NOTE FROM LSP STAFF (11/12/12): *This is the draft EAW submitted to Winona County by the mine proposers. Most likely by mistake, it was submitted with internal mark-ups and comments visible. Some of the comments are revealing. For example:*

- *". . .I know we talked about providing scant details but the question 22 is specific. It would be better for us not to pick a fight with the MPCA because we did not provide the info. . .this would be an opening for the opponents to recruit MPCA or County help." [Yoder draft, page 24]*
- *". . .Also we should always state silica sand and never use the term Frac sand." [Dabelstein draft, page 3]."*

DRAFT Submitted by Proposer to Winona County

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: An electronic version of this Environmental Assessment Worksheet (EAW) form and a fact sheet on preparing one are available at the Minnesota Pollution Control Agency (MPCA) website at http://www.pca.state.mn.us/programs/envr_p.html. A booklet, *EAW Guidelines*, is also available at the Minnesota Environmental Quality Board (EQB) website at http://www.eqb.state.mn.us/review.html or by calling 651-296-6300. The EAW provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit (RGU) or its agents to determine whether an Environmental Impact Statement (EIS) should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. If a complete answer does not fit in the space allotted, attach additional sheets as necessary. The complete question as well as the answer must be included if the EAW is prepared electronically.

Note to reviewers: The Environmental Assessment Worksheet (EAW) provides information about a project that may have the potential for significant environmental effects. This EAW was prepared by the Minnesota Pollution Control Agency (MPCA), acting as the Responsible Governmental Unit (RGU), to determine whether an Environmental Impact Statement (EIS) should be prepared. The project proposer supplied reasonably accessible data for, but did not complete the final worksheet. Comments on the EAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the EAW in the Minnesota Environmental Quality Board (EQB) *EQB Monitor*. Comments on the EAW should address the accuracy and completeness of information, potential impacts that are reasonably expected to occur that warrant further investigation, and the need for an EIS. A copy of the EAW may be obtained from the MPCA by calling 651-757-2101. An electronic version of the completed EAW is available at the MPCA website at http://www.pca.state.mn.us/news/eaw/index.html#open-eaw.

1. Project Title: Yoder Quarry

2. Proposers: William & Ida Yoder

Contact Person Geoffrey G Griffin – G-Cubed Inc.

and Title PE, LS
Consultant to the Owners

3. RGU: Winona County Planning Department

Contact Person Jason Gilman, AICP

and Title Planning and Environmental Services Director

Address	14070 Hwy 52 SE Chatfield, MN 55923	**Address**	177 Main Street Winona, Minnesota 55987
Phone	507-867-1666 ext 102	**Phone**	507-457-6337
Fax	507-867-1665	**Fax**	
E-mail	geoffg@ggg.to	**E-mail**	JGilman@co.winona.mn.us

4. Reason for EAW Preparation:

EIS Scoping		Mandatory EAW		Citizen Petition		RGU Discretion		Proposer Volunteered	X

If EAW or EIS is mandatory give EQB rule category subpart number and name:

The owner of the proposed quarry have volunteered to prepare the EAW to assist the community in reviewing and assessing their application for a Conditional Use Permit, as required by Winona County Zoning Ordinance Section 9.10. In recent history, organized opposition to the mining of silica sand in southeastern Minnesota have petitioned the RGU to require an EAW for proposed quarries that did not meet the required threshold of a Mandatory EAW. This Proposer Volunteered EAW reiterates and in some instances expands on items previously addressed in the Conditional Use Permits submitted for each quarry.

5. Project Location: **County** Winona **City/Twp** Saratoga Twp

Part of West 1/2 of Section 14, Township 105 North, Range 10 West

GPS Coordinates: **Yoder –** **N** 43.896898° W 91.992951°

Tax Parcel Number Yoder – 14.000.0920, 14.000.0910

- The Yoder property – 287.8 acres - is owned by William and Ida Yoder, 14275 County Road 35, Utica, MN 55979. This proposed quarry is 38.2 acres in size.

Notes – acreages are from the Winona County GIS parcel ID's.

Figures attached to the EAW:

- Figure "Location Map"
- Figure "United States Geological Survey map indicating project boundaries"
- Figure "Draft Operation and Reclamation Plan for Yoder Quarry"
- Figure "Hydrology Map"
- Figure "NHIS data"
- Figure "EBI map"
- Figure "Land Cover Types"
- Figure "CWI Map & Logs"
- Figure "Hydrology map and Protected Waters Map"
- Figure "Bedrock Geology"
- Figure "Depth to any Restrictive Layer"
- Figure "Karst Inventory Map"
- Figure "Soil Map"
- Figure "EPA National Clean Diesel Campaign (NCDC) Quantifier"

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- Figure - "State Historical Preservation Office Report"
- Figure - "Custom Soil Resource Report Map – Crop Productivity Index"
- Figure "1940 & 1991 Aerial Maps"

6. Description:

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

The Yoder Quarry is new aggregate quarry proposed within Saratoga Township in Winona County Minnesota. This EAW is a Volunteer submittal to summarize and inform the public of the owner's intent. Materials will be truck hauled to Winona along CSAH 6, 9, Interstate 90, CSAH 34 and Frontenac Drive.

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.

Proposed Project

The proposed project involves a silica sand mining operation in Saratoga Township in Winona County, Minnesota (Figure "Location Map"). The Project is located in an area that contains abundant, high quality silica sandstone resources which will be mined and transported to other transportation processing facilities where it will ultimately be processed and shipped out of the state for final use. This project does not address final processing of the material as that will not take place at an existing permitted facility in Winona that is not part of this project. This mining operation is an interim use of the property. The project is subject to the Winona County Zoning Ordinance as well as any other applicable County, State or Federal laws or regulations. Prior to any extraction of materials from the site, a Conditional Use Permit following the guidelines of Section 9.10 Extraction Pits/Land Alterations will need to be reviewed and approved on the County level. Additional information specific to the operation and reclamation of the site may be found in the attached Figure "Draft Operation and Reclamation Plan for Yoder Quarry"

Property and Project Site Information

The Yoder property encompasses 287.8 acres of agricultural lands. The property consists of two parcels with their own parcel ID numbers as assigned by the Winona County Assessors Office. The 38.2 acres proposed quarry site consists of tillable cropland on relatively level land and pasture land with a sparse population of stubby cedar trees, feral apple trees and other pine and deciduous trees on the side slopes. There are no wetlands, water courses, major drainage systems or impounded waters within the limits of the proposed quarry.

The site is located in part of the West 1/2 of Section 14 of Saratoga Township, Winona County. The site is less than one mile west of the former community of Clyde, 4.5 miles northeast of Troy, 4 miles east of Saratoga and 6 miles southeast of St. Charles. The property is surrounded by agricultural crop lands and pasture lands similar to the land use of the site. County Road 35 runs along the north property line while County Road 6 runs along the south property line.

There is one occupied farmstead located within 500 feet of the quarry boundary that is owned by the quarry proposer and is thereby exempt from County setback stipulations. The next closest residence is 750 feet northeast of the quarry and is located on the property owned by the project

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proposer. There are currently two wells on the property which are used for residential and agricultural purposes. The location of the well near the quarry is proposed to be relocated which will require capping the existing well and drilling a new one.

Winona County shows the property is currently zoned Agricultural/ Resource Conservation. Mining operations are permitted in the Ag/RC zone when reviewed and approved as part of a Winona County Conditional Use Permit.

New Construction

New construction will be limited to berms, ditches, stockpiles, access roads and staging areas which all can be constructed from onsite materials and finished with topsoil that will be salvaged onsite. There will not be any permanent structures for storage of equipment of materials. Temporary structures may include scales, scale shack, screeners and portable bathroom facilities (port-a-potty). All operation management will be housed in off site offices.

The access roads within the property will be constructed to a width of 28 feet to support two-lane passage of haul trucks. The road bed will be constructed of materials from on-site and will be capped with a crushed aggregate driving course. Dust control will be applied as required.

Operations Methods - Mining Sequence

Mining will begin west of the existing building site and progress southwesterly for Phase 1. The subsequent phase will work southeasterly to excavate the materials south of the building site. Once that area has been mined and reclaimed, future phases will work northwesterly to the quarry limits. Excavation will not intercept the water table. There will be no dewatering at the site.

The existing access to the site is from County Road 35. The access is shared with the second residence owned by the project proposer. A new access to the site is proposed to be constructed from County Road 6. This access will eliminate the need for haul trucks to pass by the two residences on the site.

Haul routes to and from the site will avoid residential streets. Plans are for access from County Road 6 to County Road 29 to Interstate 90 to County Road 43 and Frontenac Drive to the East-End Industrial Park in Winona MN, the current location of the washing and processing plant and the loading site for final interstate shipping. The haul route occurs along County, State, Federal Highway and City of Winona streets designated as haul routes and do not affect primary residential streets. At the site, proper signage per MnDOT MUTCD shall be install near accesses. This is to ensure only the approved access sites are utilized for ingress and egress.

The development is proposing to generate a total of 600 truck trips per day (300 trucks in and 300 trucks out) and 14 employee trips per day (7 in and 7 out). This equates to 60 truck trips and 7 employee trips in the peak hours (30 trucks in and 30 trucks out ~ 7 employee trips in or out) Truck traffic is proposed to travel along CSAH 6 and CSAH 29 and enter and exit off of I-90 east of CSAH 29.

A Traffic Impact Study was prepared for this development by Spack Consulting. Spack Consulting is a traffic study company operated by Michael Spack. Michael Spack is a Professional Engineer registered in Minnesota and Wisconsin and is a Certified Professional Traffic Operations Engineer. The purpose of the study was to determine if the proposed

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development will significantly impact the adjacent transportation system and to recommend mitigation measures. All of the study intersections are forecasted to operate acceptably at Level of Service A with the additional truck traffic from the proposed quarries. Level of Service A represents light traffic flow (free flow conditions). No road segments are forecasted to reach capacity with the additional truck traffic.

Proposed mining and hauling may take place between 6am and 10 pm CST. Permission from the county zoning administrator may be granted for operations beyond these hours to respond to public or private emergencies or whenever any reasonable or necessary repairs to equipment are required to be made. Mining can take place year round but hauling and excavation of materials are greatly affected when temperatures are below freezing. Hauling is further affected by spring road bans which are established by MnDOT.

Blasting may be necessary to remove the cap rock off the ridge and to loosen well cemented sandstone. If blasting is found to be necessary the owner and operator will retain professional and licensed blasting contractors who operate in accordance with all federal, state, county and township regulations. No explosives will be stored on the site. The blasting contractor will notify all adjoining neighbors in advance of the blast alerting them to the time and duration of the event and vibration monitoring shall be done as necessary at the adjacent homes and structures within ¼ mile of the proposed blast. A 24-hour notification will be given to adjacent property owners and local government units. Professional and licensed blasting contractors will follow standard operating procedures to reduce dust control that includes reducing the size of the charge, time and sequence of blasts and monitoring the wind speed and direction.

The standard blast operating procedures will include a plan for all blasts providing contact information of the blasting contractor and monitoring consultant. The plan will show the lands cleared, shot pattern, charges, timing sequence, seismograph locations (standards and practices), safety plan and Certificates of Insurance. Within 5 days of each blasting event, the blasting contractor will provide a report to the operator and local government unit describing the Pre and Post blast observations within the site and surrounding area and Seismograph findings.

A generalized sequence of operations and methods is:

1. Survey phase limits and areas not to be disturbed.
2. Install perimeter silt fence. Construct down slope erosion control measures.
3. Remove surface vegetation in the area to be excavated. Large woody material may be chipped and stockpiled for mulch.
4. Strip and stockpile topsoil. Seed the topsoil stockpile to establish vegetation to prevent erosion. A pasture mix with a nursery crop of oats or rye are acceptable seed mixes.
5. Construct any temporary sedimentation basins and their outlets.
6. Construction any diversion ditches and berms as shown in the operation and reclamation plan to direct any stormwater runoff from the current phase of construction to the temporary sedimentation basins.
7. Remove overburden materials and either stockpile or place in areas where they can permanently remain as part of the reclamation plan. Stockpile areas shall be placed within the mining limits and positioned to aid in the blocking prevailing winds which will aid in prevention of wind erosion. Suitable materials from the overburden will be used for access roads. Areas downstream of stockpiles must be protected with vegetated berms, wood chip berms, silt fence or other approved BMP's. Watering of stockpiles with a tanker truck may

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be necessary to prevent dust and wind erosion. Overburden stockpiles that will remain in place longer than 14 days and are susceptible to wind erosion shall be covered with topsoil, seed, and mulch.

8. Sideslopes of berm, ditches, roads and temporary basins are to be covered with topsoil and seeded to reestablish vegetation.
9. Limestone having marketable value may be excavated, crushed, screened and stockpiled. Unsuitable limestone will be placed with overburden in stockpiles or in reclamation area. Dust mitigation measures for crushing and screening operations may be mitigated at the feed and discharge points using wet suppression; this may also include conveyors if utilized. The mined material may be sprayed with water to coat the outer surface before loaded for crushing and grinding to prevent dust from becoming liberated and airborne.
10. Course sands are excavated, pulverized, screened to remove aggregate chunks or debris that may find its way into the product and stockpiled. Dust mitigation measures as described in number 9 may be followed.
11. Fine sands are excavated, pulverized, screened to remove aggregate chunks or debris that may find its way into the product and stockpiled. Dust mitigation measures as described in number 9 may be followed.
12. Material is loaded into trucks and weighed for transport to an offsite transfer facility or processing facility.
13. Unsuitable sand, approximately 25% hauled to the offsite processing facility, is hauled back to the quarry and placed in stockpiles or placed in areas where it can permanently remain as part of the reclamation plan. Unsuitable sand is sand that doesn't meet the specifications of the end user which is based on sieve size. The 25% hauled back to the site is suitable for fill material to be used in reclamation. Once covered with an average minimum of 6" of topsoil it shall be seeded and mulched to establish a vegetative cover.
14. After sand material is exhausted from the current phase limits and overburden and waste materials have been placed and leveled per the reclamation plan, an average minimum of 6" of topsoil shall be respread.
15. The site will be seeded and stabilized through revegetation. A pasture mix with a nursery crop of oats or rye are acceptable seed mixes.
16. When all construction activity is complete in the reclaimed area, temporary diversions ditches/berms and temporary basins are to be removed. Areas disturbed during removals shall be seeded and stabilized through revegetation.
17. Final terrain is returned to pasture land, forest or a combination thereof. Due to the potential lack of adequate topsoil and subsoils, the reclaimed areas are not intended for row crop cultivation. If during reclamation it is determined that soil conditions are suitable for future row crop production, the mine operator and owner shall contact the Winona County NRCS/SWCD office for assistance on the proper procedures for returning the site to row crop production. Factors to be addressed for returning the reclamation area to row crop production are soil depth, topsoil depth and color, organic content of soils, nutrient content of soil and drainage upstream, within and downstream of reclamation area.

NOTE: Additional activities may be warranted due to site conditions, weather conditions or phasing limitations.

Reclamation

As defined in the Operation and Reclamation Plan, reclamation will take place in phases such that disturbed areas are limited to a maximum of 10 acres being open at any one time. After sand

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has been removed to the design elevation, overburden and unsuitable sands will be placed in lifts, leveled and compacted. Once this area has reached its final design elevation, an average minimum of 6" of topsoil from either stockpiles or ongoing stripping will be spread evenly. The reclaimed area will be seeded with a pasture grade grass mix.

Reclamation will be an ongoing process. Depending on the market for the material and potential expansions, the timeline for mining and reclaiming the site could be 5 to 20 years. If the site is dormant for an extended period of time, the operator is responsible for applying the requirements outlined by the Reclamation Plan for site stabilization. A performance bond is required which may be drawn on if the operator does not produce.

Areas that have been reclaimed shall be inspected yearly with a report placed into the SWPPP documents. Reclaimed areas that are not stabilized to the conditions outlined in the plan will be addressed and reinspected until stabilization is complete. All parts of the mine are under a performance bond as required by Ordinance.

Final Use

Once grass has had an opportunity to become established, which may take more than one growing season, the reclaimed area may be fenced and pastured or it may be left to nature. Due to the lack of adequate topsoil and subsoils, the reclaimed areas are not intended to be put into row crop cultivation. If during reclamation it is determined that soil conditions are suitable for future row crop production, the mine operator and owner shall contact the Winona County NRCS/SWCD office for assistance on the proper procedures for returning the site to row crop production. Factors to be addressed for returning the reclamation area to row crop production are soil depth, topsoil depth and color, organic content of soils, nutrient content of soil and drainage upstream, within and downstream of reclamation area.

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 the project is to mine industrial silica sand, an important natural resource with high demand in the oil and natural gas extraction industry. The St. Peter Sandstone found across the site will be mined and sorted to obtain high quality industrial silica sand that is between the #20 (0.841 mm grain size) and #70 (0.210 mm grain size) sieve sizes. Raw silica sand will be truck hauled to the East-End Industrial Park where it will be sorted and final washing and processing of silica sand will occur before transported by barge or rail out of Winona Minnesota.

The mined material is subject to taxes/fees which will provide a benefit to Winona County and Saratoga Township. The mining will employ approximately 7 people plus truck drivers. Employment levels and hours of operation may be reduced during the winter as temperature and weather reduce productivity.

d. Are future stages of this development including development on any other property planned or likely to happen? ☒Yes ☐No

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

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Additional limestone and silica sand resources are present on the property and on adjacent, contiguous properties. If demand for silica sand remains high and extraction is economically and environmentally feasible, expansion of the site may be warranted. The timeline for expansion is unknown but would not be likely for years to come. Any expansion would be subject to the Winona County Zoning Ordinance. A separate environmental review will be warranted when and if such a proposal were initiated.

The proposed site will be reclaimed to a condition to reestablish agricultural pasture land. Development of the site for any other future uses is unforeseen.

We acknowledge that other developer's are currently in the planning stages developing concepts for a future slurry injection facility within a close proximity of the quarry. According to public statements by the developer the slurry system would include a pipeline that would transport industrial silica sand to a processing and rail trans-load facility proposed on the east side of St.Charles MN. Depending upon approval and facility construction timing, the pipeline location and final design capacity, sand from the Yoder quarry could utilize the slurry injection facility, pipeline and trans-load facility in the future. The slurry pipeline and St. Charles load-out would reduce truck traffic to a short haul from the quarry to the slurry station. However, this project has not been formally proposed and is not connected to or phased as part of the Yoder quarry.

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e. Is this project a subsequent stage of an earlier project? ☐ **Yes** ☒ **No**

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

7. Project Magnitude Data

Total Project Area (acres)	**287.8**		**Area to be mined (acres)**	**38.2**	
	NA		NA		NA
Number of Residential Units:				**Maximum Units Per**	
NA	**Unattached**		**Attached**	**Building:**	

Commercial/Industrial/Institutional Building Area (gross floor space): **total square feet**

Indicate area of specific uses (in square feet):

Office	**NA**	**Manufacturing**	**NA**
Retail	**NA**	**Other Industrial**	**(mining) 38.2 acres**
Warehouse	**NA**	**Institutional**	**NA**
Light Industrial	**NA**	**Agricultural**	**249.5 acres**
Other Commercial (specify)	**Staging Area**	**A level area will be graded for stockpiles, truck loading areas, turn arounds and a scale. This area will vary in size from 40,000 sq ft to 160,000 sq ft but in all situations is temporary and will be reclaimed when mining is complete.**	
Building height	**NA**	**If over 2 stories, compare to heights of nearby buildings**	

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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 Minn. R. 4410.3100.*

Unit of Government	Type of Application	Status
Winona County	Conditional Use Permit (Land Alteration Permit)	To be applied for
Winona County	Driveway Access (change of use)	To be applied for
Winona County	Road Use Agreement	To be applied for
Minnesota Pollution Control Agency (MPCA)	Nonmetallic Mining and Associated Activities NPDES/SDS Permit (Storm Water Permit)	To be applied for
MDH	Well Sealing and Well Drilling Permit	To be applied for

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Comment [5]: Add if seal old well and drill new well….Section MBESI wrote may need to be modified based on this change.

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.

Pre-settlement vegetation documented by the MNDNR County Biological Survey maps from the 1846-1908 Public Land Survey with Pre-Settlement Vegetation indicated the Yoder Quarry was prairie before the passage of the Homestead Act of 1862 where the majority of land in Winona County was plowed for agricultural production. The 1927 Atlas – Plat Book and Rural Directory of Winona County, Minnesota indicated Section 14 of Saratoga Township was divided between 40 – 160 acre parcels. Historical review of the 1940 and 1991 aerial photographs showed the Yoder Quarry was in agricultural land use (See Figure "1940 & 1991 Aerial Maps"). During the early agriculture history of the area from 1880 to 1920 the cropland was dominated by small grains (oats, wheat, barley) and hay ground or pastures lands. As farming became mechanized with tractors and combines corn began to dominate the cropland in the 1930's. With the advent of chemical nitrogen fertilizers after 1950 cropland typically had a hay, oats and corn rotation. Soybeans were introduced to more widespread cultivation in the 1970's. Currently the cropland is dominated by a corn and soybean rotation that relies on heavy fertilizer inputs and the use of chemical herbicides.

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The site is currently zoned Agricultural/ Resource Conservation. Current and recent land uses are/were agricultural in nature with row crop, farmsteads and pasture lands located within the property. These are the same uses as adjacent lands. The mining operations will be located within the crop land and pasture lands. Previous environmental impacts within the agricultural portion of the property would be due to the application of fertilizers and pesticides and any erosion that has occurred. There is no evidence to indicate that there are or have been environmental hazards due to this use attributable to the site.

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The project is a temporary use. Once the mine site is reclaimed, the property will again be pasture or forest land. This project is compatible with adjacent and nearby land uses.

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10. Cover Types. Estimate the acreage of the site with each of the following cover types before and after

development:

	Before	After		Before	After
Types 1-8 wetlands	0	0	**Farm sites/lawn**	8.3	8.3
Wooded/forest	23.7	22.6	**Impervious Surfaces**	0	0
Brush/pasture land	58.6	72.4	**Stormwater pond**	0	0
Cropland	191.5	178.8	**Other (Right of Way)**	5.7	5.7
			TOTAL	287.8	287.8

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Comment [6]: Impervious surface would include the existing access driveways for Before. Impervious surfaces for after would include the access driveway expansion….. The road is ~16 feet wide in existing condition.

If before and after totals are not equal, explain why.
Existing cover of the 38.2 acre quarry = 1.1 acres wooded, 12.7 acres cropland and 24.4 acres of brush/pasture. Post mining, all 38.2 acres will be pasture.

11. Fish, Wildlife, and Ecologically Sensitive Resources.

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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 project site is currently dominated by intensively grazed pasture and row crop agricultural land that lies within the Pine Creek subwatershed of the Root River basin. The closest protected water is Pine Creek located 2.5 miles to the southeast (See Figure "Hydrology Map"). Based on the Yoder site distance to any perennial streams there are no fish habitats to be impacted by mining activities. Therefore, no mitigation measures for adverse runoff impacts are necessary.

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Wildlife resources and habitats on or near the site are limited to those associated with the species inhabiting the agricultural cropland, fence rows, and isolated pastures. Wildlife observed at the site includes: whitetail deer, raccoons, skunks, wild turkeys, pheasants and a variety of other small birds and mammals. Due to intensive grazing and row crop production the land has been disturbed and is not compatible with wildlife use, nor is the site a significant breeding or wintering ground for wildlife.

Most of the wildlife resources and habitats present on the site are highly degraded and will be altered due to mining conversion that is expected to occur for a period of up to 10 years. The mined areas will be restored back to existing conditions and used as a pasture. Temporary loss of the cropland will remove some of the crop and pasture food source utilized by the local wildlife populations. There will be temporary impacts to wildlife during the construction and mining phases. Any wildlife present within the agricultural cropland of the site will be permanently displaced to the surrounding cropland.

b. Are any state (endangered or threatened) species, rare plant communities or other sensitive ecological resources on or near the site? ☐ Yes ☒ No

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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 20120383 Winona County Sand Pits) 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 1997 Minnesota County Biological Survey of Natural Communities and Rare Species of Winona County indicated the mining site is not located within an area ranked as a significant biodiversity site. The Yoder farm is not recognized or classified as having below, moderate, high or outstanding values for biodiversity and lacks the occurrences of rare species.

In June 2012 the Minnesota Department of Natural Resources Natural Heritage Information System (NHIS) database was queried to determine if any state-listed endangered, threatened, special concern species, or rare plant communities, or other sensitive ecological resources have been documented near the site. The results indicated no documented occurrences on the project area or within Section 14 of Saratoga Township (Figure "NHIS data"). However, the results did document the occurrence of the Loggerhead Shrike *(Lanius ludovicaianus)*, a state-threatened bird; the Pickerel Frog *(Lithobates palustris)*, a tracked vertebrate animal species; and the Long-bearded Hawkweed *(Hieracium longipilum)*, a tracked vascular plant were reported within one mile of the project site. These species were last observed in 1993 (Loggerhead Shrike), 2000 (Pickerel Frog) and 1992 (Long-bearded Hawkweed). Since none of these occurrences are within the project limits no impacts are anticipated.

Another measure to determine if other sensitive ecological resources are present on the site includes the use of the Minnesota Board of Soil and Water Resources Environmental Benefits Index (EBI). The EBI is a statewide ecological ranking tool that helps to determine which lands are most valuable from a conservation perspective. The EBI database considers soil erosion potential, water quality risks and habitat quality by ranking each factor on a scale from 0-100. Combining each factor generates a score from 0-300 that is then used to help prioritize and conserve land with the best conservation potential. In general lands ranked below a score of 200 have low to moderate conservation perspective. In our analysis EBI scores for the site were ranked 131-170, low to moderate; the higher scores are assigned to the sparsely wooded pastures that will be mined. (See Figure "EBI map").

A field assessment of the site was conducted on September 8, 2012 by McGhie & Betts Environmental Services, Inc. professionals familiar with local ecological resources. The inspection and assessment was performed to further assess the vegetative communities present. We discovered that the entire footprint of the mining has no areas supporting sand prairies or native plant communities other than small patches of deciduous trees. We identified five distinct areas of vegetative communities as summarized below (See Figure "Land Cover Types"):

1. Woodland Pasture (3.4 acres) – this pasture is heavily degraded with sparse cedar, apple and cherry trees intermixed with buckthorn and the understory is dominated by smooth brome and Kentucky blue grass
2. Row Crop Agricultural Land (11.8 acres) – farmed for corn in 2012
3. Pasture (11.8 acres) – this pasture is dominated by smooth brome and Kentucky blue grass that is < 1 inches tall and is actively grazed
4. Woodland Pasture (5.5 acres) – understory is dominated by Kentucky blue grass with sparse forest
5. Woodland Pasture (6.4 acres) – heavily grazed pasture with deeply incised cattle paths with sparse elm and apple tress

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Based on our vegetative site evaluation we determined the site is heavily overgrazed and does not contain any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources that will be impacted by mining operations.

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** ☒ **No**

If yes, identify water resource affected and give the DNR Public Waters Inventory (PWI) number(s) if the water resources affected are on the PWI.

Describe alternatives considered and proposed mitigation measures to minimize impacts.

The closest drainageway, designated as an intermittent stream is located 50 feet to the southwest. The drainageway does not have a perennial flow and has been observed by the owner to only flow during the spring melt/frozen ground conditions or in intense rainfall events. Stormwater that does collect in the drainageway would flow across 2.5 miles of agricultural land, grassed waterways and drainage swales before emptying into a perennial stream, Pine Creek (See Figure "Hydrology Map"). Pine Creek is designated as "protected water" and a designated trout stream by the Minnesota Department of Natural Resources 4.6 miles downstream from the project site in Fillmore County

Since there are no wetlands, water courses or major drainage systems on the site and due to the rapid permeability of the underlying soils and bedrock grading, mining, and site restoration will not have any effect on surface water resources. Stream diversions, outfall structures, diking or impounding of surface water and dewatering will not occur.

Analysis of nearby Minnesota Department of Health County Well Index (CWI) boring logs indicated the groundwater is located at an elevation of ±1084, 86 feet below the final mine elevation of 1,170 feet. (See Figure "CWI Logs"). Additional water wells may exist in the mapped area. Well data used for this assessment was obtained from the MDH CWI was obtained on September 11, 2012. Any information available after that date is not included in the assessment.

Hydrologic alteration through dewatering for mining will not be necessary at the site.

There are no natural lakes streams and no manmade ponds or drainage ditches feeding to or flowing from the site. The soils are rapidly permeable and recent studies completed on Wisconsin Discovery Farms in similar terrain of the Driftless area of Wisconsin show that on average only 8% of precipitation runs off the loess and residuum soils. This indicates that the only source of runoff will occur during spring melt and during intense rainfall events on saturated ground. In order to avoid any unnecessary sinkhole risks permanent ponds will not be employed because ponds create permanent soil saturation that can mobilize sand particles to flow into any voids in the underlying Shakopee formation karst. Systems that allow pulses of infiltration in this landscape setting, rather than ponded water have proven to be effective in avoiding sinkhole formation.

The removal of sand will remove sand that is currently filtering water from the surface and this infiltration will continue to function effectively. Sand filters are commonly used for water

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treatment and typically only require five feet of sand to effectively filter any suspended solids from the stormwater. The Yoder site will maintain a minimum of 40 feet of sand above the estimated top of the Shakopee dolomite (estimated elevation 1126) and the mined area will continue to provide an adequate water filter.

Once mining and restoration is completed the entire mined area will still have 40 feet of more of sand, a thin veneer of topsoil for rooting and maintenance of perennial grassy vegetation and the area where the mining meets the un-mined slopes will expose a small area of sand as a natural looking sandstone bluff with a near vertical (70-80% slope).

To protect surface water quality during rain events construction of temporary sediment and infiltration basins with the use of berm(s) and swale(s) will be installed. A MPCA Nonmetallic Mining Stormwater Discharge Permit through the National Pollution Discharge Elimination System (NPDES) / State Disposal System (SDS) Program will be required. The site is not within one mile of a trout stream or outstanding resource value waters; therefore the standard stormwater pollution control measures will be required for all site operations.

Nearby water wells will not be at risk from the mining operations due to the fact that we have no water withdrawal or water appropriation needs for the mine, therefore there will be no water pumping conflicts with existing wells and there is no expected change in the static water levels of the area surrounding the mine. The mine will maintain an adequate sand filter below the depth to be mined and that undisturbed sand will continue to prevent suspended solids from migrating into the underlying Prairie du Chein/Jordan aquifer.

Dissolved solids and soluble contaminants such as nitrates are not applied to the mining areas, but are used across the surrounding agricultural landscape to promote crop growth and control weeds. The mine will take cropland out of production thereby reducing the amounts of fertilizers and pesticides that can leach into the underlying aquifers. The mine will also divert Stormwater laden with ag-chemicals away from the mine allowing any farm chemicals to naturally infiltrative into existing down gradient waterways, in the same fashion that currently exists.

Mining equipment, like farm equipment, will use diesel fuels, lubricants and hydraulic fluids. These are the only chemicals that the mine could contribute toe groundwater contaminate and the same chemicals that are used across the cropland surrounding the property.

Because the mine will continue to filter suspended solids and will reduce the use of nitrogen fertilizers and pesticides while using the same fuels and lubricants as farming the County mandate to monitor wells in close proximity to the mine cannot be used to differentiate water quality impacts from mining versus farming, therefore the application proposes to conduct only a standard Nitrate and bacteria test for nearby wells with one sample before mining exits and one sample per year until the mine is restored. Impacts that are proven to occur from mining as opposed to farming or from the aging of the wells will be mitigated by the mine operator.

Mine excavation, grading and construction activities during reclamation will be completed in accordance with the Winona County Zoning Ordinance Section 9.10.4 Reclamation Standards and in accordance with all other applicable County, State or Federal laws and regulations.

Prior to excavation erosion control best management practices (BMPs) that includes silt fencing, sedimentation basins, diversion berms and grassed swales along with other forms of BMPs will

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be used as necessary to protect surface water.

Near the completion of mining, any sandstone slopes that are to remain exposed will be shaped to not exceed 1 foot horizontal to 2 feet vertical. Areas where overburden has been placed shall not exceed 4 foot horizontal to 1 foot vertical. The leveled area will vary in slope from 0.5% to 2% and may be terraced to balance the final reclamation process.

All reclaimed areas, other than the exposed sandstone face, will be covered with topsoil to a quality consistent with the current site and surrounding area (spread salvaged topsoil). Final seeding will be a pasture grass mix as sold at local agribusinesses. The quality of the topsoil placed shall be analyzed to determine if and how much fertilizer may be needed to support the young grass. Once grass has had an opportunity to become established, which may take more than one growing season, the reclaimed area may be fenced and pastured or it may be left to nature. Due to the lack of adequate topsoil and subsoils, the reclaimed areas are not intended to be put into row crop cultivation. If during reclamation it is determined that soil conditions are suitable for future row crop production, the mine operator and owner shall contact the Winona County NRCS/SWCD office for assistance on the proper procedures for returning the site to row crop production. Factors to be addressed for returning the reclamation area to row crop production are soil depth, topsoil depth and color, organic content of soils, nutrient content of soil and drainage upstream, within and downstream of reclamation area.

Silt fencing and/or vegetated berms will remain in place until vegetation establishes and areas disturbed by removal of the fence/berm will be reseeded.

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)? ☒ **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.

There are currently two wells on the property which are used for residential/ farm stead agricultural purposes. The northerly of the two wells will not be affected by the project. The southerly well is located within the quarry boundary. This well will be replaced with a new well within near the building site and the existing well will be capped so that materials can be removed for the area it is located. The new well and well to be abandoned will be installed/capped by qualified professionals. The new well and the capping of the abandoned well will both require permits from Winona County in association with the Minnesota Department of Health.

The project will not increase nor decrease the use of water from wells on the property. It will not require connection or changes to any public water supply or appropriations of any ground or surface water.

14. Water-related land use management districts. 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

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district? ☐ **Yes** ☒ **No**

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

Winona County GIS shows that portions of the major drainageways through the property are defined as X500 on their Floodplain maps. This is confirmed by the FEMA FIRM Map Community Number 270525 Panel Number 0150 C. This designation is attributed to a 500 year storm event, meaning the drainageway would be inundated during such an event. The quarry is not within this area. The proposed access road to County Road 6 would cross this drainage route. Currently this is a broad swale that is in row crop production without a waterway. When the access road is constructed, a culvert of adequate size will allow drainage to continue along the existing drainage route. The X500 designation does not pose a water-related concern that will not be addressed using Best Management Practices.

There are no shoreland zoning districts, delineated 100 yr flood plains or state or federally designated wild or scenic river land use districts.

15. Water Surface Use. Will the project change the number or type of watercraft on any water body?
☐ **Yes** ☒ **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:

38.2 Quarry	**Acres**	**3.7 million**	**Cubic yards.**
2.8 Access Road	**Acres**	**6800**	**Cubic yards**

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.

Chapter 9.15 of the Winona County Zoning Ordinance outlines the requirements for Soil Erosion and Sediment Control for the proposed Project. A conservation plan will be developed with the Winona County Soil and Water Conservation District which will adopt "Best Management Practices" to minimize soil erosion.

Currently the site is a mix of crop land and pasture with some trees. According to the Natural Resource Conservation Services Soil Survey for Winona County, there are four predominant soil types within the quarry boundary. Port Byron silt loam (with slopes ranging from 3 to12 percent) and Frankville silt loam (with slopes ranging from 2 to 12 percent) are located at the top of the knob with the Port Byron in pasture and Frankville currently in crop production. Sogn silt loam (with slopes ranging from 6 to 30 percent) and Bellechester-Brodale complex, rocky (with slopes ranging from 15 to 60 percent) are the steep slopes that are pasture lands. The existing soils are conducive to rapid infiltration meaning there is minimal runoff under normal conditions.

All of the silt loam soils are susceptible to wind and water erosion if exposed without protections. The topsoil will be romoved from the areas to be mined in stages and retained in berms and stockpiles or will be used for site reclamation. Mining will create additional exposures of sandstone faces and will create temporary steep slopes at the active face. The

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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 to large open areas, at higher elevations, throughout the duration of the mining operation.

Stripping will be stockpiled or shaped into perimeter berms or used immediately in ongoing site reclamation activities. Materials stored in perimeter berms will be used in final site reclamation.

Stockpile areas shall be placed within the mining limits and positioned to aid in the blocking prevailing winds which will aid in prevention of wind erosion. Suitable materials from the overburden will be used for access roads. Areas downstream of stockpiles must be protected with vegetated berms, wood chip berms, silt fence or other approved BMP's. Watering of stockpiles with a tanker truck may be necessary to prevent dust and wind erosion. Overburden stockpiles that will remain in place longer than 14 days and are susceptible to wind erosion shall be covered with topsoil, seed, and mulch.

Vegetation will be established on the top and outer slope of all berms to minimize erosion and potential for 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. Vegetation will be inspected to insure adequate establishment and coverage. Areas that are not properly becoming established with vegetation will be reseeded and may required additional additives such as compost manure or with organic fertilizers and crop nutrients to establish vegetation.

Site runoff from active mining areas will be directed internally with diversion berms and ditches to temporary sedimentation basins. Temporary sedimentation basins may be earthen structures located on the quarry limits during early phases of construction and located at low points within the floor of the quarry during later phases. Runoff will collect in the low areas and infiltrate into the underlying sandy soils.

The site will operate under a Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System (NPDES) permit which will require a Stormwater Pollution Prevention Plan (SWPPP). This SWPPP is part of the Operation and Reclamation plan. The focus of the SWPPP is to eliminate or minimize storm water that comes into contract 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, diversion berms and swales, rock checks, silt fence, erosion control blankets, locating stockpiles away from concentrated flows, the recessing of the mine below adjacent undisturbed lands, and the directing of stormwater to internally low areas on the site.

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

The length and surfacing of the access road should limit the tracking of soils onto County Road 6. If tracking occurs, the operator will sweep County Road 6 as necessary to provide safe travel

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for all travelers on the public roads. If tracking becomes a continuous issues, the operator may pave the site entrance to keep tracking off the public roadway.

Near the completion of mining, any sandstone slopes that are to remain exposed will be shaped to not exceed 1 foot horizontal to 2 feet vertical. Areas where overburden has been placed shall not exceed 4 foot horizontal to 1 foot vertical. The leveled area will vary in slope from 0.5% to 2% and may be terraced to balance the final reclamation process.

All reclaimed areas, other than the exposed sandstone face, will be covered with topsoil to a quality consistent with the current site and surrounding area (spread salvaged topsoil). Final seeding will be a pasture grass mix as sold at local agribusinesses. The quality of the topsoil placed shall be analyzed to determine if and how much fertilizer may be needed to support the young grass. Once grass has had an opportunity to become established, which may take more than one growing season, the reclaimed area may be fenced and pastured or it may be left to nature. Due to the lack of adequate topsoil and subsoils, the reclaimed areas are not intended to be put into row crop cultivation. The reclaimed areas would be conducive to some agricultural development through forestry. The final use will be determined by the property owner.

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 storm-water pollution prevention plans.

Existing soil conditions across the site consist of the Port Byron, Frankville and Lindstrom silt loams which are classified as well-drained to excessively well-drained. These soils rapidly infiltrate water, leaving little to no standing water at the surface. According to the Winona County Soil Survey these soils have properties that allow water to transmit the most limiting layer in the soil profile at rates up to 1.98 in/hr. In isolated areas the Bellechester-Broadale complex found on the backslope of the hillside is considered excessively drained with capacity to transmit water through the most limiting layer at rates of 5.95 in/hr to 19.98 in/hr.

Chapter 9.15 of the Winona County Zoning Ordinance outlines the requirements for Soil Erosion and Sediment Control for the proposed Project. During mining, BMP's such as silt fence, diversion berms and swales and temporary sedimentation basins will be designed and installed to collect and treat runoff from the disturbed areas during rainfall events. All runoff from the site is to be routed to the temporary sedimentation basins through the construction of the berms and swales. Periodically the sedimentation basins shall be excavated, and the fines used in the reclamation efforts of the project. Surface water originating outside the site may be diverted around the mining operation, to eliminate any degradation of water quality, as long as it doesn't negatively affect the adjoining properties. These installations will ensure that water runoff does not cause any flooding, erosion, or deposition of sediment on adjoining properties.

The quality of the surface water runoff under proposed mining conditions will be similar to the surrounding land that is managed for pasture and agricultural farming operations. However,

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mining will not have organic matter, manure or chemical fertilizers. Under existing pasture and cropland conditions fertilizers and pesticides are currently applied to the site to promote crop yields while minimizing weed growth. Mining will eliminate the use of fertilizer and chemicals on the site.

Upon reclamation, the slope of the land will be less than existing conditions which will reduce the runoff velocity which will increase the quantity of rainfall that infiltrates. Since the reclamation area will be pasture versus row crop, the quality of runoff will also be improved. In this scenario, a lower runoff rate is directly related to an improved runoff quality. Since the entire site will be reclaimed, there will not be any increase in impervious surfacing so no permanent treatment controls are required nor warranted.

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.

The project site is currently located in the upland portion of the Pine Creek subwatershed and is surrounded by intensively cropped agricultural land that is rapidly permeable and does not require drain tile. The closest intermittent drainageways is located 50 feet to the southwest of the project area which flows over 2.2 miles to Pine Creek (Figure "Hydrology map"). Pine Creek is a designated "protected water" and trout stream by the Minnesota Department of Natural Resources. (Figure "Protected Waters Map").

Due to the site's rapid soil infiltrating capacity (described above) and the distance to receiving waters the impact of stormwater runoff and infiltration from the site will be negligible. Any runoff that is produced on-site will be protected by erosion control measures described in Item #12.

18. Water Quality – Wastewater.

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

On-site sanitary, municipal and industrial wastewater will not be produced at the site.

Lavatory facilities, including a portable toilet will be provided for employees that will be contracted to a Minnesota licensed septic service provider and maintained on a regularly basis.

Final processing of silica sand will occur at an off-site location that is permitted separately, therefore there will be no wastewater generation from the sand mining and processing.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies (identifying any impaired waters), 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.

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No waste treatment methods or discharges to receiving waters will be generated. The site will have a portable toilet for employee use that will be maintained by a licensed septic service.

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.

No wastes will be discharged into a publicly owned treatment facility.

19. Geologic hazards and soil conditions.

a. Approximate depth (in feet) to ground water: existing conditions: 136 – 186 ft; minimum 136 ft; average 161 ft; **Final conditions 85-90 feet**
to bedrock: exposed at surface to over- 6.6 ft; minimum 0 ft; 2.5 ft (above elevation 1,200 ft), more than 6.6 feet (below elevation 1,200 ft) 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.

The mining footprint of the site is underlain by bedrock of the Platteville Limestone, Glenwood Shale at the top of the ridge above elevation 1,225 and is underlain by the St. Peter Sandstone to a depth of 90-100 feet thick over the entire site.

The Platteville/Glenwood sequence is less than 20-25 feet thick and represents a resistant cap rock over the top of the sand ridge.

The St. Peter Sandstone is a fine grained to medium grained, very well sorted, poorly cemented quartz sandstone with round grains making the sand desirable for silica sand.

The bedrock geology of the site is of Middle Ordovician age where the Platteville and Glenwood Formations are the first encountered bedrock (See Figure "Bedrock Geology"). The Winona County Soil Survey indicates the first encountered bedrock is shallow and is found only 1 to 6.6 feet below the ground surface (See Figure "Depth to any Restrictive Layer"). Beneath the caprock on the top of the ridge lies the St. Peter Sandstone that ranges from 90 to 100 feet thick and extends into the side slopes of the ridge.

No karst features, sinkholes or caves are known to exist in the vicinity and there are no mapped sinkholes in the immediate vicinity of the property. The sinkhole probability as defined by the Minnesota Geological Survey shows the site is within an area of "low to moderate probability" for karst features (See Figure "Karst Inventory Map"). This classification is defined as an area that has only widely scattered individual sinkholes or isolated clusters of 2 to 3 sinkholes where the average sinkhole density is less than one sinkhole per square mile. The upper 70-80 feet of the St Peter Sandstone is not prone to sinkhole formation.

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Sinkholes formation can be most easily avoided by preventing the concentration of water in ponds. If sinkholes do occur the sinkholes can be easily mitigated by bridging or filling in accordance with Best Management Practices that are widely accepted in the areas where sinkholes do occur.

Static water levels have been recorded from County Well Index data at an elevation of approximately 1,084 feet in the vicinity of the site.

Environmental problems concerning groundwater contamination from karst susceptibility or shallow bedrock conditions will be minimized by avoiding the use of hazardous materials during the mining activities. Operations will also prevent farmland runoff from entering the mining site where rapid infiltration will occur. Mining operators will trained to detect the early warning signs of sinkhole development to the extent practicable and will employ extreme caution with mining equipment around the sinkhole fringes. In the event a sinkhole does form a Professional Geologist will be consulted to properly close the sinkhole in a manner that will promote protection of groundwater resources.

b. Describe the soils on the site, giving Natural Resources Conservation Service classifications, if known. Discuss soil texture and potential for ground-water contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

The Natural Resource Conservation Service online Web Soil Survey maps fourteen different soil types on the site. The site belongs to the Port Byron-Frankville and Mt. Carroll-Port Byron-Lindstrom Associations. The Port Byron-Frankville Association is defined as a moderately deep to very deep, nearly level to moderately steep, well drained and moderately well drained soils that are found on uplands. The Mt. Carroll-Port Byron-Lindstrom Association is defined as very deep, nearly level to steep, well-drained and moderately well drained soils derived from loess located on uplands. The table below provides an index of the soils identified on the property and denotes if the soils are highly erodible, hydric or floodplain soils, the Crop Equivalency Rating for each soil, and the slopes on which they are found (See Figure "Soil Map").

Soil #	Soil Name	Slope %	Hydric	Floodplain	CER	HEL
11D	Sogn silt loam	6-30	N	N	6	HEL
1857	Eitzen silt loam, channeled	n/a	N	N	20	NHEL
285B	Port Byron silt loam	3-6	N	N	98	NHEL
285C	Port Byron silt loam	6-12	N	N	91	HEL
301A	Lindstrom silt loam	1-3	N	N	99	NHEL
301C	Lindstrom silt loam	6-12	N	N	92	PHEL
476B	Frankville silt loam	2-6	N	N	58	NHEL
476C	Frankville silt loam	6-12	N	N	55	HEL
476D	Frankville silt loam	12-18	N	N	43	HEL
831F	Spinks-Boone-Sogn complex, rocky	15-60	N	N	1	HEL
898F	Bellechester-Broadale complex, rocky	15-60	N	N	3	HEL

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HEL – Highly Erodible Land; NHEL – Not Highly Erodible Land; PHEL – Potentially Highly Erodible Land; Hydric – Yes=listed on the Hydric Soils In Winona County, Minnesota, 1994, No=Not Listed; CER – Crop Equivalency Rating; Slope – in percent

According to the Winona County Web Soil Survey these soils have properties that allow water to transmit the most limiting layer in the soil profile at rates of 0 in/hr to 0.41 in/hr on the lower end to 0.57 in/hr to 1.98 in/hr on the higher end. In isolated areas the Bellechester-Broadale complex found on the backslope of the hillside is considered excessively drained with capacity to transmit water through the most limiting layer at rates of 5.95 in/hr to 19.98 in/hr. As a result the potential for groundwater contamination from chemical inputs under these conditions is high due to the rapid infiltration capacities of the soil. However, as stated before farm chemicals, fertilizers and hazardous materials will not be used on the site, so the threat to groundwater contamination is low.

Excavation will require the use of heavily equipment and truck hauling along with the use of fuels, lubricants and hydraulic fluids. Mobile transport venders will be used to replenish and maintain heavy equipment and trucks.

In the event that a spill does occur mitigation measures including spill containment and emergency preparedness materials such as absorbent materials and pads will be keep on-site during construction and mining operations.

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.

During mining activities land and brush clearing is anticipated. Wood will be used for firewood or chipped for use on site and brush may be burned on site after receipt of a burning permit from the MN DNR. No buildings are present on the site, so demolition will not be required. No industrial hazardous wastes or municipal solid wastes will be generated or stored on the site during mining or reclamation. Storage tanks for diesel fuel will be located at an off-site facility that is permitted independently of the proposed mining activities. An on-site water storage tank may be located at the Yoder Quarry and utilized for dust control mitigation measures.

Rock and cemented sandstone not suitable as a silica sand product will be reserved and utilized for the sub-grade of the planned restoration.

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 ground water. 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.

In accordance with the "What's in My Neighborhood" Minnesota Pollution Control Agency records of hazardous waste sites, and Minnesota Department of Agriculture List of Chemical

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Incident Sites, there are no known or suspected toxic or hazardous materials present at the site or within 2.3 miles of the site.

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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.

In accordance with the "What's in My Neighborhood" Minnesota Pollution Control Agency records of hazardous waste sites, and Minnesota Department of Agriculture List of Chemical Incident Sites, there are no known or suspected below ground or above ground petroleum, or agricultural related fertilizer tanks present at the site or on adjoining or adjacent property.

21. Traffic. Parking spaces added: 8 Existing spaces (if project involves expansion): 0
Estimated total average daily traffic generated: 600 Truck Trips (300 in and 300 out) 14 cars (7 in and 7 out)
Estimated maximum peak hour traffic generated and time of occurrence: 67 (30 in and 30 out) (7 in or out)

The development is proposing to generate a total of 600 truck trips per day (300 trucks in and 300 trucks out) and 14 employee trips per day (7 in and 7 out). This equates to 60 truck trips and 7 employee trips during site operations (30 trucks in and 30 trucks out ~ 7 employee trips in or out) Truck traffic is proposed to travel along CSAH 6 and CSAH29 and enter and exit off of I-90 east of CSAH 29.

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A Traffic Impact Study was prepared for this development by Spack Consulting. Spack Consulting is a traffic study company operated by Michael Spack. Michael Spack is a Professional Engineer registered in Minnesota and Wisconsin and is a Certified Professional Traffic Operations Engineer. The purpose of the study was to determine if the proposed development will significantly impact the adjacent transportation system and to recommend mitigation measures if necessary. The Traffic Impact Study took into account traffic volumes of a proposed quarry within the vicinity of the Yoder Quarry and the respective haul routes for each quarry. The scope of the report was outlined by the Winona County Highway Engineer prior to commencement of the study.

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The objectives of the study were:

i. Document how the adjacent existing public transportation system operates.
ii. Analyze how the adjacent public transportation system will operate in 2012 with the full operation of the quarry and a near by quarry.
iii. Recommend improvements (if needed) to ensure traffic on the public infrastructure within the study area will operate acceptably in 2012 with full operation of the quarry and a near by quarry.

The scope of this traffic study was developed in coordination with the Winona County Engineer. The following intersections were analyzed for capacity and sight distance:

i. CSAH 6 & CSAH 35/CR 113
ii. CSAH 6 & CSAH 33
iii. CSAH 6 & CSAH 29
iv. CSAH 29 & CR 109 (Southern Side)
v. CSAH 29 & CR 109 (Northern Side)
vi. CSAH 29 & South I-90 Ramp

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vii. CSAH 29 & North I-90 Ramp
viii. CSAH 6 & Dabelstein Mine Driveway
ix. CSAH 35 & Yoder Mine Driveway

In Summary all of the study intersections are forecasted to operate acceptably at Level of Service A with the additional truck traffic from the proposed quarries. Level of Service A represents light traffic flow (free flow conditions). No road segments are forecasted to reach capacity with the additional truck traffic. It was found the sight distance on CSAH 29 surrounding the I-90 ramps is deficient for the 55 mph speed limit (no signs are posted, so the speed limit is 55 mph by State Statute). The sight distance at the interchange meets the requirements for a 45 mph speed limit. To be in compliance with MnDOT sight distance standards, it is recommended CSAH 29 at the interchange be analyzed further by MnDOT and Winona County to determine if lowering the speed limit to 45 mph is appropriate. No modifications to the existing public transportation system will be needed to accommodate the proposed quarry trucks.

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 emissions generated by this project will consist primarily from emissions from mobile sources including heavy equipment at the mine 2 backhoes, 2 loaders, 2 off-road trucks, 2 elevators, a power screen and 40 ton over-the-road trucks. The mining equipment will be confined to a 10 acre working/staging area that will migrate across the Yoder site as the mining progresses. The over-the-road trucks will circulate between the loading at the mine site and the load-out in Winona.

Emissions from vehicles and equipment are controlled by the manufacturer in accordance with SEPA regulations and federal fuel standards. All equipment and trucks will be compliant with current air emission, efficiency and fuel use standards.

Since mining equipment and haul trucks are constantly moving to stay efficient and the open mining area and prescribed haul routes are adequate to handle the proposed truck traffic, congestion at the site is not a concern. Haul routes were modeled by traffic engineers and they concluded selected routes will not cause a decline in the level of service that can contribute to concentrated air quality problems.

At the mine site the open atmosphere, elevation and topography of the loading areas allows for diffusion of the engine emissions and will not cause weather inversions or contribute to pockets of air with excessive pollution levels.

Mobile source emissions from the added traffic will be ephemeral. With a 16 hour day the 600 trucks/day haul vehicles will pass by any particular point on the haul route at a rate of 38 trucks/hour. Based upon the EPA's online Diesel Emission Quantifier (DEQ) we have modeled and quantified the annual diesel emissions from the Yoder quarry for 600 truck trips per day. Modeled output values quantified vehicle-related air emissions for three criteria pollutants including nitrogen oxides (NO_x), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), carbon monoxide (CO), in addition to hydrocarbons (HC) and carbon dioxide (CO_2). A

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summary of the modeled results in provided in the table below.

Annual Vehicle-related Air Emissions from the Yoder Quarry (600 trucks/day)

Pollutant	NO_x	$PM_{2.5}$	HC	CO	CO_2
Emissions (short tons/yr)	16.08	0.15	0.40	2.11	5,550.00

Note: Results are based on 500,000 gallons of diesel fuel per year.

Detail of the model assumptions and calculations used to quantify vehicle-related air emissions are included in Figure "EPA National Clean Diesel Campaign (NCDC) Quantifier"

No air quality issues exist in the vicinity of the mine, along the haul route or in the City of Winona at the present time. The level of traffic generated by the mining activity is not expected to lead to any measurable decrease in air quality due to vehicle 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), any greenhouse gases (such as carbon dioxide, methane, and nitrous oxides), and ozone-depleting chemicals (chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

There are no stationary source air emissions. All mine equipment will be mobile and will move as the working face migrates across the mine site. The mine equipment will be placed across a 10-acre area.
Silica sand excavated out of the mine is not easily airborne and the round sand grains are not easily suspended in the air for prolonged periods. Therefore, the dust from the mine is expected to be confined to the Yoder property. Dust suppressants such as misting around equipment, enclosed equipment, watering or treatments of the haul roads, covered truck loads, clean-up of spilled sand, limiting the exposed working face to the minimum necessary for mining and following MSHA Best management Practices for dust control in silica mines are the primary tools for minimizing dust.

There will not be any boilers or stationary engine installations.

24. Odors, noise and dust. Will the project generate odors, noise or dust during construction or during operation? ☒ 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.)

Diesel odors will be emitted by construction equipment during the quarrying and transporting at the site. Emissions are regulated by the USEPA at the manufacturer of the equipment and trucks.

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The sand and rock has no odor. We do not anticipate odors will occur during mining or post construction other than vehicle exhaust during heavy commute times.

Noise will be emitted by earth moving equipment and mining during their established hours of operation. Heavy equipment noise, including back-up beepers, will be noticeable at the site and on adjacent properties. Quarrying noise will be typically associated with the operation of motorized vehicles and construction equipment. All diesel and gasoline driven equipment will have mufflers. To the extent practicable the processing equipment will be shielded and placed near the mining operation. Truckers will be instructed not to employ dynamic breaking while hauling.Back-up beepers will be utilized on all equipment in accordance with MNOSH Rules.

The area is sparsely populated and there are few noise receptors in close proximity to the site. The topography of the working face and operational area and the wind speed and direction will influence the noise for receptors in the area.

The applicant acknowledges and recognizes the requirement to adhere to the Winona Zoning Code and Minnesota Noise Rules MR7030 for Class 3 noise areas (agricultural and related activities) that prescribes standards for day and night that "are constant with speech, sleep, annoyance and hearing conservation requirements for receivers.

The noise levels for this activity would be measured at the property line and would be:

- Daytime and nighttime: L10 (10% of the time in a one hour survey) = 80 dB
- Daytime and nighttime: L50 (50% of the time in a one hour survey) = 75 dB

Blasting may be necessary to remove the cap rock off the ridge and to loosen well cemented sandstone. If blasting is found to be necessary the owner and operator will retain professional and licensed blasting contractors who operate in accordance with all federal, state, county and township regulations. No explosives will be stored on the site. The blasting contractor will notify all adjoining neighbors in advance of the blast alerting them to the time and duration of the event and vibration monitoring shall be done as necessary at the adjacent homes and structures within ¼ mile of the proposed blast. A 24-hour notification will be given to adjacent property owners and local government units. Professional and licensed blasting contractors will follow standard operating procedures to reduce dust control that includes reducing the size of the charge, time and sequence of blasts and monitoring the wind speed and direction.

The standard blast operating procedures will include a plan for all blasts providing contact information of the blasting contractor and monitoring consultant. The plan will show the lands cleared, shot pattern, charges, timing sequence, seismograph locations (standards and practices), safety plan and Certificates of Insurance. Within 5 days of each blasting event, the blasting contractor will provide a report to the operator and local government unit describing the Pre and Post blast observations within the site and surrounding area and Seismograph findings.

Dust generation can be expected during excavation and grading activities on the site. Dust control is a requirement of the SWPPP and may include wet suppression using water and/or chloride applications to graded areas, the mined material before crushing and screening, stockpiles and haul roads. Long-term measures to minimize fugitive dust emissions include stabilizing disturbed soils including overburden and poor quality sand stockpiles with vegetation.

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The principal means of dust control is limiting the size of the open face and working area to less than 10-acres. The mining plan proposes to establish vegetation over all operational areas that are not in active use for mining, stockpiles, operations and hauling.

Berms and stockpiles of overburden or waste sand that will not be exported will be placed to create windbreaks from the prevailing NW and SW winds. Operations will comply with the recommendations of the Department of Health and Human Services Center for Disease Control and National Institute of Occupational Health and Safety Information Circular 9521, 2010. "Best Practices for Dust Control in Metal/Nonmetal Mining. The manual prescribes best management practices to protect workers and prevent fugitive dust. For the mine three principal areas of dust control are prescribed:

- Mining area: Equipment and trucks will have cabs with air filtration systems to protect workers. Water will be employed on travel surfaces.
- Processing areas: Crushers and screens will employ wet suppression for dust at transfer points.
- Private haul roads: The roads will be constructed of crushed limestone aggregate and recycled bituminous. The driving surface will be treated with oil, chloride and water to control dust. There is no hauling on crushed rock public roads and dust suppression will not be used on paved surfaces. Best Management Practices including the use of crushed rock vehicle tracking pads and street sweeping (if necessary) will be implemented at the mine access and on public roadways to prevent sediment leaving the quarry site.

25. Nearby resources. Are any of the following resources on or in proximity to the site?

a. Archaeological, historical, or architectural resources? ☐ Yes ☒ No
b. Prime or unique farmlands or land within an agricultural preserve? ☒ Yes ☐ No
c. Designated parks, recreation areas, or trails? ☐ Yes ☒ No
d. Scenic views and vistas? ☐ Yes ☒ No
e. Other unique resources? ☐ Yes ☒ No

If yes, describe the resource and identify any project-related impacts on the resources. 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. There have been no identified historical or archaeological resources located within the proposed project boundaries. A letter from the State Historical Preservation Office is attached as Figure - "State Historical Preservation Office Report".

The NRCS CER system described in Section 16b identifies a portion of the property within the quarry boundary as prime farmland. These are the soils which are Port Byron Silt loams which have CER ratings ranging from 91 to 98. The disturbance of these areas is not avoidable. The largest impact of removing these areas from cropland will be on the property owner who is the Project proposer. Figure - "Custom Soil Resource Report Map – Crop Productivity Index".

A search of the Winona County GIS maps (powered by GeoCortex) did not show any designated parks, recreation areas or lands affected by County Bluffs or Mississippi River Bluffs.

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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 ☒ No

If yes, explain.

Most construction operations will be carried out during daytime hours with vehicle lights and temporary lighting is expected during the construction phase during early morning and evening hours. The proposed hours of operation are 6:00 AM to 10:00 PM and lighting will only be utilized when necessary. Depending upon weather conditions and the prevailing wind direction occasional dust may be visible during dry periods. However, a water tanker truck will be used on-site for dust control on the access driveway and stockpiles. No stationary sources or fixed exhaust stacks are anticipated which would create additional visual impacts. The site is located in a rural area and there are few residences that would be visually impacted by the mining and quarrying operation.

Stockpile areas shall be placed within the mining limits will provide screening of mining activities for surrounding roadways and properties. Stockpiles that will remain in place longer 14 days and are susceptible to wind erosion shall be covered with topsoil, seed, and mulch.

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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? ☒ Yes ☐ No

If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

Winona County has land use and zoning authority in the Project area. The property is subject to the Winona County Comprehensive Plan (2000). The property is zoned Agricultural/ Resource Conservation as defined in the Winona County Zoning Ordinance. Mining operations are permitted in this zone when reviewed and approved as part of a Conditional Use Permit (CUP). CUPs requirements are outlined in Chapter 6.10 of the Winona County Zoning Ordinance. Extraction Pits/Land Alterations are outlined in Winona County Zoning Ordinance Chapter 9.10 and includes the requirement of a mandatory Operations and Reclamation Plan for all new quarries. The objective of this section of the ordinance is to control alterations to land surfaces, minimize soil erosion and land scarring, to monitor the consumption of natural resources and minimize its impact on the adjacent lands and persons residing in the area. The project will also be subject to any other applicable County, State or Federal Laws and Regulations.

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The Project is consistent with the goals and policies of Winona County and the Winona County Comprehensive Plan (2000) and the Winona 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 ☐ 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

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details.)

The project does not require any connection to public utilities, just access to public roadways. The impacts to public roadways are identified in item 21. Any maintenance or upgrades to the haul route would be addressed in a roadway agreement with Winona County.

Further processing of the sand at offsite facilities may have an impact on public facilities. Those impacts are outside the realm of this EAW.

29. Cumulative potential effects. Minn. R. 4410.1700, subp. 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 effect under appropriate item(s) elsewhere on this form)*.

All phases of the proposed operation are included in this EAW. Current market demand for silica sand is driven by new developments in directional boring in combination with hydraulic fracturing technologies that make oil and gas extraction more economical from formations that were previously too expensive to mine. The bedrock of southeastern Minnesota consisting of the St. Peter, Jordan and Wonewoc sandstone occurs within the geologic profile at a location that permits economical extraction within close proximity for truck hauling, rail or barge transportation routes to satisfy market demands.

As identified in item 6d, there are other projects proposed within the vicinity of this project which are related to the cumulative availability of the industrial silica sand within the region. This project is seeking approval on its own without influence or infrastructure required by these other potential projects. A Traffic Impact Study was prepared for this development by Spack Consulting. Spack Consulting is a traffic study company operated by Michael Spack. Michael Spack is a Professional Engineer registered in Minnesota and Wisconsin and is a Certified Professional Traffic Operations Engineer. The purpose of the study was to determine if the proposed development will significantly impact the adjacent transportation system and to recommend mitigation measures if necessary. The Traffic Impact Study took into account traffic volumes of another proposed quarry (Dabelstein) within the vicinity of the Yoder Quarry and the respective haul routes and traffic volumes for each quarry were combined and evaluated together to assess the cumulative traffic impacts.

Construction of any nearby transfer stations, slurry pipes and/or processing plants would be to the benefit of this project. However, their feasibility, compatibility and timeline for construction are not a combined effort nor should they be a detriment to the review, approval and start of this project.

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.

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No other potential environmental impacts are expected that haven't been addressed by items 1 to 29. The quarry floor will be excavated at an elevation (1,170 ft above mean sea level) that is 86 feet above the groundwater static water level and will not impact any domestic wells in the area. All domestic wells in the area are completed to a depth of approximately 150 – 480 feet deep below the lowest proposed elevation of the quarry.

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.**

RGU CERTIFICATION

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 Minn. R. 4410.0200, subps. 9b and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Name and Title of Signer: **Jason Gilman, Planning and Environmental Services Director**
Winona County Planning Department

Date:

The format of the Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board. For additional information, worksheets, or for EAW Guidelines, contact: Environmental Quality Board, 520 Lafayette Road, St. Paul, Minnesota, 55155-4194, 651-296-6300, or at their website http://www.eqb.state.mn.us/review.html.

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