

**MINNESOTA VALLEY SAND  
ENVIRONMENTAL ASSESSMENT WORKSHEET  
July 13, 2015**

**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.

**Note to reviewers:** Comments must be submitted to Scott County during the 30-day comment period following notice of the EAW in the EQB Monitor, or August 19<sup>th</sup>, 2015. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation in the EIS.

**Cumulative potential effects will be addresses collectively under EAW Item 19.**

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[MDNR Natural Heritage Review June 2011](#)

## 1. Project title: Minnesota Valley Sand (MVS)

### 2. Proposer: FML Sand, LLC

**Contact person:** Mark Krumenacher, P.G.

**Title:** Principal/Senior Vice President

GZA GeoEnvironmental, Inc.

**Address:** 20900 Swenson Drive Suite 150

**City, State, ZIP:** Waukesha, WI 53186

**Phone:** (262) 754-2597

**Fax:** (262) 754-9711

**Email:** [mark.krumenacher@gza.com](mailto:mark.krumenacher@gza.com)

### 3. RGU

**Contact person:** Kate Sedlacek

**Title:** Environmentalist II

**Address:** 200 Fourth Avenue West  
Shakopee, MN 55379

**Phone:** (952) 496-8351

**Fax:** (952) 496-8496

**Email:** [ksedlacek@co.scott.mn.us](mailto:ksedlacek@co.scott.mn.us)

### 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):*

Not Applicable

### 5. Project Location:

**County:** Scott

**City/Township:** Louisville Township

**PLS Location (1/4, 1/4, Section, Township, Range):** NE 1/4, Section 29, Township 115, Range 023

**Watershed (81 major watershed scale):** Lower Minnesota River

**GPS Coordinates:** 44° 44' 39.54" N, 93° 36' 24.39" W

**Tax Parcel Number:** 79200040, 79280110, 79280120, 79290020

### 6. Project Description:

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

Minnesota Valley Sand (MVS) proposes to develop approximately 170 acres of the 273-acre property currently owned by Mid-America Festivals Corporation (the "Site") for nonmetallic mineral mining and processing operations (the "Project"). Mining and processing operations include stripping, blasting, extraction, washing, pre-processing sand stockpiling, drying, screening, truck and railcar loading, and phased reclamation.

- 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.*

1) Construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes.

The proposed Project is a silica sand mine that will excavate approximately 156 acres, from 50 to 100 feet into the Jordan sandstone. The reclaimed site will leave a groundwater water body and upland areas.

2) Modifications to existing equipment or industrial processes.

There is no mining equipment on site. There will be no modifications to existing equipment or industrial processes.

3) Significant demolition, removal or remodeling of existing structures.

Activities will include the demolition of existing dilapidated unusable buildings and structures associated with previous limestone aggregate mining operations.

4) Timing and duration of construction activities.

Construction activities are anticipated to commence upon receipt of an Interim Use Permit (IUP). It is anticipated that the mine may be active for 25 years.

#### Existing Site Description and Location

The approximately 273-acre Site is comprised of four parcels (79200040, 79280110, 79280120, 79290020) in Louisville Township, Scott County, Minnesota owned by Mid-America Festivals Corporation ([see Figure 4](#)). FML Sand, LLC, headquartered in Chesterland, Ohio, is proposing the mining and processing of silica sand on the Site.

Access to the Site is from 145th Street West to U.S. Highway 169. The Site lies south of State Highway 41 and east of the Minnesota River. The Project will include mining an area of approximately 156 acres as approximately shown on [Figure 5](#). The majority of the proposed mining area (about 136 acres) was previously mined for construction aggregate (crushed limestone) in what was known as the Green Quarry. Mining activities started prior to 1951, before Scott County began regulating mining operations, and stopped in the 1990s. The Mid America Festivals Corp property and adjacent property ownership are shown on [Figure 4](#) derived from the Scott County on-line GIS mapping tool. The Site is zoned I-1, Rural Industrial. Surrounding land use is industrial or public land.

Past activities included stripping soil and overburden, blasting, extraction, processing, stockpiling, and trucking via trucks and rail. Since commercial mining ended, there was reportedly limited removal of limestone from the property for use at the Renaissance Festival, such as boulders for aesthetics and material for roadways and trails.

#### Conceptual Mine Plan

A detailed mine plan will be developed as part of the Environmental Impact Statement (EIS) that will elaborate on how the various mining activities will be coordinated throughout the Site,

sequence of mining activity, and plant layout. Sandstone mining will commence in the northwestern area of the Site and generally progress outward in all directions, with primary mine progression to the east and south. Figure 5 illustrates the Conceptual Mine Plan.

The Project will include mining an area of approximately 156 acres on portions of parcels 79200040, 79280120, and 79290020 (see Figure 4), an estimated 136 acres of which was mined in the past for construction aggregate (see Figure 3). Mining and processing operations include stripping, blasting, extraction, washing, pre-processing sand stockpiling, drying, screening, truck and railcar loading, and phased reclamation.

Mining activities will include clearing of trees and vegetation, removal and stockpiling of topsoil (if present) and overburden, dewatering, blasting, extraction, crushing (of limestone overburden), processing (washing, drying, screening), stockpiling, loading, and hauling of sandstone. Sand washing, drying and processing will be inside buildings located in the east central area of the Site. If it is determined that winter mining is not feasible, a portion of the sand that is mined and washed during spring through fall will be stockpiled for drying and processing during the winter.

The stockpile configuration is designed to accommodate the required capacity of washed sand over the limited area available using a shuttle conveyor. The conveyor and stockpile heights directly impact the stockpile footprint near the processing operations. The maximum shuttle conveyor height with framing and catwalks is 145 feet. The washed sand stockpile height will be designed to a maximum of approximately 125 feet.

Limestone removed from above the sandstone will be used on-Site for construction fill after some crushing or sold to the nearby aggregate producers for processing and sale.

#### Jordan Sandstone Mining and Processing

Groundwater modeling will be completed to evaluate the effect of potential dewatering on area resources as more fully described in Section 11. The modeling results will determine the efficacy of dewatering and anticipated dewatering scenario(s) implemented during the project. At this time, it is anticipated that mining will commence using an excavator or drag line creating a surface water body then continued wet mining methods using either a drag line or a floating dredge to slurry pump the sand to the plant where it will be washed and the water returned to the mine. The Scott County Zoning Ordinance limits the height of buildings to 45 feet. A variance will be required to construct the processing facilities, where some structure heights may reach 145 feet. The plant will be constructed adjacent to the UP rail line and will include a series of railroad spurs and finished product from silos will be transferred to trucks and railcars. Figure 6 illustrates the Conceptual Processing Area Layout.

#### Wet Plant

The wet plant will be enclosed within a building. The wet plant separates finer silt material from the sand and cleans the sand grains. Equipment in the wet plant may include scalping screens to remove oversized materials, attrition scrubbing, hydrosizers and hydrocyclones to separate the fine and coarse materials, and dewatering screens or vacuum belts. Hydrosizers remove fine sand and silt and separate the medium and coarse sand into concentrates by utilizing an upward flow of water. The attrition scrubbers break up agglomerated particles and remove coating on the surface of the sand particles using a sand/water slurry.

The wet plant may be operated on a year round basis. Water from the washing process will be

pumped to a treatment system which will use water-soluble polymers and clarifying tank to allow fine materials to settle out. The treated water will be returned to the plant for reuse. A portion of the water that passes through the wet plant will be used to make a slurry with the waste fine sands, which will be pumped back to the reclamation area where it will be used as reclamation fill. The water treatment system and associated chemicals will be described and any effects evaluated in the EIS.

After washing, the sand will be dewatered and then transferred by conveyor to the stockpile or to the dryer.

### Dry Plant

The dry plant will be enclosed within a building and include a rotary drum dryer or fluidized bed dryer system and a series of screens to produce the necessary gradations of marketable product. Finished product will be conveyed into a series of storage silos as shown on [Figures 5 and 6](#). The storage silos will feed by conveyor into the truck and rail loadout, where the finished product will be transferred into covered trucks and railcars for shipment to market. A portion of the finished product may be shipped by truck to State Highway 169 via 145<sup>th</sup> Street West. The dry plant will be equipped with state of the art pollution control equipment. Natural gas will be brought to the Site as fuel for the dryer(s). Natural gas source and routing will be evaluated in the EIS. Propane will serve as back up fuel to allow uninterrupted processing during peak demand periods. The number and size of propane storage tanks will be evaluated in the EIS

### Stockpiles

There will be stockpiling of various materials at the Project Site. The initial mining will be in an area of relatively thin overburden in the northwest area of the previous limestone mine. The overburden, which will be comprised primarily of limestone, will be temporarily stockpiled within the former limestone mine and later used for reclamation or stockpiled on the northern area of the property where shown on [Figure 5](#). Sand rejected from the processing as too coarse or too fine will also be temporarily stockpiled in the former limestone mine for future reclamation.

If it is determined that winter mining is not feasible the wet plant will create a stockpile of sand for winter processing. The volume of this stockpile will be continually added to throughout the mining season, reaching maximum volumes in mid-November. The stockpile will diminish over the course of the winter. Small temporary stockpiles will be created near the wet plant and dry plant comprised of oversized and undersized sand that will be relocated to the mine and temporarily stockpiled for future reclamation or placed directly for reclamation.

The EIS will further describe stockpile locations and identify best management practices to control dust emissions.

### Trucking

It is presumed that 145th Street West to US Highway 169 was used as the main trucking route when the MVS parcel was mined in the 1950s – 1990s. It is anticipated that this same route will be used for the Project. 145<sup>th</sup> St is a Township road. A road access permit and construction of roadway improvements may be required for the mining operation.

The majority of product is anticipated to be shipped by rail but truck transportation will also be needed to meet operational and customer needs. Rail and truck transportation are expected to

occur 24 hours per day 7 days per week. The EIS will evaluate the anticipated average and peak truck traffic although MVS is proposing that the majority of the product will be shipped by rail. It is anticipated that the average daily truck traffic will be approximately 150 trucks per day and average daily rail traffic 100 rail cars.

The EIS will evaluate the potential impacts of employee and trucking of finished product from the Site. The EIS will include an evaluation of the potential to utilize the existing access point and potential mitigation measures, such as limiting trucking during Renaissance Festival operations, or infrastructure improvements that may be needed. The traffic analysis will take into consideration the existing and proposed truck traffic from nearby mines, landfills, and industries.

#### Rail Loadout

It is anticipated that the majority of sand will be transported from the Site primarily by rail. Minnesota Valley Sand is proposing one switch off the mainline to be constructed along with rail spurs to accommodate empty and loaded rail cars as shown on [Figures 5 and 6](#). The proposed rail spur will not be designed to accommodate a unit train. Scott County owns the former rail corridor adjacent to the propose project which is not part of the proposed Project. Peak hour truck traffic is expected to be 15 trucks per hour. Peak hour rail traffic may be 100 cars. The Project's impact to current and proposed train traffic will be described in the EIS.

#### Reclamation

Reclamation will begin after approximately 10 acres of mining are completed if variance is granted, opening up a large enough mining area to allow the placement of reclamation fill without interfering with continued mining operations. As sandstone mining is completed in an area, backfilling and final grading will be performed filling to the west and north as mining progresses. Backfilling below the water table will include sand, fines, and overburden. Reclamation materials will be placed as hydraulic fill below the water table, to stabilize slopes, and create upland areas.

Final contouring and establishment of native vegetation will be performed on upland areas. Portions of the Site will be reclaimed to allow future development of the land consistent with current land use policies. Areas suitable for future redevelopment will be detailed in the reclamation plan contained in the EIS. A conceptual reclamation plan is included as [Figure 23](#).

The area associated with the processing facilities will be reclaimed last. The rail yard and rail loadout may remain as long-term uses on the property if an industrial use can be envisioned. A geotechnical report that describes stable restoration for the proposed reclamation plan to include a combination of upland and open water features end use will be provided in the EIS. The EIS will address financial security measures that will be taken should the proposed mine be abandoned prematurely.

#### Construction Sequence

Initial activities will include the construction of the wet and dry plants and the railroad spurs and rail loadout facility. The processing area will be located in the east central portion of the Site. Sandstone mining will commence in the northwestern area of the Site and generally progress east and south.

#### Cumulative potential effects

Cumulative potential effects will be addressed under Item 19.

*c. Project magnitude:*

<b>Total Project Acreage</b>	273 (total Site property)
<b>Linear project length</b>	Not applicable
<b>Number and type of residential units</b>	None
<b>Commercial building area (in square feet)</b>	None
<b>Industrial building area (in square feet)</b>	110,000 proposed
<b>Institutional building area (in square feet)</b>	None
<b>Other uses – specify (in square feet)</b>	Mine area approximately 156 Acres
<b>Structure height(s)</b>	Variable, maximum 145 feet variance needed

Existing structures associated with the previous mining or other land use will be demolished.

The proposed building heights will require a variance from the Zoning Ordinance. The taller structures will be located on grade at approximate elevation of 740 feet with the maximum top of structure heights at an elevation of about 885 feet. These heights and elevations will be comparable to surrounding industrial land uses, such as the nearby Louisville and Dem-Con Landfills that reach elevations of 880 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 is to mine, process and ship silica sand. This work is not being carried out by a governmental unit.

*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.*

Not applicable.

*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.*

Not applicable.

**6. EIS Applicability**

This topic is minor, but will be discussed briefly in the EIS using the same information provided above. Any modifications to this information, resulting from further refinement of the Project, will be addressed in the EIS in addition to the following.

6.1. A detailed mine plan will be developed as part of the Environmental Impact Statement (EIS) that will elaborate on how the various mining activities will be coordinated throughout the Site, sequence of mining activity, and plant layout).

6.2. Natural gas source and routing will be evaluated in the EIS.

6.3. Propane will serve as back up fuel to allow uninterrupted processing during peak demand periods. The number and size of propane storage tanks will be evaluated in the EIS

6.4. The EIS will further describe stockpile locations and identify best management practices to control dust emissions.

## 7. Cover types:

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

	Before	After		Before	After
<b>Wetlands</b>	76	76	<b>Lawn/landscaping</b>	0	0
<b>Deep water/streams</b>	0	100	<b>Impervious surface</b>	0	0
<b>Wooded/forest</b>	61	27	<b>Stormwater Pond</b>	0	0
<b>Brush/grassland</b>	0	20	<b>Former Mine</b>	136	0
<b>Cropland</b>	0	0	<b>Reclaimed Area</b>	0	50
<b>TOTAL</b>				<b>273</b>	<b>273</b>

The proposed development will reduce the existing acreage of wooded/forest areas.

### 7. EIS Applicability

This topic is minor, but will be discussed briefly in the EIS using the same information provided above. The topic will not be further studied for the EIS.

## 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.*

Unit of Government	Type of application	Status
Minnesota Pollution	Discharge Permit (Water	To be submitted if required

Control Agency (MPCA)	Quality Permit)	
	Air Emissions Permit	To be submitted
	Nonmetallic Mineral Mining & Associated Activities (NPDES/SDS General Permit)	To be submitted if required
Minnesota Department of Natural Resources	Water Appropriations Permit	To be submitted
	MDNR Endangered Species Act Takings Permit	To be submitted if required
	Public Waters Work Permit	To be submitted if required
Minnesota Department of Health	Drilling/Sealing Wells	To be submitted
Scott County	Interim Use Permit (IUP)	To be submitted
	Variance for Building Height and Reclamation	To be submitted
	Septic System, Building Permits etc.	To be submitted
	Runoff and Erosion	To be submitted
Scott County Board and Three Rivers Park District	Lease agreement for portion of former railroad corridor	Under consideration, may be submitted
Louisville Township	IUP Review	To be submitted
	Wetland Conservation Act	
	Road Access Permit	

## **8. EIS Applicability**

This topic is minor, but will be discussed briefly in the EIS using the same information provided above. Any modifications to this information or the identification of permits later in the process will be added to the list and addressed in the EIS.

## **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.*

#### Existing Site Use

The Site is an undeveloped former limestone aggregate mine, forest or wetland. The Site is used on a limited basis during the six week Renaissance Festival for employee camping and parking, a small garden, and grape vines. These activities are not permitted uses. These Site activities will cease prior to the start of mining. Although the land is zoned industrial, potential land use options are limited as the property is not serviced by municipal sewer and water.

#### Adjacent Land Use

Abutting land to the north and northwest is in the Minnesota River Valley and is owned by

the Minnesota Department of Natural Resources (MDNR) Lands and Minerals Division or Minnesota Valley Trail. Land to the west and south is also in the Minnesota River Valley and is owned by the US Fish and Wildlife Service (USFWS). The public lands include the Minnesota Valley Trail Corridor, the Gifford Lake area, and the Louisville Swamp Unit of the National Wildlife Refuge, which are accessed by 145th Street West near the southeastern corner of the Project. Refer to [Figure 4](#). There are several established public trails through Louisville Swamp. The Minnesota Valley State Corridor Trail is present through the Louisville Swamp Unit and continues through the State land associated with the Gifford Lake area north of the Site. Adjacent and nearby land uses are shown on [Figure 7](#) and established trails near the Site are shown on [Figure 8](#).

An active Union Pacific (UP) rail line extends north of 145th Street West approximately 1,500 feet. From that point north approximately 1.5 miles to the Minnesota River the railroad is abandoned and the 100 to 150 foot wide former right of way is owned by Scott County for a future trail corridor. Approximately ½ mile of the County owned corridor is present between Site parcels and approximately 800 feet of the County owned corridor is present between the Site and neighboring Malkerson Sales property. Refer to Figure 4 for a map of ownership.

Land use adjacent to the east and along the western portion of the U.S. Highway 169 corridor is industrial and includes; sand and gravel mining and processing, aggregate limestone mining and processing, a closed municipal solid waste landfill, an active demolition debris landfill, Minnesota Department of Transportation (MnDOT) transportation facility, landscape nursery, and a block manufacturing facility. A yard waste composting facility is located southeast of the Site.

The Cities of Chaska and Carver are located across the Minnesota River Valley approximately 2 and 3 miles west, respectively. These areas are characterized by a mix of land uses including industrial, commercial, and residential within these urbanized areas.

Carver County also contains the Minnesota Valley National Wildlife Refuge – Chaska and Rapids Lake Units, approximately 1.5 miles north and 1 mile west of the Project, respectively. The Chaska Unit occupies a bend in the Minnesota River stretching between the towns of Chaska and Carver. It consists of about 600 acres of lake, marsh, old fields, and river bottom hardwood forest. A two mile trail runs through these habitats. The 1,500-acre Rapids Lake Unit spans the west side of the Minnesota River Valley from downtown Carver to Carver County Road 45. Upland prairie, lake and, marsh, river, bottom forest, and forested river bluffs can be found on the Rapids Lake Unit. There are three miles of trails in the unit. The area also includes the Rapids Lake Education and Visitor Center.

The Project area does not contain prime or unique farmlands

- 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 Scott County 2030 Comprehensive Plan (adopted March 14, 2009 with minor amendments in October 2011 and December 2012) indicates the planned land use for the area of the Project is commercial/industrial.

- iii. *Zoning, including special districts or overlays such as shoreland, floodplain, wild and***

*scenic rivers, critical area, agricultural preserves, etc.*

Zoning of the entire Site is I-1, Rural Industrial District. Mining is allowed as an interim use within the I-1 District. Rail yards are allowed as a conditional use within the I-1 District.

Zoning of the adjacent developed property is I-1, Rural Industrial District Zoning of the public lands is UER (Urban Expansion Reserve) District.

There is also an area of UER-C (Urban Expansion Reserve Cluster) District east of the Site, which includes a low-density residential development. [Figure 9](#) illustrates the zoning of the Site and surrounding area.

Part of the Site is in the 100-year floodplain, however, the proposed mine Project is not in the 100-year floodplain and is not in the Scott County Shoreland district. [Figure 19](#) Shoreland District and [Figure 20](#) 100-year Floodplain.

***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 use is compatible with current zoning and with the adjacent industrial land use, which also includes mining, and adjacent land used as a wildlife refuge and for recreation.

Decades of limestone mining on the Project and adjacent property suggests that the proposed Project will be compatible with the surrounding public land use for recreational and wildlife areas.

The Project will be an interim use, which upon completion, will provide for final development of the land in a manner consistent with the Comprehensive Plan and existing surrounding land uses.

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

A Reclamation Plan will be developed as part of the EIS that will consider recreational, residential, commercial, and industrial uses. The Reclamation Plan will include final contours, upland, open water and vegetation types expected to complement the public land in the Minnesota River Valley.

**9. EIS Applicability**

Land use is significant and information beyond what is included in the EAW will be included in the EIS.

9.1. The EIS will assess the impacts of the Project on the current land use in the areas adjacent to the Project.

9.2. The EIS will provide a description of potential end use in a Reclamation Plan for the Site which will include an assessment of its compatibility with surrounding land uses.

9.3. The EIS will evaluate impacts to the Louisville Swamp Unit access point and parking area and to the Renaissance Festival operations.

## 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.***

The Site is situated on a glacial river terrace, approximately 30 feet above the floodplain of the Minnesota River. Over undisturbed areas of the Site, a thin layer of unconsolidated material (a mix of sand and gravel and clay) is present on top of bedrock. In at least one area of the Site, almost 100 feet of glacial deposits are present in a glacial bedrock valley. There are no identified sinkholes or other karst features at the Site.

Throughout the majority of the Site, the first bedrock contact is the Prairie du Chien Group, a finely crystalline dolostone, sandstone, and shale that subcrops as a relatively flat, buried plateau. The Prairie du Chien Group is composed of two units, the upper Shakopee Formation and the lower Oneota Dolomite. Both the Oneota Dolomite and Shakopee Formation consist largely of carbonate components, characterized by thin to very thick beds of dolostone, with negligible amounts of sandstone, and other silica bearing rocks. The lowermost Oneota Dolomite unit is the Coon Valley Member, which is generally 10 to 20 feet thick and is comprised of sandstone, and sandy dolostone and thin partings of greenish-gray shale.

The Prairie du Chien Group is typically 140 to 190 feet thick outside of the Minnesota River Valley. Where present at the Site it is 15 to 20 feet thick or was previously mined for construction aggregate. The Prairie du Chien Group is not present in the northwestern, northeastern, and east central portions of the Site where it was completely eroded.

Underlying the Prairie du Chien Group and Coon Valley formation is the Jordan Sandstone. The Jordan Sandstone is approximately 50 to 80 feet thick within the Site. The Jordan Sandstone is comprised of the upper Van Oser Member, a medium-to coarse-grained quartz sandstone and the Norwalk Member, a fine-grained feldspathic sandstone with lenses of siltstone and shale. The Jordan Sandstone is the industrial sand that is the target of the proposed Project.

The Jordan Sandstone is underlain by the St. Lawrence Formation, the Tunnel City Group, the Wonewoc Sandstone, the Eau Claire Formation, and the Mount Simon Sandstone. The St. Lawrence Formation is a dolomite-cemented, very fine-grained sandstone and siltstone, interbedded laminated green shale and pink to red, finely to coarsely crystalline dolostone, the latter being particularly abundant in the lower one-half of the formation. The Minnesota River flows through a bedrock valley, which is believed to be eroded into the St. Lawrence Formation and/or Tunnel City Group. [Figure 10](#) is a typical stratigraphic column representative of general Site conditions.

The Site is underlain by several bedrock aquifer systems, including the Prairie du Chien-Jordan aquifer. The underlying St. Lawrence Formation is considered a regional confining bed hydraulically separating the overlying Prairie du Chien-Jordan aquifer from the underlying Tunnel City-Wonewoc (Franconia-Ironton-Galesville) aquifer. The Eau Claire Formation, a shale, siltstone, and very fine-grained sandstone averaging about 75 feet in thickness, acts as a confining layer hydraulically separating the overlying Wonewoc from the underlying Mt. Simon-

Hinckley aquifer. In addition to the bedrock aquifers, sand layers in the glacial drift may be used as a source of water supply in the region.

The Prairie du Chien- Jordan aquifer is the most extensively used aquifer in the Twin Cities area. The groundwater flow direction is towards the Minnesota River from the east and west. There are no known water supply wells located on the public land adjacent to the Site. Potential impacts to water levels in nearby water supply wells and adjacent groundwater dependent natural resources are discussed in Section 11.

The proposed mine will excavate up to 80 feet into the Jordan sandstone. An approximately 100 acre groundwater pond will remain after mining ceases. The EIS will address impacts to geologic features and groundwater, please see section 11 on EIS applicability.

- 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.***

#### Soils

Previous mining has disturbed the majority of the Project area as shown on [Figure 11](#). The NRCS Web Soil survey is based on the United States Department of Agriculture (USDA) NRCS web soil survey (WSS). As shown on [Figure 12](#), the majority of the Project area (95%) is classified as Stony Land (Sc) with minor areas (1 to 3 %) mapped as Pits, Gravel (Gp), Marsh (Ma), Copaston (CbB) silt loam and Dickman (DdB) sandy loam.

#### Topography

The topography of the Project area varies from elevation 720 to 780 feet and has been affected by previous mining. The lower elevation areas are former mine area and the higher ground is unmined along the south and west margins and northern area of the Site.

#### Special Site Conditions

There are no special site conditions relating to erosion potential, soil stability, or other soils limitations, such as steep slopes, or highly permeable soils. The project area is located in an area of high susceptibility to groundwater contamination.

#### Estimated Volume and Acreage of Soil Excavation and/or Grading

The proposed Project will cover 150 to 170 acres (proposed mine and processing area combined) of previously mined or otherwise affected land. In-situ soil excavation is limited to approximately 30 acres where soil types are mapped as Stony Land. As such the volume of soil that may be present is naturally limited.

Scott County Zoning Ordinance Chapter 10 states that reclaimed areas shall be surfaced with soil

of a quality at least equal to the topsoil of land areas immediately surrounding, and to a depth of at least six (6) inches. The topsoil shall be seeded, sodded, or planted. Such planting shall adequately retard soil erosion. The quality of the topsoil of land areas immediately surrounding the proposed mining and processing area are mapped as stony land. The expected quality of the limited land reclamation will be of similar quality.

#### Impacts From Project Activities Related to Soils and Topography

The Project will remove overburden and mine sandstone to elevations below existing and surrounding grade. What little soil that may be present in proposed mine areas will be utilized in mine reclamation. Bedrock overburden and unsaleable portions of the sandstone will also be used in mine reclamation. Final topography will be near or lower than adjacent elevations and will be considered in the EIS during development of the Reclamation Plan.

#### Measures to Address Soil Limitations

There are no soil limitations that impact the proposed Project during construction. The quality of the topsoil of land areas immediately surrounding the proposed mining and processing area are mapped as stony land. The expected quality of the limited land reclamation will be of similar quality. The use of imported soil to blend with existing soil for reclamation purposes will be considered in the EIS. Soil slopes and stabilization measures will be considered in the EIS during development of the Reclamation Plan.

### **10. EIS Applicability**

Geology, soil, topography and landforms are significant and information beyond what is presented in the EAW will be evaluated in the EIS.

10.1. A hydrogeologic investigation will be completed and presented in the EIS, which will include a description of the site geology and hydrogeology.

10.2. Final topography, soil slopes, and stabilization measures above and below water table will be described in the EIS. This analysis will be used to properly design mine walls and establish setbacks for safety.

10.3. The use of imported soil to blend with existing soil for reclamation purposes will be considered in the EIS.

### **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.*

There are no ponds, lakes, streams, intermittent channels, or county/judicial ditches on the Site. Seasonally inundated floodplain forest and emergent natural wetlands were delineated

on the Site.

The Minnesota River and Sand Creek meander through the public land within 100 feet of the northwestern Site boundary. Gifford Lake is located approximately 2,500 feet north of the Site. Wetlands are located on the Site and on nearby public land south, west and north of the Site.

Reaches of the Minnesota River near the Site are included on the State's 303 (d) list of impaired waters. The Minnesota River from Sand Creek to Carver Creek is listed for mercury (Hg), and Polychlorinated biphenyls (PCBs). The segment from Carver Creek to RM 22 is listed for Hg, PCBs, and Turbidity. A total maximum daily load (TMDL) has been established for Hg. TMDL plans have not been prepared for the other pollutants.

Sand Creek is also on the State's 303(d) list of impaired waters. Sand Creek impairments are listed as B-F = Fish IBI (Index of Biological Integrity), and Turbidity (TMDLs needed). Although Sand Creek is adjacent to the western boundary of the MVS property, due to past mining activity on this property, the Site is primarily internally drained with very little stormwater runoff to Sand Creek. During and following mining, the Site will remain primarily internally drained.

- 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.***

Springs or seeps were not identified on the Site. The groundwater description below pertains to the shallow unconfined Prairie du Chien-Jordan aquifer.

#### 1) Depth to Groundwater

The depth to groundwater varies across the Site from less than 5 feet in the wetland areas to 80 feet in the upland areas. In areas where limestone was previously mined, the depth to groundwater is 10 to 30 feet.

The groundwater elevation varies from approximately 720 feet in the eastern portion of the Site to approximately 690 feet closer to the Minnesota River. Regionally the groundwater flow direction is to the Minnesota River. Groundwater elevation data from on-Site and adjacent wells are consistent with the expected groundwater flow.

#### 2) Minnesota Department of Health (MDH) Wellhead Protection Area

There are no wellhead protection areas within 1.5 miles of the Site. The three nearest public water supply wellhead protection areas are located hydraulically upgradient (City of Shakopee) or in a different groundwater basin in Carver County (Carver North and Carver Central). Based on their location hydraulically upgradient or in different groundwater basins, impacts to these wellhead protection areas are not anticipated. Nearby wellhead protection areas are shown on [Figure 13](#).

#### 3) Identification of Onsite and/or Nearby Wells

Two wells at the approximate locations shown on [Figure 14](#) supported past mining operations. The existing wells may be abandoned or utilized by MVS. There are two non-community public water supply wells at the Renaissance Festival located on the Malkerson Sales property. The Site is located in an area not served by public utilities, therefore nearby industrial, commercial, and residential developments are served by private or community wells. The County Well index indicates a number of wells near the Site. [Figure 15](#) illustrates the location of wells within two miles of the Site that are listed in the County Well Index (CWI). The potential impact to nearby wells will be evaluated in the EIS.

In addition to the water supply wells reported above, there are 5 monitoring wells on the Site and as many as 17 monitoring wells on the adjacent Merriam Junction Sands (MJS) project that MVS and MJS can use to evaluate cumulative impacts on groundwater.

### **11.a. EIS Applicability**

Surface water and ground water resources on or near the Site are significant and information beyond what is presented in the EAW will be evaluated in the EIS.

11.a.1. The EIS will utilize the hydrogeological investigation to assess the potential impacts to the surface water or groundwater associated with grading, stormwater management, blasting, and mining below the groundwater table. The investigation may include the installation of piezometers, geologic borings, aquifer pump testing in order to develop a comprehensive geologic and hydrogeological model. A 3-D groundwater flow model will be constructed to simulate the effects of dewatering.

11.a.2. The potential impact resulting from a leveling of the groundwater table across the former mine area will be evaluated including potential changes to flow after mining is completed and water withdrawal has ceased.

11.a.3. The EIS will evaluate impacts to nearby wetlands and surface water bodies such as Sand Creek, Gifford Lake, and Louisville swamp.

11.a.4. The EIS include a complete well survey and will evaluate the potential impact to nearby water supply wells.

11.a.5. The EIS will address mitigation measures to reduce potential groundwater contamination. This will include items such as a spill prevention plan and response plan, evaluation of imported material to prevent aquifer contamination, and the development of a comprehensive groundwater monitoring and mitigation plan that continue beyond completion of final reclamation.

11.a.6. The EIS will evaluate the existing groundwater quality impacts associated with Louisville Landfill and assess if this projects dewatering and extraction of sandstone will affect the landfill plume.

11.a.7. The EIS will include an evaluation of the projects impact on water quality and anticipated future public water supply wells and future municipal wells needed to serve future growth in surrounding communities.

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.*

Wastewater will not be discharged into a publicly owned treatment facility as part of the Project.

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.*

The Project will generate normal domestic sanitary wastewater at the Site. The Site is located in an unincorporated area and is not served by municipal sewer or water. A septic system will be located in an undisturbed area of the Site. An evaluation of an SSTS will be completed by a septic designer licensed by the Minnesota Pollution Control Agency. A preliminary design will be developed for the EIS and the final design will meet state and county requirements.

Previous mining has disturbed 50 percent of the property. State and County requirements do not allow septic systems on disturbed soils. The EIS will evaluate the potential end land use for the property after mining cease. This evaluation will include possible septic system locations.

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.*

The Project is not expected to negatively impact surface water or groundwater. The source of water used in the Project will be groundwater from the mine and if necessary additional water will be obtained from a high capacity well. The water used to transport and wash sand within the mining and processing operations will be a closed-loop system recycled through the mine. The water will be used to pump raw sand as a slurry from the mine to the processing plant and treated water from the processing plant may be used to pump fine sand back to the mine for reclamation. The processing operation will utilize an enclosed water treatment system utilizing clarifiers and water-soluble polymers used in municipal water supply systems. It should be noted that the treated water is a wastewater discharge. A groundwater monitoring plan will monitor for indicators of water soluble polymers and other mine related parameters.

Dewatering discharge may be directed to Site wetlands or discharged off the Site to the Minnesota River via a 100 foot wide easement for ingress and egress described in Certificate of Title No. 32234. The volume, treatment, quality, and location of dewatering discharges will be evaluated in the EIS. To the extent that internal dewatering and water management is considered a 'discharge' by the MPCA, appropriate NPDES/SDS, or other permits will be obtained. Groundwater that is discharged directly into a water body with no contact with soil at the Site may not require treatment. Dewatering water will be treated as necessary prior to discharge into waters of the state.

### **11.b.i. EIS Applicability**

Water Resources are significant and information beyond what is included in the EAW will be included in the EIS.

11.b.i.1. The EIS will evaluate the quantities of domestic wastewater to be generated by the Project. A preliminary design will be developed for the EIS and the final design will meet state and county requirements.

11.b.i.2. The EIS will describe the quantities of industrial wastewater generated by the Project and how this water will be managed. The EIS will describe the quantities and contaminants that may need to be addressed.

11.b.i.3. The EIS will include a groundwater monitoring plan to describe appropriate monitoring procedures and parameters.

11.b.i.4. The EIS will evaluate the management of water discharges from the Site including an evaluation of potential impacts to receiving waters. The volume, treatment, quality, and location of water discharges will be evaluated in the EIS along with any mitigation that is warranted.

*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.*

Stormwater must meet the requirements of the Scott Zoning Ordinance Chapter 6.

#### **Quantity and Quality of Stormwater Runoff – Prior to Construction**

The majority of the Project area is internally drained into previously mined land mapped as stony land. Stormwater runoff from the unmined areas and nearby uplands is to wetlands on and adjacent to the Site and to Sand Creek and the Minnesota River. [Figure 16](#) illustrates the current sub-watershed areas and drainage patterns of the Site.

The majority of Site soils are stony lands, which is not assigned a K factor by the Natural Resources Conservation Service (NRCS). The Soil Erosion Factor K indicates the susceptibility of a soil to sheet and rill erosion by water and is ranked on a scale of 0.02 -0.64.

Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The Soil Erosion Factor K ranges from 0.02 to 0.37 for the on-Site soils.

The wind erodibility group (WEG) describes soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. Stony Land, which accounts for the majority of Site soils, is not assigned a WEG. The remaining Site soils belong to groups ranging from 1-8. Less than 10 % of the Site soils are included in WEG 1-3. These include minor occurrences of Copaston silt loam and Dickman sandy loam. Site soils are more fully described under Item 10.b.

#### Quantity and Quality of Stormwater Runoff – Post Construction

During and after mining the Site is expected to remain primarily internally drained. The Reclamation Plan will detail the final grades and describe the post mining stormwater runoff. Stormwater runoff from the unmined areas and nearby uplands will remain to wetlands on and adjacent to the Site and to Sand Creek and the Minnesota River.

Mining and construction of the processing plant associated with the Project will have limited impact to existing drainage patterns. Any changes and their potential impact to surface water will be evaluated in the EIS. Stormwater management plans will be developed for the mining operations and processing area. Structural controls such as sedimentation basins may be developed to treat stormwater runoff and if necessary dewatering and process water discharges. Diversion swales will be incorporated as necessary to divert stormwater from off-Site areas around mining areas to prevent off-Site stormwater from co-mingling with Site discharges.

A Reclamation Plan developed as part of the EIS will describe open water and upland areas. The Resource Management Plan will detail the hydrologic condition after Site reclamation is complete. The upland areas may be open space that will in part drain to the created water bodies, or developable areas that will require future stormwater management controls based on ultimate land use of those areas.

BMPs will be further developed in the Reclamation Plan to minimize or eliminate the potential for impacts to downstream water quality.

#### Environmental Effects From Stormwater Discharges

There are no known or anticipated future environmental effects from properly managed stormwater discharges.

#### Stormwater Pollution Prevention Plans, Runoff Controls, and Best Management Practices

Operation of the Site will likely require an NPDES permit from the MPCA to address the potential need for dewatering and process water discharges. A comprehensive Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the Site incorporating Best Management Practices (BMPs) for the mining and processing areas.

The Site will operate under a MPCA National Pollutant Discharge Elimination System (NPDES) permit and SWPPP. The SWPPP will provide Site-specific management practices

to prevent stormwater that has contacted areas that have been stripped in preparation of mining, stockpiles of overburden or sand, and newly graded areas from flowing off the Site untreated. The SWPPP will also contain non-structural BMPs such as procedures for on-Site fuel storage and handling, employee training and good housekeeping practices. The details on NPDES permit and the SWPPP will be included in the EIS.

#### Erosion Control, Sedimentation Control, or Stabilization Measures

MVS will follow the Scott County and MPCA regulations for erosion and sediment control for construction activities and mining operations. Stormwater management on the Site will minimize erosion and sedimentation.

The SWPPP and Resource Management Plan will identify specific erosion control, sedimentation control and/or stabilization measures to address soil limitations during and after construction. Those plans will address Site-specific stormwater management controls, erosion, and sedimentation BMPs to prevent or inhibit soil particles from leaving the Site, recapture fugitive soil particles, and control rates and volumes of off-Site discharges.

Stormwater that encounters land affected by mining will be internally drained and thus will not have a potential to impact Sand Creek or the Minnesota River. Exposed soil, bedrock, stockpiles and processing areas will be within the internally draining mine. BMPs that will limit negative impacts to off-Site receptors include vegetation and stabilization of any exposed soil along the perimeter of the mine, use of swales and diversion berms as needed to direct stormwater from exposed areas to internal low areas or sedimentation basins, slope stabilization measures, and energy dissipation devices at outlets. BMPs will also protect the wetlands from direct and indirect impacts.

#### **11.b.ii. EIS Applicability**

Stormwater is significant and information beyond what is provided in this EAW will be included in the EIS.

11.b.ii.1. The EIS will evaluate any changes to stormwater runoff and the potential impacts to surface water.

11.b.ii.2. The EIS will describe a stormwater management system design to treat stormwater runoff from impervious surfaces relating to the Project. The EIS will show the proposed locations of any drainage ditches and diversion swales.

11.b.ii.3. The EIS will evaluate the Project's impact on the quality of receiving waters.

11.b.ii.4. The EIS will include a Resource Management Plan that will include hydrologic assessment and stormwater management plan, and evaluate pre-settlement, existing, and mining conditions in accordance with the Scott County Zoning Code. The Project will be designed to meet Scott County's stormwater management standards.

11.b.ii.5. The EIS will address Project magnitude data including the approximate acreage and cubic yards of overburden and rock to be excavated, erosion and sedimentation control measures to be used, an analysis of the local watersheds, hydrologic modeling for the stormwater management plan and the associated BMPs proposed for the Project, and a description of potential erosion and sedimentation impacts to Sand Creek and the Minnesota River specifically

related to their status as impaired waters of the state.

11.b.ii.6. The EIS will describe BMPs developed for each phase of the Project including stripping, mining, dewatering, and reclamation. The BMPs will be of a type and caliber sufficient to protect the wetlands and surface water where the Project may discharge.

*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.*

#### Water Appropriation

A MDNR Water Appropriation Permit will be required for the Project. Total pumping rates and the potential effect on wells, groundwater flow and surface-water features in the area, including other nearby mining operations, will be assessed during the EIS process. Water Appropriation Permit information in the EIS will include county well index (CWI) verified wells, CWI unverified wells, and wells not in the CWI. The well construction data will include pump settings, static water levels, aquifer source water, screened interval/open borehole interval, and elevations.

The Project is anticipated to include dewatering and use high capacity water wells. The volume and rate of dewatering will be estimated by groundwater modeling and will be detailed in the EIS. Although the processing operation will pump sand slurry and wash sand at several 1000 gpm, the closed-loop processing operation is anticipated to require an appropriation of water at 250 to 500 gpm.

Alternatives to be studied in the EIS will include different dewatering scenarios that will look at variations in the depth of dewatering required for the type of mining determined to be feasible. The analysis will determine through modeling and aquifer pumping tests, the potential impacts to surrounding wells and groundwater dependent surface waters.

Water to support the processing operations will come from the mine or from one or more production wells. It is anticipated that a new well will be installed on Site for potable water supply. Wells will be constructed and maintained in accordance with the Minnesota Well Code. In addition, wells and piezometers for hydrogeologic investigations and pump tests that may be conducted as part of the EIS process could be installed throughout the Site. Some of these wells could remain as a monitoring well network established as part of the Project monitoring and mitigation plan, others would be abandoned as mining progresses through the area.

Water from the wet plant will be treated to remove the fines in a clarifying tank and recycled. A portion of the water from the processing plant will be used to slurry fines to the mine for reclamation. Make up water will be required to account for losses in the process associated with loss to product and tailings, water used for dust control and potable water for employees. The EIS will include a detailed description of water flows and estimates of required water appropriations.

Water appropriations will include dewatering to efficiently mine sandstone below the water table. The EIS will evaluate different scenarios of dewatering. The groundwater drawdown at the mine will be evaluated to determine whether dewatering may affect wells near the Project, the leachate plume from the nearby closed and active landfills, or the hydrology of nearby surface water features.

A hydrogeologic assessment will be conducted to determine potential impacts to groundwater resources from mining activities, including mine-dewatering scenarios and estimate the water appropriation needs. This assessment will include the development of a comprehensive geologic and hydrogeologic conceptual model. A three dimensional groundwater flow model will be developed to simulate the effect of different dewatering scenarios on the groundwater system, including changes to nearby wetlands, water supply wells, and surface-water features. The groundwater flow model will also be used to help develop a mitigation plan to address potential impacts related to mine dewatering.

A well survey will be completed including a review of wells within the county well index and well locations determined by field observations to determine the locations of water supply wells that may be impacted by mining operations.

Evaluation of mitigation measures that may be implemented as necessary to address potential impacts related to dewatering. A groundwater monitoring plan will be developed to provide an evaluation of water level and water quality impacts to water supply wells and groundwater dependent surface waters throughout the life of the Project.

### **11.b.iii. EIS Applicability**

Water appropriation is a significant and information beyond what is presented in the EAW will be evaluated in the EIS.

11.b.iii.1. The hydrogeologic assessment will be utilized to determine any potential impacts to groundwater resources from mining activities. This assessment will include the use of monitoring wells, soil and bedrock borings, aquifer pumping tests and development of a comprehensive geologic and hydrogeologic conceptual model. A three-dimensional groundwater flow model will be constructed to simulate the effect of different dewatering scenarios on the groundwater system, including changes to nearby water supply wells and surface-water features. The groundwater flow model will also be used to help develop a mitigation plan to address potential impacts related to mine dewatering.

11.b.iii.2. A well survey will be completed including a review of wells within the county well index and well locations determined by field observations to determine the locations of water supply wells that may be impacted by mining operations.

11.b.iii.3. The impact resulting from a leveling of the groundwater table in the mine will be evaluated, including potential changes to flow into wetlands and nearby surface water. Impacts to lateral or upgradient wetlands will also be evaluated. The analysis will assume maximum open groundwater pond areas as proposed.

11.b.iii.4. Evaluation of mitigation measures that may be implemented as necessary to address potential impacts related to dewatering. The EIS will include a groundwater monitoring plan that provides an evaluation of water level and water quality impacts to adjacent water supply wells and groundwater dependent surface waters throughout the life of the 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.*

Based on information from the National Wetland Inventory (NWI) and a Barr Engineering Company Wetland Delineation Report (October 2011), wetlands encompass approximately 76 acres on the Site. The wetlands located in the northeastern portion of the MVS property drains north and then west via a ditch into the Minnesota River. Historically, this wetland flowed north into Gifford Lake. This original drainage way was diked many years ago to prevent frequent flooding of farmlands along the River.

The wetland delineation will be reviewed and updated as necessary during the EIS process in accordance with the criteria set forth in the USACE 1987 Manual, Regional Supplements, Minnesota Department of Natural Resources and Minnesota Wetland Conservation Act standards. The on-Site wetlands delineated consist of the following as shown on [Figure 17](#):

<b>Wetland Identification</b>	<b>Class</b>	<b>Circular 39 Type</b>	<b>Acres</b>
w1	PEMCx	3	0.76
w2	PFOA/PEMC	1L/3	2.18
w3	PFOA	1L	0.06
w4	PFOA/PEMC	1L/3	72.4

Physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal are not anticipated as part of the Project. The mine plan will be developed to avoid negative impacts to wetlands. It is anticipated that potential impact to wetlands from dewatering and groundwater use will be minimized to preclude the need to mitigate environmental effects to wetlands and the need for compensatory wetland mitigation. The proposed efforts to minimize impacts to wetlands will be presented in the EIS.

- 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.*

Louisville Swamp, public water # 70-209, is located approximately 1,000 feet southwest of the Site. Sand Creek and the Minnesota River are adjacent and west of the Site. Potential impacts to surface water resources and different dewatering scenarios will be evaluated in the EIS. Indirect impacts to water levels in the public waters will be included in this evaluation. [Figure 18](#) illustrates the location of public waters near the Site.

#### Shoreland District

Portions of the Site are located within a Shoreland District. As defined in the Scott County Zoning Code, all lands located within 1,000 feet from the ordinary high water level of a lake or pond, and 300 feet from a river or stream, or the landward extent of a floodplain of a river or stream, whichever is greater are considered Shoreland. [Figure 19](#) illustrates the extent of the Shoreland District.

Site development will be consistent with the regulations governing the Shoreland District. A detailed processing plant layout will be developed in the EIS to evaluate conformance with the County Shoreland District. A viewshed analysis may be conducted to illustrate proposed Project features within the Shoreland District. Visual impacts are also discussed under Section 15.

#### 100-Year Floodplain

Although portions of the Site are located within the 100-year floodplain of the Minnesota River, the proposed mining, processing, or loadout areas are not. The elevation of the floodplain near the Site varies from approximately 724 feet to 725 feet. Most of the floodplain areas within the Site are associated with the wetland complex that is located in the northeastern portion of the Site. Mining of the Site will lower the elevation of the ground surface in existing upland areas to elevations that would be below the elevation of the 100-year floodplain but will not be hydraulically connected. Potential environmental impacts from flooding are not likely at the Site because proposed unmined upland areas would remain and act as a barrier. [Figure 20](#) shows the location of the 100-year floodplain with respect to Property boundaries.

The proposed Project will not involve physical modification of water features thereby avoiding any direct or indirect environmental effects. Through avoidance and implementation of BMPs, the Project is not anticipated to cause any physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) by draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and/or riparian alteration. The Project will also not change the number or type of watercraft on any water body, including current and projected watercraft usage.

### **11.b.iv. EIS Applicability**

Surface water is significant and information beyond what is presented in the EAW will be evaluated in the EIS.

11.b.iv.1. The impact of surface water and groundwater flow alterations on nearby wetlands will be evaluated in the EIS.

11.b.iv.2. Processes will be evaluated during that EIS that could minimize impact to surface water features.

11.b.iv.3 A wetland delineation will be reviewed and updated as necessary during the EIS process in accordance with the Corps Manual, DNR, and WCA standards.

## **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.*

There are no known existing contamination or potential environmental hazards on the property such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines.

The Louisville Landfill, located about ½ mile northeast of the proposed Project, is a known source of groundwater contamination. The groundwater flow model to be developed for the property and the groundwater flow model developed for MJS will be used to predict the potential impact on the migration of that contamination. That analysis will be included in the EIS.

- 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 will generate limited amounts of mixed municipal solid wastes generated during construction and from approximately 30 employees at the Site. These materials will be stored in dumpsters and transported off-Site by a licensed hauler for recycling or disposal at a solid waste facility. Recycling will be promoted at the Project with an ultimate goal of zero waste to landfill from the facility. There are no anticipated potential environmental effects from solid waste handling, storage, and 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.*

Limited amounts of chemicals and hazardous materials, primarily fuel, lubricants, oil, water-soluble polymers, and commercial cleaning solutions will be used and stored during Project operations. Storage tanks used at the Project will include double-wall construction, and/or be equipped with secondary containment with bermed impervious filling areas or portable drip pans, and will be installed to MPCA and EPA standards. The amounts and locations of storage containers are not known at this time but will be addressed in the EIS. Any hazardous wastes generated by the Project will be managed according to Scott County, MPCA, and EPA requirements.

Petroleum products will be stored in the maintenance storage area for servicing vehicles and maintaining equipment for Site operations. The maintenance storage area will be addressed in the Site's Spill Prevention Control and Countermeasures (SPCC) Plan. The SPCC Plan will include emergency response procedures to be implemented in the event of any spills associated with equipment repair, fluid 'top-offs', or similar incidents. Proper notification and remediation will be followed in accordance with the SPCC plan and MPCA guidelines. Liquid absorbent materials for spill cleanup will also be made available to help prevent contamination to soil and/or groundwater from run-off or infiltration into the soil.

Blasting agents will be used during mining but might not be stored on the Site. The typical blasting event utilizes a high explosive primer to initiate an explosion of mixture of ammonium nitrate and fuel oil (ANFO). The ammonium nitrate is formed into small pellets called prills, which contain void spaces. The voids are filled when mixed with fuel oil. The end product, ANFO, is 94% ammonium nitrate and 6% fuel oil. The blast consumes the blasting agent, possibly leaving a small residue of ammonium nitrate on soil particles. The residue from blasting agents contains concentrations of ammonium nitrate. An assessment of the impact on the groundwater and surface water affected by the blasting agents will be included in the EIS.

If material quantities of other hazardous materials are identified as potentially being used as part of the proposed Project, these materials will be addressed during the EIS process. Safety Data Sheets (formerly known as Material Safety Data Sheets) for materials used and stored at the Site will be included in the EIS.

Potential environmental effects from accidental spill or release of hazardous materials will be addressed through implementation of the SPCC, adherence to good housekeeping practices and maintaining hazardous material storage and use inside buildings. Measures to avoid, minimize, or mitigate adverse effects from the use/storage of chemicals/hazardous materials include continuous improvement evaluations, source reduction, recycling and goals of zero-waste generation. Petroleum products and hazardous materials associated with servicing vehicles and maintaining equipment will predominantly occur in an enclosed building. BMPs will be implemented for spill prevention.

- 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.*

The EIS will address the generation of solid or hazardous wastes and materials including a plan for the minimization of waste and containment of contamination.

## **12. EIS Applicability**

This topic is significant and information beyond what is presented in the EAW will be evaluated in the EIS.

12.1. The EIS will address generation rates of solid and hazardous waste and the locations and sizes of storage tanks.

12.2. The EIS will include a plan for the minimization of waste and containment of contamination. During the EIS MVS will prepare a draft SPCC Plan and provide a summary of plan in the EIS.

## **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 near the site.***

The Project is in proximity to the Minnesota River Valley NWR where the Minnesota River meanders through the public lands north, west and south of the Site, ranging from 100 feet to several thousand feet from the Site boundary. The river valley constitutes a wildlife corridor. Fish and wildlife species in the area are likely more diverse than would typically be found in urban areas. Species might include fox, deer, muskrat, rabbit, mice and other small rodents, geese, ducks, and other waterfowl, eagles, hawks and other raptors, a variety of other bird species, and reptiles. Amphibians and fish would also likely be present in and near the Project area in the river, creeks, and wetlands.

Portions of the Site are situated in an area identified by the Audubon Society as an important bird area present along the Minnesota River Valley. The Important Bird Areas Program (IBA) is a global effort by the Audubon society to identify and conserve areas that are vital to birds and other biodiversity. Important Bird Areas are sites that support birds that are threatened and endangered, range restricted species, vulnerable species due to concentration of species in one general habitat or species, or groups of similar species (such as waterfowl or shorebirds), that are vulnerable because they occur at high densities and tend to congregate. The proposed Project use has several decades of demonstrated compatibility with the natural wildlife refuge and is anticipated to have no negative impact on the ecosystem.

Noise mitigation measures will be implemented to prevent noise exposures from exceeding the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits or Mine Safety and Health Administration (MSHA) action levels. In addition, MVS will work with Scott County and the USFWS to address noise impact issues.

### ***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 20110462) 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.***

The MDNR Natural Heritage and Nongame Research Program and Minnesota Natural Heritage Information System (MNHIS) were queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed Project. Based on this query, rare features were documented within the search area, many of which are associated with the Minnesota River and the adjacent National Wildlife Refuge. A MDNR summary letter (relating to the outdated ERDB 20110462) of the search results and the index report are included as Attachment 1. The special concern, threatened and endangered species that have been documented near the Site are summarized below.

<b>SPECIAL CONCERN</b>	<b>THREATENED</b>	<b>ENDANGERED</b>
<b>Vertebrates:</b>	<b>Vertebrates:</b>	<b>Vertebrates:</b>
Blue Sucker (fish) Cerulean Warbler (bird) Bald Eagle (bird)	Paddlefish (fish)	
<b>Invertebrates:</b>	<b>Invertebrates:</b>	<b>Invertebrates:</b>
Regal Fritillary (butterfly) Spike (mussel) Fluted-shell (mussel) Black Sandshell (mussel) Hickorynut (mussel)	Mucket (mussel) Elktoe (mussel) Purple Wartyback (mussel) Butterfly (mussel) Washboard (mussel) Round Pigtoe (mussel) Monkeyface (mussel) Pistolgrip (mussel)	Rock pocketbook (mussel) Elephant-ear (mussel) Ebonyshell (mussel) Higgins Eye (mussel) Yellow Sandshell (mussel) Sheepnose (mussel) Winged Mapleleaf (mussel) Wartyback (mussel)
<b>Vascular Plant:</b>	<b>Vascular Plant:</b>	<b>Vascular Plant:</b>
Water-Hyssop Hill's Thistle Sessile-Flowered Cress	Kitten-tails (Besseyia bullii)	Wolf's Spike Rush Rough-Seeded Fameflower

An updated query to MNHIS will be conducted and the EIS will re-evaluate the Site for the occurrence of any state listed species.

The Minnesota County Biological Survey (MCBS) (included in the MNHIS query results) identified a Bulrush Marsh and a Silver Maple – (Virginia Creeper) Floodplain Forest within the Project area. The bulrush marsh is located in the northeastern portion of the Property. The Silver Maple Floodplain forest is located predominantly off the Site with a portion of the forest extending into the very northwestern area of the Property. Both of these native plant communities are considered ecologically significant, but are not subject to special protection. Other native plant communities are located adjacent to the Site including Dry Sand Oak Savannah, Pin Oak-Bur Oak Woodland, and Silver Maple. A map of the location of the native plant communities is included in Attachment 1.

The Site does not contain any areas ranked as Outstanding, High, or Moderate Biodiversity. The MCBS has identified a Site of High Biodiversity Significance adjacent to the southern portion of the Project area. A high rank indicates that the area contains very good quality occurrence of rare species, and high quality examples of important functional landscapes. The area of High Biodiversity Significance adjacent to the Site is located to the southwest of the Site in the Wildlife Refuge and public lands adjacent to the Minnesota River. Rare plants within the vicinity of the Project are associated with rock outcrops and native prairie. The Project will not directly

impact any of the adjacent areas ranked as a having a High Biodiversity Significance.

Kitten-tails (*Besseyia bullii*) were identified in an area approximately 1,000 feet long by 400 feet wide in the southeastern area of the Site. A takings permit may be pursued with the MDNR to facilitate mining in that area of the Site.

The little brown bat (*Myotis lucifugus*) and the big brown bat (*Eptesicus fuscus*) are documented in the area. These two species are not currently listed as a special concern, threatened or endangered species but are proposed to be listed as species of special concern in Minnesota.

With the of addition of groundwater fed open water bodies there will also be a change in habitat potential for insects and wildlife developed during mine reclamation. This will be discussed further in the EIS.

- 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.***

Fish, wildlife, plant communities, rare features, and ecosystems are not anticipated to be affected by the Project but will be evaluated in the EIS. Indirect impacts to on-Site or adjacent native plant communities including the introduction or spread of invasive species are also not anticipated but will be addressed in the EIS. The Reclamation Plan will include an assessment of changes in habitat with the introduction of a groundwater fed open water feature. The potential effects to known threatened and endangered species will also be addressed in the EIS.

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

The proposed Project is not anticipated to have any adverse effects to fish, wildlife, plant communities, and/or sensitive ecological resources. Measures to avoid, minimize, or mitigate adverse effects include pre-construction clearing and grubbing will occur outside of nesting season. Additional measures will be evaluated and included in the EIS.

### **13. EIS Applicability**

Fish, wildlife, plant communities, and sensitive ecological resources (rare features) are significant and information beyond what is presented in the EAW will be included in the EIS.

13.1. Potential impacts to rare features will be evaluated in the EIS. A field study of the Project area will be completed to address the presence of threatened or endangered species that occur on or adjacent to the Site.

13.2. Indirect impacts to on-Site or adjacent native plant communities including the introduction or spread of invasive species will be addressed in the EIS.

13.3. The Reclamation Plan included in the EIS will consider development of wildlife habitat.

13.4. The EIS will include an evaluation of the potential for securing a permit from the Minnesota DNR for the taking of a state threatened plant Kitten-tails (*Besseyia bullii*) present in the southeastern area of the Project.

13.5. The EIS will describe measures to avoid, minimize or mitigate direct or indirect impacts to listed species on the Site and surrounding area, if determined to be potentially significant.

## **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.*

A 2011 review was conducted by the Minnesota Historical Society's State Historic Preservation Office (SHPO) of the Historic Structures Inventory and Minnesota Archaeological Inventory databases for known resources in the Project area. This search identified twelve archeological, historical, or architectural properties within the search area. The majority of these resources are located off the Site; however, some of the identified sites are located within or in part within the Project area. The identified cultural resources include Indian mounds, archeological sites, and structures of potential historical significance. The SHPO review only provides results for known archaeological sites and historic properties, and does not include an assessment of archaeological site potential or provide a listing of all potential historic architectural properties. It represents only known and recorded archaeological sites and historic architectural properties from the SHPO databases. Reports on the historic or architectural sites near the Project are summarized below. [Figure 21](#) illustrates the general location of these sites with respect to Project area.

### **1. (21SC28) 44 Mounds**

Located off-site approximately 2,300 feet southwest of the Project. This site includes a group of mounds about 35 feet above the Minnesota River elevation.

### **2. (21SC29) 22 Mounds**

Located off-site 1,200 feet west of the Project. This site includes a group of mounds about 25 to 35 feet above the Minnesota River elevation.

### **3. (21SC21) 3 Mounds**

A portion of this site may be located within the Project. This site includes three mounds approximately 100 feet above the Minnesota River level, surveyed in 1889. These mounds were potentially located within the Site in an area that has been disturbed by past mining or agricultural activity. A field investigation will be required to determine if these mounds are still intact or if they have been disturbed by past mining or agricultural activity.

### **4. (21SC30) 33 Mounds**

A portion of this site may be located within the Project. This site is a group of mounds 60 to 80 feet above the Minnesota River level. The majority of the mounds were destroyed by agricultural practices; however, nine mounds may still be recognizable, but disturbed. Fieldwork will be required to determine if any of the recognizable mounds still exist and to determine whether they are located within the Project Area.

### **5. (21SCj) Louisville Ghost Town**

This site, the Louisville Ghost Town, is located west of the project area, between the wetland complex and the Minnesota River. The recorded location of the site was surveyed in standard

transects. No foundations, depressions, or other cultural features were observed within this portion of the project area during the investigation. The majority of this site is located on the strip of state land situated between the project area and the Minnesota River. No cultural features were identified during this survey within the site boundary of 21SCj. Furthermore, historical aerial photographs show that the portions of the site within the current project area have been previously disturbed by cultivation and mining activities. For these reasons, no additional archaeological work is recommended.

#### 6. (21SC0062) Louisville Lithic Scatter/Structural Ruin

Located off-site west of the Project, this site consists of a scatter of flaked stone tools and debitage, as well as the foundation of a structural ruin. The topographic settings include general upland, bluff edge, and stream-stream junction. There are rumors of unrecorded earthworks in the immediate vicinity; therefore, any survey in the vicinity should be aware of this possibility.

#### 7. Merriam Stage Coach Line/Ghost Town

Located off-site southeast of the Project this site is comprised of houses and a stagecoach line associated with Merriam Junction. According to a text excerpt, the village of Merriam was surveyed in 1800. The only two buildings on the site were the agent's house and the depot. In 1871, the depot was moved south two miles to the intersection between the stage road and the Minneapolis St. Louis railroad. A post office was started in 1871, and the first postmaster was H. H. Spencer. William Burke then took over until 1873, when the office was discontinued. The post office was re-established in 1880. There were then two hotels built in 1879 and 1881.

#### 8. (SC-LOU-001) Merriam Junction Depot

Located off-site south of Project. This site consists of the Merriam Junction Depot which includes a railroad station and pump station. The depot is described as a building/structure, in good condition with local significance, restricted to the public, visible from the road, and occupied.

#### 9. (SC-LOU-007) Stone Residence and Barn (Site 1)

Located off-site south of Project. This site includes a stone residence and barn, with the barn in ruins, dated ca. 1860 – 1870. Due to the extent of deterioration of the structures, the site does not appear to be eligible for nomination to the National Registrar of Historic Places. Discoloration of the stone on the interior of the barn indicates that it may have been destroyed by a fire. The barn ruin is divided into three sections with one possibly being a second story. The ruins appear to be in sound condition with the exception of one crumbling corner. The residence is a one and one-half story stone structure. The plan of the building consists of a central hallway with staircase flanked by one room on each side. The second level is one room. There is also a full basement/cellar.

#### 10. (SC-LOU-006) 3 Standing Stone Structures (Site 2)

Located off-site southwest of Project. This report describes three structures for consideration for the National Register and concludes that the site is probably eligible. There is a residence, barn, and granary ca. 1860 - 1870. There is also evidence of later vintage, concrete foundation in the vicinity. Of the three, only the barn is in an advanced state of ruin, probably due to fire, vandalism, or the removal of structural timbers. The residence is a one and a half story building, rectangular in plan. The cedar-shingled roof exists, but is deteriorated. Door and window openings are inserted with brick arches. The barn is large and rectangular in plan, with a rear lean-to addition. The roof and wooden loft are missing. The granary is a two story building set on a high foundation. The crawl space is ventilated by arched brick openings on either end of the gable. The oak floors and loft are still intact, and the cedar roof is in fairly sound condition. The property would probably be eligible for nomination to the National Register of Historic Places.

#### 11. (SC-LOU-005) Single Stone Structure (Site 3)

Located off-site west of the Project. This document involves a single stone structure ca. 1860 in a state of extensive deterioration. The report concludes that the site is probably not eligible for listing in the National Registrar listing. Examination shows that the structure was destroyed in a fire-charred plaster and wood are strewn about the place. The remaining sections of wall are precarious, and there are several sections of second story floor that are unsupported laterally from the foundation up. An interior chimney of later vintage has separated from the wall.

#### 12. (SC-LOU-004) Structures in Extreme State of Ruin (Site 4)

Located on or adjacent to the Project. This document describes five structures in an extreme state of ruin. The buildings are said to be not eligible for the National Register, due to the advanced state of ruin. There is a machine shed, stone barn, wooden barn, a silo, of later construction, and a residence. The locations of the machine shed and wood barn are noted by piles of rotten lumber. The stone barn is rectangular in plan. It is without a roof or any remnant of structural timbers. The stone walls, however, are sound. The residence is a ca. 1850 Greek Revival Style frame structure in an advanced state of ruin. It was formerly two stories in height with a one-story kitchen lean-to.

The EIS will include the appropriate archeological studies (conducted in accordance with the requirements of the Secretary of the Interior's Standards for Identification and Evaluation and include an evaluation of National Register eligibility) including necessary field work to determine if any of the Sites identified above, or others that may be found in the course of the investigation, have the potential to be impacted as a result of the Project. If sites of archaeological, historical, or architectural resources are encountered on the Site, appropriate mitigation measures will be evaluated in the EIS to avoid or minimize impacts.

#### 14. EIS Applicability

Historic properties is a minor issue but will be discussed in the EIS. A field survey will be completed for the EIS. The EIS will identify any impacts and mitigation to archeological, historical, or architectural properties.

#### **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 Site is located within a mix of industrial uses, wetlands, state lands, and borders the USFWS NWR. There are no officially designated scenic views or vistas near the Site. However, views of and from the Minnesota River, the USFWS NWR, and Carver could be considered scenic.

Although the majority of the Project will be below grade and/or behind earthen berms and tree lines, a portion of the processing plant will be visible from select vantage points and a limited number of viewers. Development of the Project will not produce outstanding or distinctive elements into the landscape that would result in a dominant feature. Due to the location, most viewpoints or vistas of the Site avoid skyline juxtaposition, minimizing a sensitive area that would emphasize the Project infrastructure.

A visual impact assessment of the proposed Project will take into consideration likely impacts possible mitigation.

## **15. EIS Applicability**

15.1. The effect of lighting will be addressed in the EIS, including potential impacts to scenic views and vistas as mentioned above.

15.2. A viewshed analysis will be performed that addresses key view areas (likely to be the trail system, trail access parking areas, State Highway 41 and U.S. Highway 169 corridors, Carver County Road 40 in the City of Carver, The River itself, and the bluffs across the Minnesota River in Carver County). The analysis will include the development of a model of Site specific conditions such as topography, vegetation, equipment, stockpiles and proposed Site structures. Key view areas will be represented through drawings, photos or other imaging methods.

15.3. The EIS will identify the strategies to avoid, minimize or mitigate visual impacts to key viewing areas.

## **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.*

Stationary point source and fugitive dust air emissions will be generated from the mining, stockpiling, and processing operations. These include emissions from crushing (limestone overburden), dryers, screening, storage and loadout operations. Fugitive dust may be generated from mining operations, including blasting, extraction, loading and transporting raw and/or finished product. The Project will require an air emissions permit from the MPCA. The regulations specify permitting requirements and emission standards for regulated processes. Dispersion modeling may be required as part of the permitting process to demonstrate off-site compliance with all applicable ambient air quality standards.

Emissions of silica dust and other pollutants from the sand processing operation, stockpiling including emissions from the sand drying operation will be strictly controlled. Dry silica sand processing operations (sand dryer, screening, storage and loadout operations) will generate particulate matter (PM) emissions and will be equipped with appropriate pollution control devices, such as baghouse dust collectors which are considered the industry's most effective dust control technology. MPCA and USEPA are concerned about particles that are 10 micrometers in diameter or smaller. Specifically, PM10 and PM2.5 emissions are regulated and will be addressed during the air permitting process. This will consider both "inhalable coarse particles" and "fine particles." Nearby receptors will be addressed by ambient air quality modeling as required by MPCA.

Emissions from these processes will be subject to the MPCA air emissions permit terms and conditions. After sand is dried, the product transfer points, screening operation, storage, and rail loading operations are enclosed to effectively control fugitive dust emissions using best available technology.

Enclosure of the material after drying is necessary to prevent the dried sand from becoming contaminated with moisture or other foreign materials and to prevent unnecessary air emissions. Similarly, dust within the facility will be controlled to prevent health concerns for plant workers.

Natural gas or propane fuel combustion in the sand dryer will generate criteria pollutant emissions (CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC and PM), insignificant levels of hazardous air pollutant emissions, and greenhouse gas emissions. Emissions from the dryer will be regulated under the federal New Source Performance Standards (NSPS) at 40 CFR Part 60, Subpart UUU.

BMPs to control dust emissions from the Site include regular sweeping of paved internal haul roads and regular watering of unpaved internal roadways.

- 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.***

Traffic associated with the Project is anticipated to have minimal impact on air quality in the area as the majority of sand produced is expected to be transported from the Site via rail. Additional vehicle trips added by employee traffic and potential trucking are not expected to be significant relative to existing traffic on the adjacent highway. Off road vehicles – front-end loaders and other earth moving equipment will operate on the Site, however the small number of vehicles will not generate enough emissions to have a meaningful impact on air quality.

- 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 near 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.***

Dust generation may be associated with different aspects of the mining operation. Stripping operations, which involve removing vegetation, topsoil, and overburden, may create dust when the vegetation is removed and underlying soil is exposed. Stripping operations have already occurred throughout the majority of the Site with only smaller areas remaining that will require stripping and crushing of limestone to be used as construction fill or shipped off site for sale as aggregate. Remaining original topsoil on this Site is minimal. Stripping will be conducted in phases and in as short of a timeframe as possible to reduce the potential for dust generation. Topsoil and overburden from stripping operations will be stockpiled on Site or placed directly as reclamation backfill. Any berms or overburden stockpiles are vegetated as quickly as practical, limiting the exposure and potential for wind and water erosions. The vegetation stabilizes the topsoil, reduces exposure, and minimizes dust.

Another potential source of dust is truck traffic on internal haul roads. A water truck would be available to water haul roads as needed. If frequent watering of haul roads is ineffective, additional controls such as calcium chloride over main haul roads may be utilized. The access road (145<sup>th</sup> Street West) to U.S. Highway 169 parcel is paved. Paving substantially reduces the dust generation. Regular sweeping of the paved internal haul roads, access points, and 145<sup>th</sup> Street will minimize fugitive dust emissions and tracking of materials onto public roadways.

Windblown transport of stockpiled materials also has the potential to generate fugitive dust emissions. The natural moisture content of the sand will help reduce the amount of fugitive dust

generated. Natural precipitation and freezing conditions will also assist in suppressing any fugitive dust emissions. During dry periods or upon observation of fugitive dust issues, the facility will apply water to minimize the amount of fugitive dust during windy conditions. The facility is expecting to perform daily visual emission observations to ensure compliance with applicable opacity requirements. Mitigation measures to control wind erosion from stockpiled materials such as watering will be evaluated further in the EIS.

Odor generation from the Project is expected to be minimal. Potential incidental odor sources include diesel exhaust from mining equipment and exhaust from product processing. Mining equipment will operate in compliance with setbacks from property lines as established by the Scott County Zoning Code and are expected to have no odor impacts. Emissions from the processing facility are not expected to have any significant odor. No other odor impacts are expected from the Project.

## **16. EIS Applicability**

Air quality is significant and information beyond what is provided in this EAW will be included in the EIS.

16.1. The EIS will include an assessment of the Site and surrounding area that may be impacted by air emissions from the proposed project.

16.2. The EIS will identify the quantity, the type, sources, and composition of emissions.

16.3. The EIS will identify pollution prevention techniques and controls on the processing operations.

16.4. The EIS will identify fugitive dust prevention and control measures.

16.5 The EIS will provide an overview of the components of the air permit application to be submitted to the MPCA.

## **17. Noise**

*Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise near 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.*

### **1) Existing Noise Levels/Sources in the Area**

Existing noise levels and sources in the area are associated with nonmetallic mining operations. The operation of equipment associated with overburden stripping, crushing of limestone overburden, extraction, processing, and transportation of product generate noise. The equipment may include scrapers, excavators, haul trucks, drilling, blasting, conveyors, crushers, screeners, and rail car movement.

The mining process will include the use of blasting agents to break up limestone and sandstone. Blasting activities can generate noise. Adjacent mining operations blast approximately two to three times per week within 500 feet of the Site. Blasting frequency or intensity on the adjacent mining

property is not expected to change significantly from current conditions. Blasting will likely be performed by an independent blasting contractor. Seismographs will be placed to record ground vibrations during each blast.

The hours of operation of the mine and processing plant will be 24 hours, 7 days per week.

2) Nearby Sensitive Receptors.

Noise impacts to be addressed in the EIS include sparse residential and people and wildlife within the National Wildlife Area adjacent to the Site. The Site is located in an area that is surrounded by various Noise Area Classifications (NACs). In general, residential receptors are located approximately 0.75 miles or further from the proposed mining boundary and processing area. Residential land uses across the River in the Cities of Carver and Chaska are located more than 1.5 miles from the proposed mining boundary and processing area. The industrial land uses, located predominantly northeast and east of the Site boundary, include a nonmetallic mining and demolition landfill which use similar heavy equipment and haul trucks in their operations, a concrete block manufacturing facility, and a commercial yard waste composting facility.

The parking area for access to the Louisville Swamp Unit of the National Wildlife Refuge is located just south of the Site. An area east of the Site is used seasonally by Renaissance Festival staff and exhibitors. [Figure 22](#) illustrates the location of nearby receptors with respect to Site boundaries.

3) Conformance to State Noise Standards.

The Project must comply with the State of Minnesota noise standards. The standards establish allowable noise levels to protect people at nearby receptors including; residences, commercial and industrial areas, parks and open space. The EIS will include modeling of noise sources to assess the potential for the exceedance of any of the noise standards relative to receptors. The rules establish acceptable noise levels for both the L50, the sound level that must not be exceeded for more than 50% of any given hour (30 minutes) and the L10, the sound level that must not be exceeded for more than 10% of any given hour (6 minutes). Noise levels are expressed in decibels A-weighted (dBA). This is a measure of the relative loudness of sounds in air weighted to account for human perception of sound at various frequencies.

The standards established by the State of Minnesota depend upon the nature of the land use defined in the rules by Noise Area Classifications (NAC). The standards for NAC 1 are the strictest and apply to residential receptors, as well as farmhouses, nature exhibitions, and designated camping and picnicking areas. NAC 2 includes commercial land uses, parks, and recreational activities (except designated camping and picnicking areas) and NAC 3 includes industrial land uses and agricultural and related activities. The Minnesota Noise Standards are as follows:

NAC	Daytime		Nighttime	
	L <sub>50</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>10</sub>
1	60 dBA	65 dBA	50 dBA	55 dBA
2	65 dBA	70 dBA	65 dBA	70 dBA
3	75 dBA	80 dBA	75 dBA	80 dBA

The Minnesota Noise Standards define daytime hours as 7:00 a.m. to 10:00 p.m. and nighttime from 10:00 p.m. until 7:00 a.m. Some mining related activities will operate up to 24-hours-per-day,

therefore both Minnesota daytime and nighttime standards will apply to the Site.

#### 4) Quality of Life.

With decades of nonmetallic mining at and adjacent to the Project, the noise associated with the proposed Project will not likely have an impact on the quality of life to area residents.

#### Identify measures that will be taken to minimize or mitigate the effects of noise.

Mining and processing equipment operate in compliance with setbacks from property lines as established by the Scott County Zoning Code. The setbacks will minimize the impact of noise on nearby receptors. Mining activity will typically take place in recessed portions of the Site, with surrounding topography shielding and attenuating noise emissions. Much of the processing equipment will be located in a building. This will further reduce noise emissions from the Site.

Noise mitigation measures will be implemented to prevent noise exposures from exceeding the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits or Mine Safety and Health Administration (MSHA) action levels.

A blast-monitoring plan will be developed as part of the EIS. The blast-monitoring plan will include seismograph monitoring during each blast to verify vibration levels. Locations of monitoring points change as mining progresses to provide comprehensive monitoring of adjacent structures. The blast-monitoring plan will outline pre-blast survey requirements for structures and groundwater wells adjacent to the Site.

### **17. EIS Applicability**

Noise is significant and information beyond what is provided in this EAW will be included in the EIS.

17.1. The EIS will include an evaluation of anticipated noise from the Project in general accordance with MPCA Noise Pollution Control regulations and guidance. The noise evaluation will consider the applicable State Standards and NACs including residential, public lands, surrounding industrial uses, and related activities/land uses and impacts to wildlife and to Refuge visitors within the limitations of any state and federal standards. The noise evaluation will consider daytime and nighttime noise standards.

17.2. The EIS will include an evaluation of impulse and nuisance noise emission resulting from blasting, back up alarms, and other mining related sources. Impulse and nuisance noises specific to the processing plant and rail yard will be included.

17.3. The EIS will address mitigation measures to reduce or minimize noise as may be needed to comply with State noise standards.

17.4. The EIS will include a blast monitoring plan.

### **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.*

1) Existing and Proposed Additional Parking Spaces

Parking will be provided for approximately 30 employees and visitors.

2) Estimated Total Average Daily Traffic

The majority of product is anticipated to be shipped by rail but truck transportation will also be needed to meet operational and customer needs. Rail and truck transportation are expected to occur 24 hours per day 7 days per week.

In the unlikely event that the rail is temporarily inoperable, there may be a need to increase the amount of product transported by truck. The number of trucks is not known at this time, but the numbers will be consistent with the rated capacities of 145<sup>th</sup> Street and TH 169 and are expected to be less than 150 trucks per day. The average daily traffic associated with product sales and the existing traffic generated from limestone and sand and gravel mining as well as Renaissance Festival and Trail of Terror event traffic will be considered in the EIS.

At this time it is estimated that 50 rail cars will be delivered to the Site and 50 filled rail cars shipped from the Site daily. The timing of rail car movement is fully under the control and schedule of the Union Pacific railroad.

3) Estimated Maximum Peak Hour Traffic

The estimated maximum peak hour truck and rail traffic will be determined in the EIS. Trucking will be a minor component of the sand shipping with peak hour truck traffic expected to be less than 15 trucks per hour. Peak hour rail traffic may be 100 cars.

4) Source of Trip Generation Rates

The sources of information for estimating the trip generation rates will be provided in the EIS.

5) Availability of Transit and/or Other Alternative Transportation Modes

There is no public transit available for the workforce or visitors to the Project.

- 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.*

During past mining activity, material was hauled from the property via rail and trucks using 145<sup>th</sup> Street West. The EIS will include a Traffic Impact Analysis (TIA) on TH169 and 145<sup>th</sup> Street West that will take into consideration the potential cumulative impacts of the proposed Project and proposed MJS project.

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

The EIS will provide an estimate of proposed Project activities and take into consideration traffic generated from existing mining operations, the Renaissance Festival, as well as impacts to area traffic from the additional rail car traffic at key rail intersections within Scott County. The EIS will identify potential roadway/rail improvements and/or other mitigation measures, which may be necessary to mitigate traffic conditions as determined in the traffic analysis.

## **18. EIS Applicability**

Transportation is a significant issue and information beyond what is in the EAW will be included in the EIS.

18.1. The EIS will include a traffic impact analysis that will provide an estimate of proposed Project activities and take into consideration traffic generated from adjacent existing and proposed mining operations, the Renaissance Festival, and Trail of Terror event traffic. The analysis will describe impacts to key intersections and necessary road improvements.

18.2. The EIS traffic impact analysis will provide an analysis on rail car impacts from existing and proposed mining operations. The analysis will describe impacts to area traffic from the additional rail car traffic at key rail intersections, including impacts on TH41, within Scott County.

18.2. The EIS will identify potential roadway/rail improvements and/or other mitigation measures which may be necessary to mitigate adverse traffic conditions that may be created by the Project as identified in the traffic analysis.

## **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.*

Shakopee Sand, LLC. is an 80 acre silica sand mine located approximately 1.5 miles south of the proposed Project that completed an EAW in 2011 and received a Mining Interim Use Permit in 2012. Shakopee Sand excavates sand in the Jordan Sandstone to a depth of about 80 feet without dewatering. Approximately 30 trucks and 1 train leave Shakopee Sand daily.

Merriam Junction Sands (MJS) is a 682 acre proposed silica sand mine. Merriam Junction completed the Scoping EAW and Scoping Decision Document in June 2014 and are working on the draft EIS. Merriam Junction is proposing to excavate 50 to 100 feet below grade in the Jordan Sandstone, the same formation as Minnesota Valley Sands. Merriam Junction is directly adjacent to the propose project. Merriam Junction is anticipating using State Highway 41 and US Highway 169 and estimates as many as 1,500 vehicle trips per day with their operations. The Merriam Junction EAW did not provide the number of proposed rail movements.

The potential direct and indirect environmental effects associated with the Project and the adjacent MJS project and the existing Shakopee Sands silica sand mine will include, land use,

noise, air quality, traffic (truck and rail), and groundwater, which will be evaluated in the EIS.

- 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 MJS project is the only reasonably foreseeable future activities that may interact with the Project.

- 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.*

The potential direct and indirect environmental effects associated with the Project and the adjacent MJS project and the existing Shakopee Sand silica sand mine will include, land use, noise, air quality, traffic (truck and rail), and groundwater, which will be evaluated in the EIS.

### **19. EIS Applicability**

Cumulative impact is a significant issue and information beyond what is in the EAW will be included in the EIS. Topics to be addressed in the EIS include the following which will be presented in one evaluation within the EIS as potential cumulative effects associated with the overall Project:

19.1. Identify the potential direct and indirect cumulative impacts associated with the existing mining operations on the adjacent property.

19.2. Identify and evaluate adjacent land uses that may contribute to a cumulative impact related to air emissions, air quality, noise, groundwater and traffic (road and rail).

19.3. Identify and evaluate potential cumulative impacts associated with the proposed Project, MJS, and the existing Shakopee Sands operation, including potential cumulative impacts associated with noise, air quality, and groundwater and surface water resources as well as those that may result from the additional rail or truck traffic.

**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.*

Other potential environmental effects not addressed by items 1 to 19 were not identified.

The EIS will include a single assessment of social impacts not previously discussed above including economic and employment that could result from the proposed Project.

**20. EIS Applicability**

This topic is significant and information beyond what is in the EAW will be included in the EIS. Topics to be addressed in the EIS include:

20.1. The EIS will consider potential economic and social impacts of the proposed Project not presented elsewhere in the EAW. The EIS will address how the project will impact employment, direct and indirect economic impact and sustainable development.

**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 Sedlacek Date July 14, 2015  
Title Environmental Health Supervisor