

# 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: Bass Ponds, Marsh and Wetland Rehabilitation and Enhancement Project

### 2. Proposer: US Army Corps of Engineers

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### 3. RGU: Scott County

Contact person: [Kate Sedlacek](#)  
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## 4. Reason for EAW Preparation: (check one)

### Required:

- EIS Scoping  
 Mandatory EAW

### Discretionary:

- Citizen petition  
 RGU discretion  
 Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):  
[Subpart 27. Wetlands and Public Waters. Item A](#)

## 5. Project Location:

County: [Scott](#)  
City/Township: [Savage and Shakopee](#)  
PLS Location (1/4, 1/4, Section, Township, Range):  
[Sections 1, 2, 3 and 12 Township 115N Range 22W](#)  
[Sections 6, 7, 8 Township 115N Range 21W](#)  
[Sections 34, 35 and 36 Township 115N Range 22W](#)  
Watershed (81 major watershed scale): [Lower Minnesota](#)  
GPS Coordinates: [44.797503, -93.407073](#)

Tax Parcel Numbers: 139-139-271270041, 139-139-279030130, 139-139-271270070, 139-139-279030020, 139-139-271270030, 139-139-279020120, 139-139-279020130, 139-139-279020040, 139-139-279020010, 139-139-279010020, 139-139-279010030, 139-139-279120110, 139-139-279010010, 139-139-279120020, 139-139-269070491, 139-139-269060030, 139-139-269070021, 139-139-269070500, 139-139-269060010, 139-139-269070010, 139-139-269070550, 139-139-269060020, 139-139-269080140, 139-139-269080150, 139-139-269080130, 139-139-269080210, 139-139-269080040, 139-139-269080170, 139-139-269080190, 139-139-269080230, 139-139-269080180, 139-139-279360020, 139-139-279360010, 139-139-279360030, 139-139-279350020, 139-139-279020160, 139-139-279020180, 139-139-279350010, 139-139-279340010

**At a minimum attach each of the following to the EAW:**

- County map showing the general location of the project; [Attachment 1](#)
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and [Attachment 1](#)
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan. [Attachment 2](#) (for additional information, civil and structural drawings are located in [Appendices I and J](#) of the Main Report which is located in [Attachment 3](#))

**6. Project Description:**

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

The Corps of Engineers is proposing to improve habitat within the Wilkie Unit of the Minnesota Valley National Wildlife Refuge. The area experiences a lack of seasonal variability in water levels which has resulted in reduced wetland habitat quality, aquatic plant diversity, and quality habitat for migratory waterbirds. Waterlevel management features (stoplog structures, earthen plugs) are proposed to improve habitat.

- 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.

[Attachment 2](#) shows the proposed project features. Each of the proposed project features are related to water level management and contribute to meeting all three of the study objectives (increasing diversity of emergent and submergent aquatic plant species and providing habitat for waterbirds and waterfowl) and are described in the table below. Five of the stoplog structures are replacements for existing structures. [Figure 8](#) in the Main Report ([Attachment 3](#)) summarizes the existing water level management structures in the project area.

### Summary of Main Project Features

Features	Description
Stoplog Structures - 1 Double Bay (Blue Lake) - 5 Single Bay (All other sites)	The stoplog structures improve habitat conditions by providing the ability and capacity to drawdown all three lakes and marsh, as well as fill Fisher and Rice Lakes from upstream sources. The structures consist of 5 feet wide by 6 feet high concrete bays with road crossings overtop.
Rock-lined Overflow Structure	The rock-lined overflow feature would be built around the stoplog structures and the western ditch plug. During high-flows, water would pass through the overflow channel first, preventing scour/damage to the structure itself.
Ditch Plug - 2 (Continental Grain Marsh)	Ditch plugs will be constructed of compacted soil and armored by engineered rock at two locations in Continental Grain Marsh: at the eroded channel on the west side, and at the culvert on the east side.
Access Dredging	Access dredging up- and downstream of the stoplog structures would improve hydraulic conveyance to and from the structures to provide control of water elevations between the lakes and marsh. Dredged soil will be hauled to the adjacent landfill.
Construction Access Roads	Construction access roads would provide improved, maintainable access to the stoplog structures and ditch plug. Roads would be excavated and constructed to existing topography.

The length of the construction schedule was determined to allow the contractor to construct during low water conditions and/or winter construction starting in 2019/2020. The project duration is assumed to be two years to complete the construction.

Further information regarding the project description can be found in Section 6 of the Main Report (Attachment 3).

c. Project magnitude:

Total Project Acreage	2,085 acres
Linear project length	NA
Number and type of residential units	NA
Commercial building area (in square feet)	NA
Industrial building area (in square feet)	NA
Institutional building area (in square feet)	NA
Other uses – specify (in square feet)	NA
Structure height(s)	11.25 – 15.85 feet

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 can be found in Sections 3.2.1 and 3.2.2 of the Main Report (Attachment 3). The main project objectives are:

1. Increase the diversity and percent cover of desirable emergent aquatic plant species.
2. Increase the diversity and percent cover of desirable submergent aquatic plant species.
3. Provide quality feeding and resting habitat for a wide variety of waterfowl and waterbirds with particular emphasis on fall migrating waterfowl.

Need for the project is discussed in Section 2 of the Main Report (Attachment 3). The project will be carried out by the USACE in cooperation with the USFWS. The beneficiary of the project is the public.

- e. Are future stages of this development including development on any other property planned or likely to happen?  Yes  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?  Yes  No  
If yes, briefly describe the past development, timeline and any past environmental review.

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

	Before	After		Before	After
Wetlands	1,832 acres	1,827 acres	Lawn/landscaping	0	0
Deep water/streams	1,766 linear feet of stream	1,766 linear feet of stream	Impervious surface	2 acres	2 acres
Wooded/forest*	0	0	Stormwater Pond	0	0
Brush/Grassland	230 acres	230 acres	Other (describe)	NA	NA
Cropland	0	0			
			<b>TOTAL</b>		

\* floodplain forest included in wetland acreage

**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.*

<u>Unit of government</u>	<u>Type of application</u>	<u>Status</u>
MPCA	401 water quality certification	waived
MnDNR	Public Waters Permit	not yet applied for
MnDNR	Floodplain CUP	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.

The study area includes three interconnected backwater lakes (Blue, Fisher, and Rice Lakes) and Continental Grain Marsh. The waterbodies in the study area are all relatively shallow; the average depth ranges between only 0-2 feet deep, with the deepest area in the southeast corner of Blue Lake at 3-4 feet deep. USFWS manages the study area as part of the Minnesota Valley National Wildlife Refuge. The Refuge as a whole covers over 14,000 acres of the river valley, extending from RM 4 to RM 68 on the Minnesota River. Established in 1976, the Refuge is one of the few national wildlife refuges located within a major metropolitan area. The proposed study area is mostly on Refuge land, with Cargill and Minnesota Department of Transportation (MnDOT) parcels on the east end. The Blue Lake Wastewater Treatment Plant is located just south of Blue Lake and Cargill West Grain Elevator and CHS Savage Terminal are located on the eastern end of the project area.

For a more detailed description of existing land use in and adjacent to the project area, see Section 1.6 of the Main Report (Attachment 3).

- 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 USFWS has a Comprehensive Conservation Plan as well as a Habitat Management Plan for the Minnesota Valley National Wildlife Refuge. Per the Habitat Management Plan, the goals for permanent/semi-permanent wetlands found within the project area, are to manage and enhance permanent/semi-permanent wetland systems to provide habitat for waterfowl, shorebirds and other waterbirds. And, to provide diverse habitat for other wetland-dependent wildlife while preserving the ecological integrity of the wetlands in the Eastern Broadleaf Forest Province.

- 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 Minnesota Valley National Wildlife Refuge and within the floodplain of the Minnesota River.

- 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 proposed project will not impact nearby land uses.

- The project will not cause flooding on nearby properties (Blue Lake Wastewater Treatment Plant, Cargill, other commercial or residential areas).
- The Refuge was established in 1976 and already serves as resting and breeding habitat for migratory waterbirds. The project will not cause any additional risk to aircraft flying into or out of Flying Cloud Airport.
- Corps H&H staff have determined the project will have no effect on Valleyfair's wetland mitigation site which is adjacent to Blue Lake. Valleyfair may not implement this mitigation plan. For plans, contact the Corps.

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

No measures are needed.

#### **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.

Bass Ponds HREP study area is located between Minnesota River miles 15 and 21, in the cities of Savage and Shakopee. The Minnesota River Valley trends northeast and is approximately 2.5 miles wide in the vicinity of the project. The study area includes three shallow lakes (less than 4 ft in depth) and adjacent wetland and marsh areas.

The region surrounding the Bass Ponds HREP study area was glaciated extensively during the Pleistocene Epoch. Advancing and retreating glaciers laid down thick deposits of unsorted till and outwash sand that today form a hummocky, poorly-drained plain dotted with numerous marshes and small lakes. The glacial drift can reach thicknesses of between 200 and 250 feet, and it overlies dolomitic limestone and sandstone of the Prairie du Chien and Jordan Formations.

The U.S. Army Corps of Engineers completed 4 borings in the project area in 1994 for the Rice Lake HREP. Three borings were taken along the Rice Lake ditch alignment and another boring was taken near the Minnesota River bank. The borings extended to a depth of about 30ft. See Attachment 4 for location of borings and boring logs. The material encountered consisted of clay, silt, and organic debris which is typical of material found in marshes and ponded water. Some of the borings did encounter seams of a sandy loam. None of the borings encountered bedrock. The bedrock depths were estimated using the Geologic Atlas of Scott County Minnesota (<https://conservancy.umn.edu/handle/11299/58717>). The depth of bedrock is shown to vary along study area. In some areas the depth to bedrock can be only 50ft below the ground surface and in others the bedrock can be over 200ft.

The wide valley of the present Minnesota River was carved by Glacial River Warren, which carried large volumes of water discharging from the now-extinct Glacial Lake Agassiz located in western Minnesota and eastern North Dakota. Glacial River Warren cut deeply into bedrock, scouring and reworking an earlier valley filled with outwash, stratified drift, and till. Episodic increases in flow caused Glacial River Warren to cut lower into the older valley fill, leaving remnants of higher channel bottoms as terraces. When Lake Agassiz eventually ceased to drain to the south, the Minnesota River was formed by local drainage and established its present floodplain in the valley.

Three alluvial and bedrock terraces rise above this floodplain and form regionally prominent benches which parallel the river valley. The lower terrace is 30 to 50 feet above the floodplain, the middle terrace is 75 to 115 feet above the floodplain, and the upper terrace is 120 to 180 feet above the floodplain. The walls of the river valley form a bluff that grades into a hummocky, poorly-drained regional highland.

The proposed project is not anticipated to be affected by the geology. Also, the local geology is not anticipated to be affected by the project.

- 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 Bass Ponds HREP project is located in the bottom of the wide valley of the present Minnesota River. The local topography in the study area is fairly flat and consists of three shallow lakes (less than 4ft in depth) and adjacent wetland and marsh areas. The general topographical gradient is north, based upon site setting and surrounding areas. The area typically is overtopped during spring or summer flood events.

The surface soils within the project area mostly consists of alluvium. The soils are classified as organic rich sediments (OH) in the shallow lakes with silty (ML) and clay (CH) along the edges of the lakes. Some underlain sand seams were also observed. A copy of the Web Soil Survey report can be found in Attachment 5.

Excavation of the soils will be required to construct the control structure, access road, and dredged channels. The total excavation is between 20,000 and 30,000 cubic yards. Quantities will be developed further during design.

The project is not anticipated to have any impacts related to the soils and topography. The area is predominately flat with shallow slopes which. Some erosion has been observed in the area but is mostly due to the overtopping events and not directly related to storm water. The project will be built to help facilitate overtopping events by placing an overflow channel adjacent the control structures. Testing is being completed on the foundation soils to ensure the stability of the structures. During construction the contractor will be required to handle storm water.

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 Palustrine System in the Cowardin Classification Scheme includes all non-tidal wetlands dominated by trees, shrubs, persistent emergent vegetation and emergent mosses or lichens. The Palustrine System includes vegetated wetlands that are traditionally called marsh, swamp, bog, etc., but can also include water bodies often called ponds and wetlands on river floodplains. Also included in this group are shallow lakes, as defined by the MNDNR, which have permanent or semi-permanent water regimes and are typically dominated by wetland habitat. Shallow lakes are a critical habitat component for Minnesota's wildlife and are characterized by aquatic plants and are generally < 15 feet deep. The habitat type that is dominated by persistent vegetation are permanent/semi- permanent wetlands. The Refuge contains approximately 4,376 acres of permanent/semi-permanent wetlands across all the management units except the Round Lake Unit. The Wilkie Unit (project area), which includes Blue, Fisher and Rice Lakes and Continental Grain Marsh, has approximately 1,832 acres of permanent/semi-permanent wetlands. More information can be found in Sections 1.6.1 and 4.3 of the Main Report (Attachment 3).

Surface waters in the project area include:

- Blue Lake: Public Water 70008800, migratory waterfowl feeding/resting lake
- Fisher Lake: Public Water 70008700, migratory waterfowl feeding/resting lake
- Rice Lake: Public Water 70002500, migratory waterfowl feeding/resting lake
- Continental Grain Marsh: Public Water 70032200
- Eagle Creek: Public Water M-055-009, trout stream
- Forested/shrub and emergent wetlands surrounding each lake

Impaired Waters within 1 mile of the project area include:

- Eagle Creek (M-055-009)
- Unnamed Stream (south of Blue Lake, M-055-012-001)
- Riley Creek (M-055-013)
- Purgatory Creek (M-055-011)
- Minnesota River (M-055)

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 MnDNR Spring inventory identified 2 seeps and 2 springs in the project area near Eagle Creek.
- The depth to groundwater varies throughout the project site, from the ground surface to approximately three feet below.
- There are 5 wells within the project area and 9 wells adjacent to the project area. A location map for the wells and the well logs can be found in Attachment 6. The table below is a summary of each well.



Well #	Depth (feet)	Aquifer	Depth to Bedrock
205968	230	Quat. buried	NA
207068	130	Quat. buried	153
207070	68	Prairie Du Chien	16
208815	149	Jordan	45
244434	20.6	Quat. water	NA
247250	465	Multiple	275
530130	200	Jordan	36
541552	70	Prairie Du Chien	19
640554	32	NA	NA
661420	120	Prairie Du Chien	15
661421	120	Prairie Du Chien	23
686299	NA	NA	NA
686300	104	Prairie Du Chien	15
767851	106	Prairie Du Chien	12

NA = not available

- The project is not within a wellhead protection area. This was determined by using Scott County's Environmental GIS tool.
- 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.
- 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.
- 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.
  - 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.
  - 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.

No wastewater would be generated by the project.

- 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 majority of the project site, with the exception of staging areas, is wetland so no stormwater runoff would occur in those areas. Access roads are to be constructed along existing roads through both upland and wetland areas. The roads will be constructed by excavating soils and replacing with aggregate to existing elevations so no stormwater runoff is expected. Existing parking lots at Cargill and Fisher Lake will be used as staging areas. Stormwater management was addressed when these parking lots were constructed. Stormwater runoff from any additional staging areas and construction would be addressed as described below.

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 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 are associated with the proposed 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.

Project impacts are summarized in the table below. Fill material would be discharged into 3.43 acres of forested/shrub wetland and 2.15 acres of emergent wetlands. With the exception of the water control structure and western plug at Continental Grain Marsh, all project features are being constructed in previously disturbed areas.

<b>Project Feature</b>	<b>Permanent Impact (Acres)</b>	<b>Temporary Impact (Acres)</b>
1 2-bay water control structure with associated excavator pads	0.07	0.09
5 1-bay water control structures with associated excavator pads	0.30	0.25
2 earthen plugs	0.24	
Access roads	4.67	
Channel dredging	3.55	
Rock-lined overflow channels	0.30	
Coffer dams (if needed)		0.20
<b>Total Fill</b>	<b>5.58</b>	<b>0.54</b>
<b>Total Dredging</b>	<b>3.55</b>	

**Impacts of the proposed project:** Short-term negative impacts to aquatic resources, primarily associated with increased water turbidity and sedimentation would occur due to construction activities. BMPs would be used to minimize effects on aquatic resources. Long-term beneficial impacts to aquatic vegetation would occur in the study area. The proposed project would allow the Refuge to quickly remove flood waters from the area each spring and conduct yearly drawdowns to increase the density and distribution of aquatic plant species, ultimately improving habitat for migrating waterbirds and waterfowl. More details on the direct and indirect environmental effects and actions taken to minimize are discussed in Appendix B of the Main Report (Attachment 3).

Five of the proposed water control structures are replacements for existing structures and access road improvements are along existing roads. Channel dredging is proposed in front of each water control structure to allow flow through the new structures, but will not result in a loss of wetland. New impacts resulting in wetland fill include a water control structure and earthen plug at Continental Grain Marsh and rock-lined overflow channels at each structure. The overall purpose of the project is to improve habitat to approximately 1,000 acres of wetlands within the project area. Improvement of this habitat will offset wetland loss, therefore no mitigation is proposed.

- 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.

No other surface waters will be affected by the project.

## 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.

A phase I environmental site assessment report can be found in Appendix L of the Main Report (Attachment 3). Based on the desktop search and on-site inspection, this assessment revealed that there were no recognized environmental conditions. Therefore, USACE does not recommend a Phase II assessment.

- 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.

Solid wastes generated on site include the old structures and dredged material. Contract specification will state “disposal of solid construction debris and waste disposal of solid construction debris and waste shall consist of removal from the construction site and disposal in compliance with Federal, State, and local requirements for solid waste disposal.”

- 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. As part of the Corps’ contracting procedure, any contractor would be required to prepare and submit for approval a spill prevention and control plan for these materials prior to construction.

- 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 expected to be stored or generated during project construction or operation.

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

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

The permanent/semi-permanent wetlands on the Refuge are important to spring and fall migratory waterfowl, waterbirds and shorebirds. The Refuge is a part of the Mississippi River Flyway, which is used by millions of birds as a migration corridor. Based on unpublished Refuge data collected annually, approximately 14 species of ducks (including mallard, wood duck, American coot, hooded merganser, ring-necked duck, green-winged teal, northern shoveler, and northern pintail) along with Canada geese and trumpeter swans are observed annually on a consistent basis. White pelicans, great blue herons and great egrets are also seen in large numbers during migration. Between three to eight species of shorebirds, depending on the water conditions (not consistently), are seen each year.

The Refuge is also home to forty-nine species of fish. Species that have been identified within the study area include crappie, bluegill, bowfin, shiners, drum, shad, sunfish, perch and bass and several minnow species. However, many of the lakes adjacent to the Minnesota River, including Blue, Fisher and Rice, have water depths less than 5 feet which limits their fishery potential. There are seven eagle nests in the study area. Currently two are active: one is located on the southeast portion of Fisher Lake, and the other is located on the southeast corner of Continental Grain Marsh.

Vegetation in the study area includes floodplain forest and emergent wetlands. Common wetland vegetation in the study area includes emergent and submergent species such as: white waterlily, cattails, bulrush, smartweeds, arrowhead, coontail, sago pondweed, wild celery, wildrice and duckweed. Trees in the project area include silver maple, sugar maple and cottonwood.

More information on fish and wildlife resources can be found in Section 4.5 of the Main Report (Attachment 3). A description of habitats and vegetation can be found in Section 4.3 of the Main Report (Attachment 3).

- 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-\_\_\_\_) and/or correspondence number (ERDB \_\_\_\_\_) 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.

A review of the MDNR Natural Heritage Information System Rare Features Database (NHIS) was conducted. Natural Heritage Database information was obtained from the MDNR Division of Ecological and Water Resources through an inter-agency cooperative licensing agreement and includes the most recent July 14, 2017 update. The search included a one-mile buffer around the project area to ensure that any listed species would be included. A list of state listed species is provided in the table below (license agreement LA-670).

Unique habitat types or sensitive ecological resources within the search area include:

- Calcareous fen
- Colonial waterbird nesting site
- Dry barren prairie
- Dry sand – gravel oak savannah
- Dry sand – gravel prairie

- 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.

Potential effects of the proposed project to state listed species can be found in Section 4.5.2 of the main report. Specific determinations can be found in the table below.

To prevent the spread of invasive species from project construction, the contractor will be required to clean all previously used construction equipment prior to bringing it onto the project site. The contractor shall ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, plant seeds, aquatic plants, and residual water.

The adaptive management plan (Appendix K) includes methods to prevent the spread of invasive plant species during normal operations.

	<u>Scientific Name</u>	<u>Common Name</u>	<u>Status</u>	
<b>Mussels</b>	<i>Lampsilis teres</i>	Yellow Sandshell	END	Project area does not contain suitable habitat for mussel species. H&H analysis has indicated that the project area is one of sediment deposition. The structures will not be operated to intentionally flush out sediment to the river therefore, the project should have no effect on mussels.
	<i>Arcidens confragosus</i>	Rock Pocketbook	END	
	<i>Tritogonia verrucosa</i>	Pistolgrip	END	
	<i>Fusconaia ebena</i>	Ebonysell	END	
	<i>Megaloniais nervosa</i>	Washboard	END	
	<i>Arcidens confragosus</i>	Rock Pocketbook	END	
	<i>Elliptio crassidens</i>	Elephant-ear	END	
	<i>Pleurobema sintoxia</i>	Round Pigtoe	SPC	
	<i>Ligumia recta</i>	Black Sandshell	SPC	
	<i>Quadrula nodulata</i>	Wartyback	THR	
	<i>Elliptio dilatata</i>	Spike	THR	
	<i>Actinonaias ligamentina</i>	Mucket	THR	
	<i>Lasmigona costata</i>	Fluted-shell	THR	
	<i>Actinonaias ligamentina</i>	Mucket	THR	
	<i>Ellipsaria lineolata</i>	Butterfly	THR	
<b>Butterfly</b>				May visit flowers in wetland areas but only breeds in prairies. No prairies are found in the project area. Construction will occur in the winter when flowering plants are dormant.
	<i>Speyeria idalia</i>	Regal Fritillary	SPC	
<b>Plants</b>	<i>Carex sterilis</i>	Sterile Sedge	THR	These species are only found in calcareous fens. No fens have been identified in the project area.
	<i>Rhynchospora capillacea</i>	Hair-like Beak Rush	THR	
	<i>Scleria verticillata</i>	Whorled Nutrush	THR	
	<i>Eleocharis rostellata</i>	Beaked Spikerush	THR	
	<i>Cladium mariscoides</i>	Twig Rush	SPC	
	<i>Cypripedium candidum</i>	Small White Lady's-slipper	SPC	
	<i>Valeriana edulis var. ciliata</i>	Edible Valerian	THR	These species are found in moist prairies, sedge meadows and calcareous fens. These habitats have not been identified in the project area
	<i>Oenothera rhombipetala</i>	Rhombic Evening Primrose	SPC	Found in dry prairies which are not found in the project area.
	<i>Orobancha fasciculata</i>	Clustered Broomrape	THR	Species found in prairies, dunes, woods and bluffs most of which are not found in the project area. Wooded areas in the project area experience extended periods of flooding each year which would make it unlikely these species would occur there.
	<i>Besseyia bullii</i>	Kitten-tails	THR	
<b>Fish</b>	<i>Anguilla rostrata</i>	American Eel	SPC	This species has not been identified in the project area. Construction restrictions to protect fish species have been applied to the project.
<b>Reptiles and amphibians</b>	<i>Pituophis catenifer</i>	Gophersnake	SPC	Construction will occur in winter when these species are in hibernation. Construction restrictions have been applied to the project to avoid impacts.
	<i>Heterodon nasicus</i>	Plains Hog-nosed Snake	SPC	
	<i>Necturus maculosus</i>	Mudpuppy	SPC	
	<i>Emydoidea blandingii</i>	Blanding's Turtle	END	
<b>Rodents</b>	<i>Perognathus flavescens</i>	Plains Pocket Mouse	SPC	This species uses underground burrows and is likely not found in the project area due to extensive and prolonged flooding each year.
	<i>Reithrodontomys megalotis</i>	Western Harvest Mouse	SPC	This species builds nest directly on the ground. Due to the history of extensive and prolonged flooding in the area each year, this species is likely not found in the project area.
<b>Birds</b>	<i>Gallinula galeata</i>	Common Gallinule	SPC	Construction will take place over winter when these species are unlikely to be present. Construction restrictions require at least 1 basin to have water in the late fall to serve as a sanctuary. Project objective is to improve habitat for waterbirds.
	<i>Sterna forsteri</i>	Forster's Tern	SPC	
	<i>Chondestes grammacus</i>	Lark Sparrow	SPC	The project area does not have the habitat needed for this species.

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

Below are construction restrictions that will be put into place to avoid and minimize effects to fish and wildlife:

**Bald Eagles** – Project activities will not be allowed within 660 feet of an active bald eagle nest during the nesting season. If construction activities would involve loud noises, a ½ mile buffer zone would be required during this period.

**Fish** – No work can be conducted in wetlands where fish may occur between April 1 and June 30.

**Non-game wildlife exclusion (reptiles and amphibians, including Blanding’s turtle)** – If a drawdown is needed for construction, it must be completed prior to October 1.

**Northern long-eared bat** – No tree clearing can take place between late May and late July.

**Drawdowns** – At least one lake must contain water as a sanctuary for migratory birds and wildlife during project construction.

**Vegetation** – Areas of vegetation disturbed during construction will be re-vegetated after construction is completed.

#### **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 Minnesota River has been a focus of human use and occupation for thousands of years as evidenced by the many archaeological sites associated with the diverse landscape settings of the river valley. Twenty-four historic properties are recorded within 1 mile of the study area, however, no historic properties have been identified within the study area.

USACE conducted preliminary deep soil testing at Continental Grain Marsh (see Appendix M of the Main Report for details). USACE has also sought information from appropriate Native American groups pertaining to any properties of cultural or religious importance that may exist within the area of potential effects for the project. The preliminary survey as well as the tribes contacted have not identified any historic properties. See Appendix M of the Main Report (Attachment 3) for additional discussion.

**Impacts of the proposed project:** Preliminary surface reconnaissance and limited deep site testing within the study area indicate that the project would likely have no impacts to historic properties. There would be no permanent indirect effects to proximal recorded historic properties. Additional cultural surveys will be conducted prior to construction to verify the preliminary information. If significant archaeological phenomena are identified, steps would be taken to avoid, minimize, or mitigate adverse effects. Section 106 coordination and cultural resources management plans will be developed in consultation with various partners, such as the Native American Groups, the Minnesota State Historic Preservation Office, the USFWS, and others.



**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 Minnesota Valley National Wildlife Refuge would be temporarily affected during the period of construction due to the presence of construction equipment. No vapor plumes would result from the project. Work is expected to occur during daylight hours (after 7 am) so intense lights are not proposed for use during construction and no glare from lights would occur. No special minimization or mitigation for temporary impacts has been proposed during construction. Following construction, no impacts are anticipated to the view of the Refuge.

**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. These effects would only occur during the construction period which is expected to be short. 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 for the overflow channels and aggregate for the access roads. This dust is expected to be minimal and localized to the immediate construction area. Clean fill material would be used 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.

## 17. 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.

The Minnesota Valley National Wildlife Refuge is located in an urban area and existing noise levels are consistent with urban areas. The most significant producers of noise in the area are Highways 101 and 169, Valleyfair and Cargill. Construction would require heavy equipment to operate in the area which would generate noise during construction after 7 am. This effect would only occur during construction and is anticipated to be temporary and minor. There are no sensitive receptors in the immediate vicinity; therefore, noise is not anticipated to impact quality of life. Given the temporary and minor effects of noise, no minimization or mitigation measures are proposed.

## 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 may cause temporary traffic disruptions in the area when construction equipment is brought into and out of the site. Construction will be completed by one crew with few trucks and the crew will work in one area at a time. There will not be constant traffic into or out of the project area. Construction in each area of the project is expected to last one to two days. No long-term effect to transportation in the area will occur as a result of the proposed project. The proposed habitat restoration project will not result in the need for additional parking spaces or cause an increase in traffic to the area.

- 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 proposed project should have no effect on traffic congestion in the area. No traffic improvements are necessary.

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

No measures are needed.

## 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 the following project related environmental effects is the entire study area (outlined in red on attached Figure 2) plus Valleyfair, Blue Lake wastewater treatment plant and Cargill. The project is proposed to take place over a winter season, approximately 4 months.

Wetlands: Short-term negative impacts to wetlands, primarily associated with increased water turbidity and sedimentation would occur due to construction activities. BMPs would be used to minimize effects on wetlands. Long-term beneficial impacts to aquatic vegetation would occur in the study area. The proposed project would allow the Refuge to quickly remove flood waters from the area each spring and conduct drawdowns to increase the density and distribution of aquatic plant species, ultimately improving habitat for migrating waterbirds and waterfowl.

Fish and wildlife: Fish and wildlife species are likely to avoid areas under construction; however, this effect would be minor and temporary. Following construction, the project will have a positive long-term effect on wildlife such as waterfowl, shorebirds, turtles, beavers, fish, muskrats and other wildlife species that would utilize the study area by improving habitat.

Recreation: Short-term impacts to recreation during construction which would limit public access to the area. In the long-term, recreation would improve as a result of a more diverse aquatic plant community (emergent and submergent) and increased populations of waterfowl and waterbirds utilizing the area during fall migration.

Water quality: The proposed project would have temporary, short-term adverse impacts to water quality by increasing turbidity in the immediate area where construction and excavation occur. There could also be the potential for oil spills from construction equipment; however, Best Management Practices (BMPs) would be used to minimize impacts to water quality during construction. Overall, the proposed project would have a long-term, beneficial effect on water quality by increasing the overall percent coverage of aquatic vegetation. Aquatic vegetation can slow the velocity of flood waters entering the study area, allowing suspended materials to settle to the sediment surface. Excess nutrient or toxic chemicals entering the system, can be taken up by aquatic vegetation, trapped with settled soil particles or converted to less harmful chemical forms by biological processes.

Noise: The construction of the project would generate a temporary increase in noise levels associated with heavy equipment. This may lead to temporary displacement of some wildlife species and decreased recreational use; however, no long-term impacts would be expected. There are no sensitive receptors in the immediate vicinity; therefore, noise is not anticipated to impact quality of life.

- 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.

The Refuge and MnDOT have no reasonably foreseeable future projects planned for the area. Valleyfair may be conducting work on their wetland mitigation site (adjacent to Blue Lake) during the Bass Ponds construction timeframe. Work would include removal of the topsoil and subsoil to lower the ground surface. Following excavation and grading, topsoil from adjacent wetlands would be placed into the mitigation area and seeded. Work also includes tree planting.

- 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.

Wetlands: Both the Valleyfair and Bass Ponds projects would have short-term negative impacts to wetlands, primarily associated with increased water turbidity and sedimentation would occur due to construction activities. BMPs would be used to minimize effects on wetlands. Both projects would have a long-term beneficial effect on wetlands by improving wildlife habitat, water quality and floodwater detention.

Fish and wildlife: Fish and wildlife species are likely to avoid both areas when under construction; however, this effect would be minor and temporary. One basin within the Bass Ponds study area will remain at full pool to serve as a refuge for wildlife during construction. Following construction, both projects will have a positive long-term effect on wildlife such as waterfowl, shorebirds, turtles, beavers, fish, muskrats and other wildlife species that would utilize wetland habitat.

Recreation: The Valleyfair mitigation site will not have public access and is not meant to be used for recreation; therefore this project would not have a cumulative effect on recreation in the area.

Water quality: Both projects would have temporary, short-term adverse impacts to water quality by increasing turbidity in the immediate area where construction and excavation occur. There could also be the potential for oil spills from construction equipment; however, Best Management Practices (BMPs) would be used to minimize impacts to water quality during construction. Overall, both projects would have a long-term, beneficial effect on water quality by increasing the overall percent coverage of vegetation. Vegetation can slow the velocity of flood waters, allowing suspended materials to settle to the sediment surface. Excess nutrient or toxic chemicals entering the system, can be taken up by aquatic vegetation, trapped with settled soil particles or converted to less harmful chemical forms by biological processes.

Noise: The potential of conducting work at the Valleyfair mitigation site and in the project area at the same time would cause noise levels to be higher than noise from either project alone. Construction timeframes for both projects are short and effects from noise would be temporary. Increased noise in the area may lead to temporary displacement of some wildlife species and decreased recreational use; however, no long-term impacts would be expected. There are no sensitive receptors in the immediate vicinity; therefore, noise is not anticipated to impact quality of life.

- 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.

NA

**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 Sedlitz Date 4/10/19

Title Environmental Service Supervisor