations for acquisition of the property immediately upon completion of the DMMP to ensure site is available for long-term use.

Response: Further coordination for real estate will begin when offload action is anticipated.

*Main Report Page 44 – Clean Water Act**:** The District prepared a Section 404(b)(1) Evaluation for the proposed action and is attached as Appendix G-1. Wetland impacts are anticipated and The District has applied for the WI DNR ILF Program but was denied (Appendix D-3, NHPA Correspondence). Appendix G-3, Compensatory Wetland Mitigation Plan, outlines the District's on-site mitigation. The State of Wisconsin indicated the preference to enter into a Memorandum of Understanding (MOU) with the District instead of issuing a CWA Section 401 certification. A signed MOU would satisfy all requirements of the CWA Section 401 certification. Certification, waiver thereof, or an MOU would be obtained prior to initiation of dredging or placement.*

Comment: Wisconsin State Statue 30.202 allows the Department to enter into an MOU with the USACE concerning the dredging of the Mississippi River and the disposal of these dredge spoils. Any memorandum of understanding shall specify approved sites where dredge spoils may be deposited and shall specify conditions and standards which are required for use of an approved site. "Approved sites" need to be endorsed by the River Resources Coordinating Team and then added to the MOU. New placement sites, expansions of existing sites and new major projects go beyond the normal scope of dredge and place at an approved site and must be reviewed for consistency with Wisconsin's water quality standards. Therefore, Wisconsin will not be waiving its right to issue water quality certification for the construction of the bathtub and PRM wetland mitigation. This is consistent with the Water Quality Certification requirement for all HREP projects in Wisconsin waters. Before the Water Quality Certification evaluation can begin, construction plans, operational information and detailed mitigation plans will all need to be developed.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

Main Report Page 49 – On-Site Inspection Team.

Comment: Wisconsin DNR discussed erosion issues and suitability issues at Hurricane Island as early as 1989. That the timetable for documenting dialogue with the Department begins in January 2011 is emblematic of the District's lack of initiative in planning for alternative sites in a timely fashion. In November 2010, the OSIT discussed the erosion conditions at Hurricane and Wisconsin DNR provided a two-year extension to the MOU to allow additional time to develop alternative plans. During that extension (until July 2013), the District failed to urgently develop alternatives and criteria for assessing those alternatives and conducted very little communication with the Department between OSIT meetings. If potential alternatives were screened and rejected by Corps' staff during that time period, the Department received little to no information at all regarding the process, status of alternatives, or criteria for ranking out options.

Response: Comment noted. A previous NEPA document was finalized in 1999 and planning efforts for this project began in 2011. Efforts to communicate with WI DNR were elevated after the WQC application was denied by WI DNR. See Section 7.2 and Appendix D-3 for additional coordination that has been added.

Main Report Page 49 – May 2015 - Wisconsin would require additional testing beyond the typical sampling procedures performed by the District for "solid waste" permitting. The WI DNR also indicated additional testing of all dredge cuts would be needed to approve the new MOU.

Comment: Wisconsin does require testing to ascertain that material can be considered "low hazard", which is a particularly important determination if the District seeks to utilize the material for beneficial use. This testing is not meant to be burdensome, but rather to facilitate a reasonable characterization of the material.

Response: Comment noted. The District performs routine Tier I testing on the dredged material to ensure "low hazard". In order to promote beneficial use, potential users want little costs and time involved with taking the material.

*Main Report Page 50 – On-Site Inspection Team 2015 November**:** Conversation between District and WPL Plant Manager suggest applying for the additional permits and the time involved would make the usage of the material infeasible for the Plant.*

Comment: The Department does not recall receiving information about this conversation in November 2015. The Department communicated to the District that the plant should get in touch directly with our solid waste staffer who offered to streamline and expedite any permit modifications. In subsequent conversations, the Department was told that WPL didn't need the material not that that there was a permitting concern.

Response: The District performs routine Tier I testing on the dredged material to ensure "low hazard". In order to promote beneficial use, potential users want little costs and time involved with

taking the material. The District performed additional sediment testing, required by WI DNR, and provided the results with anticipated dredging quantities to both the State of Wisconsin and staff at the WLP Plant. As the WLP Plant is a privately owned and operated sites, the specific requirements of any necessary solid waste permit process are between the State of Wisconsin and the WLP Plant applicants. Although the WLP Plant was still interested in receiving material, they did not enter into the solid waste permitting process in 2015. Please see email dated November 20, 2015 to include WI DNR, Solid Waste POC added to Appendix D-4.

Main Report Page 50 – On-Site Inspection Team 2016 May: PDT and OSIT meeting to update the status of the planning process. Discussed design of placement sites, necessary mitigation, and habitat and hydrologic modeling results. The WI DNR did not encourage placement at Rosebrook Island for habitat restoration.

Comment: Recommend changing "The WI DNR did not encourage placement at Rosebrook Island for habitat restoration" to "The WI DNR did not support the placement of dredge material in an isolated wetland on Rosebrook Island for forest habitat restoration".

Response: Revised to state the following**:** "The WI DNR did not support the placement of dredged material in an isolated (interior) wetland on Rosebrook Island for forest habitat restoration."

> *Main Report Page 50 – On-Site Inspection*
> *Team 2017: January: The District applies*
> *for the WI DNR ILF Program.*
> *February: Draft DMMP report is sent to OSIT for a complimentary review.*
> *February: PDT and OSIT meeting to discuss the OSIT preferred mitigation options. The OSIT agreed that a combination of the onsite mitigation options with the ILF Program would be approved.*
> *March: WI DNR denies the District use of the ILF Program (Appendix D-3, OSIT Coordination).*

Comment: Missing the February 14, 2017 OSIT letter recommending permittee-responsible wetland mitigation. Also, the Department did not agree in a meeting that the ILF Program would be approved, but rather that it could be an option to consider. We lament that the ILF was offered as a possibility when it was later denied, but that determination had to be made by the WWCT staff, not the Mississippi River staff.

Response: Concur, will add letter to Section 7.2 and Appendix. Revised "ILF Program would be approved" to "ILF Program would be considered."

Main Report Page 52 – Responses to WI DNR Letter Dated March 3, 2017: Comment: Throughout the letter, WI DNR recommends that the District pre-excavates the bathtub interior. This will provide water quality benefits, minimize wetland impacts and increase offload efficiencies.
Response: *The District is purposing to pre-excavate the bathtub interior to provide additional area (approximately 0.5 acre) for the offload operation.*

Comment: This additional area (approximately 0.5 acres) to be excavated for the offload operation is not identified in description of the preferred plan. Please add details about the excavated area and details about how the offload will occur.

Response: The existing ground will be excavated 8' deep in an area 150' x 150' for an offload sump pit, as shown on C-104. This area will be located where the dredge access channel terminates in the bathtub site. During the initial filling of the bathtub with sand, the sump will be filled as well. When the bathtub is excavated, a hydraulic dredge cutter head will extract sand only within the sump pit. As the dredge empties the sump pit, bulldozers will be used to continuously push sand into the sump pit. Bulldozer operators will monitor the material they are scraping to ensure that only sand is pushed into the sump pit and that the equipment is not excavating the existing ground under the bathtub.

*Main Report Page 54 Comment (excerpt)**: While likely the State of Wisconsin will not approve placement without all of the stated minimum requirement, the District wishes to keep the Hurricane Island bankline as a potential placement option in the event a suitable stabilization method can be found or the State of Wisconsin requests placement at the bankline site with an exemption to the flood surface profile impact regulations.*

Comment: Wisconsin is interested in stabilizing the bankline site at Hurricane and management of the site as a recreational beach area with one-time nourishment. The Department feels there are alternatives to explore that can meet the floodway standards.

Response: The District will make efforts to work with partners to explore options for bankline placement. If WI DNR is aware of methods to meet floodway standards at Hurricane bankline, please provide this to the District for consideration.

*Main Report Page 54 – Responses to WI DNR Letter Dated March 3, 2017**:* ***Response:*** *Starting in 1998, the District agreed to perform monitoring erosion rates at Hurricane Island bankline. Monitoring was performed on the Hurricane Island bankline using hydrographic survey vessels starting in 1999. The limiting factor for collection of data is the river stage. In order to collect data closer to shore, elevated river stages are needed. A total of 40 surveys were performed between 1999 and 2015. Select surveys were used and a two-foot contour was selected to attempt to get more comparable survey data. Figure 10 shows a summary of this data.*

The percent loss of material over a 3- or 4-year period is not able to be captured by this data. This data seems to suggest that material at the two-foot contour does move but has the potential to stay for longer periods under some channel conditions. Sediment contributions from upstream of the site also are not evident in this survey data.

Question: Was the hydrographic data depicted in Figure 10 corrected for river stage?

Response: Yes.

Main Report Page 55 ***Response:*** *The Cassville Power Plants were not carried for further review for long-term placement sites, but are examples of beneficial use sites. These sites are subject to the plant management objectives and need for the material. Future coordination will be necessary to ensure NEPA compliance. The District anticipates the MOU would address and clear any additional regulatory permits or encumbrances with using this site.*

Comment: With quantity and location information updated, the power plant sites could be incorporated into the MOU for future placement. Solid waste coordination will be necessary in order to pre-approve these placement sites, which would require the cooperation of the Department, District and power plants.

Response: Comment noted. Beneficial use does save costs by extending the life of the existing placement sites. However, the identified beneficial users are not able to take the material at this time. The District has been in frequent contact with the Project Managers involved with the closure of the Alliant Energy, Nelson Dewey Plant. Although they are still considering incorporating channel maintenance sand into their closure process, they have not been able to commit to accepting material or guaranteeing a specific amount of available space. If these sites are able to take the material at a later date, the District will coordinate with the OSIT.

*Main Report Page 57 – Response 2****:*** *See Step 5 under section 5.6. The containment berms will be constructed and capped as material is dredged. If the berm does not naturally vegetate, a seed mix will be applied. This seed mix is to duplicate the sedge meadow habitat and does not include woody vegetation. A cost of $9,700 for the seeding, if needed, is included in the cost estimate.*

Comment: Section 5.6 of the Main Report is Real Estate Considerations and does not contain a Step 5. Section 5.4 (Construction and Implementation) contains details about working on the initial berms but is unclear if the berms will be "constructed and capped" as referenced above. Please clarify.

Response: Section 5.4, Steps 5 and 6 attempt to explain the process of operation. All constructed berms will be completed with fine material and seeded, prior to demobilization from site after each placement per USFWS recommendations.

*Main Report Page 59 – Response 3****:*** *Operations will ensure enough distance for material to settle out prior to release to main channel by the construction of weirs and ponding areas. The mitigation area is an additional sediment capture to minimize drifted sediment reaching adjacent mussels. Please see Section 4.1.3 for more information on additional conservation measures and coordination for mussel impacts.*

Question/Comment: How will the mitigation area be used as "an additional sediment capture to minimize drifted sediment reaching adjacent mussels" for the return water? There are no details describing this process in the text of the main report. Please clarify and provide additional information.

Response: The mitigation area potentially serving as a sediment capture was not meant for return water, but in case of berm overtopping. Revised to clarify "Additionally, the mitigation area can serve as a buffer itself between the bathtub and adjacent mussels, capturing drifted sediment, in the case of

a berm overtopping." Sediment migration from overtopping is low risk, but further reduced with the capping and vegetation.

*Main Report Page 60 – Response 2**:** Please see Section 7.2 for the thorough coordination the District has had with the OSIT, which currently consists of the same members from the FWIC. The current onsite mitigation plan has been designed to compensate in compliance with Clean Water Act, Section 404 Federal regulations. The GREAT II Handbook was developed prior to these Federal regulations. For example, the 2008 Compensatory Mitigation Rule sets standards for mitigation measures and ratios with monitoring requirements necessary to fulfill Section 404. Any comments pertaining to the procedural recommendations of the interagency teams is outside the scope of this report. The District will coordinate any deviation from the Compensatory Wetland Mitigation Plan, outlined in Appendix G-3, through the OSIT chairperson.*

Comment: It is understood that the federal regulations have changed since the GREAT II Channel Maintenance Handbook (CMH). However, the Legislation that allows the Department to enter into an MOU with Corps concerning dredged material placement is based upon the extensive studies of GREAT II. Therefore it is imperative that the interagency teams and partnerships continue to play a role in the development of these plans.

Response: Concur. See Section 7 for coordination efforts.

*Main Report FONSI (Page 64) – F**:** The State of Wisconsin indicated the preference to enter into a Memorandum of Understanding (MOU) with the District instead of issuing a CWA Section 401 certification. A signed MOU would satisfy all requirements of the CWA Section 401 certification. Certification, waiver thereof, or an MOU would be obtained prior to initiation of dredging or placement.*

Comment: Wisconsin State Statue 30.202 allows the Department to enter into a Memorandum of Understanding (MOU) with the USACE concerning the dredging of the Mississippi River and the disposal of these dredge spoils. Any memorandum of understanding shall specify approved sites where dredge spoils may be deposited and shall specify conditions and standards which are required for use of an approved site. "Approved sites" need to be endorsed by the River Resources Coordinating Team and then added to the MOU. New placement sites, expansions of existing sites and new major projects go beyond the normal scope of dredge and place at an approved site and must be reviewed for consistency with Wisconsin's water quality standards. Therefore, Wisconsin will not be waiving its right to issue water quality certification for the construction of the bathtub and PRM wetland mitigation. This is consistent with the Water Quality Certification requirement for all HREP projects in Wisconsin waters. Before the Water Quality Certification evaluation can begin, construction plans, operational information and detailed mitigation plans will all need to be developed.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

APPENDIX B – STATE SPECIES STATUS LIST

Appendix B – Wisconsin Species Status List Page 1**:** As stated on page 1, "*The following is a list of species and natural features on the Natural Heritage Working List that have been documented in Grant County. These data are provided for general planning and assessment purposes only and should not be used for screening or reviewing proposed land development or land management projects*." Please work directly with the Department NHI staff for project specific data.

Response: While the Corps of Engineers is not bound by a state's endangered species regulations, the District would treat any state listed species encountered in accordance with our standard best management practices afforded federally-protected species. Further, the District coordinated state resource through the Fish and Wildlife Coordination Act (FWCA). Per the FWCA terms, the USFWS coordinates any state resource concerns with the District. The USFWS did this via the OSIT and FWIC. In a letter dated May 26, 2017, the USFWS stated their comments to the District were in accordance with the FWCA. It was the District's assumption the WI DNR Mississippi River Team would ensure the entire WI DNR was internally vetted for their comments pertaining to this project and submitted with this letter.

APPENDIX D – CORRESPONDENCE

*March 9, 2017 Letter from RPEDN to USFWS – Page 2**: In response to coordination with the On-Site Inspection Team (OSIT), their preferred wetland mitigation options are currently being considered to fulfill wetland mitigation requirements (Encl 3, dated March 1, 2017). According to the 2008 Compensatory Mitigation for Losses of Aquatic Resources (Mitigation Rule), proposed activities are evaluated to determine a net improvement of the function of the site. This is further defined as restoration (re-establishment or rehabilitation), enhancement, establishment (creation), buffer, or preservation (http://www.sac.usace.army.mil/Portals/43/docs/regulatory/Guidelines_for_Preparing_a_Compensatory_Mitigati on_Planf.pdf). Preservation is defined as "removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanism. Preservation does NOT result in a gain of aquatic resource area or functions." Since the OSIT Option 1, Lower Hurricane Island Rip-Rap and 2, Rosebrook Island Rip-Rap, include rock placement for "bankline stabilization and protection of interior wetlands", this only demonstrates preservation and does not provide the net improvement under the 2008 Mitigation Rule. Therefore, preference was given to the OSIT Option 3, Bathtub Mudflat.*

Comment: It is understood that preference was given to OSIT Option 3, the Bathtub Mudflat, due to the net gain of wetland area and function. However, OSIT Option 1, Lower Hurricane Island Rip-Rap, provides protection for existing backwater wetlands that are threatened due to failing bankline stabilization. This option also has the potential to benefit the navigation channel by repairing a dated channel training structure, capturing flow lost to backwaters and stabilizing eroding banks. The WI DNR Mississippi River Team believes there is significant value in protecting threatened, existing, functioning wetlands. Therefore, if additional mitigation is required, please consider OSIT Option 1, Lower Hurricane Island Rip-Rap.

Response: Comment noted. Enhancements as proposed by the WI DNR are categorized as preservation and not in-kind replacement under the Clean Water Act, Section 404. Preservation alone did not fulfill the minimum wetland mitigation requirements. Additionally, the required mitigation ratios for utilization of the preservation measure were higher because they were not considered to appropriately compensate for impacts of the project. An increase in mitigation ratio means an increase in the mitigation footprint, which in turn has the potential to impact other resources. The District's Regulatory office provided concurrence with proposed mitigation. See added email in Correspondence appendix.

APPENDIX E – ENGINEERING

Appendix E – General Comment: The engineering plans lack the level of detail needed for the WI DNR to process Water Quality Certification (WQC) for the construction of the bathtub and the permittee-responsible mitigation (PRM). WQC will require a 30-day comment period of which people are notified by a newspaper and website notice and mailing to interested parties. During the comment period, an informational hearing may be requested. Detailed plans along with pertinent specifications that are comprehensive and accurate will need to be developed. These plans should at minimum include phased construction details for both the bathtub and the mitigation area, sump details and cross-sections, longitudinal cross sections of each berm, return water outlet construction, etc.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

Appendix E – General Comment: The engineering plans do not contain any information, drawings or details regarding the permittee responsible wetland mitigation area. Detailed plans and specifications must be developed for the mitigation area prior to water quality certification.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

Appendix E – Sheet ID C-102 Farm Fields/Quarry Plan – Comments: The "existing ditch" labeled on the map is actually an unnamed tributary to the Mississippi River (Water Body Identification Code 955800). Brook Sticklebacks were documented in the stream during a 2012 survey by the WI DNR.

Response: Comment noted. The District will work with WI DNR to complete the necessary details for the WQC and MOU. Section 5.4.2 states the following in an attempt to treat the water release at the farm fields prior to discharge: At the quarry site, the dredge slurry will be pumped into a location surrounded by a containment berm. The ponded dredge slurry will be routed to a sump area within the site using sand weirs to slow the water down as needed. The water will then be pumped into the existing ditch to the west of the quarry. Additional planning and environmental review will be required close to Year 20 with future offloading to farm fields/quarry.

Appendix E – Sheet ID C-103 Hurricane Island Plan – Comments**:** Hurricane Island Plan should be removed from the engineering plan or referenced as a proposed material placement alternative. The

Hurricane Island bankline placement is not part of the preferred alternative discussed in this plan. However, the WI DNR is interested in maintaining this site for recreation with dredge material placement for beach nourishment and with the installation of proper bank stabilization. Recommend continuing the coordination with the OSIT and WI DNR to develop a plan for the Hurricane Island bankline site. Below you will find additional comments regarding the proposed Hurricane Island plan sheet that may be useful for future plan development**:**

- Illustration shows an island located north-west of the bankline site that does not exist,
- Add the rock protection that was added to the head end of Hurricane Island in the 1990's,
- Change levee to railroad embankment.
- Rock vanes should be considered for stabilization, not rock groins. According to the UMRR EMP Environmental Design Handbook, rock vanes are in-stream structures constructed for the purpose of reducing shear stress on streambanks. Rock groins, however, are used mainly on new construction in shallow water where wave action and littoral drift are the dominant processes.
- Wing dams do not appear to be illustrated to scale.
- The channel east of the placement channel has continuous flow.
- Placement quantity and footprint will need to be defined by WI DNR requirements and standards.

Response: Comments noted. The island was an error and plates have been updated. Most current design now incorporates rock vanes instead of rock groins. The plan set had not been updated because this design didn't pass floodplain requirements. The depiction of the bathymetry did have some errors that have been corrected. However, this did not affect the floodplain modeling as the cross-sections used for the 1D RAS model were based on the State of Wisconsin's effective floodplain model, not the bathymetric depiction.

Appendix E – Sheet ID C104 Corps Island Plan – Comments: Recommend the addition of rock vanes on the north end of the bathtub island to reduce impacts from the channel flow. The hydraulic modeling for the bathtub site demonstrates stable conditions for the bathtub during high water conditions and resistance to wind and wave action. However, Appendix G Page G-3-3 identifies that there are current impacts from the erosive wave action forces to the existing island where the bathtub site is proposed: "The island also provides some limited wind fetch reduction across a large expanse of water. However, historic photos show the island is getting smaller, probably due to the wave erosion from wind and boat traffic." Rock stabilization should be installed to reduce impacts from wind fetch and boat traffic. This plan sheet also does not identify any return water outlet locations or any details about the adjacent wetland mitigation. Detailed plans and specifications need to be developed to alleviate these issues.

Response: Providing details to finalize MOU. The statement "The island also provides some limited wind fetch reduction across a large expanse of water. However, historic photos show the island is getting smaller, probably due to the wave erosion from wind and boat traffic" should be clarified to note that aerial imagery is not an absolute indicator due to possible differences in river stage. See Section 4.1.3.2. which states the following in an attempt to address possible eroded sand in the case of wind/wave action: "If these conditions occur when the bathtub is partially full, eroded sand

should remain within the bathtub contained by the berm. If these conditions occur when the bathtub is full, the material should be trapped in the vegetated berm."

Appendix E – Sheet ID C301. Comments: The Corps Island cross sections identify four foot high sand berms with one foot of clay cap for a total height of 5 feet. The berms will be constructed with 5**:**1 side slopes and a top width of 15 feet. Observations of constructed berms at three different locations within Pool 11 provide evidence that past modeling has not been effective at predicting potential erosion rates due to velocity and/or wave action. Sunfish Lake and Mud Lake each have berms constructed of clay and random material. Both have shown excessive wind erosion over time that was unanticipated. The erosion of the berm at Sunfish was severe enough that the addition of a rock mound mid-way through berm construction was warranted to prevent breaching of the berm. Mud Lake erosion is still being monitored. Bertom Island has experienced velocity associated erosion on the southern tip that faces Hurricane Slough. This erosion continues to be monitored. The Bertom berm is larger than the bathtub berm with a height of 8 feet above flat pool and 6**:**1slope. It is recommended that the berm top width be expanded 50 feet and height raised to 6 feet with the additional height achieved through placement of additional clay. Observations at Bertom indicate one foot of material is insufficient for the growth of tree cover. Providing tree cover on the berm will reduce attractiveness of the area for recreation and reduce wind induced erosion of sand off of the placement site. This recommendation is based on lessons learned over many years constructing the Upper Mississippi River Restoration Habitat Rehabilitation and Enhancement Projects and working with CM on achieving their mission.

It is understood that an Operation and Maintenance Plan will be developed during the implementation phase of this project. However, section 5.5.3 of the Main Report (Repair, Rehabilitation and Replacement Considerations) states the following**:** "Repair, rehabilitation and replacement considerations may extend outside of the typical 40- year period of analysis." This is inadequate and a plan to deal with repairs, rehabilitation and replacement should be developed for both the construction phase and long-term use. This plan should be adaptive in nature with the understanding that riprap or other erosion control measures may be required in the future. WI DNR recommends that this plan be amended to include these plan details for the construction phase. Long-term repair, rehabilitation and replacement considerations need to be addressed in the O&M Plan.

It is understood that the farm field/quarry cross section (B1) is typical cross section and not drawn to scale. Could you please clarify the purpose of the "Veg. Free Zone" illustrated on the cross section?

Cross Section A1 shows existing trees on both sides of the sides of the bathtub. The trees on the north side of the bathtub will need to be removed during construction.

Response: The project engineering team has reviewed the models used to determine the berm heights and widths during the feasibility phase during the design phase. There will not be any trees planted on the containment berm as they could damage the integrity of the berm.

The Corps is responsible for any Repair, Rehabilitation, and Replacement costs during the 40-year project life.

The "vegetation-free zone" is a buffer where woody vegetation will not be allowed to grow. This area around the farm field should be mowed to ensure there are no trees growing into the ditch and reducing the drainage ditch capacity. USACE crews also use this area for vehicle access around the perimeter of the site.

Every attempt will be made to leave existing trees in place during the berm construction. As this area is converted to the mitigation area, trees will be removed.

Appendix E – Sheet ID C302 Details – Comments**:** Hurricane Island cross sections and groin plans should be removed from the engineering plan or referenced as details for a placement alternative. The Hurricane Island bankline placement is not part of the preferred alternative discussed in this plan. However, the WI DNR is interested in maintaining this site for recreation with dredge material placement for beach nourishment and with the installation of proper bank stabilization. Recommend continuing the coordination with the OSIT and WI DNR to develop a plan for the Hurricane Island bankline site.

Response: Concur. Hurricane Island revised to be removed from the plans. We look forward to working with the State of Wisconsin and other partners to create possible solutions to achieve the identified goals.

Appendix E – Geotechnical Engineering Report Page 6 Berm: Dredge placement containment consists of building a clay-capped sand berm prior to placement of dredged material. Clay will allow vegetation to grow on the berm and provide some protection against any minor erosion that may occur from boat wake or wind- generated waves. A typical section of the proposed berm can be found in the Slope/W model in Appendix B.

A berm with approximately 5 feet height will be constructed of dredged sand and capped with existing clay on the island. The clay capping material will be semi-saturated in some parts and will need time to drain and some effort to achieve semi compaction. The stability of the berm was modeled using a slope of the berm of 4H:1V and a crest width of 10 feet. During the planning process the berms were widened to a crest width of 15 feet and a side slope of 5H:1V. However, since the subsurface material—not berm width—was the limiting factor in determining the maximum slope of the sand pile it was not necessary to update the modeling.

Comments/Questions: The geotechnical report clearly identifies the containment berms to be constructed with dredge sand and capped with clay. This is inconsistent with some areas of main report that identify "silt or clay". The report goes on to say that the clay will allow vegetation to grow on the berm and provide some protection against any minor erosion that may occur from boat wake or wind-generated waves. During a recent conversation with MVR it was stated that clay was not needed to stabilize the berm. Please clarify the function of the clay on the berm. What requirements will the MVR have for the capping material? Have similar berms been constructed elsewhere in the district and been stable? Were there any issues with the clay forming a hardpan and limiting vegetation growth or insufficient depth of fines/clay to support terrestrial vegetation as an erosion control method?

Response: Hydraulic modeling at the site showed clay is not needed to stabilize the berm. As a way for the District to minimize impacts from unanticipated erosion, the clay was added for a surface to support improved vegetation growth.

Appendix E – Geotechnical Engineering Report Page 6 Borrow: The sand borrow for berm construction will likely come from Finley's Landing DMMP site or dredging within the navigation channel. The clay borrow for berm capping will likely come from the Lock and Dam 11 forebay or the south side of the Corps Island.

The sand removal from Finley's Landing is not consistent throughout the report. Please revise accordingly. If the sand is to be used in the construction of bathtub or wetland mitigation site please include that information in the detailed plans and specifications that will be required prior to construction. Detailed plans and specifications need to be developed that identify the where the berm capping material will originate. It is recommended that the clay capping material be obtained from the interior of the bathtub. The sediment in the borrow sites will need to be characterized prior to dredging and clearly defined along with aerial extent and depth. This detail will be needed for issuance of WQ certification. Please work with the WI DNR to develop a site specific sediment sampling plans for this area.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

Appendix E – Geotechnical Engineering Report Page 6 Riprap: Since the Mississippi River does not have a 'flashy' nature regarding rapid water depths, and from discussions with personnel from Rock Island District Hydraulics Branch, it was determined that riprap is not needed along the berm toe to protect it from erosion. Another reason is the low velocities of the current in the immediate area of the Corps Island.

Comment: This paragraph is inconsistent with the documented current conditions of the bathtub site identified in Appendix G Page G-3-3: "*The island also provides some limited wind fetch reduction across a large expanse of water. However, historic photos show the island is getting smaller, probably due to the wave erosion from wind and boat traffic*." Recommend the addition of rock toe protection to protect against wave erosion from wind and boat traffic.

Response: The statement, "The island also provides some limited wind fetch reduction across a large expanse of water. However, historic photos show the island is getting smaller, probably due to the wave erosion from wind and boat traffic" should be clarified to note that aerial imagery is not an absolute indicator due to possible differences in river stage. See Section 4.1.3.2. which states the following in an attempt to address possible eroded sand in the case of wind/wave action**:** "If these conditions occur when the bathtub is partially full, eroded sand should remain within the bathtub contained by the berm. If these conditions occur when the bathtub is full, the material should be trapped in the vegetated berm."

Hurricane Recommendations EC-H: Recommend adding clarification that identifies the modeling for the preferred alternative and the Hurricane Recommendations EC-H – Hurricane Island Bankline Placement**:** The bathymetry used to model the Hurricane Island

bankline site appears to have some errors. The contours of elevation map shows an island located north-west of the head of Hurricane Island that does not exist. The island area elevation errors also appear to be carried into flow modeling. Were these same elevation errors present at other modeled locations within the project area? Recommend fixing these errors and continuing coordination with the OSIT and WI DNR to develop a plan for the Hurricane Island bankline site.

Response: The TIN depiction of the bathymetry did have some errors that have been corrected. However, this did not affect the floodplain modeling as the cross-sections used for the 1D RAS model were based on the State of Wisconsin's effective floodplain model, not the TIN.

APPENDIX F – COST ESTIMATES OF ALTERNATIVES

Appendix F General Comment: The wetland mitigation alternatives appear to be compared by total cost and total cost/cubic yard. Recommend comparing the wetland alternatives in cost per acre of wetland restoration or a cost per acre of wetland mitigation acre of mitigation credits. It is difficult to discern the wetland cost benefit ratio of all of the alternatives.

Response: Since the primary objective of DMMP is for a dredged material placement plan and not wetland mitigation, the costs for wetland mitigation were compared as cost/cy to stay consistent with the method of comparing dredging operations. If interested in the cost per acre for the wetland mitigation, one could take the total cost for the mitigation, and divide it by the total acres, both of which are provided in the cost estimates.

Appendix F Page F-2: The cost estimated does not appear to account for the cost associated with dredging the Hurricane Island cut. The Hurricane cut is located more than 3 miles away from the bathtub site. Additional booster pumps or mechanical dredging will be needed to get the material to this site. Please clarify.

Response: Concur. Cost estimates have been updated to reflect the balance of hydraulic and mechanical dredging costs for the alternatives.

Appendix F Page F-5 Where does the 400,000 cubic yard value come from? Would this be considered an offload to the Snyder Slough HREP? No placement or capping costs identified. Dredging costs at $23.42 per cubic yard seem high. Please clarify.

Response: The 400,000CY value was used to compare against other alternatives, and is the amount of placement for a 40-year DMMP plan. It was assumed that Snyder Slough could hold 400,000CY based on previous design iterations. Appendix F Page F-5 is specifically Snyder Slough as a stand-alone, direct placement, not an offload. No placement (working of material, berms, etc.) or capping costs were identified due to already high cost of dredging the material at $36/cy. Integrating the placement and capping costs would increase the cost/cy, further removing it from consideration. The dredging cost of $23.42/cy is explained in the footnote on page F-5. To further explain, the $23.42/cy is the result of doubling the IWW value of $11.71/cy for a small hydraulic dredging operation contract cost. The $11.71 was doubled due to the fact that there is limited access to the Snyder Slough area, and therefore dredging operations would be significantly higher in this area.

Appendix F Page F-8: Identifies a clay cap at $39.63 per cubic yard. How was this cost derived? Would an adjacent fine borrow site provide a cheaper alternative? Please clarify.

Response: This cost was derived from the USACE Cost Engineering section. It consists of $24.63/cy to haul and spread material from the forebay, and $15/cy to mechanically dredge the material. The sum of the two values being $39.63/cy. Cost Engineering also provided a cost of $21.64/cy to haul and spread material from the site versus hauling from the forebay. $15/cy would need to be added to this for mechanical dredging. Thus there is a cost savings of $3/cy to use material from the site.

As can be seen on Page F-2, for the bathtub site, costs for clay cap were broken out into amounts that could be used from the site by excavating a portion of the interior, and acquiring the rest from the Lock 11 Forebay. For costs of other alternatives (Pages F-6, F-7, F-8) that would not require using the bathtub, and thus not excavating a portion of it, the clay cap cost was solely from acquiring material from the forebay.

Appendix F Page F-6**:** The Enhance Rosebrook Island Option A only accounts for dredging. No other costs are itemized. The sand would need to be capped with fine material and trees would need to be planted for any bottom land forest restoration actions. Please provide details on how this cost estimate was derived.

Response: During previous meetings, WI DNR expressed it did not support the placement of dredged material at Rosebrook Island due to anticipated wetland impacts. Based on this lack of support, further cost estimation to include complete design was not carried out for this alternative.

Appendix F Page F-8: The Enhance Lower Hurricane wetland mitigation option identifies costs for 14 acres of tree planting. This number seems high. Would the project result in 14 acres of suitable tree planting habitat? Please clarify.

Response: Yes. Additional placement to protect and extend the island would provide 14 acres.

Appendix F Page F-9**:** The "Permanent Mitigation Placement" column identifies "Cost/cy Temporary Placement". Please change to read "Cost/cy Permanent Placement".

Response: Concur. The error has been corrected.

Appendix F Page F-9**:** The final 40 year cost for the preferred alternative (Bathtub to the Farm Fields with Mitigation) is $29/cy for 446,383 cy of permanently placed main channel dredge material (berms, wetland, two offloads to the Farm Fields), assuming the farm field/quarry is still available. No money appears to be allocated for land acquisition. Rock Island District's Implementation Report for Great II Study (June 1981) identifies the importance of land acquisition. It ranks the acquisition of disposal sites or the rights for disposal at the earliest date possible as a High Implementation Priority Action. We recommend beginning negotiations for acquisition of the property as soon as possible to ensure the site is available for long-term use.

Response: Further coordination for real estate will begin when offload action is anticipated. At this time, local landowners have voluntarily expressed interest in accepting dredged material. Therefore, no cost has been associated with land acquisition at this time.

APPENDIX G – CLEAN WATER ACT REPORTS

Appendix G Page G-1-1: This study evaluates additional suitable placement alternatives for both mechanical and hydraulic dredging methods at the Hurricane Island Reach.

Comment: As mentioned previously, mechanical dredging placement sites appear to have been unnecessarily limited by the 10,000' reach limitation of the Dredge Goetz.

Response: Mechanical dredging placement sites are limited by the capacity at those sites. Costs increase as distance increases, also influencing the selection of the preferred alternative.

*Appendix G Page G-1-1**:** This material [approximately 9,000 cubic yards (cy)] would be permanently placed on the Bathtub site.*

Comment: As noted previously, please indicate where material will be temporarily stockpiled during access channel dredging.

Response: See main report, Section 5.4, Step 1. The access channel mechanical dredging would require placing material on a deck barge then to the bathtub site or other existing approved placement sites in compliance with all water quality requirements under federal law.

*Appendix G Figure G-1-2**:** Proposed Site Development Plan for the Bathtub Site, (RM 594.1)*

Comment: This figure does not match the Engineering Section.

Response: Concur, will revise accordingly.

*Appendix G Page G-1-4**:** The District would first construct a partial containment berm, using existing sand at the Finley's Landing placement site.*

Comment: In the main report, construction methods describe utilizing sand from Finley's Landing or from the navigation channel for berm construction. Please clarify which site will be used.

Response: Both are potentially valid sources of material pending any necessary testing or OSIT approval. Appendix G is now consistent with the main report.

*Appendix G Page G-1-4**:** As dredging continues through the first 20-year period, the District would continue the berm to protect the placed material from erosion. Once the final stage of the containment berm is completed, the District would place fine material (silts and clays) on the berm's outside slope.*

Comment: What is the timeline for completion of the berms? Please clarify if the berm will be capped with clay (for geotechnical purposes) or a mix of silts and clays (for vegetation establishment).

Response: Appendix G-1 now refers to the Main Report, Section 5.4 for the construction sequence and timeline. Appendix G-1 also states the berms would be capped with silts and clays for vegetation establishment.

*Appendix G Page G-1-4**:** Finally, if vegetation does not naturally establish on the capped berm, the District w o u l d seed the berm with native vegetation to provide additional protection against minor erosion that may occur from boat wake or wind-generated waves.*

Comment: How will the unvegetated berms be stabilized and protected from wind and wave erosion in the interim? It is not common practice to allow sites that are elevated more than about 6" above water surfaces to attempt to vegetate on their own, particularly if they are lacking fine material.

Response: The capping material would stabilize the berms. The silt and clay capping material would not only stabilize the berm, it would also promote natural revegetation.

*Appendix G Page G-1-4**:** Floodplain modeling using HEC-RAS (1D) showed the increase in the floodplain caused by the Bathtub site is 0.003', which is less than the allowable 0.0049*

Comment: The State of Wisconsin's allowable rise is 0.00.

Response: Concur, will revise accordingly.

*Appendix G Page G-1-8**:** The District would then use hydraulic dredging to move material to the adjacent mitigation area and to the bathtub site.*

Comment: Construction methods for the mitigation area must be clarified prior to Water Quality Certification. The above statement makes it appear that hydraulic dredging may be utilized to directly place material for the wetland area, but in conversation, the District has described moving the material across the site with a bulldozer.

Response: Both mechanical and hydraulic are potentially viable methods of placing sand at the mitigation site if water quality standards can be met. Capping materials would likely be handled with mechanical equipment. The District will work with WI DNR to complete the necessary details for the WQC and MOU.

*Appendix G Page G-1-8**:** The proposed action would place the hydraulically dredged material within the bermed portion of the bathtub site. Since the District does not anticipate a single 200,000 cy dredging event, the berm and material inside the berm would be placed incrementally over the 20-year period on an as needed basis but in a sequential order from upstream to downstream. If the site reaches full capacity before 20 years, the District would plan and prepare to offload the material to the upland Farm field/Quarry site.*

Comment: As noted previously, the Department is concerned about an extended construction window in which the site is vulnerable to wind, wave and rain erosion. In order to complete Water Quality Certification, detailed plans and specifications need to be developed that address berm

construction, erosion protection measures and integration of wetland creation and berm construction. In addition, please reconcile the statement**:** 'District does not anticipate a single 200,000 cy dredging event' with the discussion of the quantities and impacts of deferred dredging outlined on Page 5 of the Main Report.

Response: Prior to using the Bathtub site, the District will work with WI DNR to complete the necessary details for the WQC and MOU. No single 200,000 cy dredging event is anticipated. It is important to reiterate these are estimates and not a guarantee of actual dredging quantities.

Appendix G Page 1-10 Figure G-1-3: Bathtub Placement Site Cross Sections

Comment: Again, figures here do not match those from the Engineering section.

Response: Concur, will revise accordingly.

*Appendix G Page G-1-11**:** The "clean" dredge water would be allowed to reenter the Mississippi River at various locations along the placement site in order to avoid water quality impacts, especially suspended sediment.*
Careful return water management would also reduce adverse erosion and potential failure of the retention berm. The District will test the return water to ensure water quality standards are not violated.

Comment: As noted previously, Water Quality Certification will require details regarding specific measures that will be undertaken to reduce the sediment discharge to surface waters before the berms are completely constructed and during routine operations. The Department has measured significant water clarity benefits associated with increased residence time within pre-excavated bathtub sites.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

*Appendix G Page G-1-11**:** To collect the berm capping material, the District would either obtain it from the Bathtub interior, historically On Site Inspection Team (OSIT) approved stockpile sites or from lock and dam auxiliary locks or lock forebays.*

Comment: Please clarify where "historically OSIT approved stockpile sites" exist for fine materials. As borrow sites are selected, please work with the WI DNR to develop site specific sediment sampling plans for these areas.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

*Appendix G Page G-1-11**:** Again, capping material decanting would take place at an approved OSIT site such as inside the bathtub or at a previously approved placement site.*

Comment: Prior to Water Quality Certification, please explain how fine material stockpile areas will be isolated from carriage water during routine hydraulic operations.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

*Appendix G Page G-1-14**:** Since the District does not have an exact location for capping material, it did not complete a grain size analysis on fine material. For forebay and auxiliary lock clean outs or backwater borrow sites, Table G-1-3 shows grain size analysis from the Pool 12 Overwintering Habitat Restoration Project. The District assumes this data from a backwater project in Pool 12 (down river from the Hurricane Island Reach project) is representative of the capping material used for Hurricane Island Reach Project.*

Comment: We concur with your statement from the Main Report HTRW section "*It is recommended that representative samples of the sediments be collected and analyzed for HTRW parameters prior to use".* It is our standard practice to gather site specific sediment data for borrow locations.

Response: Comment noted.

*Appendix G Page G-1-15**:** Actions to Minimize Impacts**:** The District has thoroughly analyzed velocities at the Bathtub site to ensure the final design does not impact the river aquatic community. The design includes capping the containment berm so that it quickly vegetates, the layout was moved to avoid the most wetlands in the lower area of the island, and the approach channel was moved to avoid mussel impacts.*

Comment: As shown in Photograph G-1-4, bankline erosion already occurs on the island, likely due to wind & wave action. Please describe any measures that will be undertaken to limit this erosion on the island itself and any constructed elements. Also, prior to Water Quality Certification, please clarify your plan for capping the berms. Earlier in this appendix (pages G-1-4 & G-1-8), an extended phase of berm construction is described with capping occurring at the completion of the berm. Completing the berms quickly and establishing vegetation proactively will be effective measures to protect water quality.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. In reference to wind and wave erosion, the Main Report, Section 4.1.3.2. states, "If these conditions occur when the bathtub is partially full, eroded sand should remain within the bathtub contained by the berm. If these conditions occur when the bathtub is full, the material should be trapped in the vegetated berm." Appendix G-1 now states, "Berms will be capped as soon as constructed. All constructed berms will be completed with clay and seeding, prior to demobilization from site after each placement per USFWS recommendations for eagle nests concerns."

Appendix G Pages G-1-15-16 Water Circulation, Fluctuation, and Salinity Determinations. Clarity, Color, Nutrients, etc. "The proposed project would not have any impacts…"

Comment: WI DNR appreciates the desire to certify a low-impact project, but in light of the plan to utilize hydraulic dredging without a berm in place, it seems more accurate to state that "There will be short-term impacts during construction which will be minimized after berms are constructed."

Response: Concur, will revise accordingly to clarity and color bullets.

Appendix G Page G-1-16 Actions Taken to Minimize Impacts: The District would use chemically stable materials and physical stabilization of materials to avoid impacts to the riverine system.

Comment: Again, once these plans are clarified in other sections, they should be directly referenced here (i.e. berm construction measures, sediment testing plan for fine materials, erosion controls).

Response: Concur.

Appendix G Page G-1-17 Violations of Applicable Water Quality Standards: The District would obtain the permits, certification, and/or waiver of certification under the Clean Water Act, Section 401 before construction begins.

Comment: As noted previously, Wisconsin will not be waiving Water Quality Certification and detailed plans and specifications will need to be developed before the WI DNR will issue non-wetland Water Quality Certification (WQC) for the construction of the bathtub and the permittee-responsible mitigation (PRM).

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU

Appendix G Pages G-1-17 Actions Taken to Minimize Impacts: Return water would not be able to return to the Mississippi River until Wisconsin water quality standards are met.

Comment: Detailed plans and specifications will need to be developed before the WI DNR will issue non-wetland Water Quality Certification (WQC) for the construction of the bathtub and the permittee-responsible mitigation (PRM).

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU

Appendix G Page G-1-17 Contaminant Determinations: Dredged or fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material. Dredged material may be excluded from further testing if there is a reasonable assurance it is not a carrier of contaminants. Section II.A explains that existing information for this project provides a sufficient basis for making a factual determination concerning impacts to waters of the United States. The dredged material meets the exclusion from testing/evaluation criteria as explained in the Clean Water Act, Section 404(b)(1) Guidelines and the Inland Testing Manual. It is therefore reasonable to assume no further testing is required. This said, the District conducted chemical testing for dredged material in the Hurricane reach in 2015 (Table G-1-4)

Comment: The Department acknowledges that coarser grained materials pose a lower risk of bearing potential contaminants. However, intermittent sampling of the routine dredge cuts is

warranted to provide the "reasonable assurance", to allow all partners to communicate risks to the public, and to ascertain that material meets solid waste standards for a wide range of future beneficial uses. Routine sampling measures will be incorporated into the MOU.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. Appendix G-1, paragraph 5-D now states the District would continue to follow a tiered approach for testing dredged material as described in the Inland Testing Manual. The District would also incorporate periodic chemical testing, as described in NR347, for material that is likely to be provided to the public for beneficial reuse.

Appendix G Page G-1-17 Contaminant Determinations: Table G-1-3 also outlines what the capping material's chemical make-up may be. This information was from backwater samples of similar capping material dredged at an ecosystem restoration project in Pool 12.

Comment: It is the Department's standard practice to gather site specific sediment data for borrow locations. Please work with the WI DNR to develop site specific sediment sampling plans for these areas.

Response: Concur. The District will work with WI DNR to complete the necessary details for the WQC and MOU

Appendix G Page G-1-18 Table G-1-4 Main Channel Sediment Chemical Analysis.

Comment: Reported detection limits for Mercury are higher than the TEC. Recommend considering a lab with lower detection limits. PAH data needs to be adjusted to 1% TOC, it is unclear if this was done.

Response: Text added to Appendix G-1, paragraph 5-D: Discussion with WI DNR staff on 31 May 2017 acknowledged that testing results collected for the Finley's Dredge Cut would be accepted. The District acknowledged that future testing would be conducted to meet detection and reporting criteria specified in NR347.

Appendix G Page G-1-21 Nature and Degree of Effect, Individually, and Cumulatively. The District determined there are no additional beneficial or negative effects contributing to the project area aquatic ecosystem and organisms. Wetland mitigation would replace any environmental value form the existing wetlands.

Comment: During wetland delineation and/or mussel sampling efforts, please evaluate the depths, flows, and substrate conditions that would allow the displaced emergent/submersed vegetation beds to shift downstream of the wetland mitigation area.

Response: Appendix G-1, paragraph 5-E now states, "The District would mitigate for any existing wetlands potentially impacted by this project would be replicated along the edges of the mitigation site."

Appendix G Page G-1-21 Mixing Zone Determinations. A mixing zone is the volume of water at a placement site or discharge site required to dilute contaminant concentrations associated with a discharge of dredged material to an acceptable level. Since terrestrial placement is involved, the return water would be allowed to return the Mississippi River virtually free of sediment. No violation of any standard would result from the placement of dredged material.

Comment: The Department has observed TSS levels exceeding 100 mg/L in hydraulic placement operations that utilized a lagoon to increase residence time. Without establishing detailed plans and specifications for carriage water controls, there could be significant impacts to sensitive resources. Please provide such plans so that the WI DNR can issue non-wetland Water Quality Certification (WQC) for the construction of the bathtub and the permittee-responsible mitigation (PRM).

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU.

Appendix G Page G-1-22 Determination of Compliance with Applicable Water Quality Standards. The District would obtain Section 401 Water Quality certification, in compliance with the Clean Water Act, and all permits necessary for the completion of the project prior to project implementation.

Comment**:** We concur with the above statement and request that all related discussions of permitting processes reflect are in agreement, thereby clarifying that MOU and WQC will be completed.

Appendix G Page G-1-23 Threatened and Endangered Species.

Comment: Please update this section to reflect the recent discovery of a bald eagle nest at the bathtub site and any avoidance measures that will be undertaken in compliance with the Bald and Golden Eagle Protection Act.

Response: Concur, will revise accordingly.

Appendix G Page G-1-23 Mollusks.

Comment: Please update this section to reflect the additional sampling that will be undertaken by the OSIT.

Response: Concur, will revise accordingly.

Appendix G Page G-1-23 Effects on Plankton, Nekton, and Benthos. Because the likelihood of contamination by pollutants is generally low for projects involving dredging, the District anticipates the impacts to the aquatic ecosystem as negligible.

Comment: This project anticipates both course material and fine material dredging. There is a potential contaminants may be encountered. Consider revising this statement.

Response: Revised to state "anticipates the impacts to the aquatic ecosystem to be short term and not significant." If any contaminants are encountered, the District will ensure minimal impacts, as to comply with the MOU and WQC.

Appendix G Page G-1-24 Vegetated Shallows. The proposed action would affect existing vegetative shallows on the Corps-managed island. The District would conduct compensatory mitigation to offset the loss of these 1.4 acres of wetlands.

Comment: During wetland delineation process, please clarify the size and location of this area. If referring to the area to be converted to wetlands for mitigation, please see above comment under *Appendix G Page G-1-21 Nature and Degree of Effect, Individually, and Cumulatively.*

Response: Revised to clarify the 1.4 acres is in reference to the sedge meadows impacted at the bathtub site.

Appendix G Section 404(b)(1) Evaluation: Alternative B- RM594 Bathtub to Farm Fields/Sand Quarry

Comment: Please ensure that details within this section match the engineering designs and main report narrative. Presently, the description of berm construction is inconsistent with those other sections. Also, the narrative related to the proposed use of the WWCT ILF program must be corrected per our previous comment**:** Under Wisconsin State law, mitigation is only required for discharges to wetlands authorized under State statute 281.36. For individual permits authorized under state statute 281.36 mitigation is required to replace the lost functional values of the wetland being impacted. State statute Ch. 30 regulates removal of material and placement of structures and material below the Ordinary High Water Mark (OHWM) in Navigable waters. Under Ch. 30 there is no mitigation requirement for activities regulated under the chapter. Since the activity proposed is wholly below the OHWM, there is no mechanism in state law to trigger and allow for mitigation, thus the Corps cannot utilize the WI DNR In-Lieu Fee Program to address the mitigation needs for wetland impacts from construction and use of the proposed dredge material placement site.

Response: Appendix G has been updated to be consistent with the Main Report and Engineering appendix. Permittee responsible mitigation has also been revised to reflect as the preferred alternative for compensatory mitigation.

Appendix G Page G-2-1 Memorandum of Understanding

Comment: This MOU is draft. The Department will conduct reviews and edits in collaboration with the District as the Hurricane Island Reach DMMP process is completed.

Response: Concur. See Appendix G-2 cover page titled "Draft Memorandum of Understanding" The District appreciates receiving comments on the MOU in this letter. The District would appreciate continued involvement reviewing and editing to finalize this MOU.
Appendix G-2-A General

Comment: Recommend continuing to work with the WI DNR on the development of this SOP for sediment evaluation.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU

Appendix G-2-A General

Comment: This SOP appears to be a scaled down version of the draft ChaMPP sediment evaluation guidelines. With all the time and effort that went into developing those sediment evaluation guidelines, why not adopt that document?

Response: This DMMP requires a specific SOP for this reach.

*Appendix G-2-A Page G-2-A-2 Normal Updating of Existing Sediment Data Base**:** Normal Updating of Existing Sediment Data Base. Because there are approximately 200 dredge cuts within the District and a very short time between determining the need to dredge and the actual dredging, it is not always possible to follow the tiered testing protocol sequentially. Routine updating of the sediments database along with review of contaminant spills and point discharge records supplied by the appropriate agencies are used to determine if historically "clean" dredge cuts may have been negatively impacted. This process provides enough information to provide a Tier I decision. An annual report is prepared summarizing any data collected that year, and the sediment quality data will be updated in the database.*

Comment: This plan needs to include routine sediment quality updates for each dredge cut. While we agree that the risk of contaminants is very low in coarser materials, the purpose of this testing is to provide a broad characterization of material that can be utilized for both water resource protection and solid waste reviews necessary to support beneficial use. In point of fact, our typical procedure in the rest of the Mississippi River is based upon 5-yr main channel sampling with base parameters and grain size analysis. When reviewing that testing, we do expect minimal contamination from cuts that grade <10% passing #200 sieve, but the testing is critical to establish that material is indeed suitable for a variety of end uses. Beyond that, this information will allow you to make factual determinations regarding the contaminant levels in the sediment, helps address future permitting needs and allows all partners to communicate risks to the public.
Question: Is Tab 5 of the Channel Maintenance Pool Plan kept up to date?

Response: There are no finalized Channel Maintenance Pool Plans for Rock Island District. MVR will continue to maintain and provide to WI DNR its grain-size and sediment testing data.

The District will work with WI DNR to complete the necessary details for the WQC and MOU.

Appendix G-2-A Page G-2-A-3 Project Specific Sediment Sampling: This section is for potentially larger projects, like new lock construction, or ecosystem restoration projects, where a decision is reached that the data provided by the routine updating of sediment quality does not provide adequate information to make a decision. These projects would be handled on a case-by-case basis, following the tiered testing approach described above in Section 2.1. Interagency coordination will be an integral part of the decision-making process. When the results of a tier are obtained, the Corps of Engineers would evaluate the results and make a preliminary determination. The results and the preliminary determination would then be coordinated with all the agencies having regulatory authority and a mutually agreed upon decision made. The agencies that would be included are the

U.S. Environmental Protection Agency and the appropriate State agency having regulatory authority for the particular project. If a decision were reached to proceed to the next tier of testing, the number of samples, the sampling strategy, and the tests to be performed would be discussed with all the agencies and agreed to by the appropriate regulatory agencies for a particular project. Subsequent meetings of the technical experts would be held to discuss the interpretation of the results of the tiers and what, if any, additional testing would be required. A final contaminants determination would be included in the 404(b)(1) Evaluation that is prepared and circulated for public and agency review.

Comment: The Department appreciates the Corps willingness to coordinate with other agencies. Project specific sampling will be required anytime dredging is conducted outside of the defined main channel dredge cuts.

Response: Concur

Appendix G-2-A Page G-2-A-4 Project Specific Sediment Sampling: Concern that vertical heterogeneity exists within the sediments is addressed by compositing core samples taken from depths representative of the dredge cut.

Comment: Full-compositing only partially addresses these concerns. Compositing the entire core based on vertical dredge-cut range effectively dilutes the sample. If there are any COC's present at concentrations that would require moving to a Tier II assessment they could be 'disguised' by this method. In turn, this could lead to associated risks at terrestrial or aquatic placement site. Also, this method does not entirely do away with the risk of re-exposing contaminants, as the material comprising the post-dredge cut surface would not be included in the lab analysis. Recommend vertically compositing of the core if 1) a second sample (6" of material) below the target dredge depth were also retrieved and sampled at each core location, or 2) if the segmented sampling done for horizontal homogeneity was designed to have enough representative lower segments run for analysis (statistical significance).

Response: Per 31May2017 conversation, WI DNR agreed that compositing is appropriate for main channel dredge cuts. The District agreed that the above described method would be used for non main-channel dredging.

Appendix G-2-A Page G-2-A-4 Sample Collection Methods: Samples for organic analysis should be collected with a stainless steel corer and samples for metal analysis should be collected with a PVC or similarly inert corer.

Comment: Recommend polycarbonate tubing, rather than PVC.
Response:
Sample collection methods will follow procedures recommended for the specific laboratory analysis required to meet NR 347 standards.

Appendix G-2-A Page G-2-A-4 Sample Storage: Sediment samples should be collected and stored at 4oC in glass containers with Teflon-lined caps for analysis of organics and either linear polyethylene containers or glass containers with Teflon-lined caps for analysis of metals.

Comment: Recommend non-clear (brown) glass containers should be used for organic

Response: Concur

Appendix G-2-A Page G-2-A-5 Physical and Chemical Characterization and Table 1.

Comment: The following of parameters should be analyzed during routine sampling on the defined channel maintenance dredge cuts on a proposed 5-year interval. Dredging outside of the defined channel maintenance dredge cuts may require additional parameters for analysis.

General
Total Organic Carbon
Particle Size (% passing 200 sieve) Ammonium Nitrogen
Water Leach Test (ASTM D3987-12)

Metals
Arsenic Cadmium Chromium
Hexavalent Chromium Copper
Lead Manganese Mercury Nickel Zinc

PCB and Pesticides Total PCB's (c) (e.d.)

PAH's (EPA 8310)
Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Fluoranthene
Benzo(b)fluoranthene Benzo(k)fluoranthene Pyrene Benzo(a)pyrene Benzo(g,h,i)perylene
Naphthalene Phenanthrene Fluorene
Chrysene
Indeno(1,2,3-Cd)pyrene Dibenz(a,h)anthracene Benzo(e)pyrene
1-Methylnaphthalene 2-Methylnaphthalene

PCB testing. This is part of our routine suite of parameters. Pool 11 has PCB impairments for fish tissue and water quality. While we recognize the reduced risk of high concentrations of PCBs in coarser grained materials, we also feel that baseline data for PCBs in Pool 11 is justified. Given the proposed 5-yr interval on sampling and the impairment concerns, we find that PCB analysis is warranted.

PAH testing. This is also part of our routine suite of parameters within our sediment sampling and analysis guidelines. Moreover, if material may be used beneficially for landfill or reclamation purposes, it is extremely beneficial to have PAH information that can either verify that material is sufficiently uncontaminated or can help target more intensive sampling. We propose analysis of the PAH-18 priority pollutants (please report 1- methylnapthalane and/or 2-methylnaplthalene, if available by your lab).

Water Leach Test. Since the material is likely to be used for mine reclamation, a water leach test is recommended. The test should follow ASTM D3987-12 and should be analyzed against the Preventative Action Levels (PALs) for groundwater (Tables 1 & 2 for parameters in the attached

Excel file). This is the more restrictive standard and therefore clears the material for nearly any beneficial use in Wisconsin.

Please include raw (non-normalized to TOC) results along with normalized results in report.

Response: This table will be finalized as part of the MOU.

Appendix G-2-A Page G-2-A-5 Elutriate Preparation: This is then allowed to settle for 24 hours or the predicted project settling time, and samples of the supernatant are drawn from the cylinder at a point midway between the water surface and the settled sediment interface using syringe and tubing.

Comment: Please clarify "predicted project settling time". Is this based on the Column Settling Test as described in Section 4.3? If so, please reference.

Response: Yes, this text was changed to read "predicted project settling time as determined through the Column Settling test described in Section 4.3."

*Appendix G Page G-3-3**:** Wetland Impacts - The island also provides some limited wind fetch reduction across a large expanse of water. However, historic photos show the island is getting smaller, probably due to the wave erosion from wind and boat traffic.*

Comment: We concur that the island has ongoing wave erosion from wind and boat traffic. Please provide a plan for ensuring the stability of the island to protect the toe of the berm.

Response: The Main Report, Section 5 outlines the Bathtub construction including capping the berms with fine sediment and clay. Vegetation should quickly grow on the berms. This should abate wind and boat wave erosion.

Appendix G Page G-3-6: The District analyzed the last 30 years of hydraulic elevation data at the Bathtub Site, and determined a 25% exceedance at elevation 604 MSL. Emergent wetlands are considered any vegetation from the 25% exceedance of 604 feet minus 3 feet (verbal communication with Corps Regulatory). Therefore, deep/shallow wetlands are considered at an elevation at and below 604 (9.7 acres) and any area at 605 (1.4 acres) is considered a sedge meadow community.

Comment: Please ground-truth these values during the wetland delineation.

Response: Comment noted. The District's Regulatory office ground-truthed the area on May 10, 2017. The Bathtub site wetland acres did not change from the draft report. Appendix G-3 has been updated to reflect the ground truthing.

*Appendix G Page G-3-6 Opportunities and Constraints**:***

Comment: In preparation for Water Quality Certification, please provide a design plan for the wetland mitigation that commits quantities, material locations, construction methods, erosion protection measures, wetland performance targets, planting plans and monitoring.

Response: Appendix G-3 outlines the District's mitigation quantities, material locations, construction methods, erosion protection measures, wetland performance targets, planting plans and monitoring. The District will work with WI DNR to complete any additional details for the WQC and MOU.

Appendix G Page G-3-9 Alternative Development and Preliminary Screening Criteria.

Comment: While not bound by Wisconsin wetland mitigation law due to jurisdictional issues discussed previously, it bears noting that the proposal to convert open water to wetlands for mitigation would likely not be acceptable for wetland mitigation projects required by the DNR under a wetland individual permit.

Response: Comment noted. The District Regulatory office provided concurrence with the proposed mitigation. See Appendix D-3. The proposed mitigation is from guidance by the OSIT letter dated March 1, 2017.

*Appendix G Page G-3-11 Mitigation Options Considered. Enhance Rosebrook Island**:***

Comment: The WI DNR did not support the placement of dredge material in an isolated wetland on Rosebrook Island for forest habitat restoration.

Response: The District acknowledges the State of Wisconsin did not support the placement of dredged material at Rosebrook for forest habitat restoration. It is important to note that the proposed mitigation at Rosebrook Island included a conversion of wetland types and not a complete loss of wetland. Since much of the interior of Rosebrook Island is below the Ordinary High Water Mark, the State of Wisconsin's concern for wetlands at this location seems to contradict the reasoning for declining the District use of the In Lieu Fee program.

*Appendix G Page G-3-11 Mitigation Options Considered - Enhance Lower Hurricane Island**:** The District proposed placing dredged material along the riverside bankline, cap the material with fine material, and then allow the site to naturally vegetate. This feature would increase wetland habitat and protect a backwater wetland. Again, hydraulic modelling demonstrated placed material on the bankline would require riprap protection to avoid erosion. This alternative was eliminated due to the high cost of the riprap protection, resulting in a total cost $4,620,000.*

Comment: Did the lower island enhancement with rock, sand and backwater material pass the flood stage analysis? Could this project be considered for future environmental improvement?

Response: While it appears worthy of consideration for future environmental improvement, the lower island enhancement was not the best fit for this project. Therefore, the mitigation was not modeled for potential impacts to flood heights as part of this DMMP. Enhancements as proposed by the WI DNR are categorized as preservation and not in-kind replacement under the Clean Water Act, Section 404. Preservation alone did not fulfill the minimum wetland mitigation requirements. Additionally, the required mitigation ratios for utilization of the preservation measure were higher because they were not considered to appropriately compensate for impacts of the project. An increase in mitigation ratio means an increase in the mitigation footprint, which in turn has the

potential to impact other resources.

*Appendix G Page G-3-11 Mitigation Options Considered - Protect Lower Hurricane Island**:***

Comment: The Department and OSIT are in agreement that protecting Lower Hurricane Island should be considered a valuable mitigation action due to the precarious condition of the remaining island leg. 1.1 million dollars seems like a good investment for rock placement that benefits channel maintenance, preserves backwater habitat and protects the secondary channel from flow inputs from the main channel. If flows break through the remaining island, backwater and marsh habitats will be lost. If additional mitigation is required, please consider OSIT Option 1, Lower Hurricane Island Rip-Rap.

Response: Comment noted. See preceding comment concerning preservation in lieu of in-kind mitigation.

*Appendix G Page G-3-12 Mitigation Options Considered - Snyder Slough Restoration**:** Access to Snyder Slough was cost prohibitive, at an estimated cost of $14,305,000, due to its location in backwaters and distance to the dredge cuts.*

Comment: It is understood that access dredging would be needed but the cost analysis only identifies 400,000 cy of material to be dredged with a small hydraulic unit at $23.42 per cubic yard. No other costs were accounted for. Cost estimate seems very high. Please clarify. Were all of the islands depicted on Figure G-3-3 identified as a single operation or were they identified as individual components of a project? It makes most sense to see if there are island locations where depth is sufficient (or nearly), velocities are low and proximity to either the cut OR the bathtub allows for minimal handling distance. In light of the insecurity of the quarry site for future offload, it seems prudent that the Corps should investigate the cost to channel maintenance to construct the nearest elements of the Snyder Slough HREP project as a means of restoring capacity within the bathtub site at the 20-25yr time interval. In light of the long planning timeline for restoration design development, it would behoove the partners to begin discussion of goals of that project and likely designs no later than 2025.

Response: The cost analysis utilized 400,000CY as that is the capacity for a 40-year plan. It was assumed that Snyder Slough could hold 400,000CY based on previous design iterations. As stated, the $23.42/cy was utilized for a small hydraulic contract dredge based on the access limitation to the site. No other costs were accounted for because the resulting high cost of just dredging made this plan cost prohibitive. For the volume of material desired, the cost will be high.

The District acknowledges that some members of the State of Wisconsin would like to see placement within the footprint of the Snyder Slough Habitat Rehabilitation and Enhancement Project (HREP). However, these locations were not selected as part of this preferred alternative because of the higher cost associated with complex placement when compared to a single setup and offload into the farmfield/quarry. The District investigated a large array of potential alternatives, including direct placement at several locations. The District was unable to find island or in-river sites meeting the federal standard and also satisfied the State of Wisconsin and other OSIT partners. The desire to place at island locations does not appear to be shared among all members of the State of Wisconsin.

The State of Wisconsin is extremely stringent with the application regulatory rules for any attempt to place dredged materials within the waters of the State of Wisconsin. Members of the State of Wisconsin have continued to urge the District to get the dredged material out of the river. Some members of the State of Wisconsin have criticized the District, even within this letter, for not adequately identifying or considering placement locations outside of the river. The District has identified an opportunity to place the material outside of the river as part of the preferred alternative of this DMMP.

The District attempted to combine this Hurricane Island Dredged Material Management Plan with the Snyder Slough HREP Project. The partner agencies, specifically Wisconsin, were concerned with documenting all the District's HREP funding to ensure it was never used to perform any channel maintenance dredging. The potential combined project was dropped from lack of shared interest by partner agencies. However, the State of Wisconsin has consistently asked the District to increase the cost of performing channel maintenance dredging to build the Snyder Slough HREP project.

The District would be interested in options to partner with the State of Wisconsin to meet some of their management goals. Costs above the federal standard to meet the State of Wisconsin's desired objectives may be able to be paid for by the State or other party.

Appendix G Page G-3-12 Wisconsin Wetland Conservation Trust: On January 20, 2017, the District submitted a WWCT In-Lieu Fee Program Application (Appendix G-3-1). In its March 3, 2017, email response the WI DNR denied the District's In-Lieu request since the project would not require Section 404, Section 10, or WI DNR permits (Appendix G-3-2). In a letter dated April 17, 2017, the District requested the WI DNR to reconsider its position if on site mitigation cannot meet state and Federal regulations or meet mitigation success criteria (Appendix G-3-2).

Comment: As stated elsewhere in this document, Under Wisconsin State law, mitigation is only required for discharges to wetlands authorized under State statute 281.36. For individual permits authorized under state statute 281.36 mitigation is required to replace the lost functional values of the wetland being impacted. State statute Ch. 30 regulates removal of material and placement of structures and material below the Ordinary High Water Mark (OHWM) in Navigable waters. Under Ch. 30 there is no mitigation requirement for activities regulated under the chapter. Since the activity proposed is wholly below the OHWM, there is no mechanism in state law to trigger and allow for mitigation, thus the Corps cannot utilize the WI DNR In-Lieu Fee Program to address the mitigation needs for wetland impacts from construction and use of the proposed dredge material placement site.

Response: Comment noted. The District Regulatory office provided concurrence with the proposed mitigation (Appendix D-3).

Appendix G Page G-3-13 Permittee-Responsible Mitigation: The Mitigation Rule identifies three types of permittee-responsible mitigation (PRM) plans: PRM under a watershed approach, PRM through on-site and in- kind mitigation, and PRM through off-site and/or out-of-kind mitigation. The OSIT developed PRM plans using a watershed approach and are environmentally preferable. In addition, this PRM plan addresses the components of a complete mitigation plan as described in the Mitigation Rule (33 CFR 332.4(c)).

If the District were ultimately denied using the WWCT, the District would perform on site PRM. The detailed Hurricane Island PRM is located in Section 5, Mitigation Plan.

Comment: Please clarify the following statement "*The OSIT developed PRM plans using a watershed approach and are environmentally preferable."*

Response: Statement deleted from Appendix G-3.

Comment: As stated elsewhere in this document, Under Wisconsin State law, mitigation is only required for discharges to wetlands authorized under State statute 281.36. For individual permits authorized under state statute 281.36 mitigation is required to replace the lost functional values of the wetland being impacted. State statute Ch. 30 regulates removal of material and placement of structures and material below the Ordinary High Water Mark (OHWM) in Navigable waters. Under Ch. 30 there is no mitigation requirement for activities regulated under the chapter. Since the activity proposed is wholly below the OHWM, there is no mechanism in state law to trigger and allow for mitigation, thus the Corps cannot utilize the WI DNR In-Lieu Fee Program to address the mitigation needs for wetland impacts from construction and use of the proposed dredge material placement site. The Department and OSIT are in agreement that protecting Lower Hurricane Island should be considered a valuable mitigation action due to the precarious condition of the remaining island leg. If flows break through the remaining island, backwater and marsh habitats will be lost. If additional mitigation is required, please consider OSIT Option 1, Lower Hurricane Island Rip-Rap.

Response: Comment noted. The District Regulatory office provided concurrence with the proposed mitigation (Appendix D-3).
Appendix G Page G-3-13 PRM/In-Lieu Fee Hybrid. If PRM does not fully compensate for all mitigation loss, the District would again attempt to meet the full mitigation need by combining PRM with the WWCT.

Comment: As stated elsewhere in this document, Under Wisconsin State law, mitigation is only required for discharges to wetlands authorized under State statute 281.36. For individual permits authorized under state statute 281.36 mitigation is required to replace the lost functional values of the wetland being impacted. State statute Ch. 30 regulates removal of material and placement of structures and material below the Ordinary High Water Mark (OHWM) in Navigable waters. Under Ch. 30 there is no mitigation requirement for activities regulated under the chapter. Since the activity proposed is wholly below the OHWM, there is no mechanism in state law to trigger and allow for mitigation, thus the Corps cannot utilize the WI DNR In-Lieu Fee Program to address the mitigation needs for wetland impacts from construction and use of the proposed dredge material placement site. The Department and OSIT are in agreement that protecting Lower Hurricane Island should be considered a valuable mitigation action due to the precarious condition of the remaining island leg. If flows break through the remaining island, backwater and marsh habitats will be lost. If additional mitigation is required, please consider OSIT Option 1, Lower Hurricane Island Rip-Rap.

Response: The OSIT identified potential mitigation options they viewed as potentially valuable (environmentally preferable) mitigation efforts, regardless of whether or not the mitigation was in-kind or out-of-kind. Federal requirements for in-kind mitigation ultimately lead to selection of

preferred mitigation alternative. USACE Regulatory has provided concurrence with proposed mitigation. See Appendix D-3.

Appendix G Page G-3-13 Mitigation Plan: This mitigation alternative in located on USFWS fee-titled land. The proposed mitigation would protect the lower end of the island and would allow for sediment accretion. It does not create enough habitat to compensate for the approximately 11 emergent wetland acres lost. The District embellished this mitigation alternative to create the required approximately 12 acres of needed mitigation.

Comment: Please explain and identify the areas of this mitigation plan that have been embellished. Does it refer to the permanently flooded four acres added north of the Bathtub? Does bathymetry permit construction of longer downstream leg on the channel side? Recommend incorporating the wood from the tree removal into the mitigation plan. Please clarify how the construction of the bathtub and the mitigation occur in sync. The berms for the bathtub need to be built at the outset, so the impacts to the interior wetlands begin immediately. Is the mitigation to be built concurrent with bathtub construction?

Response: The District took the WI DNR/OSIT mitigation suggestion at the lower end of the Bathtub and modified the line of rocks (preservation mitigation) and embellished this idea to create approximately 9 acres of in-kind mitigation, as required by the Clean Water Act. The in-kind mitigation is adjacent to the bathtub in open water, directly below the bathtub. The District would concurrently build the mitigation site and Bathtub as dredged material becomes available.

Appendix G Page G-3-13 Mitigation Plan: Based on the preceding evaluation of mitigation alternatives, the Bathtub Site mitigation plan consists of the following:

- *Use dredged material to expand the existing island in a phased approach; as the bathtub expands over several years, appropriate mitigation development will also expand. The mitigation would fill aquatic habitat up to elevation 604 MSL. Elevation 604 MSL is the same elevation as the impacted wetland (Figure G-3-4).*
- *Include swale(s) (603.5 msl) within the mitigation area(s).*
- *Cap with fine material from near a lock and dam or Bathtub Site interior.*
- *Seed with native, local ecotype herbaceous sedge and emergent wetland plant species.*
- *Control invasive species.*
- *Monitor and adaptive manage to ensure success.*

Comment: Please provide detailed plans and specifications on the construction process, phasing, fine material borrow sites, swale design and timeline for the mitigation site. Planting plan is inconsistent throughout the document. Recommend required seeding and/or planting at the mitigation sites.

Response: Wetland mitigation will be done by contractor concurrent with the Bathtub construction.

Appendix G Page G-3-16 Site Protection: The Corps and USFWS mange the mitigation site as fee title, meaning the lands are in Federal ownership.

Comment: Replace word "mange" with "manage".

Response: Concur, will revise accordingly.

Appendix G Page G-3-16 Mitigation Sites. The mitigation site is comprised of permanently flooded areas (16.1 acres and semipermanently flooded (4.5) totaling 20.8 acres. This site is highly influenced by fluctuating river levels. During normal growing seasons, American lotus (Nelumbo lutea), and Wild celery (Vallisneria americana) are found in the area. During flooding conditions during the growing season, aquatic vegetation is not present and may take a year or two to begin recolonizing the site.

Comment: The mitigation will displace a water level dependent lotus/celery bed. Recommend monitoring to confirm the expectation that that bed will re-establish itself adjacent to its former location. This should be added to the monitoring plan. In advance, we should be evaluating depths, velocities, seed bed and substrate within the new area to confirm that we have the minimal conditions to allow for that natural establishment.

Response: See G-3-19 for information on monitoring and adaptive management. The area is an open water site and not considered a wetland. The District is not required to mitigate for this mitigation site including adaptive management or monitoring of any lost vegetation at this site.

*Appendix G Page G-3-17 Dredged Material Placement**:** Once the District begins constructing the Bathtub Site with dredged material, it will begin placing material adjacent to the Bathtub Site and push it to the mitigation site limits. Once enough material is placed to support heavy equipment, the site would be groomed to an elevation 604 MSL, which is similar to the Bathtub Site's wetlands. The District would then place approximately one foot of fine (silt and clay) material on top of the sandy dredged material. The fine material would come would be dredged from either the interior of the Bathtub Site, or at a lock and dam facility needing an auxiliary lock or forebay cleanout. Once the fine material is dry enough to work, the District would level the material to final grade. The final grade would vary and include at least one swale to accommodate a graduation of saturated soils. Following compaction and dewatering, the area would be allowed to naturally revegetate, but if it does not meet the mitigation goals, the District would plant/seed the area with wetland vegetation appropriate for the site. For wetland restoration, the District assumed existing elevations of the proposed Bathtub Site's average, is about 1.5 to 3 feet of above the river's ordinary high water mark. Maximum slurry elevation would be +3.5 to 10 feet high. The final target grade elevation for wetland would be +1.5 to 2 feet, or somewhat equal to the Bathtub Site (elevation 603-605 MSL). Necessary adjustments to these elevations would be determined during the PED phase.*

Comment: Edit the following sentence**:** *"The fine material would come would be dredged from either the interior of the Bathtub Site, or at a lock and dam facility needing an auxiliary lock or forebay cleanout."*
Response: Corrected.

Comment: Detailed plans and specifications need to be developed that identify where the fine materials will originate. It is recommended that the fine material be obtained from the interior of the bathtub. The sediment in the borrow sites will need to be characterized prior to dredging and

clearly defined along with aerial extent and depth. This detail will be needed for issuance of WQ certification. Please also work with the WI DNR to develop a site specific sediment sampling plans for this area.

Recommend developing a performance standard to the silt depth to ensure that sufficient final condition of substrate exists after incorporation.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU. A silt depth performance measure will be added to the mitigation site final grading contract.

*Appendix G Page G-3-17 Planting Plan**:** Once the dredged material has settled to the final target grade, the District anticipates immediate vegetation response from the existing seed bank. Typical invader species include smartweed (polygonum sp.), cottonwood (Populus deltoids), silver maple (Acer saccharinum), cattail (Typha sp.) and swamp milkweed (Asclepias incarnata). If the OSIT deems the natural vegetation a success, no active planting or seeding would occur. If the natural seeding is not successful, the District would initiate planting native wetland plant species.*

Comment: Planting/seeding plan is inconsistent throughout the document. Recommend required seeding and/or planting at the mitigation sites.

Response: The mitigation explains the planting criteria and has adequate detail to monitor and plant native wetland vegetation.

*Appendix G Page G-3-19 Planting Plan**:** If invasive species colonize 50 percent of the mitigation site prior to preferred wetland plants, the District would have to physical remove or chemically treat the plants.*

Comment: Recommend including invasive species management as a requirement that begins at the start of a project. Managing invasive species at 50% colonization would be extremely difficult and establishing native vegetation would also be more challenging. Projects required by WI DNR have a final performance standard that would only allow a maximum of 20% aerial cover of invasive species.

Response: Based on the existing conditions at the bathtub site (nearly 100% reed canary grass), the District realizes the challenges in managing this invasive species at the mitigation site. In an attempt to lower establishment potential, active seeding will be implemented. Annual monitoring will be over 5 years post construction with the 50% management during those 5 years.

*Appendix G Page G-3-19 As-Built Reports**:** The District will submit an As-Built Report to the OSIT for the wetland restoration/creation area within 1 year following completion of all the work. For the wetland restoration/creation area, the As-Built Report shall contain a survey providing the areal extent of the dredge disposal area and the settled grade of the dredged material and adjacent wetland areas.*

Comment: Detailed construction plans and specifications for the wetland mitigation area need to be developed prior to water quality certification. Recommend requiring the as-built report to reflect

these detailed construction plans and specifications.

Response: The District will work with WI DNR to complete the necessary details for the WQC and MOU

Appendix G Page G-3-22 Table G-3-5 Standard Monitoring Report Schedule

Question: The monitoring report schedule indicates that construction will be complete in two years. Is this schedule accurate? How will the construction mesh with the bathtub construction?

Response: See page 36, Section 5.4, step 5. Mitigation is concurrent with bathtub construction, once a workable area is established to hold equipment. Weather, river levels, dredging needs and other factors may alter the mitigation construction schedule. The District used this Monitoring Schedule (Table G-3-5) as a planning tool and would employ adaptive management if the schedule is changed (sped up or delayed) for any reason.

Appendix G Page G-3-22 Invasive Species Management: The District does not expect any adaptive management for invasive species. No adaptive management is expected to be needed as maintenance of invasive species is part of the O&M for the project (begin eradication of invasive species if the mitigation site has 50% coverage of invasive species). If a large amount of invasive species are removed through O&M efforts, potential Adaptive Management actions include replanting of the areas previously covered by invasive species. Additional thresholds/triggers will be developed during the project's PED phase.

Comment: Recommend including invasive species management as a requirement that begins at the start of a project. Managing invasive species at 50% colonization would be extremely difficult and establishing native vegetation would also be more challenging. Projects required by WI DNR have a final performance standard that would only allow a maximum of 20% aerial cover of invasive species.

Response: Based on the existing conditions at the bathtub site (nearly 100% reed canary grass), the District realizes the challenges in managing this invasive species at the mitigation site. In an attempt to lower establishment potential, active seeding will be implemented. Annual monitoring will be over 5 years post construction with the 50% management during those 5 years.

Iowa Department of Natural Resources Letter dated May 22, 2017 - Response to Comments

Comment 1: We [IADNR] would like to comment on the wetland determination the District is performing that was not included in the document. If additional mitigation is required, IA DNR would like to have the Corps use the "Protect Lower Hurricane Island Riprap" alternative described on page G-3-11.

Response a: The District will discuss with the IADNR and OSIT any new mitigation ideas that come about. This will especially be important if the District has to adaptively manage the mitigation site once it becomes established.

Response b: The Lower Hurricane Island Riprap mitigation idea may be a viable option if serval conditions are met – 1.) the mitigation quantity and type are equitable to the lost wetland; 2.) the mitigation has an equitable cost to other mitigation options. At this time the Lower Hurricane Island Riprap mitigation alternative does not meet the Clean Water Act, Section 404 requirement of in-kind replacement.

Comment 2: Page 5. It looks like the Corps anticipates filling the bathtub with 175,000 cy during the first five years of use. With a total capacity of 194,000 cy, this only leaves 19,000 cy for 15 years of the plans first increment of 20 years.

Response: The text on page 5 equates to the following calculations**:**

- 5 years * 25,000CY/yr = 125,000CY
- 35 years * ¼ years = 8.75 years * 25,000CY/yr = 218,750CY

Thus in 40 years, the bathtub has had 343,750CY dredged to it. As stated, the bathtub has a capacity of 194,000CY.
194,000CY – 125,000CY = 69,000CY for 15 years of placement, placed every 4 years.
69,000CY / (15 years * ¼ years) = 18,400 cy/yr

This is less than the anticipated 25,000CY/yr average, but seems reasonable.

Comment 3: Page 23 section 3.4. If additional mitigation is needed, IA DNR is in favor of mitigation at the Lower Hurricane Island riprap site instead of using purchased wetland credits.

Response: See the Response to Comment 1 above.

Comment 4: Page 39. Total cost should include a credit for using channel maintenance sand that the Corps would have to have paid for disposal at some other site. (i.e Cassville power plants).

Response: Cost estimates are based on actual costs.

Comment 5: Page 45. This section needs to be re-written with verbiage from the new information on a Bald Eagle nest in the immediate area.

Response: The District added the new bald eagle nest information and its avoidance measures at the appropriate places in the main report.

Comment: We [IADNR] appreciate the opportunity to comment on this document and value our involvement with the Rock Island District on Dredged Material Management Plans.

Response: The District appreciates the IA DNR and other resource agencies' expertise and active involvement in helping the Corps with this difficult project.

Comment: As you are aware, Iowa DNR issues 401 certification on an individual dredging event basis. The procedures are contained within the document titled, "STATE OF IOWA SECTION 404

(t) PERMIT AND ON-SITE INSPECTION TEAM PROCESS FOR CORPS OF ENGINEERS MISSISSIPPI RIVER DREDGED MATERIAL PLACEMENT"

Response: Prior to any dredging in the project area, the District will adhere to the Iowa 404(t) Permit protocols in order to obtain the required State of Iowa Clean Water Act, Section 401 WQC.

USFWS Letter dated May 26, 2017 - Response to Comments

EAGLE NEST PROTECTION

Comment 1: USFWS staff will determine if this or any other nests are active each spring and will notify the Corps of any active nests. The Corps' activities at the site shall comply with the avoidance measures of the Bald and Golden Eagle Protection Act {16 U.S.C. 668-668c), as follows**:**

Restrict all channel maintenance and construction activities within 660 feet of any identified active eagle nest to dates outside the nesting season {i.e. outside the nesting season is from August through mid-January in the Midwest, however the Refuge has established an earlier fledging date of around June 15). USFWS staff will determine when nesting activity has ended (i.e., eaglets have fledged) and will notify the Corps that they may immediately proceed with channel maintenance operations and construction activities within the buffer area.

Response: The District has updated the main report by adding the seasonal bald eagle restrictions.

Comment 2: Maintain established landscape buffers that screen the activity from the nest. We will not support cutting of trees, especially clear-cutting of trees on Refuge-managed land unless there is a safety concern or it is part of a planned and approved habitat restoration project. We are not likely to consider exceptions to this, especially if those trees are currently providing a habitat function.

Response: The District has redesigned the Bathtub to exclude the eagle nest's stand of trees. These trees will not be removed as long as the nest remains active. If the nest is abandoned for at least 2 consecutive years, the District would consider removing the trees after USFWS approval.

Comment 3: We will not consider removing an eagle nest unless the tree falls into a category above (tree removal) and all other options have been exhausted.

Response: The District is not considering the removal of the tree supporting the nest.

CAPPING AND SEEDING OF BERMS

Comment 4: To ensure the berms are providing an adequate level of protection and to protect the berms from erosion, the USFWS recommends the following. Any constructed portion of berm should be completed to full section, including topsoil (clay) and seeding, prior to demobilizing from the site after each placement event. At a minimum, the berms should be stabilized prior to the end of the dredging season. No berm should be left uncapped and unseeded or otherwise unprotected during the winter months.

Response: The District updated the Main Report stating that at the end of each dredge/placement event involving berm construction, the berms would be capped and seeded (see page 39, paragraph 5.4, Step 6).

Comment 5: The capped berms should be promptly seeded with a suitable seed mix rather than waiting to see if native vegetation is successful. Invasive species such as purple loosestrife are more likely to become established if disturbed areas are not seeded with a suitable seed mix. USFWS staff is willing to work with the Corps to design effective, inexpensive permanent and temporary seed mixes for this site.

Response: The District revised the main report stating the berms would be actively seeded rather than allowed to natural revegetate. (See page 39, paragraph 5.4, Step 6).

MITIGATION

Comment 6: USFWS still believes that it is cost effective and important to protect existing high quality habitat. Protecting the existing high quality habitat on Hurricane and Rosebrook Islands should be prioritized above creating the new wetland. These mitigation features are outlined in Appendix G-3 of the report.

Response: The District considered protecting existing high quality wetlands in the project area, but protecting wetlands does not compensate for lost wetlands, using in-kind mitigation as required by the Clean Water Act, Section 404. Therefore the District plans to compensate for the 11 acre Bathtub wetland (dominated by reed canary grass) with an adjacent 11 acre wetland.

SECTION 7 CONSULTATION

Comment 7: Consultation has not yet occurred for the "mudflat" mitigation area. We recommend a distinction be made between these areas in the Section 4.1.3.2 Endangered Species discussion.

Response: The District updated the main report, Sections 4.1.3.2 Endangered Species to include results of a July 27, 2017 mitigation site mussel survey and the District's plan to avoid any significant impacts to the area's mussel resources. Prior to any construction, the District will complete their Endangered Species Act, Section 7 consultation requirements.

ON-SITE INSPECTION TEAM (OSIT)

Comment 8: A discussion of the March 1, 2017, OSIT mitigation recommendation letter should be included in Section 7 .2.

Response: The District updated the Main Report to include the March 1, OSIT letter. The District stated the OSIT recommendations are construction feasible but did not meet the Clean Water Act Section 404 in-kind replacement requirements. Further, the additional rock along the Lower Hurricane Island and Rosebrook Island did not meet the economic Federal standard for channel maintenance.

SECTION 8. CONCLUSION AND RECOMMENDATION

The Hurricane Island Reach DMMP addresses estimated dredged material placement needs for at least the next 40 years. Dredging is required to provide a safe and adequate channel for river navigation. Potential placement sites were thoroughly investigated and evaluated through the DMMP process. Two alternatives, including the No Action Alternative, were considered to meet a dredging capacity of 400,000 cy. Alternative B-approximately 11 acres of temporary placement to final placement to upland site- was selected as the Preferred Alternative for the Hurricane Island Reach DMMP. The Preferred Alternative provides the greatest flexibility in placement locations without increasing placement costs and safeguards against the possibility of increased dredging volumes over the 40-year life of the DMMP.

The recommendations contained herein reflect the information available at this time and current Departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of the National Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as proposals for authorization and implementation funding.

17 Aug 2017

Date

Craig S. Baumgartner
Colonel, US Army
Commander & District Engineer

SITE PLAN FOR THE HURRICANE ISLAND REACH

DREDGED MATERIAL MANAGEMENT PLAN WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

POOL 11
DUBUQUE COUNTY, IA AND GRANT COUNTY, WI
UPPER MISSISSIPPI RIVER, RIVER MILES 591-608

FINAL

FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the information provided by this Feasibility Report with integrated Environmental Assessment, along with data obtained from cooperating Federal and State agencies having jurisdiction by law or special expertise. I find placement of dredged material at the bathtub site at RM 594.1 with final placement to the identified upland site as proposed and described in this Report will not significantly affect the quality of the human environment. Therefore, it is my determination that an Environmental Impact Statement (EIS) is not required. This determination will be reevaluated if warranted by later developments.

Factors considered in making a determination an EIS was not required were as follows**:**

A. Proposed placement activities, quantities, designs, and scheduling would have only minor and short-term impacts on fish and wildlife resources and on water quality.

B. The Project would allow continued navigation on this reach of the UMR.

C. Required permits for any placement events would be obtained prior to initiation of dredging activity.

D. No adverse impacts to historic properties, or to social or economic activities, are expected to result from the proposed actions.

E. Necessary Section 404 Clean Water Act (CWA) and floodplain permits would be obtained prior to construction. The project would impact approximately 11 wetland acres. The District prepared a compensatory mitigation plan outlining approximately 12 acres construction adjacent to the temporary placement site. In order to fulfill Section 404 requirements, the District's Regulatory staff has conducted a delineation and a Public Notice has been released for the required Individual Permit.

F. The State of Wisconsin indicated the preference to enter into a Memorandum of Understanding (MOU) with the District, as well as a CWA Section 401 certification. A drafted MOU has been sent to WI DNR at the time of this report and additional coordination is necessary to satisfy all requirements of

the CWA Section 401 certification. Certification and the MOU would be obtained prior to initiation of dredging or placement.

G. The District would follow the Programmatic Agreement (PA) between the District and the Illinois, Iowa, Missouri, and Wisconsin State Historic Preservation Officers and the Advisory Council on Historic Preservation. The PA was signed to meet the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800: *Protection of Historic Properties*. The PA is appropriate to address potential concerns to any significant historic properties identified and uncovered during dredged material placement site preparation, construction, and use.

H. The District determined the proposed project is not likely to adversely affect any threatened or endangered species or their critical habitat. The USFWS concurred on March 23, 2017. Additional coordination will be necessary if impacts are anticipated, as a result of constructing the mitigation area, prior to placement.

I. The following conservation measures are in place to avoid impacts to nesting bald eagle, per the Bald and Golden Eagle Protection Act:

a. Restrictions on all channel maintenance activity to maintain a buffer of 600 feet during nesting season (approximately mid-January to June).

b. Clear cutting of trees and removal of nest will not be allowed.

c. Berms will be completed with fine material and seeded prior to demobilization from site after each placement.

J. Additional coordination and environmental review will be necessary close to offloading to permanent placement at the farm fields/quarry at Year 20.

17 Aug 2017

Date

Craig S. Baumgartner
Colonel, US Army
Commander & District Engineer