

March 12 2012

Progressive Rail, Inc.

**Interim Use Permit Application
for
Great Plains Sand, LLC
Mining and Processing Facility**

Louisville and Sand Creek Townships, Scott County, MN



**Consulting Civil Engineers
Sunde Engineering, PLLC.**

10830 Nesbitt Avenue South • Bloomington, Minnesota 55437-3100
Phone: (952) 881-3344 • Fax: (952) 881-1913 • E-Mail: info@sundecivil.com

**INTERIM USE
PERMIT APPLICATION
Progressive Rail, Inc.**

GREAT PLAINS SAND

**SANDSTONE MINING OPERATION
SCOTT COUNTY, MN**

I. PROJECT DESCRIPTION

A. Project Overview:

Progressive Rail, Inc. is proposing to reestablish the operation and reclamation of an inactive silica sandstone mining operation in Louisville and Sand Creek Townships in Scott County, Minnesota. Figure 1, General Location Map, illustrates the location of the proposed site (Site) with respect to Scott County. The mining facility will be operated by Great Plains Sand, LLC. The Site is located in an area that contains abundant, high quality silica sandstone reserves which will be mined and processed 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. 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. The property will be reclaimed to an open space condition suitable for final development upon completion of mining activity. The reclaimed site will include a 35-40 acre groundwater lake and 100-105 acres of upland area.

B. Ownership:

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 Company¹ (Scott Land) property consists of the northern and western 28 acres (more or less) of the site. Figure 2, Site Ownership, illustrates the site boundaries, ownership of the parcels and Township boundaries.

¹ Scott Land Company is owned by Progressive Rail, Inc.

C. Property and Project Site Information

Both the Q Prime and Scott Land properties were previously permitted by Scott County for silica sandstone mining and silica sand processing. The initial mining permit was issued in 1980. Mining ceased on the Q Prime site around 1992, primarily due to a change in the market condition. Mining above the water table has been completed on approximately the southern one-quarter (25 acres more or less) of the Q Prime property as part of the past permitted mining operation. The original processing plant is still situated on the Scott Land property. The existing buildings will be updated with new processing equipment to accommodate the proposed use.

The Q Prime property consists of an inactive sandstone quarry, open space, a farmstead, outbuildings, and an office building. All of the buildings on the Q Prime property are centrally located and will be removed as part of the mining process once mining progression necessitates their removal. The buildings will be demolished and hauled to a permitted demolition waste facility. The demolition of the existing structures will be in compliance with federal, state and local regulations. These regulations require structures to be demolished be inspected for hazardous materials such as asbestos, lead based paint, light ballasts, thermostats, stored chemicals, ozone depleting chemicals, etc. Regulated asbestos-containing materials (RACM) must be abated prior to demolition activities. A "Notification of Asbestos Related Work" must be submitted to the Minnesota Department of Health by a licensed asbestos inspector 10 working days prior to conducting abatement activities, if abatement of 160 square feet, 260 linear feet, or 35 cubic feet or more of RACM is required. A "Notification of Intent to Perform a Demolition" must be submitted to the MPCA 10 working days prior to the commencement of demolition. Flaking lead based paint that may be present on the structures will be encapsulated or removed and properly disposed of off-site at an appropriate disposal facility prior to demolition activities. Any lead based paint chips that are present on the ground following demolition will also be removed and properly disposed of offsite at an appropriate disposal facility. An effort will be made to recycle as much of the structure materials as possible to reduce the volume of material requiring landfilling.

The Scott Land property is currently subject to an interim use permit for mineral extraction issued in 2005 for sand and gravel extraction. Sand and gravel mining has largely been completed on the Scott Land property. Reclamation activities are still required on both the Scott Land Property and the adjacent Scott County property that include sloping and final grading, and establishment of vegetation and the construction of stormwater management features (treatment pond and infiltration basin).

D. Existing Site Improvements:

Currently, there is a main processing building, maintenance shop and scale located on the Scott Land property. There is an office, an abandoned house and several outbuildings located on the Q Prime property. The processing building is essentially empty. The majority of original equipment was removed years ago. Internal conveyors to the storage silos, as well as the silos and the rail loadout structure, are still intact. There is natural gas and electricity available at the building and one propane gas tank (14,500 gallons) to be used as backup fuel for the dryer to allow natural gas flex rates. An additional propane gas tank may be added in the future.

Great Plains Sand will utilize the existing office during the initial phases of mining. The office is located in Phase 4. There are bathrooms in the office building. If a new septic system is required at the time that the office needs to be removed, it will be located either on the southeastern portion of the Q Prime site that will remain undisturbed from mining activity (west of the future frontage road), or on the upland portion of the Q Prime property west of the railroad tracks or on an undisturbed area of the Scott Land Company property adjacent to US 169.

E. Site Access:

E.1 Truck Traffic:

Great Plains Sand has designed its site and operations in a manner that will generate a limited amount of traffic. The majority of all final products will be transported from the site using railcars and the existing rail spur and rail loading facility. The Project proposer is also requesting that a limited volume of truck traffic consistent with the levels generated by the recent sand and gravel mining operation on this site, be allowed throughout the silica sand mining operation.

The primary source of traffic will be employees coming to and leaving from work. Trips will also be generated by site visitors and suppliers. We currently expect that these combined activities will generate an average of 74 trips per day spread over 24 hours. The site will typically operate in three shifts over the construction season. During the winter months, the plant will be operational, but the estimated number of employees will be reduced to 10-12, decreasing traffic proportionally. The estimated number of employees at maximum production is 32.

Sand and gravel shipments in connection with previous operations at the site averaged between 13 and 38 loads per day. Individual days may have spiked to levels that would have been much higher. Great Plains Sand proposes operating limitations that restrict outbound truck sand sales during peak traffic hours to no more than 10 loads per day, with the flexibility to ship up to an additional 28 loads

per day during off peak hours if truck sales are developed. The utilization of rail for the majority of sales and restricting peak hour truck traffic allows this site to operate with less traffic impacts than the previously permitted operation and minimizes traffic impacts on the highway 169 corridor.

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 2010² traffic volume data base for the seven county area indicates that the average annual daily traffic (AADT) the 2008 A.D.T. volumes were 29,000 vehicles per day on U.S. Highway 169 adjacent to the Project area. Because of the use of rail to transport the vast majority of product from the site, the Project will not create traffic congestion or have a significant impact on the regional transportation system.

There is an access point into the Q Prime property, "middle access," that provides access to the buildings and office situated on this property. According to MnDOT, this access point is inconsistent with the land use and access management policies of the US 169 Corridor Management Plan. The applicant is willing to work with MnDOT in closing the middle access when an appropriate alternative access to the Q Prime property is provided. Currently it is the only access to the Q Prime property. Closing the middle access at this point in time would leave the property landlocked.

There is a gate on the southern end of the Q prime property but no improved access point from Bluff drive to the property. This access point may be further developed to allow employees and service vehicles to access the mine site during the initial phases of the operation. Bluff drive is a Township road. The establishment of an access point from Bluff Drive will require a permit from the Township. The applicant may request a temporary access point onto Bluff Drive to allow employees and service vehicles to access the initial phases of the mining operations. This temporary access point would be removed when a permanent frontage road and access to the property are established.

The applicant anticipates that final development of the Site will require the platting of a frontage or backage road running north south through the property. It is anticipated that the northern access, providing the main access to the Project, will be closed at some point in the future after mining has been completed when

² 2010 Traffic Volumes Metro Street Series – 5C.
<http://www.dot.state.mn.us/traffic/data/maps/indexmaps/2010/5C.pdf>

an alternative access can be provided, as shown on MAP 4 Concept End Use Plan.

Any use of or work within or affecting MnDOT right of way will require a permit from MnDOT.

E.2 Rail Traffic:

The Union Pacific Railroad controls all rail car movement in and out of the facility. Great Plains Sand is partnering with Progressive Rail on this Project and will work with the railroad to ensure the most efficient movements of railcars given Union Pacific and site restrictions. However the ultimate decisions of railcar frequency, hours of access and travel directions are controlled by the Union Pacific Railroad. In general the current track at the facility will hold 15-18 cars for loading and could be expanded to hold additional 12-15 cars. These cars have a capacity between 90 and 110 tons each. The facility would load all of the cars on the track and then call the railroad for switching. It is expected that either local trains would stop and pick up the cars or a switch engine may be sent from Merriam Junction and move the cars to the rail yard for assembling into a larger train. Rail shipments are expected to be fairly evenly split north and south, with some trains going north to the Twin Cities to interchange with the BNSF Railroad and some trains shipping south to oil fields on the Union Pacific Railroad. The expected shipments by rail will be roughly 5,000 to 8,000 cars per year. This volume of shipments averages 14-23 cars per day. With the current track capacity and expected shipment rates, Great Plains Sand estimates the facility would average car pickups 1-2 times a day.

F. Mining Operation:

Mining will begin in the southern portion of the property which was previously mined. 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. Excavated material will be trucked to the crushing and pre-screening plant. 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 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 is included as Attachment 1. The blast monitoring plan will include seismographs to monitor each blast. Seismographs will be used to verify

and predict that vibrations at nearby structures and historic structures in the National Wildlife Refuge do not exceed standards established by the Office of Surface Mining as outlined in the blast monitoring plan. Locations of monitoring points will change as mining progresses to provide comprehensive monitoring for 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.

Mining will progress in a phased manner generally moving from south to north. There are four individual mining phases as illustrated on the Phasing Plans, Figure 3. 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 finer sands, that are generated at the onset of processing activity. This will eliminate the need to stockpile the finer reject sands which are more susceptible to wind erosion than stockpiles of the coarser materials.

Only a minor amount of sandstone mining will occur on the Scott Land property which will be limited to the southern portion of the east-west oriented parcel and along the eastern portion of the north-south oriented parcel, where the sandstone deposit begins to thin. Although sandstone mining is limited to a small portion of the Scott Land property, reclamation activity will extend throughout the entire Scott Land and Scott County property to fully meet all the reclamation obligations previously approved. There is an approved Resource Management Plan that was developed in conjunction with the current CUP for the Scott Land and Scott County properties which requires the construction of a stormwater management pond and filtration basin to serve future industrial development of these two properties as part of final reclamation. These stormwater management features will be constructed at the onset of the sandstone mining operations as part of the Stormwater Pollution Prevention Plan (SWPPP) developed for the mining operations.

Processing activity will occur predominantly on the Scott Land property. This is consistent with past sandstone mining operations at the site. The existing processing building, shop and rail load out facility will be updated and utilized in the operation. Processing will take place both adjacent to and within the existing processing 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 to a conveyor and conveyed to a washing screen located just outside the building and from there to the processing building for wet sizing. The dense media separators generate different sizes of material. The coarse material will be pumped to dewatering screens and then stockpiled using two 150 ft. radial stackers. These stockpiles will contain up to 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 fed by the loader into a hopper and conveyed to the dryer. The dryer is located half in the building and half out of the building. The dryer will include ancillary equipment including a baghouse to control air emissions, fans and burners. After passing through the dryer, material is inside the building and conveyed to the screening section which sort the sands into appropriate sizes for market. This section of the plant will produce small amounts of excess material either too large or too small to be sold, This dry waste will be disposed of directly into the water in the active reclamation area when possible. During extremely cold weather, it will be placed in excavations adjacent to the water line, covered daily and then pushed into the open water in the spring. Finished product will be stored within silos and loaded onto railcars for delivery.

The wet process system is designed to separate, through density separators, the coarse sand for further processing. The fine sand fractions (#270 by #70 mesh) are initially separated by the density separators and then by pressure cyclones and pumped to a reclamation area in the excavated quarry. Fines that are smaller than the #270 mesh are the silts and clays that bind the silica sand grains together. These clay particles are proposed to be separated and settled in a clarifier and then pressed in a belt press to create a wet solid that is roughly 25%-30% moisture. The total volume of these silts and clays are expected to be 5 TPH and will be moved daily to a reclamation area by truck when wet and placed into the soils and covered. The separation of these clays from the underwater fills will speed up the consolidation of the underwater fills and minimize the compactive effort needed to insure buildable site pads.

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. At some point in the future, an additional siding may be constructed parallel to the existing siding.

The site will operate year round. Processing equipment that is located within the building, and limited equipment located outside the building including; the wet screen, the drying operation, loader and feed hoppers, and conveyors associated with stockpiling and transferring material into the processing building, and rail loading operations will operate 24 hours per day 7 days/week. In addition, the crusher will operate 24 hours a day seven days a week during the winter months

only as a feeder and chunk breaker. This activity is substantially quieter than the alternative of putting frozen sand through a grizzly with a loader bucket and is only needed in the winter months.

Lighting will be required at the Site. Lighting will be downcast and meet County requirements. A lighting Plan has been prepared by Parson's Electrical and is included as Attachment 2.

It is estimated that the site will be actively mined for 15-20 years and reclamation 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, drilling, internal truck hauling from the active mining area to the processing plant area, will operate 7 a.m. to 7 p.m. Monday – Saturday. The plant, including some outdoor equipment near the building consisting of the rail loadout, dryer, grizzly, loader, dewatering screens, 150 foot stackers, crusher, wet screen, belt press, thickener tank, dryer, water systems, bag houses and fans 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.

Braun Intertec was hired to address concerns regarding slope stability during mining along the railroad right of way and along the Bluff Creek Right of way. The concern was that the excavation slopes so close to the right of ways could result in a slope failure that could impact property within the right of way. A summary of Braun's recommendations regarding maximum excavation slopes is included as Attachment 3. Braun concluded that given the geometric design of the mine slopes, and the fact that the groundwater flow in general won't be altered by dewatering, processes involved in the mining operations will not alter or create groundwater flow capable of causing subsidence, instability or other threats to the railroad (This same principal can be applied to the Bluff Creek Right-of-way as well) can be applied to Bluff Creek right-of-way). As a precaution, Braun recommends (as they do in general for projects where excavations are made) that a geotechnical engineer or geologist periodically observe the conditions of the surface beyond the excavation limits, specifically within the "Mining Setback" area. Braun also recommends that provisions be made to confirm that the submerged portions of the mining excavations are completed at a maximum slope of 1:1 slope. Braun's final recommendation is that the sandstone excavation that is above the water table be excavated at a slope of 1/4:1 or flatter. The applicant agrees to make these recommendations from the geotechnical engineer conditions of the permit. The applicant further proposes

that the above described maximum slopes for the above water and below water excavations and the associated recommendation all apply to the right of way along Bluff Drive as well as along the UP railroad right of way

The mined face of the overburden is typically 1.5:1. 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, with the exception of rail loading, two fifty foot diameter clarifier tanks for water treatment, propane tanks, three possible future storage silos on the north end of the building (50 foot diameter each) and processing activity located in the existing processing building, will not be conducted closer than one hundred (100) feet to the property line, nor closer than five hundred (500) feet to any residential structures. The existing processing building is set back approximately 60 feet for the property line and rail load out equipment extends from the processing building to the rail spur. The Processing Area Site Plan, Figure 4, illustrates the locations of all of the processing activities and stockpiles.

G. Reclamation

Reclamation activities will include backfilling and sloping the perimeter of the site to achieve a maximum slope of 5:1 (horizontal to vertical) in upland areas. 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. These 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 table fill to accelerate compaction. Settlement plates will be monitored to verify settlement rates and that appropriate compaction has been achieved to provide for future development.

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 (required per previously approved Resource Management Plan). These calculations take into consideration that portions of the Project will be left as open water. In the 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 finer granular material that is too small to meet the required 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 backfills above the water table.

Braun Intertec (Braun) 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 applicant is willing to provide the County with the geotechnical data obtained during monitoring of the settlement plates depicting the degree of compaction over time in the areas where future construction of roads and buildings may occur.

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. If the site is ever developed into commercial or industrial uses, appropriate stormwater management treatment and diversions will be required to prevent surface water runoff from entering the groundwater lake. The lake is expected to bounce 0.90 feet during a 100 year rainstorm event, 1.19 feet during a 100 year snowmelt event under frozen ground conditions and 2.38 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.

Reclamation activities will be in conformance with the land reclamation standards adopted in Chapter 10 Mining of the Scott County Zoning Ordinance, except standard 10.5.3 which 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 applicant is requesting 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.

Materials Balance Summary:

Reclamation grades were designed to achieve a sit soils balance. Overburden soils will be mixed with the finer gradation sands that are not incorporated into a marketable product and placed to achieve the reclamation grades. Calculations are based on information obtained from soil borings by Braun Intertec used to evaluate the suitability of the overburden for reclamation filling, as well as assumptions regarding in place densities of soils and bedrock, excavation slopes above and below groundwater and required reclamation slopes. Reclamation grades result in a mix of upland areas and lake area. The size of the lake may be adjusted as reclamation comes to a conclusion to account for minor variations from assumptions used in developing the site balance.

Material available for backfill:

Overburden (includes unconsolidated material remaining on Scott Land Company Property: 80% useable as below water fill mixed with the fine sand component based on Braun Soil Borings: 2,925,890 cy: 80% =	2,340,700 cy
Fine sands produced from mining Jordan above water table:	746,200 cy
Fine sands produced from mining Jordan below water table:	<u>2,400,000 cy</u>
Total available as backfill:	5,486,900 cy
 Needed for backfill 35 acre lake	 5,425,000 cy
Needed for 40 acre lake:	4,979,700 cy

Because the volume computations are based on certain assumptions regarding the variations of in place densities of the different materials both in situ and backfilled and compacted, as well as mining limits and depths, the actual size of the lake will vary as needed to account for field conditions and mining actually

encountered at the site. Also the 20% overburden that was not included in the calculation because it is not suitable for below water filling is available for sloping in upland areas along the eastern edge of the site.

The volume of backfill required on a phase by phase basis is as follows based on the 35 acre lake:

Phase 1: up to southern limits of Phase 2 (approximately 20%):	1,085,500 cy
Phase 2: (approximately 30%):	1,627,500 cy
Phase 3: (approximately 40%)	2,170,000 cy
Phase 4 (approximately 10%)	542,500 cy

H. 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 in the County's Comprehensive Guide Plan. 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 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. The applicant will agree to pay for the construction of the frontage road through the property, if development to the north or south requires connection through the property. The applicant will pay for the construction of the road even if development on the property itself does not occur.

The alignment of the road has been designed to place the road bed on an area of the site that will not be mined below the water table to eliminate concerns that the applicant cannot adequately backfill and compact material the material placed as below water fills. It is however, the applicant's belief that this is not necessary. There are many examples of the successful development of on land where past mining into the water table has occurred including the construction of roads, utilities, commercial and residential development.

II. REQUIRED INFORMATION

The following information provides details of the proposed operation as required by Scott County Zoning Ordinance No. 3, Chapter 10: Mining.

A. Name and address of property owners:

The site is composed of property owned by two separate parties, (See Figure 2 Site Ownership):

Name: Scott Land Company
c/o Progressive Rail, Inc.
21778 Highview Avenue
Lakeville, MN 55044

Name: Q Prime Inc.
729 7th Ave.
New York, NY 10019

B. Name of person or agency requesting permit:

Name: Scott Land Company
c/o Progressive Rail, Inc.
21778 Highview Avenue
Lakeville, MN 55044

C. Operator:

Name: Great Plains Sand, LLC
Address: 1242 Adrian Drive
Chaska, MN 556318
Telephone: (952) 476-9800
Fax: (952) 476-9801
Contact: Mr. James Sankovitz

D. Legal description and acreage of property to be mined:

The legal description of the site for the two properties is as follows:

1. Scott Land Company: PID: 70290010

Lot 1, Block 1, Flood Brothers Addition, Scott County, MN.

2. Q Prime, Inc.:

Parcel 1: PID's 79330041, 79330042

All that part of the East Half of the Southwest Quarter of Section 33, Township 115, Range 23, Scott County, Minnesota, lying Easterly of the Easterly right of way line of the Chicago, St. Paul, Minneapolis and Omaha Railway Company (Chicago and Northwestern Railway); and all that part of the West Half of the Southeast Quarter of said Section 33 lying Westerly of the Westerly right of way line of the Minneapolis and St. Louis Railroad excepting therefrom the following parcels:

Lot 1, Block 1, Unimine Addition, and

Lot 1, Block 1, Flood Bros. Addition

Parcel 2: and 90130010

Tract A, Registered Land Survey Number 86; and Tract C, Registered Land Survey Number 136; as filed in the office of the Register of Titles, Scott County, Minnesota, excepting therefrom the following parcel:

That part of Tract A, Registered Land Survey No. 86, Scott County, Minnesota, which lies northwesterly of a line drawn from a point on the north line of said Tract A distant 54.84 feet easterly from the northwest corner of said Tract A to a point on the west line of said Tract A distant 54.84 feet southerly from said northwest corner.

The Site encompasses 140 acres more or less. Approximately 100 acres will be actively mined, with the remaining areas serving as processing, stockpile, and buffer areas.

E. Maps of the site:

The following Maps have been prepared in accordance with the ordinance. Maps A-D are located in the back section of this report.

1. Map A, Existing Conditions: This map illustrates topography with a two-foot contour interval, existing vegetation, wetlands, existing surface water drainage patterns, existing structures and existing wells.

The existing topography reflects the previously mined areas of the site located in the very southern portion of the Q Prime property. It also reflects recent sand and gravel mining conducted on the Scott Land Company

property. Processing buildings illustrated on the map were erected as part of the original mining operation, and will be used for processing in this operation.

There are several existing buildings located on the Q Prime property including an abandoned farmstead, outbuildings and office. These buildings will all eventually be removed as mining advances into Phase 3. The office may be used on a temporary basis until the mining advances to the point where it must be removed.

Portions of the site drain to the east towards the railroad tracks that parallel U.S. Highway 169 and portions of the site drain to the west towards the railroad tracks that border the western portion of the site. There are no wetlands located on the site itself. To the west of the site, across the railroad tracks, there is a large wetland complex associated with the discharge area of the Minnesota River Valley.

Vegetation of the main portion of the Q Prime site is brush and grassland. The majority of the Scott Land property is inactive sand and gravel mining characterized by barren soil and undergoing site reclamation which will include slope stabilization and the establishment of vegetation.

2. Map B, Proposed Operations: This map indicates structures to be erected, location of area to be mined, depth of proposed excavation, the location of machinery to be used in the mining operation, aggregate stockpiles, vehicle parking, site access and staging. Stockpiles and vehicle parking are also shown on the plan. A complete description of Site operations is included in Section I Site Description above.

3. Map C, Reclamation Plan: This plan illustrates the reclamation grade of the site using two-foot contour intervals, location and species of vegetation to be replanted, the timing and sequence of reclamation and the proposed land use of the site upon conclusion of reclamation. Reclamation will be an on-going process. As excavation advances through the phases, backfilling will follow. Up to fifty feet of material will be removed below the water table. Of this, approximately 30% is finer reject sand that will be used to backfill the Site to the grades indicated on the Reclamation Grades

Site reclamation will be performed to allow future development of the site. The reclamation condition, prior to final site development of the site is hydrologically similar to the pre-settlement condition of the site. The created water body reduces off-site drainage. The Resource Management Plan includes hydrologic computations illustrating that the reclamation condition of the site meets applicable Scott County stormwater management requirements.

4. Map D, End Use Plan: The site is guided industrial. Final development of the property will be consistent with the zoning of the property at the time development is proposed. Until that time, the planned future use of the property is open space with a proposed frontage/backage road either platted or constructed through the property to allow for future connections to the north and south.

If development is proposed at some time in the future, then septic design (if development were to occur prior to the availability of municipal services), stormwater management design, and other development issues will be addressed in accordance with the regulations in effect at that time.

F. Noise and Dust Control Plan:

The mining operation involves a variety of components that have the potential to generate dust and/or noise. These include operation of equipment involved in stripping operations, blasting, extraction from the bank, transfer operations from the active mine face to the processing area, processing, and loading of aggregate. Mitigative measures can be implemented at the site that successfully minimize or eliminate nuisance dust and noise conditions.

1. Noise Control Plan:

- Equipment to be operated outside includes scrapers, excavators, haul trucks, loaders, blast drill, rock breaker conveyors, preliminary crusher, conveyor, grizzly and wet screener, belt press, thickener tank, dryer, water systems, dewatering screens and stackers, bag houses, fans, water treatment and dryer. With the exception of clearing and grubbing, stripping of topsoil and overburden, creating perimeter berms and the operation of the drill rig to support the blasting process, , these operations will be , conducted behind perimeter berms, or shielded behind stockpiles or the processing building. The bag house will be located on the north side of the processing building, without the benefit of stockpiles or berms. The fan will have additional noise suppression.
- Screening berms will be constructed around the perimeter of portions of the site as stripping operation proceed to provide noise attenuation and visual screening of the site from US 169 and the nearest residences. Figure 5 illustrates the proposed berm locations and grades. Per mitigation measures identified in the noise analysis, the applicant is proposing a ten foot high berm in the southwest corner of the Site and a six foot high berm along the eastern property line of the Site. These berms will be constructed with 3:1 slopes and an approximately ten foot top. The berms will be constructed out of overburden material which consists of: terrace deposits; Poorly-graded sand (SP), Silty Sand (SM) and SP-SM; glacial outwash, poorly graded sand (SP); and glacial till

(clayey sand-silty sand, SC-SM and clayey sand SC). Six inches of topsoil, amended with compost as may be necessary to enhance moisture retention to allow establishment of vegetation, will be placed over the berm. The berms will be seeded with native seed mix for sandy soils in accordance with MnDOT spec. 2575 for establishment of vegetation and mulched with MnDOT straw 2S mulch or wood fiber 2S type blanket. Vegetation on the berms will be inspected on a monthly basis and areas will be reseeded as necessary to insure that vegetation is adequate to control erosion and sedimentation.

- Berms will be constructed in phases. The southwestern berm and the southern and northern portions of the eastern berm will be constructed during the onset of Phase 1 mining. The eastern berm will be extended to the north as mining progresses to Phase 2 and Phase 3.”
- 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.
- Processing equipment will be run on electricity and natural gas which currently serve the property. Natural gas may 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. The use of electricity and natural gas eliminates the use of generators and their associated noise emissions.
- Processing operations, with the exception of crushing, screening, drying, feed hoppers, water treatment, baghouses, dewatering screens 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.

Noise modeling (report included in EAW) demonstrates that site will operate

in accordance with the MPCA's daytime and nighttime noise standards. The mining operation will operate between the hours of 7 am and 7 pm, therefore MPCA's daytime standards will apply. Mining levels are generally predicted to be highest during Phase 1 mining. Predicted mine levels are generally 20 dBA lower than the daytime L10 65 dBA at the closest residential receptors, except at the residence located to the southwest of the Phase 1 (Bennett) which shows the highest expected overall noise level. However, the predicted noise level is still 10 dBA below the applicable MPCA daytime standard.

Because processing operations will occur 24 hours per day, nighttime noise standards apply to noise generated from processing operations. Predicted sound levels from nighttime operations at the processing plant are compared with the state nighttime L50 standard of 50 dBA and found to be below nighttime standards for all three of the nearest residences throughout all phases of mining activity, ranging from 45.1-48.2 dBA.

- A noise testing program will be implemented at the onset of processing activity. 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.

2. Dust Control Plan:

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. The situation is similar to dust generation from agricultural production when fields are being tilled in the spring or fall.

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

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.

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 onto a conveyor and conveyed to the wash screen outside of the processing building. From the wash screen materials are pumped inside to the dense media separators. The washplant will produce stockpiles of material which will be pumped to a dewatering screen (outside) and conveyed to the stockpiles. These will include two piles: 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 be loaded by loader into a hopper and then conveyed to the dryer and into the building. In the winter they might be crushed prior to entering the dryer if the material contains large frozen chunks from the dryer, the material is conveyed directly back into the building for final screening and shipment. The -70 fine sands from the wet process will be pumped directly to the reclamation area via a slurry (water and sand mixture) that is pumped in an 6"- 12" pipe. These finer sands, which are easily carried by wind, will not be stockpiled. Fine sands from the dry plant will be placed in a bin and then hauled by truck to the reclamation area. The mining activity is focusing on the larger, coarser mesh sizes of frac sand. This is unique to this mine site as these finer materials are s 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 the previous mine operations, will be returned in a slurry form from the wet plant directly to the reclamation area. This is a

substantial and significant improvement over 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 reclamation area will substantially reduce the potential of sands being picked up and carried off site.

A Fugitive Dust Control Plan has been prepared by Wenck and Associates and is included as Attachment 3.

3. Silica Dust Control Plan:

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.

Workplace Exposure: 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. 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 Mine Safety and Health Administration (MSHA). The permissible exposure limit or threshold limit values (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.

There is minimal potential for exposure to respirable silica dust at the site as industry standards will be followed and engineering controls will be implemented at the work place. The metal and nonmetal mining industry standard for allowable exposure to silica is based on the 1973 American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values formula: 10 mg/m^3 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 or the sandstone and processing activities may produce small amounts of respirable sandstone. The Site will operate in accordance with these MSHA rules and

the following measures will be adopted to control exposure:

- Conduct initial and ongoing air monitoring to measure worker exposure and ensure that controls are providing adequate protection for workers.
- Dust control program
- Training and information to workers on crystalline silica
- Availability of air 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. 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 confined dusty work areas.
- 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 engineering controls and containment methods 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.

4. Ambient Air Exposure:

Crystalline silica is not currently a regulated HAP under Federal or State regulations. However, crystalline silica emissions from these operations would be considered a particulate matter type and form of pollutant, for which regulations exist and apply. Emission control measures (emission control equipment such as baghouses, and fugitive dust control measures) reduce emissions of crystalline silica as well.

Site monitoring of silica dust levels at the perimeter of the Site will be conducted. An air monitoring plan is included as Attachment 3 that includes the establishment of an initial monitoring program of the ambient air concentrations of particulate matter downwind of the mining and processing operations to illustrate compliance with the State ambient air

quality standards. Elevated particulate matter emissions may result from stockpiling of materials and as well as from drilling and blasting, mining and internal hauling operations. The monitoring plan outlines monitoring locations, frequency, reporting and mitigation measures to reduce the potential for respirable silica exposure. The program will end after illustrating a record of compliance. Potential mitigation include irrigating stockpiles, recessing temporary stockpiles below grade, no stockpiling of finer reject sand materials outside the quarry and/or enclosed storage.

G. Water Use:

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 recycled through a water treatment plant and returned for re-use. The smaller fine sands will be slurried back to the quarry for reclamation. Water use will include approximately 4,000 gpm for processing; of this 3,010 GPM will be recycled through the water treatment system. Approximately 840 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 net processing water use of 150 gpm. There will also be water withdrawal associated with the below water mining activity. Material excavated below the water table will be saturated and 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 an estimated net loss of 100 gpm as a result of the moisture remaining on the excavated sand. Therefore net loss of water for the site will be 250 gpm. Water use by employees is estimated at 250-700 gpd (0.17 -0.49 gpm). An existing potable well and office will provide restrooms and shower for employees until the mining displaces the building, then 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 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.

During active mining operations, the predicted impact (drawdown) is generally less than 1.5 feet outside the mining area³ and small changes to the groundwater contribution to nearby surface water features. Flow changes to Sand Creek were predicted to be approximately 2% less than pre-mining base

³ Barr Engineering Technical Memorandum Groundwater Modeling of the Jordan Frac Sand Mining Phases. May, 11, 2011.

flow conditions and approximately 1% above baseflow conditions in the reclamation condition.

The direction of groundwater flow is to the west-northwest across the site. There is one residential water supply well located downgradient of the site. Discharge of the Jordan Aquifer is immediately west of the site in the wetland complexes associated with the floodplain of the Minnesota River as well as the river itself.

H. Groundwater Monitoring Plan

A Groundwater Monitoring and Mitigation Plan is attached as Attachment 4. 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 and the office building will be used during the initial mining operations and eventually be abandoned when mining necessitates. 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 6 illustrates the wells on the site and in the nearby vicinity.

I. Description of all phases of the proposed operation, including duration, location and approximate acreage of each stage and time schedule for reclamation:

1. *Setting:*

The site topography of the central portion of the site consists of gentle slopes, which fall predominantly east and west, from a central high area in the middle of the site. The northern and western portions of the site have been disturbed by past sand and gravel mining activity. The southern portion of the site has been disturbed by past sandstone mining.

Site topography ranges in elevation from approximately 730 feet above mean sea level (msl) in areas along the southwesterly boundaries and southern portion of the site, to approximately 780 feet above msl in the irregular topographic areas in the north.

The Site is located adjacent to the Minnesota River Valley and within the Scott Watershed Management Organization (Scott WMO). The Minnesota River is

located approximately 1-¼ miles to the southwest. The Louisville Swamp, a US Fish and Wildlife Service National Wildlife Refuge, several unnamed protected wetlands, and Sand Creek lie to the west and within 1 mile of the site. Figure 7, USGS Quad Map Excerpts, illustrates the site with respect to surrounding natural features. Figure 8, NWI Map Excerpts illustrates the site with respect to nearby wetlands.

Roughly one half of the site drains to the west towards the railroad tracks that border the western property boundary of the site. Runoff eventually flows to one of two culverts under the tracks and into the wetland complex west of railroad tracks associated with the Minnesota River Valley. The wetland area is tributary to Sand Creek, which flows northwesterly into the Louisville Swamp and ultimately into the Minnesota River.

The eastern portion of the site drains towards the railroad tracks that border the eastern property boundary of the site. The ditch along the railroad tracks is not well defined and contains several landlocked depressions where accumulated water infiltrates into the underlying granular soils. The entire site is characterized by soils with a high infiltration capacity so very little runoff from the site typically occurs except during snowmelt events when the ground is frozen.

Current and past land use of the site includes mining, agricultural and industrial uses. Woodlands and wetlands situated adjacent to the Site will remain undisturbed and will be protected throughout all phases of operation. Figure 9 is an aerial photograph of the site that illustrates land use of the Site and surrounding area.

Surrounding land uses include agriculture to the north and east across U.S. Highway 169, a wetland complex to the west, rural residential to the southwest, and industrial to the south and southeast. The site, as well as properties north and south and a single parcel west the site, are zoned I-1, Rural Industrial District. Other parcels to the east, and across US Highway 169, are zoned UBR, Urban Business Reserve. Figure 10, Zoning Map, illustrates zoning of the site and surrounding area.

2. Site Preparation:

Initial site preparation will involve clearing and grubbing and removal of topsoil and overburden over Phase 1. Phase 1 includes approximately 37 acres located in the southern portion of the Site. Past mining has removed a portion of the overburden and sandstone that was above the water within this Phase. Initial stripping activity will occur over this previously mined area to prepare for the first cell of mining activity which will involve below water table mining.

The depth of topsoil and overburden ranges from five feet in the southern and eastern portions of the proposed mining area to approximately 55 feet in the very

northwestern portion of the mining limits. The thickness of overburden is an average of about twenty feet. Topsoil and overburden will be removed using scrapers, excavators, loaders and trucks. The material will be used to construct screening berms around portions of the perimeter of the site. Screening berms will range from six to ten feet high with 3:1 outer slopes. The top and outer slopes of the berms will be vegetated and maintained throughout the mining operation.

Excess topsoil and overburden will be retained on site and used in reclamation. Stripping operations will occur in stages of approximately twenty acres/stage. This will minimize the open area at any given time. This will help reduce dust as well as the potential for site erosion and sedimentation.

3. Mining:

Phases: Sandstone mining will progress in four phases. The size of each phase varies from approximately 20-35 acres. Each phase will take approximately five years to complete based on current market conditions. Each phase includes mining above the water table and mining below the water table. Phases are illustrated on Figure 3.

Blasting: After overburden has been removed, sandstone will be blasted as necessary. Blasting will be performed in conformance with the Office of Surface Mining (OSM) standard standards 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. Seismographs will be used to verify and predict that vibrations at nearby structures and historic structures in the National Wildlife Refuge do not exceed standards established by the Office of Surface Mining as outlined in the blast monitoring plan. 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.

The OSM standards have been established to minimize the potential for any damage to nearby structures. Blasting materials will not be stored on site. Surrounding residents within 1,000 feet of the site will be contacted prior to start up of the operation, asking if they wish to be contacted the day before a scheduled blast. Blasting will be limited to the hours of 10 am to 6 pm Monday through Saturday. A Blast Monitoring Plan is included as Attachment 1.

Sandstone will be removed above the water table using loaders and excavators. Sandstone will be removed below the water table using excavators, dragline or dredging equipment.

Transport: Excavated sandstone will be transported by haul trucks to the processing building. The material will be placed in a surge pile to feed the plant. Material is crushed and pre-sized, stockpiled and fed by conveyor to a wet screen then into the plant for processing.

4. Processing:

Processing activities at the Site will include a pre-screening operation located outside of the processing building, a wet plant for preliminary sizing of the sand and removal of fines and impurities and an enclosed dry screening plant for screening the sand into marketable gradations.

5. Reclamation:

Reclamation activity will meet the requirements of the Land Reclamation Standards as outlined in the Scott County Zoning Ordinance except that more than four acres will be open prior to starting reclamation activity. This is to allow sufficient room to safely operate mining equipment.

The applicant contracted with Braun Intertec to develop backfill specifications for below water fills and a monitoring program to provide assurance to the applicant that reclamation activities would leave the site in a condition suitable for future development, i.e. suitable strength and compaction to support roads and buildings, over portions of the Site left in an upland condition. In developing their recommendations, Braun reviewed geotechnical Site specific data from the Jordan Sandstone, collected a sample of Jordan Sandstone from the Site and performed seven soil borings across the site.

Braun determined that much of the sandy overburden soils were suitable as below water fill, in addition to the finer waste sands generated from the processing plant. Braun recommended that the reclamation fill be compacted to 97% of the soil's maximum dry density. Upland areas are proposed to be graded to approximately ten feet above the water table. Braun determined that in order to achieve compaction within a reasonable timeframe, twenty five foot surcharges could be used over the areas where the deepest hydraulic fills (up to fifty feet) will be required. This would allow for proper compaction of the upland areas within three to five years. Since reclamation will be progressive. The initial phases of reclamation will reach proper compaction well before the mining operation is completed. In areas where the depth of excavation below the water table is less than fifty feet lower surcharges will be required. Lower surcharge heights can also be utilized over all of the fills, but the time to reach the acceptable degree of settling will be extended.

Braun Intertec also recommended a testing program be implemented to allow the ability to monitor settlement overtime and verify when the fill has reached acceptable conditions to allow building. They recommend that settlement plates be installed to monitor the performance of the surcharge. They further recommend that a geotechnical engineer review the settlement data to provide a recommendation as to when the surcharge can be removed.

Braun Intertec has successfully designed below water fill projects in mining areas throughout the metropolitan area. These backfilled areas have ultimately been developed as commercial, residential and industrial properties.

- a. Timing; reclamation of the site will be an on-going process. Initially an area of below water mining will begin to create a large enough open water area to establish the clean water sump for the processing operations and active mining zone and a reclamation zone. As processing operations begin, fine sand will be pumped back to the completed portion of the mining area and used immediately as reclamation fill in the previously completed portions of Site. Hydraulic backfilling will occur in a continual manner, directly tied to the processing of the sandstone material. Reclamation will be completed within 1 year after the termination of the mining operation. Within 3 months of completion of the mining operational building, structures and plants incidental to the mining operation shall be dismantled and removed by the mining operator.
- b. The peaks and depressions of the area shall be restored in general accordance with the grades indicated on Map C, Reclamation Plan. Reclamation grading may occur within the mining setback area and achieve a maximum 20% grade on sideslopes.
- c. Reclamation will be ongoing however approximately 30 acres will be open at any given time in order to allow the operator to balance above water table mining with below water table mining, allow stripping and preparation of future mining areas as well as active reclamation fill areas. Hydraulic filling of the open water excavation will proceed in proportion to wet mining activity. Slopes around the perimeter of the site will be backfilled as progression of the reclamation of the water excavation allows. As mining progresses towards the northern portion of the site, reclamation will continue along behind the progression of completed mining area.
- d. Reclaimed areas shall be surfaced with a soil of a quality at least equal to the topsoil of the land prior to mining. Said topsoil shall be placed to a minimum depth of 6 inches over reclaimed areas. Topsoiled areas will be seeded and mulched to establish vegetation.

- e. The finished grade has been developed so as to not adversely affect the surrounding land or future development. Final grades indicated on the Reclamation Plan may be modified in accordance with planned ultimate use of the land. Reclamation will be in general accordance with the elevations and slopes indicated on the plan.
- f. The perimeter berms may be removed as part of final reclamation.

J. Resource Management Plan:

A Resource Management Plan has been prepared in accordance with Chapter 6 of the Scott County Zoning Ordinance. The Resource Management Plan is included as Attachment 5 of this application. The Resource Management Plan describes in detail the erosion control measures to be implemented at the site in order to protect the wetland complex to the west as well as erosion and sedimentation control practices for the entire facility.

K. Written explanation regarding how the proposed interim use permit will not be in conflict with each of the following standards:

1. *The use will not create a burden on public facilities and utilities which serve or are proposed to serve the area.*

The use will not create a burden on public facilities and utilities which serve or are proposed to serve the area. The proposed mining operation will not require any public sanitary sewer or water. An existing railroad will be utilized for transportation of mineral aggregates. Employee, supplier and minor truck traffic will not significantly impact current roadways or capacities. Electricity and natural gas currently serve the site. No other public facilities or utilities are impacted by the use.

2. *The use will be sufficiently compatible with, or separated by sufficient distance from, or screened from adjacent agricultural or residential land uses so that there will be no deterrence to the use or development of adjacent lands and uses.*

The use will be sufficiently compatible with, or separated by sufficient distance, or screened from adjacent land uses so that there will be no deterrence to the use or development of adjacent land and uses. A screening berm will be established along the eastern property line as mining progresses from south to north through the site. An additional screening berm will be established in the southwest corner of the site to screen the adjacent residence. Screening is illustrated on Proposed Operations, Map B.

The mining operation will meet or exceed all of the set back requirements

contained in the Scott County Ordinance

The site, in addition to meeting all of the setbacks required by the Scott County Zoning Ordinance, is located in a remote part of the County. The site is currently zoned I-1, Rural Industrial. This zoning district extends to the north south and west of the Site. Mining is an allowed interim use within this district. The area east of the Site is zoned UBR Urban Business Reserve and I-1, Rural Industrial. For the most part, the existing land use reflects these zoning designations. South of the site is an industrial park. Southeast of the site is an industrial development occupied by a ready-mix plant and other industrial uses.

The RR-1, Rural Residential Reserve zoning district extends to within 1,500 feet of the site. There are scattered rural residential land uses in the area, the majority of which are located on the east side of US Highway 169, and south of Bluff Drive. There are two residential structures located within 500 feet of the site and an additional three residents located between 500 and 1,000 feet of the site. Figure 11, Existing Residential Structures, illustrates the location of the residents within 1,000' of the Site.

- 3. If improvements are made, they shall be so designed and constructed that they are not unsightly in appearance to the extent that it will hinder the orderly and harmonious development of the district wherein proposed.*

Improvements will be limited to improvements within and around existing buildings. Screening berms will be constructed along portions of the perimeter of the site to provide screening of the mining operation from U.S. Highway 169 and nearby resident. The site will be maintained in a neat and orderly fashion.

- 4. Adequate measures have been taken to provide ingress and egress so designed as to minimize traffic congestion, provide adequate access to public roads, and provide on-site parking.*

The Site will utilize the existing commercial access which runs across the County Property, adjacent to and north of the Site. There is an easement associated with the access road. The access road will be used by employees and site visitors.

- 5. Adequate water supply, individual sewage treatment system facilities, erosion control and stormwater management are provided in accordance with applicable standards.*

Water for the processing operation will be obtained from an on-site groundwater sump created as part of the mining operation. The wet plant within the processing building will recycle water with approximately 97% efficiency. The operator will provide portable

bathrooms facilities, or an on-site septic system will be required to serve the employees.

The Resource Management Plan details the adequacy of erosion controls and no operations will take place on Site until there is an approved Resource Management Plan.

6. *All buildings/structures must meet the intent of the State Building Code and/or fire codes.*

All buildings/structures will meet the intent of the State Building Code and/or fire codes.

7. *Documentation that describes the proposed interim use permit's potential effects or impacts on public facilities, utilities, and services, including but not limited to: Streets, law enforcement, ambulance/emergency services, fire protection, County/Township administration, schools, utilities.*

The written application clearly details the use's impact on all public facilities, utilities and services. Local law enforcement, ambulance/emergency services and fire protection serving the area will serve the site as well. The site will have a positive impact on County and local government. The product shipped from the site is subject to aggregate tax. Currently that tax is 21.5 cents/cy or 15 cents/ton. The tax is imposed when the frac sand is sold or is transported from the site, whichever occurs first. The operator is required to file quarterly reports relative to the quantity of aggregate material removed during the preceding calendar quarter accompanied by a remittance of the amount of tax due. The tax is split 42.5% to the County for its Roads and Bridges Fund; 42.5% to the Township for its general revenue fund and 15% to the County for general reclamation of abandoned pits or quarries within the County. The tax is paid to the County who is responsible for paying the Township share to the Township.

In addition to the aggregate tax, the Site will be paying a higher property tax upon final development. The project will provide local jobs to work at the site which will generate other tax and economic benefits.

III. PERFORMANCE STANDARDS

A. General Provisions:

Weeds and any other unsightly or noxious vegetation shall be cut or trimmed as may be necessary to preserve a reasonable neat appearance and to minimize seeding on adjacent property. All equipment used for

mining and extraction operations shall be constructed, maintained and operated in a manner as to minimize as far as practical, noises, dust and vibrations adversely affecting the surrounding property.

B. Water Resources:

The mining operation shall be conducted in such a manner as to minimize interference with the surface water drainage outside of the boundaries of the mining operation. Drainage pipes will be used as needed to prevent the screening berms from blocking local drainage onto the site.

C. Safety Fencing:

Safety fencing may be placed around the perimeter of the mining operation if required under permit conditions. If safety fencing is required adjacent to screening berms, the fencing shall be placed on the inside portion of the screening berm so as to hide the fence from adjacent neighbors' view. There is some welded wire fencing that exists on the outside of berms around the old quarry area which will remain.

D. Mining Access Roads:

An existing site access road will be used. The site access road has a right turn lane from 169 in place and good site lines so that any turns onto Highway 169 can be safely completed.

E. Screening Barrier:

Screening berms will be constructed, as necessary, along the perimeter of the site at locations indicated on the plans. The berms will be 6-10 feet tall. The outer slope of the berm will be constructed at a 3:1 slope, covered with topsoil and the outer slopes seeded with native vegetation. The inner slope of the berm will be constructed at a 2:1 slope.

F. Setbacks:

Processing setbacks will be established so that processing of materials, with the exception of rail loading, storage silos, water tanks, propane tanks and processing activity located in the existing processing building, will not be conducted closer than one hundred (100) feet to the property line, nor closer than five hundred (500) feet to any residential structures. The existing processing building is set back approximately 60 feet for the property line and rail load out equipment extends from the processing building to the rail spur. Processing operations will be setback over 500' from all existing nearby residential structures. The closest residential

structure to the processing building is across U.S. Highway 169 and over 1,500' from any processing operations. The preliminary crushing and screening and dryer operations will be located adjacent to the existing processing building. These operations will be setback well over 500 feet from any adjacent resident and over 100 feet from any property line.

Mining limits will be setback over 200 feet from any existing residential structure or existing residential zoning district boundary. Mining limits will be setback over 30 feet from property lines.

G. Appearance:

All buildings, structures, and plants used in aggregate production shall be maintained in such a manner as is practical and according to acceptable industry practice as to assure that the buildings, structures and plants will not become dilapidated.

H. Hours of Operation:

Processing activities within and near the building crushing, water treatment, grizzly, wet screens, dewatering screens and stockpile systems will operate 24 hours a day (except in winter months as described above). Stripping, drilling excavation and internal truck hauling will be limited to 7a.m. to 7 p.m. Monday – Saturday.

I. Access Roads:

Internal access roads from mining operations to public roads will be watered on a regular basis to control dust. The majority of material will be transferred via rail, minimizing traffic generation from this site.

Attachments

Attachment 1: Blast Monitoring Plan

Attachment 2: Lighting Plans (Parson's)

Attachment 3: Braun Reports Slope Stability/Reclamation fill.

Attachment 4: Fugitive Dust Control and Air Monitoring (Wenck)

Attachment 5: Groundwater and Surface Water Monitoring

Attachment 6: Natural Resource Management Plan