ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.
Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title:** **Lock and Dam 1 Scour Repair**

2. **Proposer:** St. Paul District,
U.S. Army Corps of Engineers
Contact person: Steve Clark
Title: Biologist
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3. **RGU:** Minnesota Department of Natural Resources
Contact person: Kate Frantz
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4. **Reason for EAW Preparation:** (check one)

Required:	Discretionary:
☐ EIS Scoping	☐ Citizen petition
X Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
Minnesota Rules 4410.4300 subpart 27. Wetlands and public waters.

5. **Project Location:** See attached location maps Figures 1-5
County: Hennepin and Ramsey
City/Township: Minneapolis/St. Paul
PLS Location: SE ¼ of the NW ¼ of Section 17, T28N, R23E
GPS Coordinates: UTM NAD 83 Zone 15 (484111, 4973556)

The fill action is proposed for the U.S. Army Corps of Engineers' Lock and Dam 1 (LD1) facility on the Upper Mississippi River (UMR). LD1 is at the head of UMR Pool 2 within the 9-foot Navigation Project and is located between Minneapolis (Hennepin County) and St. Paul (Ramsey County), Minnesota. LD1 is just north of the confluence of the Mississippi with the Minnesota River at Mississippi River mile 847.9. The Ambursen Dam is the spillway at LD1 between the lock chambers and the Ford hydropower facility.

At a minimum attach each of the following to the EAW: (see Figures 1-5)

- County map showing the general location of the project; (Figure 1, 1a)
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); (Figure 1b)
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan. (Figures 2-5)

6. Project Description:

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

The U.S. Army Corps of Engineers (USACE) is proposing to repair scouring immediately downstream of Lock and Dam 1 (LD1) to ensure its structural integrity. The project would involve placing about 14,000 cubic yards (cy) of rock below the water surface along the width of the dam and up to 150 feet downstream. In all, an estimated 3 acres south of the dam would be impacted by the project; 2 acres of rock fill and about 1 acre of temporary disturbance.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

The purpose of the proposed project is to protect the lock and dam structure from excessive scouring within the project's original footprint. The plan is to fill scour holes with rock rip rap from immediately downstream of the dam spillway to approximately 150 feet downstream. The rock placement needs to extend beyond the existing footprint to maintain proper slope of rock to the dam. Existing excavated aggregate spoil would be used to fill holes and voids to level. The surface would be graded smooth before placing new bedding and riprap.

The proposed project requires permanent fill in a 2-acre area in the bottom of the Mississippi River (Figures 2-5). The area extending 50 to 150 feet downstream of concrete apron would have rock placed approximately 45 inches thick (30 inches of rip rap, 15 inches of bedding) to a top elevation matching the top elevation of the upstream rock placement top elevation of 688.0 feet and extending downstream varying from no slope near the lock chamber to an 8 percent slope near the Ford hydroelectric facility to a top elevation of 680.0 feet. Rock would be placed out another approximately 10 feet at a slope of 1V:3H (1 foot vertical on 3 feet horizontal) and tie into the existing river bed.

For the first 50 feet downstream of the apron, the riprap protective covering would be rock, 10 to 30 inches in diameter. Placed under this material would be rock bedding material, 1 to 8 inches in diameter. For the section 50 to 150 feet downstream of the apron, the riprap protective covering would be rock, 6 to 18 inches in diameter. Placed under this material would be rock bedding material, ¼ inch to 6 inches in diameter.

The rock placed would contain minimal amounts of suspendible particulate matter and thus would have little impact on suspended solids and turbidity. The placement of rock may suspend some fine sediment, but effects would be minor and temporary. This resuspension of sediment would occur in a mixing zone within the area of rock placement. This mixing zone is expected to be confined to a small area within and just below the fill area, not to extend below the downstream end of the island. This impact would be temporary and only during construction, which is expected to take three to four weeks. Increases in suspended solids within the mixing zone would likely be within the range of levels normally experienced in pool 2. Stabilization of the area and preventing erosion after completion of the project would result in a long term reduction in suspended particulates and turbidity.

Rock used for construction would be nearly free of fine material, limiting the potential for downstream movement of sediment. A total of 14,300 cy of rock would be used for the project. About 10,100 cy would be large rock free of any fine material. About 4,300 cy would be smaller gravel-sized bedding material. This bedding material would be comprised of no more than 5 percent medium-grained sand or smaller; 95 percent of the material would be larger. Therefore, no more than about 200 cy of the total fill quantity would be sand or smaller.

The exact details for transport of equipment and materials to the site would be unknown until a construction contract is awarded. However, it is likely that equipment and rock would be brought to the site by barge, and that rock would be trucked to a barge loading site by road. Once at the construction site, the upstream unvegetated portion of the island (Figure 2) would be used as a staging area for equipment and material. The rock would likely be loaded directly on barges and transported to the placement site with a towboat, and unloaded directly off the barge and placed with a front end loader within the footprint. The rock may also be staged on the island and hauled by front end loader to the scour area. An excavator would likely be used to spread the rock where needed.

The rocky nature of the island would be a good base to drive on during construction of the project and disrupt would be limited to the non-vegetated part of the island. It is not anticipated that any modifications (i.e. grading to smooth access route) to the island would be necessary to facilitate hauling on the island, however if required, modifications would be minor, temporary, and following completion of the project, the island would be restored to its previous condition. No solid rock would be removed from the island and no added fill is expected to be required to provide access over the island to the site. A temporary access road, built with rock rip rap material and extending approximately 50 feet long by 20 feet wide from the head of the island to the scour area would be present during the scour repair project. If conditions necessitate temporary improvements to parts of the haul road, (such as rutting), the area would be graded to the previous slope at the conclusion of the project. The excavator would use the temporary road to access the scour area to be repaired and spread the rock to specifications. As part of demobilization, the rock rip rap material used for the temporary access road would be removed and placed into the scour area.

The proposed fill action would likely be done during mid to late summer 2015 and would be complete within three to four weeks thereafter. Work is anticipated to be completed by the end of fall 2015.

c. Project magnitude:

The total in-water footprint for the area would be approximately 2 acres and would consist of approximately14,300 cy or 20,000 tons of rock. The material would be placed and moved mechanically.

Total Project Acreage	**2**
Linear project length	**550 x 150 feet**
Number and type of residential units	0
Commercial building area (in square feet)	0
Industrial building area (in square feet)	0
Institutional building area (in square feet)	0
Other uses – specify (in square feet)	0
Structure height(s)	0

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of the project is to protect LD1 from further erosion. The proposed fill is necessary to repair scour holes that have developed over time and threaten the structure. These actions would extend the useful life of the structure. The Upper Mississippi River 9-Foot Navigation Project was authorized in the Rivers and Harbors Act of 1930, which included upgrades to LD1 to incorporate the 9-foot channel. The USACE is the project proponent and would conduct the work. These actions would extend the useful life of the structure. If the structure should fail there would be substantial adverse impacts to human life, safety, and the environment. Project beneficiaries could include those living, working, or recreating downstream of LD1.

e. Are future stages of this development including development on any other property planned or likely to happen? ☐Yes **X No**
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

f. Is this project a subsequent stage of an earlier project? **X Yes** ☐No
If yes, briefly describe the past development, timeline and any past environmental review.

The proposed project is a continuation of minor scour repair work conducted in 2012, and part of the long-term operation and maintenance of the lock and dam. The work conducted in 2012 was permitted through Minnesota Department of Natural Resources (DNR) public water permit #2012-1319. An application for an amendment to this permit, to extend the work authorized under this permit to include this proposed project, has been applied for. Work conducted in 2012 was intended as a short-term repair of critical areas until a comprehensive solution could be designed and constructed. This proposal is intended to be the comprehensive solution. The minor scour repair which occurred in 2012 did not require environmental review under Minnesota Rules, Chapter 4410.

7. **Cover types:** Estimate the acreage of the site with each of the following cover types before and after development:

Table 3-1 Cover Types

	Before	After		Before	After
Wetlands			Lawn/landscaping		
Deep water/streams			Impervious surface		
Wooded/forest			Stormwater Pond		
Brush/Grassland			Other (Mississippi River shallow water below spillway at LD1)	2	2
Cropland					
			TOTAL	2	2

8. **Permits and approvals required:** List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Table 3-2 Permits and Approvals

Unit of government	Type of application	Status
Minnesota DNR	Public Waters Amended Permit #2012-1319	Applied for
Minnesota PCA	401 Water Quality Certification	Applied for
Minnesota PCA	NPDES Construction Stormwater Permit	Not yet applied for

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. **Land use:**
   a. Describe:
      i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

Land adjacent to LD1 is currently used for parkland, industrial, and residential purposes.

Minnehaha Regional Park and Hidden Falls Regional Park provide access to the Mississippi River downstream of LD1. Minnehaha Regional Park, west of LD1, is one of Minneapolis' oldest and most popular parks. The 167-acre park features a 53-foot waterfall, limestone bluffs, river overlooks, and a wide range of recreational opportunities. Minnehaha Regional Park attracts more than 850,000 visitors annually. Hidden Falls Regional Park (St. Paul) is located along the east bank of the Mississippi River. The

popular 34-acre park has a boat launch, biking and hiking trails, picnic areas, and a shelter. In addition to trails within Minnehaha Regional Park and Hidden Falls Regional Park, trails are present along both sides of the river, both upstream and downstream of LD1. The trails are part of the Mississippi River Trail that follow the Mississippi River from Lake Itasca to the Gulf of Mexico.

Residential and industrial land uses are present near LD1. The 53-acre Minnesota Veterans Home campus is directly west of LD1. The home, which operates around the clock, provides a wide range of nursing care. Apartment buildings are situated upstream from LD1 near the east bank of the Mississippi River (St. Paul).

The former Ford Motor Company's Twin Cities Assembly Plant site was located on two parcels of property in the city of St. Paul. The main assembly building and paint building were located on approximately 122 acres (Parcel 1) on the bluff above the Mississippi River gorge. Support facilities, consisting of the steam plant and waste water treatment facility, were located on approximately 24 acres (Parcel 2) along the Mississippi River.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The National Park Service (NPS) completed a Comprehensive Management Plan for the Mississippi National River & Recreation Area (MNRRA) in 1995. The current version of the plan is available here: http://www.nps.gov/miss/learn/management/cmp.htm. The proposed project is located within the MNRRA. The need for the operation and maintenance of the Locks and Dam is recognized within this management plan. Although local and regional plans consider management of the river corridor, they do not consider management of the locks and dams. For example, the *Minneapolis Surface Water Management Plan* describes Environmental Pool Plans for Pool 2, but does not consider management of LD1.

St. Paul's comprehensive plan identifies the Ford site as an opportunity site for future development. The site is currently being decommissioned under the *Master Site Plan for Ford Decommissioning*, approved by the Zoning Committee of the St. Paul Planning Commission in December 2012.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The project area is within the floodway and 100 year floodplain of the Mississippi River. As described in Item 11a, fill associated with the proposed project would not impact the tailwater (waters located immediately downstream from a hydraulic structure) during a large flow event.

The Minneapolis zoning district map identifies a shoreland overlay district along the west bank of the Mississippi River adjacent to LD1. This district was established to preserve and enhance the environmental qualities of surface waters and the natural and economic values of shoreland areas within the city, to provide for the efficient and beneficial utilization of those waters and shoreland areas, to comply with the requirements of state law regarding the management of shoreland areas, and to protect the public health, safety and welfare.

The Mississippi River Corridor Critical Area (MRCCA) is a unique land corridor along the Mississippi River within the seven-county metropolitan area. The MRCCA and the MNRRA have the same boundaries. Land development in the 54,000-acre MRCCA is currently guided by state regulations that are implemented through local plans and zoning ordinances. The proposed project falls within the MRCCA, and the area is currently identified as an Urban Open Space District, but is proposed to be listed as a Rural & Open Space District (rural undeveloped and developed low density residential land that is riparian or visible from the river, often contains tracts of high quality ecological resources). The proposed project would have no effect on the MRCCA designation, nor would the MRCCA designation affect the proposed project.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The project is compatible with all known existing land uses, as applicable from existing comprehensive plans for Minneapolis and St. Paul, local zoning, and overlay districts, as well as the MRCCA. Any potential environmental effects would be limited to the area of the Mississippi River directly below LD1 and would not be expected to affect adjacent land uses. When the project is complete, there would be no change to land uses from existing conditions as the completed project features would be under the water and not visible. The only potential effect to land use in the area would occur during construction; however, as discussed previously, construction effects would be temporary and occur a period of three to four weeks.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

No mitigation measures are proposed because the project is compatible with existing land uses, plans, and zoning discussed in item 9b.

10. Geology, soils and topography/land forms:

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

According to the Ramsey County Geologic Atlas (1992), the bedrock geology at LD1 is the St. Peter Sandstone (Osp). This unit crops out in bluffs along the Mississippi River. The upper half to two-thirds of the formation is composed of fine- to medium-grained, quartz sandstone that is generally massive to thick bedded. The lower part of the formation is composed of multicolored beds of mudstone, siltstone, and shale, interbedded with very coarse sandstone. The surficial geology adjacent to the Mississippi River at the location of LD1 is hillside sediment deposited in the Holocene that is composed of angular bedrock fragments with silt and clay. There are no susceptible geologic features that would be affected by the project and, therefore, no modifications to project designs or mitigation features are required.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly

permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

The scour area to be repaired is located on the bed of the river and does not contain soils. It is comprised of a rocky substrate that has eroded over time. Most of the erosion would have occurred during high flow events with enough energy to move large rock. That erosion likely occurred because the original rock used was undersized and/or the rock deteriorated over time. The rock to be used for the repair is larger and of higher quality and, therefore, is expected to provide protection from erosion for the next 50 years.

The island immediately downstream of the project site is about 5.5 acres. The island is not mapped for soils and, therefore, has no soils classification. The island consists of rock, gravel, sand and possibly a thin veneer of silt deposits limited to pockets within the area where vegetation is present. While not having a defined classification, the island soils could be classified as an udorthent that is frequently flooded. Historically, the island has undergone vertical and areal expansion and contraction from fill and borrow activities during construction of the lock and dam between 1917 and 1932. The entire island may be artificially constructed.

Erosion along the downstream end of the island can be severe depending on river flows. The lack of relief, its low position within the gorge, and its rock/gravel surface serve to limit soil development. In contrast, the island is also subject to aggradation, receiving various amounts of sediments dependent on flood frequency, duration, and intensity. As a result of these events, the island changes shape periodically. The area of the island where vegetation occurs is about 1.75 acres (see dark area in Figure 2). Within the vegetated area, trees and shrubs are scattered among areas of sand and gravel. The depths of the silt deposits are unknown, but are scattered and likely less than 1 foot in most areas. The vegetated areas of the island would be avoided during construction, so no effects to soils there would occur.

The estimated volume of material excavated during construction would be 3,800 cubic yards, and the total acreage where that excavated material and replacement of material would occur within is about 1.1 acres.

Because the project would place rock from barges, impacts to the island would be limited to the upstream unvegetated portion during construction for use as a staging area. The area of the island to be used for staging is composed of rock, sand, and gravel, with no soils. While there are no soils on the island within the staging area, impacts to the sands and gravels on this area are expected to be minor and are not expected to result in their erosion into the river. No measures are proposed to address potential impacts to this substrate unless staging activities result in surface damage; in that case the damage would be repaired by grading the damaged area to its existing condition. There would be no impacts from operational activities.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

11. Water resources:

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.
   i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

      The project area occurs in Pool 2, which includes that reach of the Mississippi River from LD1 (DNR Public Waters Inventory number 27-3P, river mile 847.6) downstream to Lock and Dam 2 (river mile 815.2), and also the Minnesota River from Savage to the confluence with the Mississippi, between Hennepin and Ramsey County. The proposed project would occur in the tailwater of LD1, which is the very head of Pool 2. LD1 is about 3.7 miles upstream of the confluence with the Minnesota River, and this reach from the dam to the Minnesota River is often referred to as the Gorge Area. In this reach, the river flows through a steep-sided gorge, over what was once a rapids flowing downstream from St. Anthony Falls in Pool 1. Impoundment of Pool 2 and excavation of the riverbed provides for the 9-foot navigation channel. Rocks and ledges that formed the rapids have been removed as part of earlier projects to improve navigation. Because it is not dominated by the influence of the Minnesota River, the gorge area is limnologically distinct from the rest of Pool 2.

      LD1, including Pool 2, is classified as a 2B, 3C, 4A, 4B, 5, 6 water, which means its uses are identified primarily for a warm water aquatic community, industrial and materials transport use. The LD1 Pool is not classified as a trout stream, and does not have any other special designations in this area. The Mississippi River at the project site is a 303d impaired water listed for mercury, PCB, and PFOS in fish tissue.

      The mouth of Minnehaha Creek, (stream identification number 07010206-539), is about 2,000 feet downstream of the project area and is located in Hennepin County. Minnehaha Creek is a public water with the use classifications of 2B, 3C, 4A, 4B, 5, and 6, which means its uses are identified for a warm water aquatic community, industrial and materials transport use. Minnehaha Creek is a 303d impaired water listed for chloride, fecal coliform, and dissolved oxygen.

      The project is not anticipated to have any effect on flood elevations. Flood impacts from placing fill in a waterway usually occur as increases in water levels upstream of the fill. This is a result of the fill acting as a restriction to flow, causing water to back up and rise. Immediately upstream of the project area, where flood impacts would occur from the project, is the dam. Raises in water levels from the project cannot move upstream past the dam because water levels upstream of the dam are much higher than below. Even during the 100-year flood event, water levels above the dam would be 15.7 feet higher than the water in the project area (immediately below the dam), ensuring no impact to flood levels would be caused by the project. The tailwater elevation at the dam is controlled by the channel conditions further downstream; therefore, the fill associated with the project would not impact the tailwater during a large flow event.

   ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

The project would occur within a surface water so within the project area, groundwater is at surface level. Nearby wells identify static groundwater levels to be between 5 and 9 feet below the surface. According to the Minnesota Department of Health (MDH) County Well Index (CWI) online, the project is not located within a wellhead protection area.

Review of the CWI indicates there are approximately seven known wells within a half-mile radius of the project location. Three of these wells are located on the site of the previous Ford Motor Assembly Plant, in Paul and according to the well logs available on the CWI are abandoned and sealed. The other four wells within a half-mile radius of the project are wells within the Minnehaha Park area. The nearest drinking water withdrawal point is located within the Mississippi River at the St. Paul Regional Water System, which is located about 15 miles upstream from LD1.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below. See attached Appendix (404(b)(1) Evaluation)

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

No wastewater would be generated by the project.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

Not applicable

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

Not applicable

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

Not applicable

ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

The project site, with the exception of the staging area, is in the water and therefore, no stormwater runoff would occur. Stormwater runoff from the staging area of the island is expected to be minimal because of the high infiltration rates of the rocky/sandy substrate in this area and the receiving water body would be the Mississippi River. Placing of material in the water for the construction of the project may result in minor increases in suspended sediment within and immediately downstream of the project area. Rock used for construction would be nearly free of fine material, limiting the potential for downstream movement of sediment. A total of 14,300 cy of rock would be used for the project. About 10,100 cy would be large rock free of any fine material. About 4,300 cy would be smaller gravel-sized bedding material. This bedding material would be comprised of no more than 5 percent medium-grained sand or smaller; 95 percent of the material would be larger. Therefore, no more than about 200 cy of the total fill quantity would be sand or smaller. The amount of silt-sized material found within this medium sand is expected to be negligible.

An NPDES/SDS Construction Stormwater permit would be obtained by the contractor for the project. Once identified, the contractor obtained to construct the project would apply for the Construction Stormwater permit, and develop the required Stormwater Pollution Prevention Plan (SWPPP). This SWPPP would be reviewed by the USACE prior to submittal to MPCA, which would review and approve the SWPPP. The NPDES permit would be obtained by the contractor prior to beginning any work on-site.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

No water appropriation is proposed for this project.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

The project would require work within the Mississippi River and it might be necessary to use the north end of the island for a staging area. Although the National Wetland Inventory identifies wetlands on the south end of the island, the north end of the island is not vegetated. Therefore, no wetlands are anticipated to be affected by the project.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

See attached Appendix (404(b)(1) Evaluation)

The proposed project requires permanent fill in a 2-acre area in the bottom of the Mississippi River (Figures 2-5) extending from immediately downstream of the dam spillway to approximately 150 feet downstream. The rock placed would contain minimal amounts of suspendible particulate matter and thus would have little impact on suspended solids and turbidity. The placement of rock may suspend some fine sediment, but effects would be minor and temporary. Stabilization of the area and preventing erosion would result in a long term reduction in suspended particulates and turbidity.

No changes in water chemistry are expected as a result of the use of clean rock fill. Because of the clean nature of the fill material, the proposed action would not contain toxic metals, pathogens or oxygen consuming compounds. The resuspension of the material within the construction area would reduce light penetration and aesthetic qualities and negatively affect the plant and animal life in the immediate construction area but the impacts would be temporary and localized.

The project would not affect the number or type of watercraft on this or any other water body.

12. Contamination/Hazardous Materials/Wastes:

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The Minnesota Pollution Control Agency (MPCA) *What's in My Neighborhood* website identifies one petroleum brownfield, two leak sites, and two small to minimal quantity hazardous waste generators within 450 to 500 feet of the Mississippi River (east bank in St. Paul). The former Ford Motor Company Assembly Plant, east of LD1, is the location of multiple activities including a generator of large quantity hazardous waste, a Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) site, a Resource Conservation and Recovery Act Cleanup (RCRA) site, a State Assessment Site, a State Superfund project site, an unpermitted dump site, a Voluntary Investigation and Cleanup (VIC) site, a

petroleum brownfield, five leak sites, and three tank sites. The MPCA's website also identifies two VIC sites and a petroleum brownfield on the Minnesota Veterans Home property.

As previously stated, the former assembly plant is currently being decommissioned under the Master Site Plan for Ford Decommissioning, which has been approved by the Zoning Committee of the St. Paul Planning Commission. The plan provides the required information identified by the city of St. Paul submittal requirements for site plan review for large site demolition.

The proposed project may use the island as a staging area. If construction of a small access road from the far upstream end of the island to the scour repair area is necessary, it would involve some soil disturbance. Given the location and nature of the project, the potential for encountering contamination or hazardous materials is negligible.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

   The project is not anticipated to generate solid wastes.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

   The only expected hazardous materials to be used during construction would be fuels and oils for construction equipment. Fuel spills could occur during the refueling and maintenance of construction equipment. Prior to construction, the USACE would be required to prepare and submit a Spill Prevention Control and Countermeasure Plan (SPCC) to handle any potential fuel spills.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

   No hazardous waste would be associated with the project.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

See attached Appendix (404(b)(1) Evaluation)for more detailed information.

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The proposed fill area immediately downstream of the LD1is within the 9-foot navigation main channel. Water depth at its deepest is 10 feet under normal pool elevation and substrate within the scoured areas consists of existing rip rap rock, natural cobble, and boulders that has been scoured and interspersed with sand. The island downstream of the dam has been highly disturbed over time and is mostly exposed sand and rock; vegetated areas would not be disturbed. Vegetation on the island exists as scattered trees and shrubs among bare areas of exposed sand and gravel.

Overall, the Upper Mississippi River provides habitat for a wide diversity of fish and wildlife. The combination of aquatic area, floodplain forest, and terrestrial communities in the vicinity of the proposed project provide habitat for fish, mussels, and other aquatic invertebrates, amphibians, and mammals. Work conducted by the U.S. Geological Survey (USGS) and National Park Service (NPS) has documented 14 species of frogs and salamanders and 8 species of turtles in the MNRRA corridor (Lafranciois et al. 2007, DNR 2006). Some of the aquatic mammals present within the MNRRA corridor include the American beaver, river otter, mink, and muskrat (Lafranciois et al. 2007). Birds also frequent the Upper Mississippi River. The Mississippi River Flyway is the migration corridor for a significant portion of North America's waterfowl and shorebirds. According to the NPS, approximately 105 species of water-based birds are present or likely present within the MNRRA corridor (Lafranciois et al. 2007).

Fish

Fish species distributions were historically limited by St. Anthony Falls at River Mile 854 just upstream of LD1. Eddy et al. (1963) noted that over 100 fish species were historically found below St. Anthony Falls, with only 60 species found upstream. Goldstein et al. (1999) noted that fish found in the MNRRA reach of the Mississippi River are primarily lentic (live in still waters), planktivorous (plankton eating) and have relatively high thermal tolerances. Fisheries surveys conducted during July-October 2008 in Pool 2 by the DNR recorded 28 fish species. Dominant fish species by number and weight were common carp (*Cyprinus carpio*), smallmouth buffalo (*Ictiobus bubalus*), and freshwater drum (*Aplodinotus grunniens*) (Stiras 2008). Pool 2 fisheries surveys conducted by Stiras (2008) incorporated electrofishing and hoop net sets at sites chosen to represent all available habitat types found in the reach. Lists of fish species found in the Upper Mississippi River are available in Stiras (2008), Lafranciois et al. (2007), and Steuck et al. (2010). Preliminary data from fish movement investigations initiated in spring 2013 by the DNR show passage of smallmouth buffalo (*Ictiobus bubalus*), common carp (*Cyprinus carpio*), and freshwater drum (*Aplodinotus grunniens*) through the lock at LD1. Only one common carp was noted as moving through the lock in an upstream direction (Stiras 2013 person communication).

Mussels

Historically, as many as 41 mussel species, including the federally endangered Higgins' eye pearlymussel (*Lampsilis higginsi*) and winged mapleleaf (*Quadrula fragosa*) have been found in the MNRRA Corridor, as well as most state-listed mussel species (Kelner and Davis 2002). However, pollution through much of the 1900s decimated mussel populations in this stretch of the Mississippi River. Partially due to water quality improvements over the last 20 years, mussel populations are recovering (Kelner and Davis 2002; Davis 2007; USFWS 2012). Kelner and

Davis (2002) suggest that the section of the Mississippi River between the Twin Cities and Hastings, Minnesota is considered one of the last big river mussel refuges in the Midwest.

There have been significant efforts towards inventorying and re-establishing mussel communities in Upper Pool 2. In response to a Biological Opinion issued from the U.S. Fish and Wildlife Service (USFWS) to the USACE in 2000 for continued operation and maintenance of the federal 9-Foot Channel Project, the USACE, in collaboration with the DNR and USFWS, developed a Higgins' eye mussel Relocation Action Plan and a monitoring program for Higgins' eye in the Upper Mississippi River (Kelner and Davis 2002).

Extensive mussel surveys have been conducted in the project area, including 2000, 2001, 2007 and 2012. The Upper Pool 2 reach downstream of LD1 generally supported the most dense and species rich communities among all reaches with 12 to 17 species collected. The mussel community in Upper Pool 2 was dominated by deertoe (*Truncilla truncata*) and threeridge (*Amblema plicata*); three state listed species were also documented in Upper Pool 2, including, pimpleback (*Quadrula nodulata*), elktoe (*Alasmidonta marginata*), and black sandshell (*Liguma recta*).

Mussel communities documented in Pool 1 upstream of LD1 were generally less dense and species rich than Pool 2. The most dense and species rich mussel communities were documented in the middle and lower portions of Pool 1 (Kelner and Davis 2002). The mussel community in Pool 1 was dominated by mapleleaf (*Quadrula quadrula*), threeridge, and Wabash pigtoe (*Fusconaia flava*); two state-listed species were also documented in Pool 1: black sandshell and pimpleback.

In 2000 and 2001, adult Higgins' eye and other state-protected mussel species were relocated from zebra mussel infested areas in Pools 11 and 14 and placed at three locations in Upper Pool 2; one of these locations was located just downstream of LD1 (Kelner and Davis 2002, Davis 2007). In addition, during 2006 and 2007, reintroduction efforts included stocking of juvenile Higgins' eye into Upper Pool 2 (Davis 2007). In subsequent years more than 9,000 juvenile mussels were also placed in Pool 2 downstream of LD1. Two live Higgins' eye, one stocked and one new recruit were collected during the 2012 survey (Davis 2012). In addition, qualitative searches in 2012 documented six additional Higgins' eye; five that were previously introduced and one 2-year old new recruit, suggesting that a self-sustaining population of Higgins' eye is likely establishing in Upper Pool 2 (Davis 2012).

In addition to Higgins' eye, efforts have also been made to restore and re-establish other rare mussel species in Upper Pool 2, such as the federally endangered winged mapleleaf, federally endangered snuffbox (*Epioblasma triquetra*), and the state-threatened mucket (*Actinonaias ligamentina*) (Wege et al. 2007, Sietman 2011, Sietman 2012).

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-586) and/or correspondence number (ERDB 20150281) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

Federal Protected Species

The USFWS technical assistance website (June 2015) lists two federally endangered mussel species in Hennepin and Ramsey counties (Mississippi River): Higgins' eye pearlymussel and the snuffbox. The USFWS site also lists the federally endangered winged mapleleaf mussel in Ramsey County (St. Croix River). Communication with DNR mussels staff (June 12, 2015) acknowledged that the Higgins' eye, winged mapleleaf, and snuffbox could potentially occur downstream of the proposed project. The Higgins eye has been reintroduced to an area near the downstream end of the island below the spillway. Recent mussel surveys within the proposed scour repair area and potential offloading area along the island have not detected Higgins eye.

The USFWS proposed the northern long-eared bat *(Myotis septentrionalis)* for listing as federally-endangered in October 2013. The listing became effective in May 2015. A peregrine falcon (*Falco peregrinus*), which has been delisted but protected by the Migratory Bird Protection Act and is listed as a species of special concern in Minnesota, has a nest immediately adjacent to the site and frequents the area.

State Protected Species

A licensed review of the DNR Natural Heritage Information System (NHIS) database and the Statewide Mussel Survey were conducted by the proposer to obtain the records of any known state endangered, threatened, or otherwise sensitive species or communities documented within one mile of the proposed project. In email correspondence of July 2012 and January 2015, the DNR concurred with the proposer's assessment that no impacts to state-listed species would occur from this project.

The NHIS database query documented 28 records of rare species or communities within one mile of the proposed project. Out of the 28 NHIS records, 14 include species or communities associated with upland and/or wetland habitats, including: Blanding's turtle (*Emydoidea blandingii*; state-threatened); four vascular plants: handsome sedge (*Carex formosa*; state-endangered; two records), plantain-leaved sedge (*Carex plantaginea*; state-endangered), rock clubmoss (*Huperzia porophila*; state-threatened), and biennial gaura (*Gaura biennis*; state-tracked); two birds: peregrine falcon (*Falco peregrinus*; state-special concern) and Louisiana waterthrush (*Parkesia motacilla*; state-special concern); prairie vole (*Microtus ochrogaster*; state-special concern); western foxsnake (*Pantherophis vulpinus*; not listed); and three native plant communities: Mesic Prairie (Southern) Type, Black Ash – (Red Maple) Seepage Swamp Type (2 records), and a Native Plant Community, Undetermined Class. Because the proposed project would be constructed entirely within the channel of the Mississippi River, where these species and communities are typically not found, they are not discussed further.

The NHIS database review documented 14 records of rare aquatic species within one mile of the project area. These records, which are summarized in Table 3-3, include nine mussel records, three fish records, and two amphibian records. As shown in Table 3-3, the NHIS records document the state and federally endangered Higgins' eye mussel. According to the NHIS database, the Higgins' eye mussel was documented 0.5 mile upstream of LD1, upstream of one of the areas being used as a propagation site for the reintroduction and relocation of Higgins' eye within the Mississippi River. One of the wartyback (*Quadrula nodulata*) records in Table 3-3 was also documented 0.5 mile upstream of LD1 in Pool 1. The remaining mussel records shown in Table 3-3, were all documented just downstream of LD1. In addition to the NHIS database, the DNR Statewide Mussel Survey indicates that two other mussel species, butterfly (*Ellipsaria lineolata*; state-threatened) and washboard (*Megalonaias nervosa*; state-endangered), have also been documented in Upper Pool 2.

As indicated in Table 3-3, the NHIS database documented the state-threatened paddlefish (*Polyodon spathula*) and the state-special concern blue sucker (*Truncilla donaciformis*); both species were documented downstream of LD1, in the vicinity of the proposed Project.

The mudpuppy (*Necturus maculosus*), an amphibian of special concern, was documented downstream of LD1 in 2012 and 2013.

Table 3-1 Aquatic NHIS Records within One Mile of Project Area

Scientific Name	Common Name	Type	State Status	Federal Status	Year Last Observed
Lampsilis higginsi	Higgins' Eye	Mussel	Endangered	Endangered	2002
Quadrula nodulata	Wartyback	Mussel	Threatened	Not listed	2007
Quadrula nodulata	Wartyback	Mussel	Threatened	Not listed	2001
Actinonaias ligamentina	Mucket	Mussel	Threatened	Not listed	1977
Alasmidonta marginata	Elktoe	Mussel	Threatened	Not listed	2001
Ligumia recta	Black Sandshell	Mussel	Special Concern	Not listed	2007
Ligumia recta	Black Sandshell	Mussel	Special Concern	Not listed	1977
Ligumia recta	Black Sandshell	Mussel	Special Concern	Not listed	2000
Truncilla donaciformis	Fawnsfoot	Mussel	Threatened	Not listed	2007
Polyodon spathula	Paddlefish	Fish	Threatened	Not listed	2004
Cycleptus elongatus	Blue Sucker	Fish	Special Concern	Not listed	2007
Cycleptus elongatus	Blue Sucker	Fish	Special Concern	Not listed	2003
Necturus maculosus	Mudpuppy	Amphibian	Special Concern	Not listed	2012
Necturus maculosus	Mudpuppy	Amphibian	Special Concern	Not listed	2013

Data from DNR NHIS database

DNR Species of Greatest Conservation Need

The DNR lists Species of Greatest Conservation Need (SGCN) within each Ecological Classification System (ECS) subsection in Minnesota. SGCN are those species whose populations are rare, declining, or vulnerable in Minnesota. As previously mentioned, the proposed project lies within the Anoka Sand Plain ECS subsection, where the DNR has identified 97 SGCN. However, only 13 of these 97 species actually have large rivers, such as the Mississippi River, as their preferred habitat. The thirteen SGCN species that likely inhabit the Mississippi River include common mudpuppy (*Necturus maculosus*; state-special concern), peregrine falcon (state-special concern), lake sturgeon (state-special concern), common snapping turtle (*Chelydra serpentine*; not listed), Blanding's turtle (state-threatened), and the following eight mollusks: mucket (state-threatened); elktoe (state-threatened); purple wartyback (*Cyclonaias tuberculata*; state-endangered); spike (*Elliptio dilatata*; state-threatened); black sandshell (state-special concern); monkeyface (*Quadrula metanerva*; state-threatened); wartyback (state-threatened); and fawnsfoot (*Truncilla donaciformis*; state-threatened).

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

The proposed fill action would have negligible long-term impacts on the area's fishery. The placement of the fill would temporarily disturb or displace the fish and benthic organisms currently in the immediate fill area. After placement of rock, fish and other organisms are expected to return. After construction, fish are expected to return and benthic organisms are expected to recolonize with no long-term impacts to populations of any aquatic organisms.

Recent mussel surveys within the proposed scour repair area and potential offloading area along the island collected two live individuals of a non-listed species (pink heelsplitter, *Potamilus alatus)*. No federally or state protected mussel species are known to be present in the project footprint or within areas to be used to complete the work. There would be no impacts to federally or state listed species from the proposed project.

The endangered Higgins eye has been reintroduced to an area near the downstream end of the island below the spillway outside the project area. The contractor would be excluded from working within the area where the Higgin's eye mussel is known to exist.

Construction activity would temporarily disturb wildlife in the immediate area. After placement of rock, wildlife is expected to return and the project would have no impact on the area's wildlife long term. The only vegetation in the project area exists on the higher portion of the island to be used for staging. However, only the unvegetated portion of the island would be used and no effects to vegetation would occur.

The northern long-eared bat roosts and forages in upland forests during spring and summer. Because the project would not require tree removal, it would not adversely affect the bat.

A peregrine falcon, which is delisted but is protected by the Migratory Bird Protection Act and is listed as a species of special concern in Minnesota, has a nest immediately adjacent to the site and frequents the area. However, construction would be in mid to late summer or fall after the young have fledged and therefore would not impact nesting species.

The use of clean rock fill is expected to prevent any meaningful transport of sediment downstream, thereby minimizing any downstream impacts to aquatic habitat, organisms, or rare features and ecosystems.

LD1 is currently not listed as infested with any invasive species, but both zebra mussels and invasive carp have been documented in the area. The contractor conducting the work would be responsible for ensuring that all watercraft used in the construction of this project are free of invasive species including zebra mussels. Measures to minimize exposure to and spread of invasive species on the project site are described in 13d.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

The use of clean rock would minimize potential downstream impacts to aquatic species caused by suspended sediment and would reduce the potential for spreading invasive species. The use of a silt curtain is not proposed because it is generally ineffective to place them across the current and the amount of suspended sediment from the project is expected to be minimal. Work would not occur during the fish spawning season to reduce impacts to fish. No work would occur within the area known to be inhabited by Higgins eye mussels at the downstream end of the island (Figure 2).

The contractor conducting the work would be responsible for ensuring that all watercraft used in the construction of this project are free of invasive species including zebra mussels. Prior to bringing each watercraft on site for the first time, the contractor would provide documentation verifying that the watercraft has been inspected within the last 30 calendar days and is free of invasive species. Any watercraft brought to the project site that is found to be contaminated with invasive species would be immediately removed from the site by the contractor. Contaminated

watercraft removed from the site would not be brought back on site until all invasive species have been removed, removal documentation has been provided to the contracting officer, and the watercraft has been inspected by the contracting officer.

14. **Historic properties:**
Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

The proposed project is not anticipated to have any adverse effects on historic properties. See attached letter from SHPO, Appendix - SHIPO Letter).

15. **Visual:**
Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The scenic view of LD1 would be temporarily affected during the period of project construction due to the presence of construction equipment. This impact would be limited to the three to four week construction period.

No vapor plumes would result from the project, and because work is expected to take place primarily during daylight hours, no intense lights are proposed for use during the project, and no glare from lights would occur. Due to the minimal nature of impacts, no special minimization or mitigation for temporary impacts has been proposed during construction. Following construction, no impacts are anticipated to the view of LD1. There are no anticipated permanent visual impacts to the project area as the rock would be under the water surface during normal flow conditions.

16. **Air:**
    a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

    There are no stationary sources of air emissions proposed with this project.

    b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

    Minor and temporary effects to air quality in the immediate project area from vehicle emissions would occur during construction, including emissions from on-site construction vehicles and

trucks hauling rock. These effects would only occur during the construction period, and would be temporary (3-4 weeks) so no special mitigation measures are proposed.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

Sources of dust and odors from the project would primarily come from the construction process and specifically the construction equipment and its placement of rock within the scour repair area. This dust is expected to be minimal, localized to the immediate construction area, and would occur only during daylight hours during construction. Clean rock would be used in the scour repair to reduce any potential dust releases. Since dust generated as part of the project is anticipated to be minimal and localized, it is not anticipated to affect any nearby sensitive receptors or the area quality of life. Therefore, no additional mitigation measures have been proposed. No sources of dust are expected during the operational phase of the project.

7. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

Existing noise levels in the area are consistent with urban areas. The most significant producer of noise in the area is LD1. Construction of the project may cause a temporary minor adverse increase in noise in the project vicinity. Construction would require heavy equipment to operate in the area, such as towboats, barges, and excavators, and these machines would generate noise during construction. This effect would only occur during the estimated three week construction period, and so is anticipated to be temporary and minor. Sensitive receptors in the immediate vicinity include residential areas, the Minnesota Veterans Home, and users of nearby park areas and trails. Effects of the increased noise would be comparable to noise sources from water flowing over the dam and therefore is not anticipated to impact quality of life in the surrounding area.

18. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

The project does not include the use of existing parking spaces or development of new parking spaces. The only anticipated temporary transportation improvement associated with the project would be a small access road from the far upstream end of the island to the scour repair area. This temporary road would be constructed of the same rock used for the scour repair, have a top width of about 10 feet, and would likely be no more than 50 feet long (the distance from the upstream end of the island to the repair area). A maximum of 200 cy is estimated to be used for the temporary improvement of the access road. After construction, the temporary road would be removed and the rock would be used in the scour repair area.

It is possible that some minor improvements may be needed within the routes for equipment transport in the staging area in addition to the access road discussed above. Such improvements would be limited to the temporary placement of small amounts of rock. Any such rock would be removed after construction and the area would be restored by grading to the existing condition.

No truck traffic would be expected at the Lock and Dam 1 site itself. No impacts to traffic are expected near LD1 because there is no access for equipment from roadways at the site. The only expected impacts to traffic in the area would likely be an increase in truck traffic for hauling rock. The rock for the project would be hauled from a commercial facility where truck traffic is a normal occurrence and rock hauling activities would not likely cause additional impacts to traffic conditions in this area. Truck traffic is expected to occur during daylight hours continuously at a rate of approximately four truck trips per hour, (based on an estimated 10 to 12-hour work day with a placement rate of 70 tons per hour, and assuming a total daily production rate of 800 tons per day). Rock would be delivered to a location to be loaded on barges with a 20 to 23 ton capacity. Rock would then be delivered to the LD1 site by barges. Therefore, it is assumed that 40 truck cycles would be required per day to keep up with the placement rate.

The project is not expected to affect the availability of transit or other alternative transportation modes.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance**.**

The project is not anticipated to produce traffic congestion on any nearby roads. No traffic improvements are necessary associated with the project.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

The rocky area of the island would support the construction vehicles required for the project, and the vegetated portion of the island would be avoided during construction of the project. It is not anticipated that any road improvements would be necessary to facilitate hauling on the island. If vehicles cause any rutting, or if there is a need to improve parts of the haul route during construction, rock would be utilized in small amounts on a temporary basis in localized areas. No more than 200 cy of rock, included in the total 14,300 cy of rock for the project, are estimated to be used to support use of the temporary access road. After construction, the rock would be removed and hauled away to an upland area above the floodplain or used within the scour repair area. Finally, any area damaged or improved would be graded to the original slope. No permanent road improvements or impacts to traffic congestion are proposed as part of this project.

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The geographic scale of the environmentally relevant area for all project related environmental effects is 100 feet upstream of LD1, downstream to where Minnehaha Creek enters the Mississippi River. This stretch of the river is defined as the environmentally relevant area because the primary potential cumulative effects of the project would be on water quality, aquatic species within the river, and noise in the immediate vicinity.

Projects within approximately a half mile of the environmentally relevant area were evaluated to assess cumulative potential effects. Although not specifically included in the potential cumulative effects evaluation, all future projects upstream of LD1 will need to comply with applicable regulatory requirements for water quality and stormwater, including SWPPPs required for NPDES/SDS Construction Stormwater permits.

The LD1 scour repair is proposed to take place over a period of three to four weeks and would be completed during late summer or fall of 2015.

Water Quality

The project site, with the exception of the staging area, is in the water and therefore, minimal stormwater runoff is anticipated. Stormwater runoff from the staging area of the island is expected to be minimal because of the high infiltration rates of the rocky/sandy substrate in this area and the receiving water body would be the Mississippi River. Placing of material in the water for the construction of the project may result in minor increases in suspended sediment within and immediately downstream of the project area.

The rock placed would contain minimal amounts of suspendible particulate matter and thus would have little impact on suspended solids and turbidity. The placement of rock may suspend some fine sediment, but effects would be minor and temporary. This resuspension of sediment would occur in a mixing zone within the area of rock placement. This mixing zone is expected to be confined to a small area within and just below the fill area, not to extend below the downstream end of the island.

Aquatic Species

The placement of the fill would eliminate, disturb, or displace the fish and benthic organisms currently in immediate fill area. Only immobile species such as mussels and other invertebrates would be expected to be affected. After construction, benthic organisms are expected to recolonize and fish are expected to return with no long-term impacts to populations of any aquatic organisms. Short-term mussel impacts are expected to be negligible and there are no impacts expected to state- or federally-listed threatened and endangered species.

Noise

Construction of the project may cause a temporary minor adverse increase in noise in the project vicinity. Construction would require heavy equipment to operate in the area, such as towboats, barges, and excavators, and these machines would generate noise during construction. This effect would only occur during the estimated three week construction period, and so is anticipated to be temporary and minor. Effects of the increased noise would be comparable to noise sources from water flowing over the dam and therefore is not anticipated to impact quality of life in the surrounding area.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Hennepin County, city of St. Paul, and city of Minneapolis planning staff were contacted to identify reasonably foreseeable projects for which a basis of expectation has been laid. Planning staff identified the following projects:

- **The continued decommissioning of the former Ford Motor Assembly Plant located east of LD1.**
  The site is currently being decommissioned under the *Master Site Plan for Ford Decommissioning*, approved by the Zoning Committee of the St. Paul Planning Commission. Decommissioning of the site includes demolition, slab and foundation removal, environmental testing, and grading and seeding the site to provide semi-permanent soil stabilization. Erosion and sediment control efforts will continue until the permanent storm water management system is in place and final stabilization of the site has been ensured as identified by the SWPPP.

- **Full reconstruction of approximately 1,200 feet of roadway on Minnehaha Avenue and Nawadaha Boulevard.**
  The project consists, at minimum, of full removal of the existing street surface, subgrade correction, aggregate base, paving, curb and gutter, signage and drive approaches, and pedestrian curb ramps. The project is expected to be completed during the 2015 construction season.

- **Reconstruction of Minnehaha Avenue between 46th Street and East Lake Street.**
  This project is adjacent to the Nawadaha Boulevard project and is scheduled for 2015 - 2016. The project will address the deteriorating pavement, utility and drainage concerns, non-motorized accommodations and storm water quality conditions.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Water Quality

The Ford Assembly Plant decommissioning is occurring on the main122- acre parcel (Parcel 1). However, decommissioning does not include the 24-acre parcel (Parcel 2) along the Mississippi River. Mississippi River Boulevard South forms the western boundary of Parcel 1 and is situated between the former assembly plant and LD1. The *Master Site Plan for Ford Decommissioning* includes specific requirements for addressing temporary erosion and sediment control and the transition to a permanent storm water management system. Off-site discharge points will be monitored by a certified erosion control supervisor who will be responsible for overseeing implementation of the SWPPP. The inspections and maintenance plan for the construction site and erosion prevention and sediment control BMPs are contained within the SWPPP.

At their closest distance, the Minnehaha Avenue and Nawadaha Boulevard reconstruction projects identified above are approximately 1,100 feet from the Mississippi River. Both projects

would follow erosion and sediment control measurements in the SWPPP, which is a requirement of the project's NPDES/SDS Construction Stormwater permit.

The proposed project would be subject to applicable stormwater standards. Furthermore, the other reasonably foreseeable projects in the environmentally relevant area would also be subject to applicable stormwater requirements. Any potential cumulative effects would occur within prescribed limits as a function of specific permit conditions for the future projects identified within the relevant geographic area. Therefore, no potential cumulative effects related to water quality are anticipated.

Aquatic Species

The former Ford Assembly Plant decommissioning, as well as the reconstruction of Minnehaha Avenue and Nawadaha Boulevard, will not occur within the Mississippi River, nor will they contribute to conditions that would adversely affect wildlife within the river. Therefore, no potential cumulative effects related to aquatic species are anticipated.

Noise

The proposed project has the potential to make a minor incremental contribution to cumulative noise effects in the environmentally relevant area. The proposed project's activities would be temporary (3 - 4 weeks) and noise levels are not expected to exceed existing conditions, which include traffic noise from the adjacent Ford Parkway (East 46th Street) bridge and the dam itself. The distance between the proposed project and reconstruction of Minnehaha Avenue and Nawadaha Boulevard is great enough that no cumulative potential effects are expected. Although building demolition at the assembly plant has been completed, slab removal is ongoing and will be followed by grading and seeding. Noise from these activities may affect trail users along the east bank of the Mississippi River. Potential cumulative noise effects on trail users are expected to be negligible and temporary.

20. **Other potential environmental effects:** If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

No other potential environmental effects are expected.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Kate Tuorto Date June 15, 2015

Title EAW Project Manager