November 2008

ENVIRONMENTAL ASSESSMENT WORKSHEET

ZAVORAL PROPERTY MINING AND RECLAMATION PROJECT

SCANDIA, MN

Consulting Civil Engineers

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ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. The complete question as well as the answer must be included if the EAW is prepared electronically.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title** Zavoral Property Mining and Reclamation

2. **Proposer**

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Title	Director of Land Use Affairs
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3. **RGU**

Contact person	Ann Hurlburt
Title	Administrator
Address	14727 209th Street
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4. **Reason for EAW preparation** (check one)
___EIS scoping _X_ Mandatory EAW ___Citizen petition ___ RGU discretion ___Proposer volunteered

If EAW or EIS is mandatory give EQB rule category subpart number 4410.4300 Subp. 12B and subpart name: Non Metallic Mineral Mining

5. **Project location** County Washington County City/Township City of Scandia

SW¼ of Section 18, and the N½ of the NW¼ of Section 19, both in Township 32 N, Range 19 W

GPS Coordinates N W
Tax Parcel Numbers: 1803219310001 1803219320003 1803219330003 1803219330004 1803219340001 1903219220001 1903219210002

Attach each of the following to the EAW:
- County map showing the general location of the project; See Figure 1.
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); See Figure 2.
- Site plan showing all significant project and natural features. See Figure 3.

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

The project involves mining and reclamation of a dormant, un-reclaimed gravel mine. The operation will include extraction, crushing, washing, stockpiling, hauling and reclamation operations. Reclamation of the property will stabilize previously disturbed areas and enable the site to be reused in compliance with adopted current comprehensive land-use plans and regulations.

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.

The proposed project is located on a parcel of property which encompasses 114 Acres. Mining activity has previously disturbed approximately 56 acres. The site was actively mined in the mid-sixties through the eighties. Mining operations included stripping, extraction, crushing, washing, hot mix asphalt production, stockpiling and hauling from the site. The operation was taken out of production without reclamation in the 1980's. All processing equipment has been removed from the site; however the site has not been reclaimed. Most recently the site has been used as a source of aggregate from stockpiles located throughout the site. Much of the material in the stockpiles has been removed over the last eight to ten years, but there are irregular landforms because the site has not been reclaimed.

The project involves mining and restoration of 64 acres located predominantly on the previously disturbed portions of the site. The active mining area will include mining to an additional depth of about 15 feet and expanding the limits of mining by about 8 acres. In addition, 4 acres of previously mined area that is located within the St. Croix River District and scenic easement area, is not included in the current mining proposal but will be restored during the final phase of restoration of the active mining site. The restoration of this portion of the project will be completed within one construction season. Figure 3 illustrates the previously disturbed and undisturbed mining and reclamation areas.

The remainder of the site, which is situated between the St. Croix River and State Highway 95, is heavily wooded and will remain as buffer area. The mining operation will not be visible from the St. Croix River. Railroad tracks run through the very eastern portion of the property.

A portion of the project lies within the St. Croix River District and the St. Croix River is a federally designated Scenic Riverway. Sand and gravel operations are not proposed within the River District. Historically, mining activities did occur on approximately four acres that are within the areas now designated St. Croix River District and scenic easement. This area will be included in the final restoration activities of the overall operations, but will not be included in the active mining operation. Slopes will be graded and shaped to those indicated on the final restoration plan, topsoil will be applied and vegetation established to allow uniform topography throughout the mined area and leave the site totally restored.

Mining activities will include the extraction, crushing, washing, stockpiling, and hauling of aggregate and the recycling of concrete and asphalt materials. Mining operations will be conducted on a seasonal basis, typically from April through mid November. The site will be worked in phases with the duration of the project expected to be no more than 10 years.

As with most mining operations, overburden will initially be removed from new areas to be mined. The overburden is stockpiled on site and later used for reclamation. However, since the majority of mining will take place on previously disturbed areas, there is very little additional stripping work to be performed as part of the project.

Once an area has been stripped, aggregate is excavated using front-end loaders and is then crushed, screened, washed and stockpiled for sale and distribution from the site. The site will typically operate from 7:00 am – 7:00 pm Monday through Friday. Portable processing equipment will be brought to the site as needed. The equipment will operate until a sufficient volume of material has been processed and stockpiled and then the processing equipment will be removed from the site. When the stockpiled aggregates are nearing depletion, the portable

equipment will be brought back to the site to replenish the stockpiles.

Reclamation activity will proceed as areas of mining are completed. Perimeter areas will be sloped and the interior areas backfilled and graded to restoration grades. Topsoil will be applied and vegetation established to reduce erosion. The site will be left in a condition consistent with current local land use rules regulating sand and gravel mining reclamation.

The Reclamation Plan, Figure 4, illustrates the proposed activities.

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 two-fold. It will provide local aggregates to surrounding communities. The aggregate produced at this site will be utilized in State, County and local public improvement projects as well as for private construction projects. The project will also complete restoration on the proposed active area as well as in previously mined areas. Restoration will improve the character of the property and increase the stability of the soils thereby minimizing environmental effects of unreclaimed areas due to potential erosion and sedimentation.

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

e. Is this project a subsequent stage of an earlier project? _X_ Yes __ No
If yes, briefly describe the past development, timeline and any past environmental review.

Past mining activity has occurred throughout portions of the property. Past mining activity predated reclamation requirements, which were not part of the previous regulatory framework. This project will allow the reclamation step to occur. Currently the site is permitted for hauling of aggregates from existing on-site stockpiles. Environmental review has not been conducted for this site.

7. **Project magnitude data**
Total project acreage: 114 **acres**
Number of residential units: unattached attached maximum units per building
Commercial, industrial or institutional building area (gross floor space): total square feet

Indicate areas of specific uses (in square feet):

Office 0
Retail 0
Warehouse 0
Light industrial 0
Other commercial (specify) 0

Manufacturing 0
Other industrial 0
Institutional 0
Agricultural 0
Other: Mining & Reclamation: 60 Acres
Reclamation Only: 4 Acres
Setbacks and Undisturbed Areas: 50 Acres

Building height **If over 2 stories, compare to heights of nearby buildings**

Processing equipment will reach 25 feet in height. Stockpiles may extend to 50 feet in height. The equipment and stockpiles will be placed in lower areas of the mining operation, reducing their visibility. Because of the recessed nature of the processing and stockpile areas, the height of the equipment and stockpiles will generally be lower than any surrounding structures and will not be visible from the St Croix River.

8. **Permits and approvals required.** List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of government	Type of application	Status
City of Scandia	CUP Mining Permit	to be obtained
City of Scandia	Annual Operators Permit	to be obtained
Carnelian-Marine-St, Croix WD	Watershed District Permit	to be obtained
MN Pollution Control Agency	NPDES Storm Water	add to multiple site permit
MN Dept. of Natural Resources	Water Appropriations	to be obtained
MN Pollution Control Agency	Air Emissions Permit	add to multiple site permit
MN Dept. of Transportation	Access Permit	to be obtained

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.**

Current and recent past land use of the site itself includes mining and stockpiling aggregates, agricultural, rural residential and open space. The site is zoned Agricultural and mining is an allowed use within the Agricultural Zone. Portions of the site are within the St. Croix River District and some portions are covered by Scenic Easements granted to the federal government. Mining is not allowed, and is not proposed, within the St. Croix River District or on property covered by Scenic Easements. Surrounding the site is rural residential, agricultural, scenic riverway, and a scenic byway (State Highway 95). A bike path is situated along a portion of the western border of the site. The bike path ends at the site access, near the intersection of State Highway 95 (Hwy 95) and State Highway 97 (Hwy 97). The location of the bike path is indicated on Figure 4.

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			Lawn/landscaping		
Wooded/forest	41	37	Impervious surfaces		
Brush/Grassland	10	73*	Stormwater Pond		
Cropland	7	4	Other (describe): disturbed area from past mining	56	0
			TOTAL	**114**	**114**

If Before and After totals are not equal, explain why:

Figure 5 is an aerial photograph of the site illustrating the current cover types.

* Upon conclusion of the operation, restoration will leave the disturbed area stabilized as grassland with an option to add trees. In the interim, during the mining operation, 60 acres will be mined. In addition, four acres of previously disturbed area located within the St. Croix River District and Scenic easement area will be restored as a final phase of activity.

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

The portion of the site proposed for mining provides a limited habitat for wildlife, primarily due to past mining activity that has left disturbed portions of the site unreclaimed. Active mining will alter a small area of woods and cropland that may result in the temporary reduction of wildlife habitat. The portion of the site that will not be disturbed as a result of mining includes 50 acres of woods situated predominantly on the bluff of the MN River and along the very southern portion of the property. This wooded area outside of the mining limits and previously disturbed areas will remain as undisturbed buffer area and continue to provide a variety of wildlife habitats

The St. Croix River is home to a number of threatened mussel species that are particularly sensitive to increased siltation. The project, by restoring the unreclaimed mining operation will improve site stabilization and improve the quality of stormwater runoff from the site. This will have a beneficial impact on the water quality of the St. Croix River. Upon completion of the mining activity and the restoration of all previously disturbed areas, the site will also have greater habitat continuity and wildlife habitat will be improved.

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources on or near the site? _X_ Yes ___ No
If yes, describe the resource and how it would be affected by the project. Describe any measures that will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-___) and/or Division of Ecological Resources contact number (ERDB 20080847**) 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 DNR was requested to provide natural heritage information for the project area and the vicinity within approximately 1 mile of the site which includes portions of the St. Croix River. The DNR's Natural Heritage and Non-game report for the site and the area within about a 1-mile radius of the site indicates that there are a number of known occurrences of rare species within the area. The majority of these occurrences are in or immediately adjacent to the St. Croix River. A copy of the DNR letter and the Index Report is included as Attachment 1. A discussion of the features that may be present on the site or impacted by the project as well as the proposed mitigation is presented below.

Forested Areas: The forested area within the property is part of a regionally significant Ecological Area and is important because it contains habitat suitable for rare, threatened or endangered species. The impact to the forested area is minimized because the vast majority of activity will occur on previously disturbed areas that are not wooded. Just under 8 acres of undisturbed area will be mined. These eight acres are composed of approximately 3 acres of agricultural land and 4.5 acres of woods. The 50 acres of the property that will not be disturbed is composed predominantly of wooded area forming a contiguous forest to the north and south along the bluff line of the St. Croix River.

Blandings Turtles: Blanding's turtles have been sighted in the vicinity of the Project. The Blanding's Turtle is a state listed threatened species. Banding's Turtles nest in open sandy areas. The DNR has provided a number of recommendations for minimizing impacts to Blanding's turtles. The recommendations that will be followed include distributing a flyer with an illustration of a Blanding's turtle to all of the employees that work at the site. The flyer will also be kept on site. Turtles that are in imminent danger will be moved out of harms way by hand. Those that are not in imminent danger will be left undisturbed. If a Blanding's turtle is observed nesting at the site, the nest will be marked and left undisturbed. Any silt fencing used as part of stormwater management will be removed upon the revegetaton of the site. Restoration will include the revegetation of the site with native grasses and forbs.

Red-Shouldered Hawk: According to the DNR report, this hawk has been documented in the wooded areas along the St. Croix River in the vicinity of the proposed project. The report states, "This species requires large, contiguous forest tracts interspersed with wetlands and prefers lowland woods and river bottoms." As previously mentioned, the forest areas located on the site will remain largely undisturbed. The forested bluff area will remain lending to the contiguous habitat preferred by the Red Shouldered Hawk.

Mussels: The DNR states that "mussels are particularly vulnerable to deterioration in water quality, especially increased siltation. As such, the mining project should not be allowed to negatively affect the water quality of the St. Croix River. Towards this end, a buffer of vegetation should remain between the mine and the river, and sound erosion and sediment control practices should be implemented and maintained for the duration of the project

The project will involve the final restoration of the site which will increase site stabilization and vegetative cover thereby decreasing the potential for siltation within the St. Croix River. The project should have a positive impact on the water quality of the St. Croix River. The site will operate under a NPDES permit and a stormwater pollution prevention plan will be prepared to include site specific best management practices BMPs for erosion and sedimentation control. These may include temporary sedimentation basins, revegetation of restored areas, silt fence in areas where needed, diversions berms, swales, routine inspections and other BMPs as may be useful in ensuring that no untreated stormwater leaves the site. The washing process will utilize sedimentation ponds and recycle water back to the washplant. There will be no discharge of washwater off the site. A substantial vegetated buffer ranging from approximately 1,000 feet to 1,300 feet between the eastern limits of mining and the river will remain untouched.

Bog Bluegrass and Kitten-tails: Bog Bluegrass and kitten-tails are both state–listed threatened plants which have been located in the vicinity of the project area. Bog Bluegrass is associated with wetland habitats associated with groundwater seeps. Mining limits within the Project are well above the water table. The DNR identified two seepage swamps on the property and recommends avoiding these areas. These areas are outside of the proposed mining and restoration limits and will not be impacted by the Project. Therefore, the project is not likely to have any impact on Bog Bluegrass.

Kitten-tails are found on the bluffs and terraces of the St. Croix River. The white pine/hardwood forest which covers a portion of the site may be potential habitat for the kitten-tails. While impacts to the majority of the wooded area will be avoided, a small area of woods on the southern end of the project will be impacted. Prior to activity in this area, a botanical survey will be conducted to determine if any kitten-tails occur in this area. The survey will take place at the appropriate time of the year which is May 1 to the 1st or 2nd week of June or later depending on snow cover in late April. A proposed survey plan will be submitted to the DNR prior to the survey work. Minnesota's endangered species law and associated rules prohibit the picking, digging or destroying of threatened or endangered species without a permit.

American Ginseng: American Ginseng is a state listed plant species of special concern that is found in mature hardwood forests providing 75% shade. The plant grows best on moist, well-drained slopes. The proposed project is located almost entirely within an area that has previously been disturbed by mining. As a result, there will be very little tree removal associated with this project. There is a small area of woods, approximately 6 acres in size, located in the southern portion of the project which will be cleared. The remaining wooded portion of the property encompassing approximately 50 acres of mature hardwood forest located on the bluffs of the St. Croix will remain undisturbed and continue to provide habitat for American Ginseng. A botanical survey will be conducted to determine if American Gingseng occurs in this area. The survey will take place at the appropriate time of the year, which is not before July 1 and with August the easiest time to identify the plants. A proposed survey plan will be submitted to the DNR prior to the survey work. Minnesota's endangered species law and associated rules prohibit the picking, digging or destroying of threatened or endangered species without a permit.

12. **Physical impacts on water resources. Will the project involve the physical or hydrologic alteration — dredging, filling, stream diversion, outfall structure, diking, and impoundment — of any surface waters such as a lake, pond, wetland, stream or drainage ditch? ___Yes _X_No If yes, identify water resource affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the PWI: Describe alternatives considered and proposed mitigation measures to minimize impacts.**

    The National Wetland Inventory (NWI) map indicates the potential for a small PUBGx (palustrine/unconsolidated bottom/intermittently exposed/excavated) wetland within the mining area. The site has been evaluated by wetland specialists with Earth Tech, Inc. Their field investigation determined that there are no jurisdictional wetlands on site. Only upland vegetation and hydrology were noted. The Washington County Soil Survey indicates that the site soils are silty loams, loamy sands and gravelly loamy coarse sand. No hydric soils are evident on the site. Figure 6 is an excerpt from the NWI Scandia and Marine on St. Croix quadrangle maps. A copy of the report is included as Attachment 2.

    The DNRs review of the potential for impact to rare elements also included a map that identified two areas of black ash swamp subtype located on the project site. These two areas are not located within the mining area and will not be impacted by the Project.

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

    There is one production well located within the active mining area. The well was previously used as a supply well for the washing operation. If water use is expected to exceed thresholds established by DNR, a water appropriations permit will be obtained.

14. **Water-related land use management district. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? _X_Yes ___No**
    If yes, identify the district and discuss project compatibility with district land use restrictions.

    The site is located near the St. Croix River, a federally designated National Scenic Riverway. A portion of the site is located in the St. Croix River District zone, a land use zoning district established by the city of Scandia. The extent of the St. Croix River District zone in this vicinity is illustrated on Figure 7. The area proposed for sand and gravel mining is located outside of the limits of the St. Croix River District zone.

    Some portions of the site are covered by Scenic Easements granted to the federal government and managed by the National Park Service as part of the management plan for the Lower St. Croix River National Scenic Riverway. Under this program, in October 1990, the National Park Service acquired easements it has determined are needed to implement the Management Plan for the river. The easements cover an area in the eastern portion of the site and restrict development to those uses and activities lawfully in existence prior to the acquisition of the easement. Any construction or topographic alteration requires the prior consent of the National Park Service. The Scenic Easement areas are illustrated on Figure 8.

    Activity proposed within the St. Croix River District zone and Scenic Easement area is limited only to final restoration activities of previously disturbed portions of the site. The reclamation activity is

planned to occur as the final phase of restoration and will be conducted entirely within one construction season to minimize disturbance and improve long term stability of these areas.

Reclamation will involve final grading to blend into adjacent grades, backfilling to a maximum slope of 4:1 as may be needed to stabilize existing steep slopes, application of topsoil and establishment of vegetation to produce a condition of stability. There will be no clearing of trees, stripping of topsoil or any activity in previously undisturbed portions of the site within the St. Croix River District zone or Scenic Easement areas.

The reclamation activity will be setback from the St. Croix River 1,000 feet or more. Existing topography and the heavily wooded bluff will prevent any of the proposed operations from being visible from the river. A cross section which illustrates the existing grades and the proposed reclamation grades with respect to the river is shown on Figure 9.

The reclamation and restoration activities proposed to be undertaken as part of this project will only be undertaken if after the review by the National Park Service it is determined that the restoration should occur in the segment of the property covered by the easement rights and if after review by the city of Scandia it is determined the restoration should occur in the segment of the property zoned St. Croix River District.

15. Water surface use. Will the project change the number or type of watercraft on any water body?
___Yes _X_No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

16. Erosion and sedimentation. Give the acreage to be graded or excavated and the cubic yards of soil to be moved: acres 64 **; cubic yards** 1.2mcy **. 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.**

As a result of the previous mining, a variety of soil types have been exposed. Some of the site soils pose a severe erosion hazard, particularly the Emmert soils. However, most of the areas occupied by this soil type will remain undisturbed, with the exception of very small areas in the extreme northern and southern portions of the site. Erosion of the Antigo silt loam is severe when disturbed. The surface layer of the Santiago silt loam is easily erode-able on steeper slopes, however this soil tends to seal during rains and crust on drying. The Gotham loamy sand blows easily and erosion can be a problem if no vegetated cover is present.

Control measures include establishing vegetation over topsoil on finished elevations after mining operations in the area have ceased. Restoration measures will help stabilize slopes formed during reclamation. Vegetation and stabilization of slopes will decrease surface runoff and sedimentation. Runoff is directed to onsite low areas established throughout the active mining area as mining progresses. This prevents runoff containing a high sediment load from leaving the site during active mining operations.

The site is located adjacent to the bluff line of the St. Croix River Valley – drainage ways are carved through the bluffs and represent areas of active erosion. Reclamation grades will incorporate stormwater basins with outlets and outlet protection to control runoff into the drainageways and reduce erosion associated with the drainageways. Upon final development of the site, additional controls and best management practices will be required to conform with stormwater management regulations regarding stormwater quality as well as rate and volume control in effect at that time.

17. Water quality: surface water runoff

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

The general direction of stormwater runoff is to the east towards the bluffs of the St. Croix River. Prior mining has altered storm water runoff patterns, quantity and quality at the site. Stormwater runoff patterns will continue to be modified with the progression of mining. The Restoration Plan contemplates establishing grades that will provide for collection and treatment of stormwater runoff at two locations within the interior of the site prior to discharge from the mining area.

A pollution prevention plan will be implemented for this site in conjunction with the MPCA NPDES permit. The plan will utilize best management practices to minimize or prevent discharge of storm water runoff from becoming contaminated or for sediment laden storm water from being discharged off site.

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

The site generally drains east towards the St. Croix River. Runoff generated on active mining areas will be contained within the mining area of the site, draining to low areas created during the extraction processes. Diversion berms, silt fence, temporary sedimentation basins and other best management practices will be utilized as needed to contain stormwater runoff during the extraction process. Final reclamation will restore drainage patterns to the original drainage patterns. Any stormwater contacting exposed soils will be treated prior to discharge off-site. Surface water runoff will infiltrate into the underlying granular soils.

18. Water quality: wastewaters

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

Sanitary or municipal wastewater will not be generated at the site. Industrial wastewater will be limited to that reused in the portable washplant, which will operate periodically at the site. The water in the washplant will not contain chemical additives. Washwater will be managed in an on-site recycling basin where washwater and fines will be recycled. These operations will be permitted by MPCA and washwater will not be discharged from the site.

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

On-site treatment of washwater will be through a series of sedimentation ponds. Chemicals will not be added to the wash plant process or sedimentation ponds. After passing through a series of sedimentation ponds to treat the suspended sediment load, the water will be returned to the washplant. All of the washwater will be recycled and it will not be discharged off site.

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.

Not applicable

19. Geologic hazards and soil conditions

a. Approximate depth (in feet) to ground water:

whole site:	0 ft minimum	55 ft average
active mining areas:	30 ft minimum	60 ft average

to bedrock:		
whole site:	0 ft minimum	70 ft average
active mining areas:	10 ft minimum	60 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.

Although much of the surrounding region displays minor karst characteristics, the mining site itself does not contain any known sinkholes or other karst-related features.

The site is located adjacent to the St. Croix River. The river has a significant affect on the ground water flow regime and it is a surface expression of the groundwater table. Surficial aquifer ground water flow is to the east, towards the St. Croix River Valley. The Washington County Geologic Atlas indicates that the ground water table elevation at the site varies from approximately 840 feet above mean sea level (MSL) on the western portion of the site to approximately 690 feet above MSL adjacent to the river. Based on exploratory borings, excavation is expected to occur to a maximum depth of approximately 840 feet above MSL. In areas where excavation reaches approximately 840 feet above MSL the groundwater table is below this elevation. Excavation below the water table is not being proposed and a minimum separation of three feet between the bottom of the excavation and the groundwater table will be maintained throughout the entire site. In the underlying bedrock aquifer (the Prairie du Chien-Jordon Aquifer) groundwater flow is also to the east discharging into the St. Croix River.

At least one ground water monitoring well will be installed down gradient of the stockpiling and mining operations as required by the City of Scandia's Ordinance No. 103. The well will be completed in the upper portion of the groundwater table and sampled on an annual basis for diesel range organics. A comprehensive groundwater protection plan will be developed as part of the City's Conditional Use Permit and Annual Operating Permit processes.

The bedrock subcrop beneath the northernmost portion of the site consists of the Ordovician Prairie du Chien. In the southern portion of the site, the Cambrian Jordan Sandstone forms the subcrop. Moving east through the valley, the river has cut through the St. Lawrence, Franconia and the Ironton-Galesville Formations. Depth to bedrock ranges from 0 to over 100 feet, with bedrock elevations of about 750 to 880 feet above MSL

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

According to the Washington County Soil Survey, the site area consists of silt loams, loamy sands, gravelly loamy coarse sand, a rock outcrop complex, and areas of past and active gravel pits. The gravel pit areas comprise the most predominant soil classification and cover about 42.8% of the site. The Emmert gravelly loamy coarse sand and the Emmert loamy coarse sand covers 23.9% and 2.2%, respectively, of the site. Other soil types found on the site are the Gotham loamy sand (12.8%), Antigo silt loams (11.3%), Santiago silt loams (5.0%), and the Mahtomedi Variant-Rock outcrop complex (2.0%).

The Emmert soils are excessively drained, with very rapid permeability that formed on outwash plains in noncalcareous sand and gravelly sand outwash. The Gotham soil is a well-drained, rapidly permeable soil that formed on outwash plains in loamy sand or sand of 4' or greater thickness. The

Antigo soils are well drained with moderate permeability in the upper silty mantle and very rapid permeability in the underlying material. The Antigo soils formed in a moderately deep silty mantle over sandy outwash. Santiago soils are well-drained, moderately slowly permeable soils on loess-mantled glacial uplands. These soils formed in 15-30 inches of loess and the underlying loamy glacial till. The Mahtomedi Variant is comprised of excessively drained, rapidly permeable soils on bedrock-controlled uplands that formed in a dominantly sandy mantle of erosional sediments and residuum weathered from sandstone bedrock.

Because of the poor filtering capability of granular soils, removal of high permeability soils will not significantly increase susceptibility of the ground water to contamination. Measures will be taken to reduce the potential for ground water contamination, including secondary containment of fuel and petroleum product storage tanks, prohibiting additives in washplant operations, and conducting limited truck maintenance, oil changes, fueling etc. over impermeable surfaces. In addition, upon conclusion of mining, reclamation, using lower permeable materials as backfill and reapplication of topsoil will provide some filtering and attenuation capacity.

Figure 10 is an excerpt of the Washington County Soil Survey.

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.

Solid wastes will not be produced at this site.

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

The site will generate very small quantities of hazardous waste when performing routine maintenance (oil changes, etc.) on on-site equipment. A service truck will come to the site to perform routine maintenance. The service truck will take all used fluids from the site where they will be properly disposed of at the Operator's main shop. The service truck will carry a spill containment kit.

Diesel fuel and very small quantities of oil, anti-freeze, grease, hydraulic fluid, etc. will be stored on the site. Fuel storage is described below. The other products will be stored in an enclosed van. Use of the service truck described above minimizes the amount of hazardous materials stored on-site. A spill containment kit will be kept in the van.

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

Diesel fuel will be used to operate on-site equipment including generators. One or two above ground tanks with double walls or secondary containment in accordance with MPCA rules and City of Scandia ordinances will be used, or alternatively, equipment will be fueled using a fueling service.

21. Traffic. Parking spaces added: 0
Existing spaces (if project involves expansion):
Estimated total average daily traffic generated:
Estimated maximum peak hour traffic generated and time of occurrence:
Indicate source of trip generation rates used in the estimates.

If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. **Using the format and procedures described in the Minnesota Department of Transportation's Traffic Impact Study Guidance *(available at: http://www.oim.dot.state.mn.us/access/pdfs/Chapter%205.pdf)* or a similar local guidance, provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.**

The site will operate seasonally. Estimated total average daily traffic generated will be 60 truck loads per day, (120 truck trips) during the mining season. This is based on removal of 150,000 cy/year. Maximum peak hour traffic is anticipated to be 20 trucks per hour, occurring between 7:00 a.m. and 8:00 a.m.

MnDOT's 2002 Trunk Highway traffic volumes indicate the following traffic counts:

	AADT	HCADT
Hwy 97, west of site	5,700	360
Hwy 95, north of 97	7,400	650
Hwy 95, south of 97	4,250	240

AADT: Average Annual Daily Traffic
HCADT: Heavy Commercial Average Daily Traffic

The site is served by Hwy 95 and Hwy 97. There is a current site access at the intersection of Hwy 95 and Hwy 97. The vast majority of truck traffic, approximately 95%, will travel from the site west on Hwy 97. The proposer has met with MnDOT and determined that the existing site access needs to be realigned to provide a safer intersection. The realignment will require a new access permit from MnDOT. A bike trail is located along Hwy 95, south of the intersection of Hwys 95/97, ending at the site's current access road. The very northern-most portion of the bike trail may need to be removed as part of the realignment. The proposed realignment is illustrated on Figure 11.

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

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

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

Crushing equipment will create air emissions. The site will generate fugitive dust primarily from haul roads, and to a lesser extent, extraction and processing equipment. Fugitive emissions will be controlled by watering haul roads. The natural moisture content of in-place materials also helps to reduce fugitive dust generated during the extraction process. Crushing equipment is equipped with spray bars to minimize generation of dust during processing. Many of the stockpiles will have sufficient moisture content from the washing process to keep fugitive dust levels low during loading operations.

24. Odors, noise and dust. Will the project generate odors, noise or dust during construction or during operation? _X_ Yes ___ No
If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

Haul trucks and excavation equipment used at the site for mining processes generate dust and noise. The site will operate under a MPCA air emissions permit. This permit will require opacity testing of all processing equipment as well as measures to control dust. These measures will include paving the first 200 feet of the site entrance, watering internal haul roads as necessary and operating spray bars on processing equipment. In addition, loading and processing operations will be established at recessed portions of the site, reducing dust emissions from the site.

The site must also operate under the noise limits established by the MPCA. Processing activities will be located in the lower portion of the site to reduce noise levels, and equipment will be fitted with standard noise reduction equipment such mufflers and broad band back-up alarms, and hours of operation will be controlled. Vegetative screening around the perimeter of the site will also reduce dust and noise.

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

The State Historical Preservation Office (SHPO) of the Minnesota Historical Society was contacted regarding the potential for nearby archeological, historical or architectural resources. The results of their review indicate that there are no properties listed on the National or State Registers of Historic Places located on site. There are some structures of historical significance identified in the general vicinity and these are illustrated on Figure 12. These structures will not be impacted by the Project. There are no known or suspected archeological properties in the area that would be affected by this project. A copy of the letter is included as Attachment 3.

Prior to initial mining activity, there were some very small discontinuous areas of Antigo silt loam 2-6 percent slopes, which are classified as prime farmlands within Washington County. These soils were disturbed through the course of past mining activity. The total area of prime farmland impacted by past mining was approximately 4.3 acres, located in three discontinuous areas on site.

There is a bike path that runs along the east side of Hwy 95 along the southern portion of the property up to Hwy 97. A berm and vegetation is located on a portion of the western property boundary which will screen the bike path and Hwy. 95 from the operations. The St. Croix River valley contains numerous scenic views and vistas all along the river. The project will not be visible from the St. Croix River.

The site contains the unique resource of sand and gravel aggregates, an essential component of the metropolitan area's roads and infrastructure. The project allows for the utilization of the resource and complete restoration of proposed and previous mining areas.

26. Visual impacts. Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? ___ Yes _X_ No
If yes, explain.

The site will not be visible from the St. Croix River. Screening berms exist or will be constructed along the western portion of the site, processing equipment and loading activity will be performed at lower elevations within the site, minimizing any visual impacts from Hwy 95.

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

The project is subject to the City of Scandia Zoning and Land Use regulations. The site is zoned Agriculture, with portions of the site lying in the St. Croix River District. The zoning code allows mining as a conditional use for areas outside of the River District. Within the River District, mining is not allowed. The only activity proposed within the portion of the Site overlain by the River District is grading to achieve final reclamation of the area previously disturbed by past mining activity and never reclaimed. Grading is a permitted use in the River District.

Proposed restoration activities include grading to obtain grades and to establish vegetation consistent with the City of Scandia's Zoning and Land Use regulations. Stabilization of the previously disturbed areas of the site will provide an overall benefit to the environmental by minimizing potential erosion, sedimentation and discharge of stormwater runoff with high sediment loads. Mining and reclamation activities will be consistent with current regulations and will operate under the appropriate permits from the City of Scandia and Carnelian-Marine-St. Croix Watershed District.

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

The existing site access on to Hwy 95 does not form a right angle with the highway. The proposer has met with MnDOT and determined that the current access will need to be realigned to provide a 90 degree intersection. The proposed realignment is indicated in Figure 11 of this document.

29. Cumulative potential effects. Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement.
Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative potential effects. (Such future projects would be those that are actually planned or for which a basis of expectation has been laid.)
Describe the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects *(or discuss each cumulative potential effect under appropriate item(s) elsewhere on this form).*

The project is a continuation of an existing gravel mining operation. The project will include restoration of newly mined areas of the site. Incorporating the reclamation and stabilization of previously mined areas into the Project will have the cumulative effect of facilitating reuse of the entire site and will provide for long term stability of the entire site. There are no future projects, planned or foreseeable, which would involve mining at this site. The reclamation will leave the site in a condition ready for ultimate development. However, the parameters of the development have not been established and are not included for consideration in this EAW.

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

There are no other known potential environmental impacts.

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.

#11: State Listed Species: There are various species of concern that are located in the vicinity of the project area. This is expected due to the proximity of the St. Croix River and the diverse habitat that the river valley provides. Of particular concern are Blanding's Turtle, the potential for Kitten-tails and American Ginseng to be located within the wooded area of the site and the Red-Shouldered Hawk as well as a variety of mussel species. The plants of concern and the Red Shouldered Hawk are found in a wooded habitat. This plan proposes to minimize impacts to wooded area and will leave the majority of woods intact and untouched. The stand of trees forming a continuous corridor along the bluffs of the St. Croix River will not be removed.

The mussels are found within the River itself. A number of measures will be adopted to minimize any potential for sedimentation into the river to occur as a result of this project. The majority of storm water will be handled internally. Restoration grades allow for the retention of stormwater, allowing sedimentation to occur prior to discharge off site. In addition, reclamation will provide backfilled slopes that will be stabilized with vegetation to minimize the potential for erosion and sedimentation. As a result of these practices, there should be no adverse impact to the river or its mussel population.

#24 Odors, Noise and Dust: The project will generate noise and dust. All equipment has standard noise reduction features such as mufflers. Processing and loading equipment will be operated at lower elevations within the pit to minimize the amount of noise around the perimeter of the site. The site must operate within the noise standards set forth by the Minnesota Pollution Control Agency.

Water will be applied to haul roads as needed to reduce fugitive dust. Processing equipment will be fitted with spray bars to reduce dust generation. The site will operate under a MPCA air Emissions Permit. Under this permit, the site must comply with air quality standards set forth by the Minnesota Pollution Control Agency. Permit conditions include opacity testing of processing equipment as well as control of fugitive dust emissions. The site will not exceed noise standards set forth by the Minnesota Pollution Control Agency.

#27 Mining is not an allowed use in the River District. The project is designed to buffer the River District portion of the site from the mining activities during operation. The Project will also allow reclamation of the previously mined areas within the River District portion of the site.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9b and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Date

Title

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-201-2492, or http://www.eqb.state.mn.us