ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form and EAW Guidelines are available at the Environmental Quality Board's website at: **http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm**. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. The complete question as well as the answer must be included if the EAW is prepared electronically.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

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1. Project title:
Great Plains Sands Non-Metallic Mineral Mining Operation

2. Proposer:
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4. Reason for EAW preparation
(check one)
___EIS scoping _X_ Mandatory EAW ___Citizen petition ___ RGU discretion
___Proposer volunteered

If EAW or EIS is mandatory give EQB rule category subpart number and subpart name:
4410.4300, subp. 12.B – Nonmetallic Mineral Mining

For development of a facility for the extraction or mining of sand, gravel, stone, or other nonmetallic minerals, other than peat, which will excavate 40 or more acres of land to a mean depth of ten feet or more during its existence, the local government unit shall be the RGU.

The project will involve mining approximately 100 acres of sandstone to an average depth of 90 feet.

5. Project location

County Scott **City/Township** Louisville and Sand Creek Townships

The project encompasses 140 acres located on a portion of the S 1/2 of Section 33, Township 115, Range 23 and a portion of the N 1/2 of Section 4, Township 114, Range 23.

GPS Coordinates N 44° 43.1' W 93° 35.4'
Tax Parcel Number ID: The site is composed of five individual tax parcels. The Parcel Identification Numbers (PIN) are as follows: 70290010, 79330041, 7930042, 90250030, and 90130010.

The site is located on property owned by two separate entities. The Q Prime, Inc. (Q Prime) property consists of the southern 112 acres (more or less) of the site. The Scott Land Company (Scott Land) property consists of the northern and western 28 acres (more or less) of the site. Scott Land Company is owned by Progressive Rail, Inc.

Attach each of the following to the EAW:
County map showing the general location of the project: Figure 1, General County Location Map

U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable): Figure 2, USGS Quadrangle Map

Site plan showing all significant project and natural features: Figure 3, Site Plan

6. Description

a. Provide a project summary of 50 words or less to be published in the EQB Monitor.

Great Plains Sand, LLC proposes to acquire the Scott Land Company property and certain rights to the Q Prime property from Progressive Rail, Inc. and operate a sandstone mining facility to produce hydraulic fracturing sand ("frac sand") for use in the natural gas and oil industry.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

Project Overview:

The proposed project (Project) involves a sandstone mining operation in Louisville and Sand Creek Townships in Scott County, Minnesota (Figure 1, General County Location Map and Figure 2, USGS Quadrangle Map). The Project will be operated by Great Plains Sand, LLC. The Project is located in an area that contains abundant, high quality silica sandstone resource which will be mined to produce fracturing, or "frac", sand. The majority of the frac sand produced will be used to supply the oil and gas industry throughout oil producing areas in the Midwest. The sandstone mining operation represents an interim use of the property. The property will be reclaimed in preparation for final development upon completion of mining activity. The reclaimed site will include a 35-40 acre ground water lake and 100-105 acres of upland area established as open space.

The site encompasses a total of 140 acres located on property owned by two separate entities. The Q Prime, Inc. (Q Prime) property consists of the southern 112 acres (more or less) of the site. The Scott Land Company (Scott Land) property consists of the northern and western 28 acres (more or less) of the site. Figure 4, Site Ownership, illustrates the site boundaries, ownership of the parcels and Township boundaries. This project proposes to mine approximately 100 acres of the Site. Approximately 28 acres will be used for processing and rail load out facilities and the remaining 12 acres will consist of setback and buffer area.

Property and Project Site Information:

This property is currently subject to an Interim Use Permit (IUP) issued in 2005 for sand and gravel extraction. A new IUP for the extraction of silica sand will be required in conjunction with the proposed Project. Existing structures on the site will be used and modified as needed to accommodate the proposed use. Additional smaller structures if needed and will be proposed as part of the IUP application. The Q Prime property consists of open space, a farmstead and outbuildings and an office building. All of the buildings are centrally located on the Q Prime property. They will be removed as part of the mining process, once mining progression necessitates their removal. The buildings will be demolished, concrete foundations/pads excavated and hauled to a permitted demolition waste facility. The Interim Use Permit may require buildings that are not used for the mining operation be removed to prevent a nuisance before mining begins.

Mining Operation:

Mining will begin in the southern portion of the property. Sandstone will be removed both above and below the water table. Sandstone will be removed above the water table using an excavator or loader. Sandstone will be removed below the water table using an excavator, dragline or dredging equipment.

There will be no dewatering at the Site. The maximum depth of excavation below the water table will be limited to fifty feet. The lowest five feet of the Jordan Sandstone will remain unexcavated. This corresponds to a maximum excavation elevation of approximately 670 feet above mean sea level.

Some layers of the sandstone are more tightly cemented and will require blasting. Blasting will be performed by an independent blasting specialist. Blasting will be required in the sandstone both above and below the water table. Blasting will be performed approximately 3-4 times per week depending upon the location and geology encountered in the active phase of the mining operation. A blast monitoring plan will be developed as part of the IUP process. The blast monitoring plan will include seismograph monitoring during each blast. Seismographs will be used to verify that vibrations do not exceed levels established to protect potentially affected structures in the vicinity. Locations of monitoring points will change as mining progresses to provide comprehensive monitoring of all adjacent structures. Pre-blast surveys of structures within one-half mile of the proposed mining limits will be performed (as allowed by owners) to establish a baseline condition prior to any blasting activity. If any structural damage should occur as a result of blasting activity, it will be the sole responsibility of the operator. Financial assurance for structural damage may be required as a condition of the IUP.

Mining will proceed in a phased manner generally progressing from south to north. There are four individual phases as illustrated on the Phasing Plans, Figure 5-1 to 5-4. Each phase includes both above and below water table mining and represents approximately five years of mining activity. During initial construction of the processing facility, mining will begin at the southern end of Phase 1. This initial phase of mining will include mining below the water table and stockpiling this material adjacent to the active phase and adjacent to the processing facility to create a large enough opening in the water table to allow hydraulic backfilling with fine sands generated at the onset of processing activity. This will eliminate the need to stockpile the finer reject sands (granular material that is too fine to meet specifications for frac sand).

Only a minor amount of mining activity will occur on the Scott Land Company property which will be limited to the very southern portion of the east-west oriented parcel where the sandstone deposit begins to thin. Restoration activity will extend throughout the entire Scott Land Company property where future sandstone mining will occur as well as where past sand and gravel mining has occurred to fully meet all the reclamation obligations previously approved as well as those approved with the new IUP. Mining and restoration grading will be required to reclaim the site to suitable grades for future development.

Processing activity will occur predominantly on the Scott Land property. The existing building and rail load out facility will be updated and utilized in the operation. Processing will take place both adjacent to and within the existing building. A surge pile

of raw material from the active mining phase will be located outside the building. This stockpile will contain approximately 20,000 cy of raw material which is fed into a pre-screening and crushing unit. The crushing unit generates two small stockpiles (roughly 3,500 cy each) which are fed into a hopper and conveyed inside the building to a washing screen and dense media separators.

The dense media separators generate different sizes of material which will be stockpiled outside using a 150' radial stacker. These stockpiles will contain approximately 100,000 cy of material each, reaching heights of 40-50 feet. The maximum stockpile volumes will only be reached in the fall of the year to provide a supply of washed material to the dryers on a year round basis. By the spring, these stockpiles will be depleted and then replenished again over the course of the subsequent summer and fall. Stockpiled material is transferred into a dryer located outside the processing building. The dryer will include ancillary equipment including a baghouse to control air emissions, fans and burners. After passing through the dryer, material is conveyed back inside the building and sent through additional screens which sort the sands into appropriate sizes for market. Finished product will be stored within silos and loaded onto railcars for delivery. The finer reject sands will be pumped in a water/sand slurry back to the mining excavation and deposited as hydraulic fill into completed portions of the mine.

Finished product will be loaded from the silos onto railcars. There is an existing rail siding that serves the Site. The rail siding was upgraded in 2009 from a 90 pound rail to a 115 pound rail. The siding can store up to 30 cars off the main line.

The site will operate year round. Processing equipment that is located within the building, the drying operation, feed hoppers and conveyors associated with transferring material into the processing building, and loading operations into the rail cars will operate 24 hours per day. It is estimated that the site will be actively mined for 15-20 years and restoration completed within 12 months after the cessation of extraction activities. This timeframe is based on current market conditions and estimated production rates. The actual life of the site may vary depending upon changes to market conditions and site operations. Stripping, excavation, pre-screening, internal truck hauling from the active mining area to the processing plant area, and operation of other equipment outside of the processing building will operate 7 a.m. to 7 p.m. Monday – Saturday. The plant, including some outdoor equipment adjacent to the building consisting of the rail loadout, dryer, loader, crusher and wet screen will operate 24 hours/days 7 days/week.

Mining and processing setbacks will be maintained in accordance with Scott County's Ordinance. Mining setbacks will be established so that mining will not be conducted closer than thirty (30) feet to any property line, or within thirty (30) feet of the right of way line of any existing or platted street, road or highway except that excavating may be conducted within such limits in order to reduce the elevation thereof in conformity to the existing or platted street, road or highway. The mined face of the overburden is typically

1.5:1. Sideslopes of the active face of the sandstone above the watertable will be approximately 1.2:1 above the water table and 2:1 below the water table as illustrated on Figure 6, Typical Section. Mining will not be conducted closer than two hundred (200) feet to any residence or residential zoning district boundary existing on the date of mining interim use permit approval. Processing setbacks will be established so that processing of materials will not be conducted closer than one hundred (100) feet to the property line (except the railroad right of way), nor closer than five hundred (500) feet to any residential structures.

Reclamation:

Reclamation activities will include backfilling and sloping the perimeter of the site to achieve a maximum slope of 5:1 (horizontal to vertical). Reclamation grades will leave the Site with a mix of upland and water body. Upland areas will be backfilled to approximately ten feet above the water table allowing for future development after the site is initially returned to open space. Materials used to backfill water excavations will be granular material; finer sands not incorporated into a marketable product and granular materials that make up the majority of the overburden will be used as backfill beneath the water table as well as for generally ten feet above the water table. To prepare the backfilled areas for development, surcharges of up to 25 feet may be placed over the below water fill to accelerate compaction. Settlement plates will be monitored to verify settlement rates and compaction. Topsoil will be applied over the graded areas and vegetation established. Topsoil will be of a quality that is similar to that found over the area. Topsoil to be used in reclamation will come from the property itself. Soil borings indicate that the an average of 16 inches of topsoil exist throughout the portion of the Q-Prime property that has not been mined, resulting in approximately 125,000 cy of topsoil (assuming 15% losses) available on-site for reclamation activities. Approximately 91,200 cy of topsoil is required to establish a minimum of six inches of topsoil over upland portions of the reclaimed site. This includes the required six inches over the Q Prime, Scott Land Company and Scott County parcels (as required per the previously approved Resource Management Plan). These calculations take into consideration that portions of the Project will be left as open water. In the unlikely event that topsoil would need to be imported to the site to complete reclamation activities, imported soils would be tested at the source prior to importing to establish that the topsoil was contaminant free. In addition, compost may be imported to the site from the yard waste composting facility located just to the north of the Project to amend topsoils as may be necessary to establish vegetation. As areas are stripped and prepared for mining, the topsoil will be separated from the overburden and stockpiled as perimeter berms. These berms may be located within mining setback and buffer areas. As mining progresses far enough along, topsoil may also be stripped and applied directly to backfilled areas that have been graded to the proposed reclamation grade. Stormwater management features will be constructed to control rates of runoff leaving the site to pre-settlement conditions. Reclamation grades will leave the site ready for final site development.

The reclamation plan has been developed to insure that there are sufficient on site soils to accomplish the proposed reclamation. Approximately 30% of the sandstone deposit consists of fine sands that are too small to meet the required frac sand specification, but are suitable for backfill on the project. Overburden at the Site ranges from approximately 5 to 55 feet, providing the remaining column of soils necessary to balance the Site. The majority (approximately 85% based on soil borings) of overburden soils are also granular in nature and suitable for below water fill. The finer materials that contain silts and clays are compactable in a dry condition and therefore will only be used in backfilling slopes and back fills above the water table. Braun Intertec has reviewed the proposed backfilling and reclamation activities and has provided the Proposer with backfilling specifications including ten – twenty-five foot surcharges over the backfilled areas. Braun has also developed a monitoring program that incorporates settlement plates that will be placed within fill areas to monitor the performance of the surcharge and determine when key structural areas have reached acceptable settlement levels, estimated to be 3 to 5 years after backfilling of a given area.

The 35-40 acre water body that is created in the reclamation condition reflects the area of water body needed in order to balance the Site without needing to bring in additional fill from outside sources. In the end use condition, the created lake will receive runoff from surrounding open space areas. The lake is expected to bounce 0.89 feet during a 100 year rainstorm event, 0.93 feet during a 100 year snowmelt event under frozen ground conditions and 2.33 feet during two back to back 100 year rainstorm events. Seasonal fluctuations of the lake are expected to be less than 4 feet based on groundwater monitoring data from the existing on-site monitoring wells.

Scott County Zoning Ordinance (Chapter 10.5.3) requires that reclamation shall begin after the mining of 25% of the total area to be mined or four (4) acres, whichever is less. The project proposer will request a variance from this standard as there may be up to 30 acres of active mining at any given time and approximately 28 acres of processing area. This variance will be required in order to allow a large enough excavation within the water table to accommodate a fresh water intake and reclamation fill as well as above water table mining to prepare a phase for below water extraction activity and to conduct concurrent above and below water mining to allow a blending of sandstone to achieve a more uniform blend of sizes reporting to the processing equipment. All other reclamation standards identified in the Zoning Ordinance will be followed.

End Use Plan

The projected life of the mine is 15-20 years depending upon market demand. Upon conclusion of mining the Site will be reclaimed to an open space condition with a mix of upland and water body. The Site is guided industrial. Reclamation grades will leave the Site in a condition suitable for future development consistent with the current zoning

designation. Any proposed future development would require conformance to the Scott County Ordinances governing development at that time. Final grades have been developed and backfilling designed to accommodate future development over the upland areas of the site. Metropolitan Environmental Services has also expressed interest in the site as a wastewater treatment facility to serve the future needs of Scott County. Future development will also require the construction of a north-south frontage road running through the parcel. Map D illustrates a conceptual end use plan for the property.

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

The purpose of this project is to mine and produce frac sand, an important natural resource used in the oil and gas industry throughout North America. Fracturing technology is used to increase the amount of oil and gas that can be recovered from shale formations and older low yielding wells. Very few sources of sandstone are able to meet the specifications for frac sand. Developing this sandstone resource will provide a ready supply of frac sand to the industry. The mined material is subject to an aggregate tax which will provide a benefit to Scott County, Louisville and Sand Creek Townships. The site will employ approximately 32 people during the spring summer and fall. Employment levels are anticipated to be reduced to 10-12 full time employees in the winter.

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

The project described herein encompasses the entire known contiguous sandstone reserve in this immediate area. The silica sand formation (Jordan Sandstone) that this proposal will extract extends throughout southeastern Minnesota but is only accessible for mining in a limited number of locations. There has been recent expressed interest in developing silica sand mining from this same formation within a mile of this site by another property owner but no firm plans have been proposed to the County at this time. A separate environmental review would be conducted as may be required if and when such a proposal came forth.

The subject site will be reclaimed to a condition that will facilitate final development of the site at some point in the future. At the time of final development, environmental review will be conducted as may be required based on the nature of the development proposed at that time.

e. Is this project a subsequent stage of an earlier project? ___Yes __X__ No

If yes, briefly describe the past development, timeline and any past environmental review.

While there was a silica sand mining operation at the site in the past, it appears to be too distant in time (1980 to 1992) to be relevant to this EAW.

7. Project magnitude data

Total project acreage Site: 140 acres. Area to be mined: 100 acres
Number of residential units: unattached NA attached NA maximum units per building
Commercial, industrial or institutional building area (gross floor space): total square feet
Indicate areas of specific uses (in square feet):

Office	
Retail	
Warehouse	
Institutional	
Light industrial	
Other industrial	(mining) 4,356,000 sf (100 acres)
Manufacturing (processing area)	1,219,680 sf (28 acres)
Agricultural (mixed brush and open space)	522,720 sf (12 acres)
Other commercial (specify)	

Building height 125'
If over 2 stories, compare to heights of nearby buildings:

The processing building is an existing structure. The building will not be modified to be taller than the existing structure. Lower sections or sides of the existing building may require modification.

The existing building that will be used for processing is setback a distance of over 1,600 feet from U.S. Highway 169. There are no other buildings in the immediate vicinity of the site. Just south of the site, approximately 3,500 feet from the processing building, there are some industrial buildings that are generally less than two stories high. A ready-mix plant is located about 1,500 feet south of the site on the east side of U.S. Highway 169 which contains a building that reaches 55 feet in height. Approximately two miles north of the site, there is a block manufacturing plant that is approximately 55 feet high located adjacent to U.S. Highway 169.

8. Permits and approvals required.

List all known local, state and federal permits, approvals 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
Scott County	Interim Use Permit	applied for concurrently
Scott County	Variance from reclamation Standards	To be applied for
Scott County	Very small Hazardous Waste Generator's License	To be applied for
MnDNR (Division of Waters)	Water Appropriation Permit	to be applied for
Minnesota Pollution Control Agency (MPCA)	NPDES Stormwater Permits (Construction and Industrial) and discharge permit.	to be applied for
MPCA	Air Emissions Permit	to be applied for
Mn Dept. of Health	Well Abandonment Permit	to be applied for

9. Land use.

Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

The site is currently zoned I-1 Rural Industrial District. The Scott Land Company portion of the site was previously operated as a sand and gravel mining operation. While the mining has ceased, significant work to reclaim the site remains. Current and recent past land use on the property includes a pilot sandstone mining and silica sand processing project to determine the economic feasibility of processing the desired grade of silica sand for use in hydraulic fracturing. Active mining occurred in the 1980's over the southern portion of the site. Since that time, a variety of land uses have occurred on the site including a hog farm operation, auto salvage business and a portable concrete ready-mix operation and gravel mining by the previous owners on each of the parcels comprising the proposed site. Scott County issued a hazardous waste generator license for the auto salvage operation on one of the parcels. The property is bounded on the west by railroad tracks and on the east by railroad tracks and U.S. Highway 169.

Past Phase 1 and Phase 2 Environmental Site Assessments have been conducted on the site as part of property transfers. A Phase 1 Environmental Site Assessment of the

entire 193 acre site was conducted by Bruce A. Leisch & Associates in 1991 in conjunction with the County's purchase of the site for a mixed municipal solid waste composting facility. The assessment identified a monitoring well, two transformers, and two above ground storage tanks that showed visible signs of contamination beneath them. As a result, a Phase 2 investigation was performed and soil samples taken from under the transformers and stained areas associated with the storage tanks. No PCB contamination was detected and only very low levels of fuel products were found near the tanks. The low levels of soil contamination near the tanks were likely from spills during fueling operations. The soil was excavated and thin spread. The compost facility did not proceed and the County sold the property to the Unimin Corporation who removed much of the abandoned silica sand processing equipment and subsequently sold the property to the Oglebay Norton Corporation who subsequently sold the property to Q Prime who sought to construct an outdoor amphitheater on the site. An additional Phase 1 Site Assessment was prepared by Schoell & Madson in 1998 for the Q Prime Property.

A past burning incident on the property by the previous owner prompted a series of required investigations and clean up events as well as a signed Schedule of Compliance Agreement between Q Prime and the Minnesota Pollution Control Agency. A Phase II Investigation Report and Response Action Plan was prepared and a Remedial Action Plan (RAP) was completed in 2010, which included soil removal near a horse barn, removal of soils in the trench drain in the workshop, removal of waste/soil piles and miscellaneous trash.

Property to the north and south of the Project is also zoned I-1. There is also UBR, Urban Business Reserve zoning, across U.S. Highway 169, to the east. The site is bordered on both the east and west by the Union Pacific railroad and to the east of the railroad on the east side of the site by U S Highway 169, located immediately to the east of the tracks. There is one 15.5 acre parcel to the east beyond US 169 zoned I-1, Picha Cabinets and UBR, Urban Business Reserve north and south of that to the base of the bluff. Further east, approximately one quarter mile at the top of the bluff the land is Urban Transition Reserve and is a mix of agriculture and rural residential. Much of the land use in the area is consistent with the zoning, although there are scattered rural residential land uses near the site located within the I-1 and UBR Districts.

Beyond the Union Pacific rail line that runs immediately west of the site lies Sand Creek, a wetland complex and the Minnesota River. Louisville Swamp is located to the northwest of the Site. The majority of the land between the Site and the Minnesota River is zoned UER Urban Expansion Reserve although the land lies within the floodplain of the Minnesota River and with the exception of a 50 acre parcel owned by Q Prime west of the RR the entire area is within the National Wildlife Refuge owned and managed by the U.S. Fish and Wildlife Service and includes the Minnesota Valley National Wildlife Refuge (MVNWR) and the Carver Rapids State Park. Figure 7

illustrates current zoning of the site and surrounding area, and Figure 8 is an aerial photograph that also illustrates existing land use of the site and surrounding area.

10. Cover types.

Estimate the acreage of the site with each of the following cover types before and after development: (all areas in acres) If Before and After totals are not equal, explain why:

Type	Before	After
Types 1-8 wetlands Wooded/forest		
Brush/Grassland	112.5	100-105
Cropland		
Lawn/landscaping- Impervious surfaces (buildings, rds, parking) Other (describe)	5	1
Created waterbody	0	35-40 Acres
Mining	22.5	0
Total	140	140

11. Fish, wildlife and ecologically sensitive resources

a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

The southern portion of the site was mined in the 1980's- early 1990's. A sand and gravel mining operation was recently permitted under an Interim Use Permit (IUP) issued by Scott County on the northern portion of the site. The IUP remains open for reclamation only of the site. Scott County holds securities for the reclamation of this portion of the site. In the past a portion of the site was used for an automobile recycling facility and most of the site was farmed at one point in time. Therefore, much if not all, of the original vegetation has been removed. There are no wetlands located on site. According to the Q Prime EIS, the site is covered with non-native grasses and forbs, and sparse shrubs and trees. Many species of wildlife reside on the site including wild turkey, quail, pheasant, deer, and numerous small mammals. The wildlife will be at a minimum temporarily displaced by the mining activity.

Site inspections by Barr Engineering and Schoell & Madson, which were conducted as part of the Q Prime EAW and EIS concluded that there are no native prairie lands or wetlands located on the project site[1].

The Louisville Swamp Unit of the MVNWR is located west of the site. This unit includes approximately 2,600 acres with a mix of old fields, prairie remnants, oak savanna, floodplain forest, reaches of Sand Creek, wetland complexes and stone farmsteads located within the floodplain of the Minnesota River. Coyote, fox, wild turkeys, bald eagles, beaver, many songbirds and other mammals are found within the wildlife refuge. Migratory birds, insects, and mammals may use all or portions of the refuge during the spring, summer and fall seasons for breeding, resting, feeding, and migratory purposes. No project activity will take place west of the railroad tracks. With the exception of a potential drain field to treat wastewater generated at the Site.

Sedimentation and erosion control measures will be implemented as part of the mining operation. Site drainage will be directed to flow through an existing box culvert under the UP Railroad as noted on the site plans. Due to the granular nature of the on-site soils, there is little runoff from the site. The majority of runoff occurs during snowmelt events when the ground is frozen. During mining activities, the majority of the Site will drain internally. At the onset of mining activity, the stormwater management pond and infiltration basin will be constructed. These ponds have been designed to manage water from the Scott Land Company and Scott County properties under full development assuming a 75% impervious surface. Therefore, they are over designed for the interim mining use and will not discharge stormwater off site through the existing box culvert during the mining operations. There are no firm plans for industrial development of the Scott County and Scott Land parcels at this time, and the pond and infiltration area are required as a result of past activities on the Scott Land and Scott County parcels

The end use plan includes a 35-40 acre lake which will impact the hydrology of the site. A Hydrologic Assessment has been provided (See Exhibit 1) to demonstrate how this pond will affect flow patterns from precipitation falling on the site compared to pre-settlement conditions. The end use lake itself will result in a minor alteration of ground water flow patterns. Groundwater modeling has been performed (see Exhibit 2) to demonstrate the impact to Sand Creek, wetlands and the springs flowing into the Wildlife Refuge on the west side of the railroad tracks. This report also models and discusses potential impacts to area wells.

[1] Item 11 of the December 7, 1999 Environmental Assessment Worksheet (EAW) for the Q-Prime Amphitheater Project, Scott County, Minnesota

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources on or near the site? X Yes __No
If yes, describe the resource and how it would be affected by the project. Describe any measures that will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-___) and/or Division of Ecological Resources contact number (ERDB 20090297) from which the data were obtained and attach the response letter from the DNR Division of Ecological Resources. Indicate if any additional survey work has been conducted within the site and describe the results.

The Minnesota Department of Natural Resources (MnDNR) was contacted to query the Minnesota Natural Heritage Information system to determine if any rare species or other significant natural features are known to occur within approximately a one mile radius of the site. A copy of the DNR letter and index report is included as Exhibit 3. No features within the MnDNR database were identified on the site itself. Three special concern plants: Water-hyssop, Small White Lady Slipper, and American Ginseng were identified and one threatened plant; Kitten tails were identified within the 1 mile radius search area. American Ginseng has been identified along the steep bluffs located about one-half a mile east of the site. The Project will have no impact on this area. The remaining three plants were identified west of the site within the floodplain of the Minnesota River.

Barr Engineering conducted a vegetation survey of the property on October 8, 2010, specifically to look for the presence of Kitten tails, the state threatened species (See Exhibit 4). They found no evidence of kitten-tails on the site. Kitten tail habitat is primarily of oak savanna communities but can also be found in dry prairies and oak woodlands. The Barr report indicates that the site consists of disturbed dry sandy soils dominated by non-native invasive vegetation, primarily grasses and forbs with sparse shrubs and trees. Oak species were limited to the northwest portion of the site and were less than two feet in height. Dominant trees identified were Siberian elm, red cedar, cottonwood, red pine and boxelder. Dominant vegetation includes knapweed, thistle, strawberry, bird's foot trefoil, sweet clover, common plantain, red raspberry, dandelion, stiff goldenrod and mullein.

A small area of native grasses was found at the southeast portion of the property that had previously been farmed for many years. The seed source for the prairie grasses on the site is unknown. The DNR Natural Heritage database shows a dry sand prairie mapped west of the site. It is possible that this is the source for the prairie grasses on the site.

Kitten tails were not found during the site survey which included walking parallel/meandering transects throughout all potentially suitable habitats within the 140 acre proposed mine site. The presence of kitten tails was found to be unlikely due to the disturbed habitat conditions, dominance of invasive vegetation and lack of typical

oak savanna habitat. A summary of vegetation found during the survey is included in Attachment 2 of the report.

A colonial waterbird nesting area was also identified in the MVNWR, west of the site. There were also two native plant communities, a gravel prairie, a Silver Maple floodplain forest, and a bedrock outcrop identified within the search area, but not on the site itself.

Stormwater management and erosion and sedimentation control practices are detailed in responses under items 12 and 16, Physical impacts on water resources and Erosion and sedimentation respectively.

12. Physical impacts on water resources.

Will the project involve the physical or hydrologic alteration — dredging, filling, stream diversion, outfall structure, diking, and impoundment — of any surface waters such as a lake, pond, wetland, stream or drainage ditch? __Yes X No
If yes, identify water resource affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the PWI: Describe alternatives considered and proposed mitigation measures to minimize impacts.

There are no surface waters such as lakes, ponds, wetlands, streams, or drainage ditches located on the Project site itself. Sand Creek and a wetland complex associated with the flood plain of the Minnesota River are located near the site, west of the railroad tracks. The wetlands are designated by the MnDNR as protected water 210p. Figure 9 is an excerpt of the National Wetland Inventory Map of this area and Figure 10 is an excerpt from the Protected Waters and Wetlands Map of Scott County, MN. The Site is located outside of the Shoreland Overlay District associated with Sand Creek which runs south and west of the Proposed Project.

Reclamation of the existing sand and gravel mining operation on the Scott County and the Scott Land Company Property includes the construction of a stormwater management basin for water quality control and an infiltration basin for volume and rate control. These basins will be constructed during the initial stages of the sandstone mining operation and maintained throughout the life of the operation. The sedimentation and infiltration basins have been designed to treat and control runoff for the contemplated full industrial development of the Scott County property, (15 acres located immediately north of the Project area), as well as the Scott Land Company property. Both the rate and volume of runoff under full industrial development conditions are held to pre-settlement rates and volumes of runoff. These stormwater basins, utilized in conjunction with other stormwater management practices and erosion control practices will provide protection from sedimentation traveling off-site and from downstream erosion as well as minimize the potential for any impact to the public waters during the mining operation. All stormwater features will be provided in a

Resource Management Plan as required by Scott County Zoning Ordinance Chapters 6 and 10.

Runoff from the actively mined portions of the Q Prime property will be directed to internal low areas created as a result of the mining operation. No untreated runoff that has contacted exposed soils or stockpiles of sand will be allowed to discharge untreated from the site. The mining operation will operate under a MPCA National Pollutant Discharge Elimination System (NPDES) permit. In addition to the structural and best management practices (BMPs), non structural BMPs such as good housekeeping, daily inspections, employee training, spill prevention policies, etc. will be adopted as part of the stormwater pollution prevention plan. Perimeter berms will be constructed around portions of the site. The berms will be seeded to establish vegetation and further prevent off site sedimentation and erosion. Outlets from the stormwater basins and temporary sedimentation basins will be stabilized with riprap and/or other energy dissipation devices. Outlets will be equipped with skimmer structures. Reclamation activity will be ongoing allowing site vegetation to be restored as mining progresses, thereby minimizing the potential for erosion and sedimentation.

The project will create a new water body as a result of the mining operation. Material will be removed from below the water table. As mining progresses across the Site, granular fill material will be placed to bring the excavation back to an upland condition. However, in order to balance the site, approximately 35-40 acres of open water body will be established and remain as part of the reclamation condition. A summary of the volume computations is included as Exhibit 5. The potential impacts of dredging activity on both groundwater elevations and nearby groundwater dependent natural resources, which include nearby wetlands, Sand Creek, the Louisville Swamp and the Minnesota River, are discussed in detail in Section 13.

13. Water use.

Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? X Yes __No
If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

The Project will require a MnDNR water appropriations permit. Water for the operation of the wet plant will be supplied from a clean water sump adjacent to the active mining area. Water passing through the plant will be returned with the fine reject sand slurry back to the open water area. There will also be water withdrawal associated with the

dredging activity. Water use will include approximately 5,000 gpm for processing. 4,850 gpm will be recycled back to the groundwater as part of the hydraulic filling that will begin at the onset of processing, resulting in a water use of 150 gpm for processing. Material excavated below the water table will be saturated and also result in the removal of groundwater. Excavated material will be placed in a small stockpile adjacent to the excavation allowing free drainage of water back to the groundwater that will result in a net loss of 100 gpm as a result of the excavation process. Therefore net loss of water for the site will be 250 gpm. Water use by employees is estimated at 250-700gpd (0.17 -0.49 gpm). A new potable well will be required near the processing building to supply water for the employees.

Groundwater modeling has been performed for the site to assess the impacts of the proposed water use on surrounding wells and water dependant features (Sand Creek and nearby wetlands). The modeling was set up to analyze various stages of the mining operation as the clean water supply sump moved through the site in conjunction with the progression of mining and reclamation as well as the end condition with a 35-40 acre open water body. The report (Exhibit 5) concludes that adjacent water supply wells as well as Sand Creek and nearby wetland complexes will not be significantly impacted by the water use of the site.

A Groundwater Monitoring and Mitigation Plan is attached as Exhibit 6. This plan identifies a groundwater monitoring well network, a schedule for frequency of groundwater monitoring, a parameter list of constituents to be monitored, reporting limits, and a contingency and mitigation plan in the event of a reporting limit exceedance. The groundwater monitoring network includes monitoring of ground water levels. Monitoring well locations are shown on Figure 1 of the Groundwater Monitoring Plan. Monitoring points include locations that are both upgradient and downgradient of the Site. The monitoring well network also includes monitoring locations that will monitor conditions adjacent to Sand Creek and the associated wetland complex. Monitoring the water body created as a result of mining into the groundwater table is also included in the Groundwater Monitoring Plan. All monitoring results will be submitted to the County in a format acceptable to the County.

The monitoring well network will be able to monitor water levels and assess any potential impacts to surrounding residential wells. Minnesota Statutes 103G.261 establish domestic water use as the highest priority of the state's water when supplies are limited. Procedures for resolving well interferences are defined by Minnesota Rules 6115.0730. The Groundwater Monitoring and Mitigation Plan identify actions that have been proposed if needed and will be funded in advance with a financial arrangement acceptable to the County. As presented in the mitigation plan, if well interference problems do occur, several options are available, including lowering the pump in the residential supply well, or providing an alternative water supply to the residence from the existing Mt. Simon well located on the Project site, drilling a new well, or reducing permitted appropriations.

There are several wells existing on-site. These include a well finished in the Franconia-Ironton-Galesville (FIG) aquifer. This well is located near the office building located on the Q Prime property. This well will be abandoned. There are 4 shallow ground water monitoring wells located on the Q Prime property. These wells were installed as part of the remedial investigation and action plan prepared for the site. (Groundwater was not found to be contaminated). These wells will be utilized as water level monitoring wells as part of the monitoring well network until such time as the progression of mining necessitates their removal. They are currently owned by Progressive Rail, Inc. who is responsible for any applicable maintenance fees associated with the monitoring wells. There is also a Mt. Simon-Hinckley well that is located adjacent to the processing building. This well was used to supply water for the former frac sand mining operation. Current regulations do not allow appropriations from this aquifer for industrial uses in the metropolitan area. Any connections from this well to the processing plant will be disconnected prior to start up of operations. The MnDNR has expressed interest in incorporating this well into their monitoring network. It may also be used as an alternative water supply in the event that adjacent residential wells are negatively impacted from the mining operation.

Potential wells within one and a half miles of the site have been identified. Well logs are not available for all of the wells, but probable well locations are based on the County's property information regarding residential and commercial/industrial building locations. Three other wells in the vicinity have water appropriation permits from the MnDNR. One of these, located at the Specialized Environmental Services (SET) composting facility, north of the Project site, is a Franconia well. This well has an appropriation of up to 200 gpm and a total of 1 MG/year. Records available from the MnDNR indicate that water use over the past ten years of record has varied from 0.0-0.7 MGY with an average reported use of 0.3 MGY. The other two high capacity wells are located to the north just about 1 mile from the proposed site boundary. These two wells are Jordan Sandstone wells and are used for orchard and crop irrigation. According to the records available from the MnDNR, these wells have not been used since 1989. Figure 11 illustrates the wells on the site and in the nearby vicinity.

14. Water-related land use management district.

Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? __**Yes** **X** **No**

If yes, identify the district and discuss project compatibility with district land use restrictions.

The Shoreland Zoning District, delineated 100 year Flood Plain or any state or federally designated wild or scenic river land use district does not extend onto any part of the proposed Project. The Shoreland District associated with Sand Creek and other

unnamed tributaries to the Minnesota River are located adjacent to the site but not on the Site.

Figure 12 illustrates the location of the Shoreland District with respect to the Project boundaries.

According to the Flood Rate Insurance Map, the elevation of the 100 year floodplain of the Minnesota River adjacent to the site is 725 feet above mean sea level. The floodplain does not encroach onto the site. Figure 13 illustrates the location of the designated 100 yr floodplain with respect to the Project boundaries.

15. Water surface use.

Will the project change the number or type of watercraft on any water body?
__Yes X No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

Not Applicable

16. Erosion and sedimentation.

Give the acreage to be graded or excavated and the cubic yards of soil to be moved: 100 acres; cubic yards 11.64 M. Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.

According to the Natural Resource Conservation Service's 1997 Soil Survey of Scott County, the predominant soil on-site is Sparta Fine Sand with slopes ranging from 0 to 12 percent. The Sparta soils are subject to wind erosion. Topsoil will be removed from the areas to be mined in stages. The topsoil will be retained on site either as berms or stockpiles or will be used for site reclamation.

The southern portion of the site contains an area of sandstone outcrops. Mining will create additional exposures of sandstone faces. The fine grains of the sandstone deposit are subject to wind erosion. Mining will create temporary steep slopes at the active face. The location of the active face and associated steep slopes will move as mining progresses through the site. Measures to control erosion and sedimentation will be implemented at the site. These measures include:

Conduct Mining in Phases: Stripping will be limited to the portion of the site which can be mined in one or two mining seasons, thereby minimizing exposure of large open areas, at higher elevations, throughout the duration of the mining operation.

Strippings will be stockpiled or shaped into perimeter berms, or used immediately in on-going site reclamation activities. Material stored in perimeter berms may be used in final site reclamation.

Vegetation will be established on the top and outer slope of all berms to minimize erosion and off-site sedimentation. These areas will be seeded with MnDOT's seed mixture 340 (native seed mixture for Sandy/Dry areas mid-height) at an application rate equivalent to MnDOT Standard Spec. 2575. Berms will be seeded and mulched within 7 days of completion of shaping. If the onsite topsoils do not allow proper establishment of vegetation on the berms, they will be amended utilizing compost to improve moisture retention. Seeded berms will be watered as needed to establish vegetation. Vegetation will be inspected to insure adequate establishment and coverage.

Site runoff from active mining areas will be directed internally to low points within the floor of the mining area. Runoff will collect in the low areas and infiltrate into the underlying sandy soils.

The site will operate under a Minnesota Pollution Control Agency National Pollutant Discharge Elimination System Permit, which will require a Storm Water Pollution Prevention Plan. The focus of this plan is to eliminate or minimize storm water that comes into contact with aggregate stockpiles or exposed soils from discharging off the site. This is accomplished by utilizing Best Management Practices (BMPs) such as the temporary sedimentation pond, berming and vegetation of the berms, the recessed nature of the mining operation and stockpiling practices and by directing storm water to internal low areas on the site.

Measures will be implemented to protect the wetland complex located along the railroad west of the site from indirect impacts as well, including silt fence, diversion berms and water quality treatment basins. The details on individual measures and locations will be presented in the Resource Management Plan.

Reclamation will be ongoing once processing begins, thereby limiting the number of open acres at any given time.

The site access will be used only by employees at the facility. It will not be used to transport final product from the site. If soils are tracked onto US Highway 169, as a result of the operation, the operator will pave a portion of the site entrance and sweep the access road as may be necessary.

Upon completion of mining, slopes will be restored to a maximum 20% (5:1 Horizontal to Vertical) condition. Six inches of topsoil, of a quality consistent with the current site and surrounding area, will be placed on the slopes and upland areas and vegetation established in accordance with the reclamation plan. Soil amendments, such as compost, will be incorporated into the topsoil as necessary to assure adequate

establishment of vegetation on perimeter sideslopes which may be subject to erosion. All temporary erosion and sediment control measures will be properly maintained and repaired as needed to assure their continued performance.

All temporary erosion and sediment control materials will be properly disposed of within 30 days after final site stabilization is achieved or after the temporary measures are no longer needed.

17. Water quality: surface water runoff

a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

A stormwater management plan will be developed in accordance with the requirements of Chapters 6 and 10 of Scott County's Zoning ordinance regulating stormwater. A resource management plan will be developed and approved as part of the IUP permitting process. The project will meet all of Scott County's stormwater management standards.

Existing Condition:

The existing site condition includes separate sub-drainage areas as a result of past mining activity. Sub drainage areas are illustrated within the Hydrologic Assessment, Exhibit 1. The Scott Land Company, together with the County's property to the north comprises one sub-drainage area. Portions of this area have been mined for sand and gravel in the recent past and are now in the reclamation phase. A resource management plan has been approved for these properties. The plan includes stormwater management ponds to manage rate, quality and volume of stormwater runoff in accordance with Scott County Ordinances. Stormwater from the site flows westerly towards and along the railroad tracks and through a culvert beneath the tracks, into Sand Creek. The location of the culvert is illustrated on the Site Plan Figure 3.

Runoff from the site prior to all mining activities on the Q Prime site generall ran in two directions. Runoff from the eastern portion went to the east to landlocked areas adjacent to the railroad tracks and right of way where it percolated into the ground. Runoff from the western portion went to the west and the multiple culvert crossings of the railroad on the west side. Past mining activity on the southern 1/3rd of the Q Prime property has created a landlocked depression where stormwater runoff collects and infiltrates into the underlying soils under the present condition. Stormwater flowing to the west of the topographic high flows onto the Scott Land Company parcel and towards the railroad tracks. The stormwater flows along the tracks and then beneath the tracks, through one of two culverts. From the culverts, stormwater runoff eventually makes its way into Sand Creek or the wetland complex through which the creek flows. These

culverts are partially full with sediment, but will not need to be cleaned in order to accommodate the existing or future runoff from this project.

Site soils are predominantly Type “A” soils, so little runoff is generated from the Site under current conditions, except during spring snowmelt when frozen soil conditions may limit infiltration.

Mining Condition:

The mining activity will not increase the volume of stormwater leaving the Site. Once an area has been stripped and the overburden removal process begins, the grades are lowered so as to capture all stormwater that falls in the active mining areas where it will collect in the lowest areas and subsequently evaporate and/or infiltrate. During active mining, disturbed areas will drain internally and not be discharged off site. Stormwater that is in contact with exposed soils will be directed to temporary sedimentation ponds for treatment prior to discharging into the open water area that is created as a result of mining into the groundwater table.

Stormwater contacting exposed soils will be handled internally or treated for sediment removal prior to discharge from the Site. Erosion and Sediment Control measures will be established near the processing area to insure that any stockpiled materials are completely contained within designated stockpile areas.

Operation of the Site will require obtaining a MPCA National Pollutant discharge Elimination Permit (NPDES) from the MPCA for construction activity and for industrial activity (mineral extraction). These permits require the preparation and implementation of a comprehensive Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will provide site specific management practices to ensure that any stormwater that has contacted significant materials, including areas that have been stripped in preparation of mining, stockpiles of raw and processed product, and newly graded areas, does not leave the site untreated. The SWPPP will also contain non-structural best management practices such as required procedures for fuel storage and handling on site, employee training and good housekeeping.

Reclaimed Condition:

Upon completion of mining and final reclamation, the site will consist of upland open space and a created water body. The created water body will be approximately 35-40 acres in size. The upland areas will be open space that will in part drain to the created water body. The upland areas will be brought up to an elevation of approximately ten feet above the water table. As part of reclamation, portions of the excavation into the water table will be backfilled with clean granular materials. This granular fill will come from both the fine sands that are too fine to market as frac sand, as well as the granular soils that compose the majority of the overburden. Backfill will be placed and

compacted under the direction of a soils engineer so that the upland areas are suitable for future development. Compactable clay soils, also found in the overburden will be used to form perimeter slopes above the water table.

The majority of the Q Prime site will drain towards the created water body. There will be an emergency overflow established on the pond that will discharge to the west. Final design submitted with the supporting materials in the IUP application will develop a hydrologic model and stormwater management as necessary so that rates of runoff from the site will not exceed the pre-settlement rates of runoff for the 2-, 10-, and 100-yr 24 hour rainstorm events during both mining and post reclamation. Volume controls will also be designed and implemented in accordance with the Scott County Ordinances.

Stormwater management for the Scott County parcel to the north of the project Site and the Scott Land Company parcel have been designed and will be in place within 4 months of the start of mining activity. Mining will begin in the very southern portion of the site which currently is internally drained. The stormwater management ponds will be constructed prior to the stockpiling or processing activity that will occur within the subwatershed area that drains to these ponds. The stormwater management system has been designed to control rates of runoff, water quality measures and volume controls for full development (75% impervious) of these two properties.

Final Use Condition:

The End Use plan for the proposed project is open space and the drainage will remain the same as the reclaimed condition. The project site is zoned I-1 and has the potential for further industrial development. Upon final industrial development of the site, additional stormwater management will be required in accordance with the rules and regulations in effect at the time of development. The specifics of these controls will depend upon the nature of the final development of the site.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

Because the majority of site soils are very granular in nature there is a low volume of stormwater runoff generated from the site during rainstorm events. There is a stormwater divide running approximately north-south through the site. Stormwater runoff flows to the east towards the railroad tracks and US Highway 169. The stormwater collects in low areas along the railroad tracks and infiltrates or evaporates. Runoff to the west flows towards the railroad tracks bordering the western boundary of the site. Stormwater flows through one of three stormwater culverts that run under the tracks. Stormwater from these culverts eventually flows into Sand Creek. Sand Creek flows north towards Louisville Swamp, which eventually discharges into the Minnesota River.

Sand Creek is located west of the rail line that parallels the western border of the site. There is a high flux of groundwater that flows from the east beneath the site towards the west and feeds the floodplain wetlands and Mn River. Sand Creek and the Minnesota River are receiving waters for runoff from the Site. Both of these waters are included on the State's 303 (d) list of impaired waters. Sand Creek's impairments are for turbidity and fish bioassessment. The Minnesota River impairments are for mercury, (Hg) fecal coliform, (FC), Polychlorinated biphenyls (PCBs) and Turbidity. A total maximum daily load (TMDL) has been established for Hg. TMDL plans are still needed for the other pollutants.

Because of the impairments, additional BMPs will be adopted at the site to further reduce the potential for impacts from the proposed mining and processing activity. These include stabilizing all exposed soil areas that may drain from the site (for example the outside slope of berms) as soon as possible to limit soil erosion but in no case later than seven (7) days after the berm construction activity in that portion of the site has been temporarily or permanently ceased and providing temporary sedimentation basins for common drainage locations that serve an area with five or more disturbed acres at one time. This second BMP may be applicable during stripping operations when existing drainage patterns are maintained prior to removing a sufficient amount of overburden to modify the area to be internally drained.

Sediment transport via wind will be controlled by establishing stockpiles in recessed portions of the site when possible, limiting the height of stockpiles, minimizing the volume of stockpiles and installing a watering system for stockpiles if necessary to control the transport of sediments from the mining and processing area.

18. Water quality: wastewaters

a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

A limited amount of normal domestic sanitary wastewater will be generated at the site. Based on the projected number of employees, wastewater generation is expected to be 17.5 gpd per employee per eight hour shift.[2] Estimated demand based on the number of employees will range from approximately 175 gpd in the winter months to 600 gpd in the remainder of the year. A new septic system and drain field will be designed to handle this wastewater generation.

The septic system and drainfield will be located in an undisturbed area of the site, either in the southwestern portion of the site the very northern portion of the site or across the

[2] Onsite Sewage Treatment Program, University of Minnesota. 2009. *Manual for Septic System Professionals in Minnesota*. St. Paul, MN.

tracks to the east on property owned by Q Prime but not included in the project area. The final design of the system will meet all state and county requirements.

The washing process will include density media separators cyclones pumps and screens. Wastewater will only be generated from the washing process. The washing process involves washing and sorting the individual sand grains that make up the sandstone deposit. Water discharged from the washing process will be contained and be mixed with the finer reject sands and transported via a sand/water slurry back to excavated area of the mining operation for use as reclamation backfill. Washwater will not be discharged off-site.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

Washwater will be slurried back to the mine excavation and used in the reclamation process. Flocculants may be used in the washing process to allow more efficient settlement of fine material associated with the washwater and better consolidation of the reclamation backfill. If flocculants are used they will be in accordance with MPCA regulations and be chemically inert once bound to the finer sediments of the wash water discharge. Flocculants can aid in the stabilization of below water fills and reduce the amount of open water necessary to accommodate both excavation, make-up water withdrawals and reclamation backfilling. Flocculants are often used to treat drinking water. The proposer will work with the MPCA in determining acceptable flocculant types for this application. Prior to the use of any flocculants, the Material Safety Data Sheet and all other pertinent chemical data for the desired flocculant will be submitted to the MPCA for review and approval as may be necessary.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

N/A

19. Geologic hazards and soil conditions

a. Approximate depth (in feet) to ground water: 18 feet minimum 40 feet average; to bedrock: 0 feet minimum 15 feet average.
Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst

conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

There are no known shallow limestone formations or karst conditions at the site. The Scott County Geologic Atlas indicates that the site and surrounding areas are highly susceptible to ground water contamination due to the shallow, highly permeable cover over the bedrock aquifer.

The proposed site is located in the southern region of the Twin City basin, with underlying bedrock units generally dipping to the north. Several bedrock valleys are also present in the vicinity of the site. These valleys were formed by stream erosion and subsequently filled with glacial drift during periods of glaciations. Both the Scott Land Company property and the Scott County property were mined for sand and gravel deposits associated with these buried valleys. The glacial drift typically consists of sand, gravel and clay.

The site is underlain by several bedrock aquifer systems, including, from shallowest to deepest, the Jordan, Franconia Formation, Ironton-Galesville, and Mt. Simon-Hinckley. In addition to the bedrock aquifers, sand layers in the glacial drift are used as a source of water supply by some residents in the vicinity of the site. The Prairie du Chien-Jordan aquifer is the most extensively used aquifer in the Twin Cities area. The Prairie du Chien dolomitic limestone element of this aquifer has been eroded and is absent in the vicinity of the Project.

The majority of the site is underlain by the Jordan Sandstone. The elevation of the bedrock drops sharply to the north and west of the Q Prime property. The Jordan Sandstone is the source of the material that will be mined and processed. The Jordan Sandstone is up to 90 feet thick in the project area. Up to 35 feet of the Jordan Sandstone lies above the water table and approximately 55 feet of the Jordan Sandstone is below the water table. At least the bottom five feet of the Jordan Sandstone will not be mined to insure no mixing of the sandstone with the underlying shale unit.

The depths to ground water and bedrock are estimates based on maps prepared for the original quarry operations by Ernest K. Lehmann and Associates Inc. According to those maps, the water table slopes from 723 feet above mean sea level (msl) at the eastern edge of the site, to 712 feet above msl at the western edge. Water table fluctuations are expected to occur both seasonally and potentially over longer periods of time with response to changing climatic conditions. Seasonal variations are anticipated to be less than four feet based on water level data from on-site monitoring wells.

The groundwater flow direction is from east to west beneath the site, towards the discharge area of the Minnesota River. There is one residential well (Bennett well) that is potentially down gradient of the proposed mining operation. Barr Engineering

conducted groundwater modeling (Exhibit 2) to evaluate the potential for impacts to water supply and water quality. Potential impacts to water levels in surrounding wells as well as adjacent groundwater dependent natural resources are discussed in Section 13, Water Use. The modeling included an evaluation of travel times and the direction of groundwater flow from the mining area to demonstrate the potential areas that could be impacted from contaminants entering into the proposed pond or from an accidental release of fuel oil, etc. emanating from the mine area.

If future industrial development should occur, surface water runoff will be required to be treated to the extent required by the storm water management regulations in place at that time. Current regulations would not permit an industrial development to discharge to the groundwater pond without first receiving stormwater treatment.

The modeling was used to help determine suitable locations for monitoring wells and prepare a monitoring plan. A groundwater monitoring and mitigation plan is attached as Exhibit 6. The groundwater monitoring plan includes up gradient and down gradient monitoring wells. There will be one monitoring well located between the mining limits and the Bennett well. There will also be a down gradient monitoring well between the mining area and Sand Creek and the associated wetland complex west of the site. There are three monitoring wells currently located on the Site itself within the Phase 3 and 4 mining areas. These wells can be utilized as up gradient wells until such time as mining progresses far enough north that they would no longer represent up gradient conditions. At this point in time, a new up gradient well will be installed in the southeast portion of the site. The monitoring wells will measure potential impacts to groundwater quantity and quality as a result of the mining operation. A ground water contamination mitigation plan has also been prepared to address mitigation for any wells in the area that are adversely impacted by this operation. The developer will establish sufficient securities as determined during the IUP process to ensure that any mine activity related impacts are properly addressed.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil texture and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

According to the Natural Resource Conservation Service, the predominant soil on-site is Sparta Fine Sand with slopes ranging from 0 to 12 percent (HdA, HdB, and HdC). These soils are all type ‘A’ soils. The southern portion of the site contains an area of Sandstone Outcrops (Sa). This is a type ‘D’ soil. A very small portion of the site is type ‘B’ soils, these are Estherville Loam and Sandy Loam (EaA) and Dorchester Silty Clay Loam (Dd). Some areas are also gravel pits (Gp). Figure 14 is a Soils Map of the Project area.

Type A soils are granular and have rapid permeability. Contaminants can travel readily through them into the ground water. Scott County has identified the project area as being within an area that is highly susceptible to groundwater contamination.

The site will operate under a Groundwater Protection Plan. The plan will contain the following measures to provide protection of the groundwater throughout the duration of the mining project.

Limited equipment maintenance will be performed on-site. When possible, equipment maintenance will be performed within the shop building located on site. All equipment maintenance will follow the company spill prevention and spill response policies.

A service truck will be brought to the site to perform routine maintenance or equipment will be serviced inside the shop building or on a concrete pad. All used lubricating oil will be collected by facility personnel and stored inside the shop building. The material will be periodically hauled off-site by a waste oil transporter for recycling. The service truck will carry a spill containment kit. A hazardous waste generator license will be obtained as required by Scott County and the operation will comply with all applicable local, state and federal hazardous waste regulations.

All storage of used oils and filters will be in accordance with Scott County ordinance provisions. Before storing used filters, they will be drained or processed to remove free flowing oil. Used oil, used oil filters, paper removed from used oil filters and used oil contaminated sorbents will be stored in closed, leak proof containers. The containers will be labeled and stored in accordance with Scott County requirements. Used oil stored in tanks will meet the MPCA tank registration and secondary containment requirements as may be applicable. A water based parts washer that does not generate hazardous waste or the safety clean version that does generate very small quantities of hazardous waste will be used. If the later is used, the waste will be hauled away by a licensed vendor.

All storage tanks will be above ground. Secondary containment will be provided as may be required by the Minnesota Pollution Control Agency. Fueling of equipment will take place at one central location. Topping off tanks of any kind will not be allowed under company procedures.

Employees will be trained on the proper actions to be taken in the event of a spill. Company policy regarding spills will require that any spill of oil, gasoline, diesel fuel, or lubricant is to be immediately reported to the site manager and cleaned up promptly. Any spills of 5 gallons or more of petroleum products or any volume of hazardous materials will be reported to the state duty officer as required by applicable state statutes and regulations (Minn. Stat. 299K).

Spill cleanup equipment will be available on-site including equipment to excavate and remove impacted soils in an expedited fashion, as well as fire fighting extinguishers, absorbent pads, spill blocker dikes, empty barrels, rags and shovels.

20. Solid wastes, hazardous wastes, storage tanks

a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

The site may generate very small quantities of hazardous waste from maintenance activities such as carburetor and brake cleaners or petroleum based parts washer, waste oil, batteries and fluorescent lamps. Volumes are estimated at less than 220 pounds (approximately 22 gallons of liquid) per month. This will require the operator to obtain a Very Small Quantity Generator ‘s License from Scott County. Items such as used fluorescent lights will be properly managed at a location such as the County Household Hazardous Waste facility which accepts these hazardous wastes from businesses. A small amount of solid waste will be produced by the on-site employees. Flocculants may be used in the wash water discharge to enhance the settlement of very fine colloidal particles. Flocculants are inert additives widely used in the mining industry to increase the efficiency of settling and clarification operations. Flocculation is a process in which individual particles of a suspension form aggregates by bridging between individual particles and/or by polymer formation or by carrying a charge that counterbalances the charge of the colloidal particle. Flocculants allow agglomeration and settling of colloidal particles. There are many different types of flocculants available depending upon the specific needs. If flocculants are used, the composition will be determined and approvals obtained from the MPCA as may be required.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

There is potential for exposure to respirable silica dust at the site. According to the World Health Organization, silica dust is classified by the International Agency for Research on Cancer (IARC) as a Group 1 human lung carcinogen. Silica (silicon dioxide) exists abundantly in nature, it is normally found within sand and rock where it cannot be inhaled. The most common form of silica is quartz, and it is found in a variety of rocks including sandstone where individual sand particles are predominantly composed of quartz. Beach sands are another example of abundant silica.

Construction activities, such as sand blasting, or jack hammering, can create respirable silica dust as a byproduct. Mining activities such as drilling, crushing and stone cutting can create respirable silica as a byproduct as well. Respirable silica dust may be invisible to the naked eye and is so light that it can remain airborne for a long time. The greatest potential for exposure at this site is within the processing building where dried sand is screened. Respirable dust can be inhaled. Levels of respirable silica dust are regulated by the Mine Safety and Health Administration (MSHA). The permissible exposure limit or threshold value (TLV) for mineral dust containing respirable crystalline silica varies depending upon the composition of dust. MSHA regulations require that exposures for airborne contaminants including respirable dust and total dust be controlled insofar as feasible, by prevention of contamination, removal by exhaust

ventilation, or by dilution with uncontaminated air. Adequate respiratory protection will be used by on site workers as may be required to meet the MSHA guidelines.

Respirable silica dust can cause silicosis and other lung function impairments. According to the Center for Disease Control[3] respirable crystalline silica is dust that is capable of entering the gas exchange regions of the lungs if inhaled and includes particles with aerodynamic diameters less than approximately 10 micrometers (µm). The aerodynamic diameter is equivalent to a grain size exposure for spherically shaped grains such as a sand grain.

Silica dust that is 10 µm or smaller in size is much smaller than typical grains of sand. It is often created as a result of a mechanical breaking of the actual quartz particles, for example during stone cutting, or sand blasting where the quartz is cut, or individual sand grains are fractured releasing much smaller particles that are respirable. Frac sand by comparison is typically processed into coarse and medium sands that compose the marketable fraction of the deposit range in size from 0.25-1.0 mm (250-1000 µm). These particle sizes are substantially larger than what is considered respirable silica dust. The spherical shape of the sand grain is an essential characteristic of frac sand and the ISO specifications include roundness and sphericity. Therefore, care is taken in all aspects of the processing to not fracture or break sand grains.

A finer reject sand will be washed and screened from the marketable material. These include fine sands, very fine sands (62.5 µm -125 µm) as well as some silts 62.5 µm and smaller. Wet dust suppression techniques will be used to handle the reject sands from the processing operations. The reject sands, which are the finest, and therefore the most readily airborne component of the processes, will not be stockpiled outside. The reject sands will be pumped in a water/sand slurry and placed as reclamation fill directly from the initial hydro sizing process and not stockpiled on site. This will minimize the potential for fugitive dust generation from the site.

Mine Safety and Health Administration (MSHA) limits the allowable exposure to silica. The metal and nonmetal mining industry standard is based on the 1973 American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values formula: 10 mg/m3 divided by the percentage of quartz plus 2. MSHA enforces these exposure limits and has rules requiring controls for drills, and requires air sampling in certain situations. Other relevant MSHA regulations include: respiratory protection, posting of warning signs, housekeeping, recordkeeping or reporting of occupational illnesses, personal protective equipment, and training. Although the majority of the deposit and the site operations represent no risk for respirable silica, drilling or blasting of the sandstone and processing activities, may produce small amounts of respirable silica. The Site will operate in accordance with MSHA rules. If new regulations are

[3] www.cdc.gov/niosh/docs/2002-129/02-129B.html#respir

adopted, or worker exposure limits revised, the site will operate in compliance with any new regulations as well. The following measures will be adopted to control silica dust exposure:

- Conduct air monitoring to measure worker exposure and ensure that controls are providing adequate protection for workers.
- Ongoing personal air monitoring program;
- Dust control program;
- Medical surveillance program/disease reporting;
- Training and information to workers on crystalline silica;
- Availability of air and medical surveillance data to workers;
- Equipment maintenance program;
- Respiratory protection program;
- Isolated personal hygiene facilities, eating facilities, and a clothing change area;
- Record keeping;
- Housekeeping program;
- Construction safety and health program;
- Regulated areas/warning signs;
- Provide workers with training that includes information about health effects, work practices, and protective equipment for respirable crystalline silica including:
- For other operations where respirators may be required, use a respirator approved for protection against crystalline silica-containing dust.
- Do not alter the respirator in any way.
- Do not eat, drink, use tobacco products, or apply cosmetics in areas where there is dust containing crystalline silica.
- Wash your hands and face before eating, drinking, smoking, or applying cosmetics in areas where there is dust containing crystalline silica.
- Recognize where silica dust may be generated and plan ahead to eliminate or control the dust at the source.
- Use controls and containment methods, such as wet drilling of silica containing materials, to control the hazard and protect adjacent workers from exposure.
- Routinely maintain dust control systems to keep them in good working order.
- Use adequate respiratory protection when source controls cannot keep silica exposures below the PEL.

These measures address concerns related to worker exposure to respirable silica. Levels of respirable silica in ambient air may also represent a concern as a result of fugitive dust emissions that may contain a high percentage of silica. The State of Minnesota does not regulate respirable silica, but does regulate particulate matter. An ambient air monitoring program will be developed as part of the IUP process which will include monitoring of the ambient air at the nearest receptors and applying standards established by other states for respirable silica. Migration of respirable silica dust off site will be controlled in the following ways:

- Stockpiles will be situated in lower portions of the site to the extent practical.
- Perimeter berms will be constructed in areas where there are adjacent residential uses
- The size and height of stockpiles will be limited.
- Fine sands generated from the processing activity will be slurried back to the mining area and not allowed to dry
- An irrigation system will be installed to wet stockpiles if needed to control ambient silica dust levels.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

Diesel fuel will be used to operate on-site equipment. Above ground tanks, equipped with secondary containment or double walled as may be applicable and in accordance with MPCA rules, will be constructed on-site. Alternatively, equipment will be fueled using a fueling service. Electricity and natural gas are available to run processing equipment. Backup generators may be used during periods of peak electrical demand. Propane will be used during periods of peak demand for natural gas in the winter.

There are two propane tanks currently located on-site (one 14,500 gallon and one 50,000 gallon tank). These tanks act as back up fuel during periods of peak demand for natural gas which may occur during the winter months.

Fuel storage for site equipment is planned to include one 10,000 gallon above ground storage tank. This tank will be double walled or have appropriate secondary containment in accordance with MPCA fuel storage regulations.

21. Traffic. Parking spaces added:

Existing spaces (if project involves expansion): Estimated total average daily traffic generated: 74 trips per day generated from employees and suppliers.

Estimated maximum peak hour traffic generated and time of occurrence: 22 trips 6 am-7 am

Indicate source of trip generation rates used in the estimates.
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. Using the format and procedures described in the Minnesota Department of Transportation's Traffic Impact Study Guidance (available at:
`http://www.dot.state.mn.us/accessmanagement/pdf/manualchapters/chapter5.pdf`

) or a similar local guidance, provide an estimate of the impact 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.

The site will generate a limited amount of traffic. The primary source of traffic will be employees coming to and leaving from work. Trips will be generated by site visitors and suppliers. The site will typically operate in three shifts over the construction season. During the winter months, the plant will be operational, but the number of employees will be reduced to 10-12, decreasing traffic proportionally. The estimated number of employees at maximum production is 32. Final product will be transported from the site using railcars and the existing rail spur and rail loading facility.

The IUP for sand and gravel mining that was approved in 2005, after mining had commenced without a permit allowed for the hauling of sand and gravel from the site utilizing the access onto U.S. Highway 169 at the northern end of the property. Based on records of gravel tax paid from this property from 2002-2005, annual volumes ranged from approximately 46,600 tons to 165,000 tons during active mining of the site. Using an average of 20 tons per load and 180 hauling days (typical of a construction season), that mining generated average traffic levels of 13-38 loads per day (26-76 truck trips per day). Active mining on this site ceased in 2008, though the IUP remains open because reclamation has not yet been completed.

The Project proposer is requesting that a limited volume of truck traffic, consistent with the levels generated by the recent sand and gravel mining operation, be allowed throughout the silica sand mining operation. Use of rail for transport of the silica sand for use in hydraulic fracturing eliminates any significant traffic impacts associated with the Proposed Project.

The traffic generated from the site will access U.S. Highway 169 from an existing access road on Scott County Property located just north of the Project area. There is a right turn lane into the Site from south bound U.S. 169 and a left hand turn lane into the Site from north bound U.S. 169. There is an easement for access through the County property. U.S. Highway 169 is a four lane divided highway. Information from MnDOT's 2007 traffic volume database for the seven county area indicates that the 2008 A.D.T. volumes were 31,000 vehicles on U.S. Hwy 169 adjacent to the Project area. Because of the use of rail to transport product from the site, the Project will not create traffic congestion or have a significant impact on the regional transportation system.

There are two other access points to the Site, one centrally located off of U.S. 169 (middle access) that accesses the existing office and outbuildings on the Q Prime site, which will not be used in the operation and one off of Bluff Drive. This access currently consists of just a gate, with no actual road established. This may be further developed to allow employees and service vehicles to access the mine site during the initial

phases of the operation. In the future, it is anticipated that the middle access will be closed. Final development of the Site will require the platting of a frontage or backage road running north south through the property.

22. Vehicle-related air emissions.

Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts.

Vehicle related air emissions include carbon monoxide, hydrocarbons, NOx, particulate patter and sulfur dioxide from employee automobiles, trucks, and excavation equipment such as loaders and back hoes. The metropolitan area is designated as a maintenance area with no violations in the CO standards. The site is expected to have a small but not significant or adverse impact on air quality from vehicle related air emissions.

23. Stationary source air emissions.

Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult EAW Guidelines for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

A fluid bed drying and cooling system or a rotary dryer will be used to dry the product after washing. The primary fuel source for the dryers will be natural gas which currently serves the property from the southwest. Propane will be used during peak demand periods. The facility will require an air emission permit from the MPCA. The dryer will be equipped with a baghouse dust collector system to reduce air emissions. The bags are monitored throughout the operation of the dryer and when air flow becomes restricted they are automatically shaken. Dust drops to a bin at the bottom of the baghouse and is augured and loaded into a haul truck and the fines are utilized as fill in the reclamation area active at that time.

Land clearing operations will result in dust emissions. Areas cleared will be limited to the minimal amount needed for current mining operations. Brush and tree waste removed will be processed to recover wood chips and compostable materials and will be either chipped on site or transported to a licensed processing facility. There will be no open burning on the property.

24. Odors, noise and dust.

Will the project generate odors, noise or dust during construction or during operation? X Yes __No

If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

The proposed Project will not generate odors; it will generate noise and dust. The site will operate within the Minnesota State noise standards. The following measures will be implemented at the site to reduce noise:

Equipment to be operated outside includes scrapers, excavators, haul trucks, blast drill, rock breaker conveyors, preliminary crusher and screener, and dryer. With the exception of clearing and grubbing, and stripping of topsoil and overburden and creating perimeter berms, these operations will be recessed below the surrounding terrain or conducted behind perimeter berms. Screening berms will be constructed around the perimeter of portions of the site to provide noise attenuation and visual screening of the site from U.S. 169 and the nearest residences. Equipment located outside and adjacent to the processing building (feed hoppers, conveyors, dryer, preliminary crusher and screens, will be located over ¼ mile from the nearest residential structure. The berms will vary in height from approximately 6 feet to 10 feet. Higher berms will be placed adjacent to residential receptors. Berms will be constructed with 3:1 slopes along the outer edge of the berm. Topsoil and compost as necessary, will be applied to the berms in sufficient depths to assure the establishment of vegetation.

Processing equipment will be run on electricity and natural gas which currently serve the property. Both of these utilities will be interrupted during peak service periods or power outages. Propane will be used as an alternative fuel for the dryer during periods of peak demand. Backup generators will be used as an alternative electrical source. The use of electricity and natural gas as primary energy sources substantially reduces the use of generators and their associated noise emissions.

Processing operations, with the exception of crushing, screening, drying, feed hoppers and conveyors, will be conducted inside the processing building. The enclosed nature of the processing plants will substantially reduce noise emissions from the site.

Distance to receptors. The nearest residential receptor is located approximately 260 feet from the proposed mining limits and over 1,800 feet from the processing building. These distances exceed the setback requirements of Scott County and help to further reduce noise impacts to receptors.

All on-site equipment will operate with standard noise reduction devices such as mufflers.

Blasting will be performed in areas where the bedrock is tightly cemented. Blasting will only be performed between the hours of 10 am – 6 pm Monday through Saturday to minimize impacts to surrounding residents.

Compliance with state noise standards to protect people can be assumed because there are existing State laws and resources to enforce those rules. An EAW needs to ascertain the potential for noise standard exceedance relative to receptors listed in the rules. An EAW must also assess impacts that cannot be addressed by existing rules and regulations. These may include nuisance noise that may affect people below measurable levels, such as impulse noise and short duration noise like that expected from blasting and equipment with backup alarms. Noise impacts needing to be addressed in an EAW are also not limited to impacts to people, but may include noise impacts to surrounding wildlife within the National Wildlife Area adjacent to this site. The County will rely on the U.S. Fish and Wildlife Service to provide comments on the potential for impacts from this proposed action on wildlife within the refuge and if impacts are identified through the EAW process the U.S. Fish and Wildlife Service will be invited to participate in identifying suitable mitigation to be incorporated as conditions on the IUP, if mitigation is possible.

The developer has provided noise modeling (Exhibit 7) demonstrating that the site will operate in accordance with the MPCA's daytime noise standards. The nighttime noise standards are met at all but the adjacent resident to the northeast which predicts noise levels of 1-2 dBA over nighttime standards. (Nighttime operations are proposed to be limited to the processing plant, and not include mining activity itself.) The modeling identified the assumptions used and noted that there are many variables which could influence noise impacts to the area. Therefore, a noise testing program and implementation plan will be developed and included for consideration by the County as part of the IUP process. The noise testing program will be implemented at the onset of processing. Noise monitoring will be performed at the nearest receptor locations by an independent third party noise expert. If the test results do not show compliance with MPCA noise standards, the noise mitigation plan will be followed which may include additional berm heights, repositioning of stockpiles, equipment modifications, or limitations on operating hours for some aspects of the operation. Noise testing will be repeated after implementation of the mitigation measures to demonstrate compliance.

The following measures will be implemented at the site to reduce dust:

The potential for dust generation is predominantly from three different aspects of the mining operation. The first is during the stripping operations when vegetation is removed and the topsoil is exposed. The topsoil on this site is largely Sparta fine sands and they contain fine particles of material that can be picked up and carried by the wind.

Stripping will be conducted in phases and in as short of a time frame as possible. Topsoil and overburden will be placed into perimeter berms or stockpiled on site. The berms and stockpiles will be vegetated as quickly as possible. The vegetation stabilizes the topsoil, reduces exposure and minimizes dust.

The second potentially significant source of dust is from truck traffic traveling on internal haul roads. Frequent watering of the internal haul roads effectively controls this source of dust. A water truck will be available to water haul roads as needed. In the event that frequent watering of haul roads is ineffective, additional controls such as calcium chloride over main haul roads will be utilized as necessary.

The third potential source of dust is windblown transport of the fine sands exposed beneath the topsoil, in active mining areas and stockpiled outside of the processing building, either raw material, partially processed material or reject material. The area of exposed subsoils and sandstone will be kept to a minimum in accordance with Chapter 10 of the Zoning Ordinance and the approved operational plan. The volume of stockpiled material outside of the building will be kept to a minimum. Stockpiles will include a raw feed surge pile used to feed the wash plant operation located in the building.

Approximately 20,000 cy of raw material will be stockpiled and fed into a pre-screening and crushing unit. The crushing unit generates two small stockpiles (roughly 3,500 cy each) which are fed into a hopper and conveyed inside the building to a washing screen and dense media separators. The washplant will produce stockpiles of material which will be fed outside into stockpiles. These will include two 20-40 (coarse sand) and 40-70 (medium sand) stockpiles of wet material. These stockpiles will contain approximately 100,000 cy of material each, reaching heights of approximately 50 feet. These maximum stockpile volumes will only be reached in the fall of the year to provide a supply of washed material to the dryers on a year round basis. By the spring, these stockpiles will be depleted and then replenished again over the course of the mining season. These stockpiles will feed the dryer. From the dryer, the material is conveyed directly back into the building for final screening and shipment. The -70 (fine to very fine sands) sized reject sands will be conveyed directly to the reclamation area via a slurry (water and sand mixture) that is pumped in an 12” pipe (pipe size could vary slightly depending upon final design). Because the-70 sands will be transported directly to the reclamation area, where they will be used directly as backfill in the below water excavation. These finer sands, which are more subject to being carried by wind, will not be stockpiled. The mining activity is focusing on the larger, coarser mesh sizes of frac sand. The finer sands, which are still, marketable are being returned immediately to the below water excavation in a slurry form, with no potential for the production of silica dust. This is unique to this mine site as this marketable material is needed to satisfy the fill requirements needed to accomplish the proposed reclamation grades at the site and meet certain lease obligations.

If dust from stockpiles is not controlled within the property boundaries, a sprinkler system will be installed to maintain sufficient moisture in the stockpiles to prevent the generation of dust. Other mitigation measures will include reducing the height of stockpiles and revising locations of stockpiles to take advantage of existing topographical barriers. Finer sand materials which were stockpiled in previous operations will be returned in a slurry form from the wet plant directly to the underwater reclamation area. This is a substantial and significant departure from the way fine sand material was handled in the previous silica sand mining operation at the site. The practice of not stockpiling finer sand materials that are not sold in the market place directly to the under water reclamation area will substantially reduce the potential of sands being picked up and carried off site.

25. Nearby resources.

Are any of the following resources on or in proximity to the site?
Archaeological, historical or architectural resources? X Yes __No
Prime or unique farmlands or land within an agricultural preserve? __Yes X No
Designated parks, recreation areas or trails? X Yes __No
Scenic views and vistas? __Yes X No
Other unique resources? _X_Yes No
If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

The Minnesota State Historical Preservation Office (SHPO) of the Minnesota Historical Society was contacted to determine if any archeological or historically significant sites existed on or near the Project. A site, just under five acres in size has been identified approximately one-half mile south of the Project. The site is a lithic scatter, containing stone tools and debitage. A copy of the correspondence from SHPO is included as Exhibit 8. Figure 15 illustrates the general location of the archeological site with respect to the Project.

The Minnesota Valley National Wildlife Refuge Area and Carver Rapids Wayside Park and the Louisville Swamp Unit Recreational Trail system are unique resources and are all located west of the site on the western side of the railroad tracks. The majority of processing will occur within an enclosed building, minimizing noise impacts to adjacent properties, stormwater ponds to treat any runoff from the site will be in place at the start of the operation, minimizing the potential for any off site sedimentation or erosion. The proposed Project is adjacent to an access point, parking area and maintained nature hiking trails into the wildlife refuge. Stripping and mining activities will be conducted near the parking area. Screening berms around the southwest corner of the Site will screen the mining activities from the parking area and the access to the trail system.

26. Visual impacts.

Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? __Yes _X_No
If yes, explain.

The site will be screened from U.S. Highway 169 with screening berms. Some of the berms were constructed as part of the current mining operation on the Scott Land Company property and former mining operations on the Q Prime property. The berms will be extended along the entire eastern boundary of the Q Prime property. Additional berms will be placed to provide screening from residents to the southwest of the site. Stripping operations and construction of screening berms may be visible on a temporary basis until screening berms are in place. Operations may also be visible from the industrial land uses south of Bluff drive on a temporary basis. A stand of trees is located along the majority of the property west of the tracks, providing screening of the operation from the Minnesota Valley Refuge. Security lights and other lighting may be used around the processing buildings. These lights will be shielded and directed downward to reduce glare and visibility from off site. Exhaust from the dryer and baghouse stack will be emitted. The dryer will operate up to 24 hours a day, 7 days/week.

Fuel at the site will be natural gas or propane. The visible height of the plumes will depend upon wind, temperature and humidity. There will be 3 stacks, two at the dryer location roughly 30-40 feet above grade, and one on the north end of the building. The highest stack will be approximately 40 feet high but the height will ultimately will be dictated by air dispersion modeling associated with the air permits. The primary drier stack will be approximately 30-40 foot (dictated by air modeling/air emissions permit) and will have a white plume, the secondary drier stack is from the cooling zone and will have moisture content of approximately 1/10 the amount of the primary stack (very small plume), this stack will likely be shorter in the range of 25-35 feet high. The third stack from the plant dust collector, north side of building will have virtually no plume, and virtually no moisture. It will discharge at just above fan level, approximately 5 feet off the ground or up twenty feet on the structure depending on the installation. The dryers will operate 24 hours/day 7 days per week.

The site is located adjacent to the Mn Valley Refuge which offers two main trail systems throughout the area west of the proposed project. There is one trail head and parking area located adjacent to the southwest portion of the site. This parking area consists of a gravel shoulder with room for approximately 4-5 vehicles. The screening berms along the southeast corner of the site, which will be constructed during Phase 1 operations, will provide screening of the site from the Mazomani parking and trail parking area. The trail head is located some distance from the parking area. The Processing building is not visible from any vantage point along the trail, except for where the trail (actually a public road right – of way that leads to the trail head) crosses the rail road tracks. The

clearing that the rail road tracks provide enable a distant view of the processing building. Mazomani trail is accessed over a low maintenance road and the trail itself from this trail head is not mowed or distinguishable after this summer's floods. Vantage points of the proposed site are obscured by heavy vegetation along the trail.

The trail continues to the north of the project area and up to a parking area off of 145th street. From this parking area, the trail is much more accessible and is better mowed and maintained. The vantage points of the proposed site from this trail are also obscured by heavy vegetation. Exhibit 9 illustrates views from the parking area adjacent to the Site and from the trail itself. The trail is also accessed from a parking area off of 145th Street – further to the north of the site. The trail is better maintained from this trailhead. Pictures of the Site from the north side of the trail are also included in Exhibit 9.

27. Compatibility with plans and land use regulations.

Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency? X Yes __No.
If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

Scott County has land use authority in the Project area. The Project is subject to the Scott County 2030 Comprehensive Plan Update. The site is guided commercial/industrial. The project is consistent with the goals and policies of Scott County's Comprehensive Plan.

The Project is subject to the Scott County Zoning Ordinance. The site is zoned I-1, Rural industrial. Mining is an allowed interim use within the I-1 Rural Industrial District.

The Project is located within the Scott Watershed Management Organization (WMO). The Project is subject to the Scott WMO's Comprehensive Water Resources Management Plan, as well as stormwater management standards included in the Scott County Zoning Ordinance.

28. Impact on infrastructure and public services.

Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project? __Yes X No.
If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see EAW Guidelines for details.)

The site will ship the final product via railcars. There is an existing rail spur that serves the facility. The spur track will be upgraded to meet current rail standards prior to the start of the Project. The existing process building has a rail load out facility. There is existing electrical and natural gas service to the site.

29. Cumulative potential effects.

Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement.

Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative potential effects. (Such future projects would be those that are actually planned or for which a basis of expectation has been laid.)

Describe 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 (or discuss each cumulative potential effect under appropriate item(s) elsewhere on this form).

The southern portion of the Q Prime property was mined for frac sand in the late 1980's. The original site was subsequently subdivided over the years and used for different purposes. The proposed mining involves several parcels situated over the silica sand resource. The proposed final grade for the site that will be conducive to future industrial use type development. Mining of sand and gravel in the very northern portion of the project and on the Scott County property to the north has occurred over the past several years. Potential cumulative effects such as truck traffic, noise and dust generation will no longer be associated with the sand and gravel mining area in its reclaimed state.

There are currently no planned future projects associated with the environmentally relevant area that may interact with the Project in such a way as to cause immediate or direct cumulative impacts. The project will remove all of the available resource in the area immediately surrounding the site, so a lateral expansion of the mining area is not possible. Similar silica sand resources exist within a mile of the site, but the land is currently being mined for the above lying limestone formation or has other established land uses. Should the owners of those parcels with similar silica sand resources propose to mine silica sand, separate environmental reviews would be conducted as required. The project represents an interim use of the property and is therefore subject to an interim use permit rather than a conditional use permit from the County. Because of the interim nature of the Project, it is less likely to contribute to long term cumulative impacts of other future projects.

Reclamation of the Site will leave the site as open space. There are no specific plans for an end use at this time, although reclamation grades have been designed to allow the extension of a frontage road through the property. When final industrial development of the site is proposed, it will need to conform to land use development regulations in effect at that time and may need to undergo additional environmental review, specific to the proposed development as may be required at that time.

30. Other potential environmental impacts.

If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

There are no other known environmental impacts resulting from this project that are not addressed in items 1-28.

31. Summary of issues.

Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.

List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

The above narrative identifies to the best of the RGU's ability all anticipated environmental impacts from the proposed project. Where applicable, mitigative measures have been proposed by the developer, some mitigative measures will likely be identified as necessary through the review process and will be presented as recommendations for consideration as conditions of the IUP

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 9b and 60, respectively.

Copies of this EAW are being sent to the entire EQB distribution list.

Signature
Title Kate Sedlacek Scott County Environmentalist II
Date August 31, 2011