July 2013 version

Environmental Assessment Worksheet

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's (EQB) EAW Process webpage. (EQB, 2020). The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.

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:

Spruce Valley Sehlstrom Gravel Pit Dewatering Project

2. Proposer: Spruce Valley Corporation

Contact Person: Louie Cater
Title: Owner
Address: 39469 130th Avenue NE
City, State, Zip: Middle River, MN 56737
Phone: 218-222-3487
Email:

3. RGU: Minnesota Dept. of Natural Resources

Contact Person: Anneka Munsell
Title: Environmental Review Project Manager
Address: 500 Lafayette Road - Box 25
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4. Reason for EAW Preparation:

Required	Discretionary
☐ EIS Scoping	☐ Citizen petition
X Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

If EAW is mandatory, give EQB rule category subpart number(s) and name(s):

Minn. Rules part 4410.4300, subp. 24. Water appropriation and impoundments.

(A) For a new appropriation for commercial or industrial purposes of either surface water or ground water averaging 30,000,000 gallons per month; or a new appropriation of either ground water or surface water for irrigation of 540 acres or more in one continuous parcel from one source of water, the DNR is the RGU.

5. Project Location:

County: Roseau County

City/Township: Spruce Township, City of Roseau

PLS Location (¼, ¼, Section, Township, Range)

Table 1 - PLSS Location.

¼, ¼	Section	Township	Range
Northeast	30	162	39W
Northwest	30	162	39W
Northeast	25	162	40W

Watershed (81 major watershed scale): Roseau River Watershed

GPS Coordinates: 48°49'46.04"N, 95°43'47.94"W (entrance to gravel pit on north boundary of project area)

Tax Parcel Number(s): 310066400, 310066401, 310066402, 310066501, 310066510, 310066511, 310066701, 310066700, 140087500, 140083900, 140083901, 140084000

At a minimum, 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); and See Figure 2
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan. See Figure 5

Figures and Attachments

- Figure 1 - Project Location Map
- Figure 2 - 24k USGS Topographic Map
- Figure 3 - Project Detail Map
- Figure 4 - County Ditch 11 Plan and Profile
- Figure 5 - Land Use and Site Plan Map
- Figure 6 - Surficial Geology Map
- Figure 7 - Bedrock Depth Map
- Figure 8 - Bedrock Geology Map
- Figure 9 - Depth to Water Table Map
- Figure 10 - SSURGO Soils Map
- Figure 11 - Elevation Map
- Figure 12 - Natural Resources Map
- Attachment A - Sehlstrom Pit Dewatering Evaluation
- Attachment B - USFWS Online Information for Planning and Consultation
- Attachment C - Minnesota DNR Natural Heritage Information System Data Request
- Attachment D - DNR Guidance on “Cleaning Heavy Equipment Used on Land To Minimize The Introduction And Spread Of Invasive Species”
- Attachment E - Minnesota SHPO Historic Records Request

6. Project Description:

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

Spruce Valley Corporation (proposer) is proposing to dewater an existing 22-acre gravel pit (Sehlstrom Pit) located in Spruce Township, Minnesota. The pit will be dewatered to expose the gravel in the existing pit, where it will be mined and processed on-site.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion, include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

The Proposed Project is located at an existing gravel mining operation approximately 0.75 miles from the City of Roseau. Gravel mining is not currently occurring as the pit is flooded. The pit proposed to be dewatered is the northwestern-most pit; it is approximately 22-acres in size and is surrounded by existing agricultural land to the north and west, and gravel pits to the south and east (Figure 3). The approximate depth of the pit is 25 feet and it is estimated that at a pumping rate of 24 million per day (MGD), or 37 cubic feet per second (cfs), it would take 110 days to dewater the pit. Upon completion of the initial draw-down, a continuous maintenance discharge of 11 MGD would occur while gravel mining is in operation. It is anticipated that operations would remove an additional 25 feet of material, approximately 911,000 cubic yards, from the pit. The amount of material removed from the pit as part of mining operations would be dependent on market factors and demand for material. Operations are anticipated to last approximately 10 years.

Large electric pumps will discharge the pit water into the road ditch along the gravel access road north of the pit. The discharged flow would proceed north to County Ditch No. 11 and then flow west for approximately 1 mile to the Roseau River (Figure 3). Six existing culverts will be used at driveway and road crossings and are currently sized to handle the discharge generated from the site. A seventh culvert exists where the discharge turns 90 degrees into County Ditch No. 11; however, this culvert is upgradient and is not expected to see flow from the Project. The ditch/culvert capacities exceed 37 cfs with respect to cross-section, profile grade, and ditch depth (Figure 4). The existing County Ditch No. 11 outfall at the Roseau River is currently designed to handle the discharge generated from the site. DNR Water Appropriation permits will require pumping reductions, or cessation, if water levels exceed trigger levels rising above culvert crown elevations during storm events. Pumping would cease during conditions where ice-obstruction may occur within County Ditch No.11. If necessary, one or more culverts will be replaced with larger (e.g., 48-inch) ones in order to comply with local permits during pit dewatering.

Gravel mining equipment would include excavators, a long-reach excavator, haul trucks, front end loaders and gravel processing equipment. The gravel would be removed from the pit and be processed to various gradations. This will require the use of screens and conveyor belts.

c. Project magnitude:

Table 2 - Project Magnitude.

Type	Amount
Total Project Acreage	22 acres*
Linear project length	1 mile**
Number and type of residential units	NA
Commercial building area (in square feet)	NA
Industrial building area (in square feet)	NA
Institutional building area (in square feet)	NA
Other uses – specify	NA
Structure height(s)	NA

* Acreage of Sehlstrom Pit
**Length of surface drainage ditch.

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

The purpose of the Proposed Project is to dewater an existing gravel pit to mine gravel.

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

f. If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review. Not applicable.

g. Is this project a subsequent stage of an earlier project, Yes or No? No
If yes, briefly describe the past development, timeline and any past environmental review. Not Applicable

7. Cover Types:

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

Table 3 - Cover Types (acres) within the 22-acre Sehlstrom Pit. Note that acres associated with Other (Developed land) is considered areas exposed due to the drainage of deep water as a result of dewatering activities.

Cover Type	Before	After
Wetlands	0.33	0.33
Deep water/streams	17.02	0
Wooded/forest	0	0
Brush/Grassland	0	0
Cropland	3.26	3.26
Lawn/landscaping	0	0
Impervious Surface	0	0
Stormwater Pond	0	0
Other (Barren Land)	2.0	2.0
Other (Developed Land)	0	17.02
Total	22.61	22.61

8. Permits and approvals required:

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

Table 4 - Permits and Approvals.

Unit of Government	Type of Application	Status
United States Army Corps of Engineers	Section 404 of the Clean Water Act Permit	May be required
United States Fish and Wildlife Service	Section 7 or 10 Federal Endangered Species Act Consultation - Review for Threatened and Endangered Species – informal coordination	May be required
Environmental Protection Agency (Region 5), in coordination with the Minnesota Pollution Control Agency	Spill Prevention Control and Countermeasure Plan	May be required

Unit of Government	Type of Application	Status
Federal Lead Agency	Section 106 of the National Historic Preservation Act review of historical and archaeological resources	May be required
Minnesota Board of Water and Soil Resources	Minnesota Wetland Conservation Act Approval	May be required
Minnesota Department of Natural Resources	Water Appropriation Permit	Required
Minnesota Pollution Control Agency	Clean Water Act Section 401 State Water Quality Certification	May be required
Minnesota Pollution Control Agency	Air Emissions permit	Will be determined after submittal of Air permit applicability determination
Minnesota Pollution Control Agency	NPDES/SDS Nonmetallic Mining and Associated Activities General Permit	Required
Roseau County Highway Department	Application for Transportation Permit (Overweight Load)	May be required
Roseau County	Application for Utility Permit on County Highway Right of Way	May be required
Roseau River Watershed District	General Permit Application	May be required
City of Roseau	Floodplain Development Permit	May be required

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. Land Use:

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

The Sehlstrom Pit is primarily disturbed land and open water, previously mined for gravel. The surface drainage ditch route runs north from the Sehlstrom Pit, approximately 20 feet west of the gravel access road, then runs west approximately 25 feet south of County State Aid Highway (CSAH) 24 (300th Street) for one mile and ends at the Roseau River. The land use along the surface drainage ditch consists of mowed grassy ditches and culverts under residential driveways and streets (See Figure 5).

Land use adjacent to the Proposed Project Area is described as follows:

- The land use directly adjacent to the Sehlstrom Pit includes gravel piles, mining equipment and additional open mining pits approximately 575 feet from the south side of the Sehlstrom Pit, and 600 feet east of the southeast corner of the Sehlstrom Pit. To the north and west of the Project area, the land use is primarily cultivated crops and herbaceous wetland. An overhead electrical distribution line runs approximately 50 feet from the north side of CSAH 24. Seven residential homes/farmsteads are located 100-150 feet south of the surface drainage ditch on the south side of CSAH 24.

- A forested area with several pole barns is located approximately 300 feet from the northeast corner of the Sehlstrom Pit. CSAH 28 is located approximately 300 feet from the east side of the Sehlstrom Pit.

- Roseau City Park Mount Roseau Single Track Mountain Bike Trail in the East Diversion Flood Control Project is located approximately 90 feet from the north side of the surface drainage ditch.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

Roseau County's Local Water Management Plan 2010-2019 provides guidance and best management plans regarding erosion and sedimentation of surface waters, stormwater runoff, flood damage reduction, managing ditch systems and groundwater protection throughout Roseau County (Roseau County 2019).

The City of Roseau's (City's) *Roseau Comprehensive Plan (2011)* provides guidance for future public and private development within the City and describes long-term goals to maintain and enhance the communities character (City of Roseau 2011). The Proposed Project Area is within Planning Areas 9/10 Christian School Property/Gravel Pits and 11/12 Castle Subdivision & Area South of City Park of the Land Use Plan. The planned land use for Planning Area 9/10 is agricultural

and mining uses. This Planning Area includes the gravel pit and the eastern portion of the drainage ditch.

The planned land use for Planning Area 11/12 is large lot residential development. This Planning Area includes the western portion of the drainage ditch.

The nature of the Proposed Project is consistent with the proposed land use plans of these areas by maintaining agricultural and mining use in Area 9/10 and not expanding residential lots in Area 11/12.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

Roseau County's Shoreland Management Ordinance (adopted July 1993) defines shoreland as land located within the following distances from public waters: 1,000 feet from the ordinary high water level of a lake, pond, or flowage; and 300 feet from a river or stream, or the landward extent of a floodplain designated by ordinance on a river or stream, whichever is greater (Roseau County 1993). This ordinance is relevant to the Proposed Project since water will be discharged into Roseau River.

Roseau County Highway Department's Culvert Policy states that all culverts that are 48-inch diameter or larger shall be loaded, hauled, and installed by experienced contractors or individuals who are properly equipped and experienced to handle and install large diameter pipe culverts and shall conform to the current State of Minnesota, Department of Transportation, Standard Specifications for Construction (Roseau County 1998).

The City's Code of Ordinance, Chapter 151: Floodplain Management, Section 4.17, Requirements for all Floodplain Districts states that a permit is required for relocation/alteration of a watercourse including new or replacement culverts, unless a public waters work permit has been applied for (City of Roseau 2019). This ordinance applies to the surface drainage ditch due to potential culvert replacement (upsizing) along the ditch during the Proposed Project. Since a Public Waters Work Permit will not be required from the Minnesota Department of Natural Resources (DNR), a floodplain permit from the City of Roseau will be required.

The western portion of the drainage ditch is within the P-2 Heavy Public Zoning District designated by the City's Zoning Code (City of Roseau 2019). This district is for public use and is not anticipated to be impacted by the Proposed Project.

Upon review of the Flood Insurance Rate Map, developed by the Federal Emergency Management Agency's National Flood Insurance Program (FEMA 1987), it was determined that the Sehlstrom Gravel Pit is located in a Zone X (area of minimal flood hazard) Floodway District, and the surface drainage ditch route encroaches into Zone AE (subject to inundation by the 1% annual chance flood) Floodway District.

Upon review of the DNR Wild & Scenic Rivers Program (DNR 2020a), it was determined that there are no wild and scenic rivers within or adjacent to the Proposed Project Area.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

There are no identified incompatibility issues with the existing nearby land uses and zoning. The Proposed Project is a temporary dewatering effort that would result in minimal land disturbance or change in land uses. The result of the Proposed Project would be a temporary transfer of water out of the Sehlstrom pit, through the surface drainage ditch and into Roseau River. Except for the temporary change in water surface elevation within the Sehlstrom pit, no other land use alterations or impacts are anticipated.

One of the priority concerns of The Roseau County's Local Water Management Plan is regarding erosion and sedimentation of surface waters within the county. This plan is applicable to the Proposed Project since water will be discharged into the Roseau River. The impact to water resources due to dewatering the Sehlstrom pit is further discussed in EAW Item 11.b.iv.

Per the shoreland definition in The Roseau County's Shoreland Management Ordinance, the surface drainage ditch encroaches into shoreland of the Roseau River. It is not anticipated that further design is needed to determine impacts to the shoreline of Roseau River since the existing ditch outfall is sufficiently sized for the discharge from the Proposed Project.

As mentioned in EAW Item 9.a.ii, the gravel pit is within planning area 9/10 Christian School Property/Gravel Pits in the City of Roseau's Land Use Plan. Land use associated with the Sehlstrom Pit will continue to adhere to nearby land uses since it will remain a gravel pit.

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

The Roseau County Highway Department's *Rules and Regulations for Utilities on County Highways* requires an application for Utility Permit on County Highway Right of Way for any work done within the county right of way. The County includes ditches under their definition of utilities.

As shown previously in Table 4, Section 401 water quality certification would be required from MPCA for any activity that may result in a discharge of a pollutant into waters of the United States, including the Roseau River.

10. Geology, soils, and topography/land forms:

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Glacial Lake Agassiz once covered much of the northwest corner of the state (and into Canada) during the last ice age. The surficial geology of the Proposed Project vicinity is characterized by washed till and glaciolacustrine sediments deposited during the late Wisconsin Glaciation (between 11,700 and 14,000 years ago) (See Figure 6). Glacial lake sediments from washed tills containing a mix of clay-rich tills from

the Forest River Formation and sandy sediments described as fine-grained sand to silt have been mapped in this area (Lusardi et al, 2019). Specifically, well logs (MDH 2019) in the Study Area indicate the presence of clay and sand in the upper 5 to 8 feet. Gravel then occurs to a depth of at least 55 feet below ground surface (bgs).

Depth to bedrock underlying the glacial deposits is mapped at 100 to 250 feet bgs (Olsen 1982) (See Figure7). The underlying bedrock consists of a Neoarchean Age intrusion in the Wabigoon Subprovince (of the Superior Province). The bedrock is comprised of foliated to gneiss tonalite, granodiorite, and diorite (Jirsa et al, 2011) (See Figure 8).

Based on the described geology, karst features such as sinkholes, springs, or shallow limestone formations are not a concern for the Proposed Project. Shallow groundwater (less than 10 feet) is present in the Study Area (See Figure 9). Based on groundwater drawdown projected by groundwater modeling (see Attachment A) impacts to shallow groundwater would be limited to the area immediately adjacent to the pit with areas within 500 feet of the pit seeing a drawdown of approximately 1 foot.

The City of Roseau draws its drinking water from the Quaternary buried sand aquifer located at depths of approximately 110 to 150 ft bgs in the Study Area (City of Roseau 2019). The Study Area is not located within the City's Drinking Water Supply Management Area (DWSMA). Adverse impacts to the aquifer from the proposed dewatering activities are not expected (see Question 11).

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii

According to the NRCS Web Soil Survey, eight different soil types exist within the Proposed Project limits (See Figure 10). Loamy sands (Eckvoll, Garnes, Karlstad, Kratka, and Mahkonce) make up 67.8% (45.1 acres) of the soil within the Proposed Project limits. The remaining soils include loams (Percy and Skagen) at 31.8% (21.1 acres) and Boash Clay loam at 0.4% (0.24 acres).

The NRCS Erosion Hazard Ratings describes the hazard of soil loss for off-road/off-trail areas after disturbance activities that expose the soil surface. The hazard has four rankings that range from "slight" to "very severe". Within the Proposed Project limits, all of the soils are rated as "slight," meaning that erosion is unlikely under ordinary climatic conditions (See Table 5).

Table 5 - NRCS Web Soil Survey Hazard Rating.

Soil Unit Name	Erosion Hazard Rating	Acres in Project Area	Percent of Project Area
Garnes fine sandy loam, dense till, 0 to 3 percent slopes, very stony	Slight	11.60	17.5

Soil Unit Name	Erosion Hazard Rating	Acres in Project Area	Percent of Project Area
Karlstad loamy sand, 0 to 3 percent slopes	Slight	9.94	15.0
Mahkonce fine sandy loam, 0 to 3 percent slopes	Slight	7.13	10.7
Boash clay loam, dense till, 0 to 2 percent slopes	Slight	0.24	0.4
Kratka fine sandy loam, dense till, 0 to 2 percent slopes	Slight	2.01	3.0
Eckvoll loamy fine sand, dense till, 0 to 3 percent slopes	Slight	14.41	21.7
Skagen loam, 0 to 3 percent slopes	Slight	16.84	25.3
Percy loam, 0 to 1 percent slopes	Slight	4.29	6.5

The Study Area lies in an area that was once the lake bottom of Glacial Lake Agassiz. The topography is flat, and the Study Area elevation is approximately 1,060 feet (NAVD 88) (See Figure 11).

Much of the overburden/soils described above have already been removed as a part of previous mining activity onsite. The Proposed Project would allow for continued mining of sand and gravel deposits below the existing mining elevations and within the depths currently saturated below the water table. It is anticipated that operations would allow for an additional 25 feet of material or 911,000 cubic yards of sand and gravel would be removed from the pit.

Soil disturbance is expected to be minimal in undisturbed areas of the Proposed Project limits. Stormwater runoff will be managed via the measures further described in EAW Item 11.b.ii. Permits for stormwater as well as erosion and sediment control are discussed in EAW Item 11.b.ii.

11. Water resources:

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Existing wetlands were identified by reviewing aerial photography, USGS Quadrangle Maps, and DNR National Wetland Inventory (NWI) maps. Public Waters and Wetlands were identified using DNR Public Water Inventory maps. One unnamed mapped NWI feature (the gravel pit), one PWI feature (Roseau River), a linear excavated road ditch, and Roseau County Ditch No. 11 occur within

the Proposed Project Area. The mapped NWI and PWI features are shown on Figure 12. There are two additional gravel pits adjacent to the Proposed Project that are not mapped NWI features and can be seen on Figure 12 near the northeast side of the Proposed Project. Additionally, the Roseau River Diversion Channel is not mapped as an NWI feature but is located north of CSAH 24 to the northwest of the Proposed Project and can be seen in Figure 12.

A review of Minnesota Pollution Control Agency Impaired Waters List shows there is one impaired water body, the Roseau River, within 1 mile of the Proposed Project Area (See Figure 12). The Roseau River is listed as impaired for aquatic consumption, mercury in fish tissue. There is currently no approved Total Maximum Daily Load for mercury for the Roseau River.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

The general flow of groundwater in this area is from southeast to northwest, towards the Roseau River. Depth to groundwater in the area is generally 0-10 feet (Figure 9). The Proposed Project is not located within a wellhead protection area, nor is it within the City of Roseau's DSWMA. Seven private wells are located on properties directly adjacent to the Proposed Project based on a review of Minnesota Department of Health's Minnesota Well Index. Table 6 summarizes the details of the private wells located near the Proposed Project Area. Private well locations are shown on Figure 3. Based on groundwater drawdown projected by groundwater modeling (see Attachment A), two onsite private wells owned by Mr. Sehlstrom could be impacted by the Proposed Project t: Well #622503, located approximately 300 feet east of the gravel pit, might see a maximum drawdown of five feet during pit dewatering; and Well #220200, located approximately 500 feet south of the gravel pit, might see a maximum drawdown of three feet during pit dewatering. The other private wells in the Proposed Project Area are projected to see minimal or no drawdown as a result of the Proposed Project (Table 6). The conceptual model will evaluated through the DNR water appropriation permit process.

Table 6 - Wells Near the Proposed Project Area.

Well ID	Well Depth (Feet)	Date Drilled	Latitude	Longitude	Maximum Projected Drawdown from Project (Feet)
622503	52	February 1999	48.82796833	-95.72506333	5
220200	35	October 1967	48.82504165	-95.7265454	3
220199	42	May 1961	48.8224376	-95.72366529	<1
220198	40	April 1967	48.82983212	-95.71838363	<1

Well ID	Well Depth (Feet)	Date Drilled	Latitude	Longitude	Maximum Projected Drawdown from Project (Feet)
743723	43	September 2006	48.82091834	-95.72513833	<1
125725	25	April 1967	48.83254698	-95.75107517	0
220250	53	September 1958	48.83310701	-95.7509832	0

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

Wastewater created by the Proposed Project would not be discharged to a publicly owned treatment facility.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

Wastewater created by the Proposed Project would not be discharged to a SSTS.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

Wastewater generated by the Proposed Project in the form of dewatering activities, would be discharged to an existing roadway ditch which would convey the water to County Ditch No. 11 and then to Roseau River. A water quality assessment has not been conducted on the site. The Proposed Project will comply with all applicable water quality standards and will conduct a water quality assessment of the site as part of project NPDES/SDS permitting. As part of the NPDES/SDS permitting process, the Proposed Project will create a Pollution Prevention Plan that will incorporate Best Management Practices (BMPs) in order to meet the effluent limitations as defined in the MPCA NPDES/SDS Nonmetallic Mining/Associated Activities General Permit (MNG490000). BMPs may include sedimentation basins, filtration basins, and energy dissipaters at the discharge location. No impacts to surface or groundwater resources are anticipated as a result of wastewater generated by the Proposed Project.

ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including

temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

The Proposed Project would result in some potential erosion as existing ground cover would be disturbed during construction of the pumping outlet location and at the (potential) culvert replacement sites. The Proposed Project would be designed to meet both the State Disposal System (SDS) and National Pollution Discharge Elimination System (NPDES) sediment and erosion control standards consistent with the required MPCA NPDES/SDS Nonmetallic Mining and Associated Activities General Permit. A stormwater pollution prevention plan (SWPPP) would be developed for the Proposed Project. Erosion prevention and sediment control requirements would be followed in accordance with the NPDES/SDS permit, which would include both temporary and permanent erosion and sediment control plans as well as other BMPs to protect water resources. Temporary and permanent storm water management system may utilize BMPs such as bio-rolls, erosion control blanket, silt fence, sedimentation basins, filtration basins, and energy dissipaters at the pumping discharge location. These BMPs would be installed and maintained over the life of the Proposed Project in order to minimize potential impacts to downstream waters during both construction, dewatering, and operation of the Proposed Project. The Proposed Project does not anticipate any changes to the quantity or quality of stormwater runoff during construction, dewatering, and operation of the Proposed Project.

iii. Water appropriation: Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

The Proposed Project proposes to dewater an excavated gravel pit that has filled with groundwater and surface water runoff during periods of inactivity. A water quality assessment has not been performed on the water although there are no known contaminants within the Proposed Project Area. No water quality exceedances are anticipated in water bodies downstream of the Proposed Project as a result of dewatering activities. The Proposed Project would include necessary permits and approvals, as well as employ appropriate BMPs to minimize or mitigate potential impacts to stormwater runoff and water quality of the downstream receiving waters. The Proposed Project proposes to appropriate approximately 24 MGD for at least 110 days in order to lower the water surface elevation in the gravel pit approximately 25 feet. Once the water surface has been lowered to allow for gravel mining operations with the pit, for a duration of approximately 10 years, the Proposed Project anticipates that dewatering would continue at a rate of at least 11 MGD in order to maintain water surface elevations in the gravel pit.

The 24 MGD discharge would result in an approximate 37 cfs increase in flow to County Ditch No. 11 and subsequently the Roseau River. The existing capacity of the access road ditch, County Ditch No. 11, and the Roseau River exceed 37 cfs with respect to cross-section, profile grade, and depth. The

primary function of both the access road ditch and County Ditch No. 11 is to convey water to the Roseau River, and, based on the constructed nature of these features, no adverse impacts are anticipated. As part of Roseau County and Roseau River Watershed District permit conditions, the Proposed Project anticipates that pumping reductions or cessation of pumping will be required during high flow events if water levels exceed trigger levels rising above culvert crown elevations. Such restrictions on dewatering might lead the Proposed Project Proposer to consider upsizing one or more culverts to mitigate the increased flow due to the Proposed Project. As part of mitigation for the increased flow, the Proposed Project might replace—on an as-needed basis—one or more downstream culverts on County Ditch No. 11, increasing the size of the culverts to a minimum of 48 inches.

A technical memorandum was prepared that assesses the impacts of dewatering the gravel pit on the groundwater resources near the pit during mining operation and is included as Attachment A. Dewatering of the gravel pit was simulated using MODFLOW modeling software with regional hydrostratigraphy conditions based on information obtained from the City of Roseau Wellhead Protection Plan. This model simulates two potential hydrogeologic scenarios:

1. The gravel pit is isolated from the underlying regional aquifer by intervening sandy clay beneath the proposed gravel layers to be removed; and

2. The gravel is connected to the underlying regional aquifer by sand. The model found that the desired 25 feet of pit water level drawdown was achieved by pumping 24 MGD for a period of 110 to 510 days, depending on the hydrogeologic scenario. The model further found that continuous maintenance pumping at 11 to 18 MGD would be required to maintain pit water levels, depending on hydrogeologic scenario.

This EAW is only analyzing the first scenario and pumping at 24 MGD for a period of 110 days and maintenance pumping at 11 MGD. Based on the simulations the Proposed Project may result in a groundwater level drawdown of approximately one foot up to approximately 1,000 feet away from the gravel pit. All impacts would occur beneath farm fields and would not significantly impact nearby water resources. Potential impacts to wells are described in EAW Item 11.a.ii.

No pumping wells will be installed for the Proposed Project. There is no well abandonment or connection to an existing municipal water supply proposed as part of the Proposed Project.

iv. Surface Waters:

1) Wetlands: Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

The Proposed Project will result in the dewatering and excavation of the gravel pit. The gravel pit is a created feature and meets the definition of an incidental wetland (MN Rules 8420.0105 Subpart 2.D) and is likely not regulated under the Minnesota Wetland Conservation Act (WCA). The Roseau County Soil and Water Conservation District is the Local Government Unit (LGU) with authority over the jurisdictional status of the water resource features in the Proposed Project Area under WCA. Additionally, the area meets the definition of an incidental wetland under federal law (33 C.F.R. § 323.2.B) and is likely not regulated under section 404 of the Clean Water Act (CWA). The USACE St. Paul Regulatory Office has authority over the jurisdictional status of the water resource features in the Proposed Project Area under CWA. Impacts to wetlands may occur during the potential replacement of culvert activities. Proposed Project activities that may impact jurisdictional resources would be coordinated in conjunction with both LGU and the USACE during permitting and final design of the Proposed Project. Any replacement or mitigation activity would take place in accordance with WCA and CWA permit requirements.

2) Other surface waters: Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

Additional impacts to water resources would include potential installation of energy dissipation BMPs at the pumping outlet location within the access road ditch, and the potential replacement of culverts within County Ditch No. 11. Additional BMPs within the ditch might be required to ensure down cutting or destabilization of the banks is avoided. Disturbances within County Ditch No. 11 would be considered self-mitigating as the Proposed Project would be replacing culverts at existing culvert locations. Construction activities within County Ditch No. 11 and the access road ditch would be performed in accordance with the conditions of the Proposed Project SDS/NPDES permit with BMPs utilized to mitigate potential turbidity/sedimentation discharges as directed in the Proposed Project SWPPP. Dewatering activities would result in the inundation of both the road ditch and County Ditch No. 11. County Ditch 11 is a jurisdictional drain administered by Roseau County. Currently the system is undersized to handle a 2-5 year rain event. An additional 37 cfs may exacerbate this condition if pumping were to occur continuously, even during a substantial runoff event. No fill or excavation activities within the Roseau River would occur as a result of the Proposed Project.

The Proposed Project would not affect the number or type of watercraft usage or passage for any of the water resources in the Proposed Project Area.

12. Contamination/Hazardous Materials/Wastes:

a. Pre-project site conditions. Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

One listing (Polaris R&Q South Building) identifying contamination or potential environmental hazards was found in the Study Area based on a review of listings in the Minnesota Pollution Control Agency (MCPA 2020) and Minnesota Department of Agriculture "What's In My Neighborhood?" databases (MDA 2020). The site is listed as an industrial stormwater site with a No Exposure Exclusion permit from the MPCA . A search of the surrounding area up to 1-mile away did not yield any additional listings in either the MPCA or MDA databases. The Polaris R &Q South Building is not anticipated to be a source of potential contamination within the Study Area.

The surrounding land use includes additional sand and gravel mining operations and agricultural fields in all directions. No known sources of contamination have been identified in the Study Area.

b. Project related generation/storage of solid wastes. Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

No solid waste generation during construction/operation is anticipated.

c. Project related use/storage of hazardous materials: Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

No above ground storage tanks (ASTs), underground storage tanks (USTs), or other bulk storage of hazardous materials and petroleum products are currently present in the Study Area. Nor are any planned for permanent use in conjunction with the Proposed Project. However, small capacity storage tanks associated with backup generators may possibly be used for dewatering activities. These storage tanks will either be double walled or placed in secondary containment if single walled. The generator(s) will also be placed in a protected area to limit the chance of accidental impacts or puncture from vehicles and other equipment.

Appropriate measures would be taken during construction/operation to avoid spills that could contaminate groundwater or surface water in the Study Area. Spill kits will be on hand during construction to address minor spills and releases from faulty equipment. In the event that a leak or spill does occur, immediate response and appropriate action to remedy the situation would be taken in

accordance with MPCA guidelines and regulations. These response actions would be further detailed in a Spill Prevention, Control, and Countermeasure Plan.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

The use of hazardous materials or petroleum products will be limited and primarily associated with fuel and lubricating oils for heavy equipment. No bulk storage or disposal of hazardous wastes or used petroleum products onsite is planned. Fueling and routine maintenance (e.g., oil changes) of equipment will be conducted offsite.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The Proposed Project Area is approximately one mile east of the Roseau River and located within the Tallgrass Aspen Parklands – Lake Agassiz, Aspen Parklands– Aspen Parklands ecological subsection as defined by DNR (2005). This area is described as low, level lake plain with vegetation dominated by wet prairie and dry gravel prairie (DNR 2005). The Proposed Project Area currently consists of an excavated gravel pit that has filled with water to a depth of approximately 25 feet and an existing 1-mile long surface drainage ditch along an access road and CSAH 24/300th St that drains to the Roseau River. The gravel pit itself primarily consists of lacustrine open water habitat with a fringe of limnetic/emergent habitat near the shoreline of the gravel pit. Vegetation is mostly absent along the shoreline, and, in areas where vegetation is present, the habitat is dominated by hybrid cattail (*Typha x. glauca*) and various pond weed species (*Potamogeton spp.*). Vegetation in the ditch is dominated by hybrid cattail (*Typha x. glauca*).

Common wildlife located in the Proposed Project Area include species associated with agricultural areas and disturbed grassland including deer, small mammals, and songbirds. It is unlikely that fish species reside in the gravel pit due to its artificial nature. Any fish that do reside within the pit would have been introduced, as the gravel pit does not have a current hydrologic connection to other water bodies.

Downstream of the Proposed Project, County Ditch No. 11 consists primarily of wetland habitat that is inundated at times of high flows and is dominated by hybrid cattail. The Roseau River located downstream of the Proposed Project is a large perennial river system that is home to over 30 species of fish and supports both fisheries and macroinvertebrate communities that meet the MPCA index of biotic integrity for water quality standards. The Roseau River is home to Walleye and Northern Pike. Channel Catfish in the river are abundant, with numerous trophy opportunities. The fish community is diverse and representative of Red River tributary.

The DNR is currently stocking Lake Sturgeon downstream of Ditch 11 outlet as part of a Lake Sturgeon Restoration Plan in the Red River watershed. There are potential spawning areas just downstream the outlet from Ditch 11.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-1022) and/or correspondence number (ERDB _____) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

Federal Endangered and Threatened

Section 7 of the Endangered Species Act of 1973, as amended, requires federal agencies to review any action that it funds, authorizes, or carries out to determine whether it may affect threatened, endangered, proposed species, or listed critical habitat. Federal agencies (or their designated representatives) must consult with the U.S. Fish and Wildlife Service (USFWS) if any such effects may occur as a result of their actions. If a federal agency finds that an action would have no effect on listed species or critical habitat, it should maintain a written record of that finding that includes the supporting rationale.

An official list of federally threatened, endangered, proposed, and candidate species that may occur within the Proposed Project Area was provided through the USFWS online Information for Planning and Consultation tool (Attachment B). Two federally threatened species, Northern Long Eared bat (NLEB) (Myotis septentionalis) and the Canada lynx (Lynx Canadensis) were identified as potentially occurring within the Proposed Project Area. No critical habitat for either the NLEB or Canada lynx is in the Proposed Project Area. No known NLEB hibernacula occur within 0.25 mile of the Proposed Project Area, nor is a known roost tree within 150 feet of the Proposed Project Area (DNR 2020b).

Bald Eagles

The Bald Eagle (*Haliaeetus leucocephalus*) is protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The MBTA and the Eagle Act protect bald eagles from a variety of harmful actions and impacts. The USFWS, the federal Agency with Jurisdiction over these Acts, manages bald eagles in accordance with the National Bald Eagle Management Guidelines. According to the DNR's Natural Heritage Information System (NHIS) there are no known eagle nests within the Proposed Project Area or within 1 mile of the Proposed Project Area (DNR NHIS License Agreement 1022). It is possible that bald eagles may occur in the across larger area due to the proximity of the Roseau River.

Minnesota Department of Natural Resources Special Status Species

There are no know occurrences of DNR endangered, threatened, or species of special concern within the Proposed Project Area. There is one documented occurrence of DNR endangered, threatened, or species of special concern within one mile of the Proposed Project Area (DNR NHIS License Agreement 1022). Species that occur within one mile of the Proposed Project Area are listed in Table 7. DNR concurrence of review of the NHIS database is provided as Attachment C.

Table 7 - DNR Listed Species within 1 mile of the Proposed Project Area.

Common Name	Scientific Name	Preferred Habitat	Status
Marbled Godwit	*Limosa fedoa*	Native grasslands with short vegetation adjacent to ephemeral and semi-permanent wetlands.	Species of Special Concern (SPC)

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Wildlife that reside within the Proposed Project Area may be temporarily displaced to adjacent habitats during construction. Impacts to the existing vegetation would be minimal as large-scale vegetation removal would not occur as a result of the Proposed Project.

Additional flow during low/base flow events and might alter the natural flows and habitat of the system. The water appropriation permit would require discharge would cease in higher flow events to eliminate any additive impact. Any addition of suspended sediment would be limited and controlled through permitting.

An increase in base flow conditions might alter habitats, specifically spawning habitat might have the following impacts:

- Cause loss of sites for macrophyte colonization
- Benefit non-native fish and plant species
- Loss of benefits for native predators via reduced access to concentrated prey
- Promote excessive growth of aquatic macrophytes
- Reduce diversity of macroinvertebrates
- Decrease access to shoreline nesting sites
- Proliferation of larval black flies
- Loss of sensitive species
- Decline of quantity and quality of spawning habitat
- Eliminate cues for movement of fish to overwintering habitat
- Reduce the quantity of fish, due to altered spawning habitat

Additionally during low flows periods the sudden cessation of activity could lead to rapid decline in water levels which could lead to fish stranding and large scale fish kills.

Invasive Species

Invasive species are nonnative species that can cause economic or environmental harm and could threaten natural resources. These species often spread rapidly in open corridors and can form large dense single species stands that reduce plant diversity. Ground disturbance and associated vegetation removal, along with construction equipment used within the water may allow for the introduction of invasive species to the Proposed Project Area. Aquatic invasive species are not known to occur within

the gravel pit. If aquatic invasive species are encountered during dewatering activities, the best management practices will be implemented to prevent the spread of the species to other waters (See Attachment D).

Federal Endangered and Threatened

No documented NLEB hibernacula and/or roost trees are within the Proposed Project Area. Additionally, tree clearing is not anticipated as part of the Proposed Project. Therefore, no impacts to NLEB are anticipated.

Due to the disturbed nature of the Proposed Project Area and lack of suitable habitat, no impacts to Canada lynx are anticipated as a result of the Proposed Project.

Bald Eagles

The Eagle Act prohibits the "taking" of bald eagles which includes actions to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb a bald eagle (50 CFR § 22.3). Additionally, taking includes the disturbance of bald eagles that interferes with breeding, feeding, or sheltering behavior or results in injury. Incidental taking includes human-caused alteration initiated around an active or previously active nest site that may result in agitation to an eagle to a degree that injures or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment (USFWS 2020). The Proposed Project would not result in the destruction or removal of a bald eagle nest. Construction activities associated within the Proposed Project Area will not occur within 700 feet of a bald eagle nest.

Minnesota Department of Natural Resources Special Status Species

No impacts to marbled godwit are anticipated as a result of the Proposed Project. Construction activities associated with the Proposed Project are unlikely to affect populations of marbled godwit because of the lack of suitable habitat within the Proposed Project Area.

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

Removal of vegetation during gravel pit dewatering and (potential) culvert replacement will be minimized to the extent practical. The Proposed Project will follow construction BMPs to control and prevent the spread of both terrestrial and aquatic invasive species (see Attachment D). BMPs such as requiring vehicles to be clean prior to arriving to the project site, equipment washing, draining all water from equipment prior to arrival onsite, minimizing soil disturbance to areas only necessary for construction activities and stabilizing disturbed soils with materials that are free of invasive plant seed or materials would be implemented during construction. Although it is unlikely that any fish populations occur within the pit, if any fish population is present it would have been introduced, as the gravel pit does not have a current hydrologic connection to other water bodies.

Pumping should be ramped during the stop and start of pumping to ensure that fish are not stranded after pumping ceases, this is anticipated to be permit condition.

14. Historic Properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

A letter and electronic request to the SHPO was made on September 17 and 29, 2020, respectively (see Attachment E). The SHPO did not identify any historic or archeological sites recorded in or near the Proposed Project area (Attachment E). SHPO did not recommend any additional archaeological survey or other activity. The Proposed Project is the draining of the pit lake to allow for the mining of the site. Based on the lack of known sites within the Proposed Project area and prior use of the area as a gravel mine, impacts on historic properties from the Proposed Project are not expected.

15. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

There are no designated scenic views or vistas on or near the Proposed Project Area. The Proposed Project Area was previously used for gravel mining, and once the pit lake is dewatered, gravel mining is expected to restart. There are no vapor plumes expected for this project. Gravel mining operations may be 24 hours a day and lighting may be required during non-daylight hours. There are no local construction specific permits. At this time there are no known permit conditions that would regulate construction hours.

The Proposed Project Area is surrounded by agriculture and other gravel mining activities. The dewatering of the pit lake and continuation of mining is not expected to result in new visual effects, with the exception of lights during non-daylight hours.

16. Air:

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

The Proposed Project would include stationary sources that produce emissions of hazardous air pollutants, criteria pollutants, and greenhouse gases. These stationary sources would include the following:

- Equipment for gravel processing (e.g., crushing, screening, conveyor transferring, truck unloading, truck loading) would be used at the site.
- Processing equipment would be electric, with diesel power in place if electric power could not keep up with water inflow.
- A diesel-powered generator would be used at the site.

- A diesel-powered pump may be used if the water inflow cannot be maintained by using an electric pump.

Equipment operated for pumping would be diesel pumps. Operations would involve a yet to be determined number of diesel machinery operating in a rural agricultural area. Emissions from the engines would be minimized by using units that are certified by the US Environmental Protection Agency (EPA) for their intended use based on model year and by using ultra-low sulfur (15 parts per million or less) diesel fuel.

b. Vehicle emissions. Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

During construction, short-term increases in localized carbon monoxide levels and other vehicle-related emissions from construction equipment and worker transportation vehicles are anticipated. The magnitude of the construction emissions would be heavily influenced by the specific construction activity occurring. Air quality impacts as a result of exhaust emissions from primarily diesel equipment would vary according to the phase of construction but would be minimal and temporary. To minimize impacts, contractors would be required to maintain equipment properly, including using any emissions controls, as specified by the manufacturer. Air quality mitigation measures are not proposed.

As discussed in EAW Item 18, the traffic-related impacts as a result of Project operation are anticipated to be minimal.

c. Dust and odors. Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

In addition to minimal and temporary emissions from construction equipment, localized, short-term air quality impacts from fugitive dust are anticipated due to travel on unpaved roads and the excavation associated with the Proposed Project. Fugitive dust is considered particulate matter under air quality regulations. The concentrations of fugitive dust that is fine particulate matter (PM less than 2.5 microns or $PM_{2.5}$) is generally small, or approximately 3 to 10 percent of total particulate matter (USEPA 1995, 1998). Because fine particulate matter has the potential to travel further into the lungs, it is of greater concern than larger particle size ranges. As such, the Proposed Project would mitigate dust issues from construction traffic by using standard construction practices such as watering of exposed surfaces, covering of disturbed areas, and reduced speed limits on site. Dust mitigation practices would be outlined in the Proposed Project Construction SWPPP.

During Project operation, insignificant emissions would be generated by operations associated with gravel extraction, hauling, and processing. The Proposed Project would mitigate dust issues from operation activities by using standard dust control practices such as watering of exposed surfaces, covering of disturbed areas, and reduced speed limits on site. Dust mitigation practices would be outlined in the Proposed Project Operation SWPPP as part of the NPDES/SDS permitting process.

17. Noise:

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

1) Existing noise levels/sources in the area:

The Proposed Project is located at an existing gravel mining operation in an agricultural/rural part of Roseau County approximately 0.75 miles from the City of Roseau. The pit to be dewatered is approximately 22 acres in size and is surrounded by existing agricultural land to the north and west, and gravel pits to the south and east. Several farmsteads, farm outbuildings, and rural, single-family residential homes are located adjacent to the Proposed Project Area.

Typical sources of noise in this area include operation of the existing gravel mining operation, use of agricultural equipment and traffic along the adjacent roadways. CSAH 24 and CSAH 28 are located near the Proposed Project Area. As of 2016, the average annual daily traffic (AADT) was approximately 610 vehicles per day for CSAH 24 and approximately 650 vehicles per day for CSAH 28 (MnDOT 2020). Agricultural noise is generated by tractors and farm machinery from surrounding fields during seasonal times of the year.

2) Nearby sensitive receptors:

The Proposed Project Area is an existing gravel mining operation in an agricultural/rural setting with several farmsteads (with residences) and single-family homes adjacent to the site. No other sensitive receptors are located near the site.

3) Conformance to state noise standards:

The Proposed Project will contribute to existing noise in the area during dewatering and operation of the gravel pit. Temporary pit dewatering noise will last for at least 110 days at which time a continuous maintenance discharge (at a lower rate) will occur while mining is in operation. Large electric pumps will pump water from the pit into an open road ditch for discharge into the Roseau River. Residences near the Proposed Project Area may experience elevated noise levels at various times during dewatering and operation from pumping equipment compared to existing noise levels. The specifications of pumps that would be used for dewatering are not currently known. Although it is likely that large diesel, industrial pumps would be utilized for dewatering. FHWA construction handbook rates the sound of a typical industrial pump, i.e. a large diesel dewatering pump, at 77-81 dB at 50 feet away.

Noise expected during gravel mining would include noise from excavators, haul trucks, front end loaders, including safety-related backup beepers from equipment, and gravel processing equipment. The gravel would be removed from the pit and be processed to various gradations. This will require the use of screens and conveyor belts.

The Proposed Project is expected to operate 24 hours a day. At this time there are no known permit conditions that would regulate construction hours.

4) Quality of life:

Impacts would be minimal as the Proposed Project is located at an existing gravel mining operation in an agricultural/rural area with few homes nearby. Typical noises expected from the dewatering and operation of the gravel pit will be similar to those previously experienced in the Proposed Project Area. The use of silencer boxes to mitigate noise impacts from pumping operations may be implemented where applicable during dewatering operations.

18. Transportation:

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

Temporary traffic-related impacts as a result of the Proposed Project are anticipated to be minor and would occur on a temporary basis while dewatering the gravel pit. Electric pumps would be hauled in to perform the dewatering and are expected to be on-site while the gravel pit is in operation. In addition, up to six culverts may potentially be replaced which would require construction equipment access along CSAH 24.

The nature of the dewatering and (potential) culvert replacement activities would not allow for the use of alternative transportation modes. Operations would be performed 24 hours per day. Vehicles and equipment would cease entering and exiting the site upon gravel pit operation closure.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at the Minnesota Department of Transportation Access Management webpage)* or a similar local guidance (MNDOT, 2020).

As of 2016, the average annual daily traffic (AADT) was approximately 610 vehicles per day for CSAH 24 and approximately 650 vehicles per day for CSAH 28 (MnDOT 2020). A traffic impact study is not required because the increase in daily trips described below would not trigger the state threshold. Traffic associated with dewatering activities would not contribute to additional road wear and tear. Traffic associated with operation of the mine in terms of trucks hauling gravel from the pit would depend on market conditions and future demand for aggregate material.

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

Upon completion of gravel pit operation, traffic related to hauling gravel off site would cease. The Proposed Project-related transportation impacts would be minimal and are not expected to adversely affect the transportation system; therefore, no minimization or mitigation measures would be necessary.

Any potential road wear and tear from hauling during operations would be addressed through Roseau County Transportation (Overweight Vehicle) permitting.

19. Cumulative potential effects:

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

Identification of project related Environmental Effects

The environmental effects that have the potential to contribute to cumulative potential effects have been identified as the following:

- Increased flow in ditches and Roseau River causing additional scour and erosion and,
- Increased flow during flooding events.

Identification of Geographic Area and Timeframe for Environmental Effects

The area considered for cumulative potential effects cover the Proposed Project location, the ditches to the outlet in the Roseau River, and the Roseau River downstream of the outlet. The timeframe used was the 110 days of dewatering and then the additional 10 years of maintenance dewatering and active mining.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The Proposed Project has communicated with multiple Local Government Units (LGUs) regarding the Proposed Project including the Roseau County, and the Roseau River Watershed District. There is one reasonably foreseeable project, the Roseau Lake Rehabilitation project. The discharge of water from the Proposed Project has not been factored into operating plans and might reduce the effectiveness of the Roseau Lake Rehabilitation project.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

The cumulative potential effects associated with this project are potential effects due to higher flows in ditches/Roseau River.

The project is anticipated to have increased flow compared to existing flow in the ditch system which might lead to increased erosion and scour within the ditch system and the Roseau River. The increase flow might lead to down cutting or destabilization of the banks within the ditch system. In addition, the increased flows may lead to scour and erosion at the outlet of County Ditch 11 to the Roseau River. The Roseau Lake Rehabilitation project might reduce the impact of the added suspended solids due to erosion and scour by allowing solids to settle out in the lake, but might reduce the project's

effectiveness as flood control. The potential for impacts to become significant could be mitigated through the use of BMPs as described in item 11 of this document.

The increased flows due to discharge from the pit may compound flooding issues. County Ditch 11 is a jurisdictional drain administered by Roseau County. Currently the system is undersized to handle a 2-5 year rain event. An additional 37 cfs may exacerbate this condition if pumping were to occur continuously, especially during a substantial runoff event. The Roseau Lake Rehabilitation project was not designed to control for the additional water during high flow events. This could lead to the increased depth and duration of flooding events. The potential for impacts to become significant could be mitigated through pumping reductions or cessation of pumping will be required during high flow events if water levels exceed trigger levels rising above culvert crown elevations as part of the DNR water appropriations permit.

20. Other potential environmental effects:

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

All potential environmental effects have been addressed above.

RGU Certification

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

I hereby certify that:

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

Note, the signature and date below are in a table for accessibility purposes. Best to drop a signature in the Word document if possible.

	9/8/2021
Signature	**Date**

Title: Environmental Review Project Manager

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