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TILLER
CORPORATION®

**2015 APPLICATION FOR THE
ANNUAL OPERATORS PERMIT**
Zavoral Mining and Reclamation Project
Scandia, MN



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APPLICATION FOR ANNUAL OPERATORS PERMIT
TILLER CORPORATION
ZAVORAL MINING AND RECLAMATION PROJECT
CITY OF SCANDIA
WASHINGTON COUNTY, MINNESOTA

I. INTRODUCTION

The following Annual Operators Permit (AOP) application is submitted on behalf of Tiller Corporation (Tiller) in compliance with the City of Scandia's Ordinance No. 103 and Chapter 4 of the Development Code: Mining and Related Activities Regulations, Section 6, adopted by the City of Scandia on August 28, 2007.

Tiller operates the Zavoral Mining and Reclamation Project within the City of Scandia. The City of Scandia adopted a resolution on February 19, 2013 issuing a Conditional Use Permit (CUP) for the Site. Since the CUP was issued, active mining commenced at the Site during Fall 2013.

In 2014 the Site was active in January, February, March and again in September, October, November and December. Activities included mining and reclamation and the importation of organic soils to be used in final reclamation.

II. ANNUAL REPORT

A. Operating Conditions

The site operates in accordance with operating conditions regulated by Section 7 of the Scandia Ordinance 103.

1. Setbacks: No mining, stockpiling or land disturbance activities, with the exception of screening activities, are proposed to take place within the setback areas. Minimum setback areas are maintained as follows:
 - a) 50 feet from an adjoining property line.
 - b) 200 feet from any occupied structures not owned by the operator or owner.
 - c) 100 feet from any contiguous property subdivided into residential lots of 5 acres or less.
 - d) 100 feet from any road right-of-way.
2. Fencing: A portion of the Site along State Highway 95 is fenced with a four foot high chain link fence. The fence is currently used in conjunction with an in place screening berm to control access screening from State Highway 95. There is a locking metal gate at the entrance to the Site.
3. Hours of operation: Mining activities as defined in the City's ordinance are conducted from 7:00 a.m. to 7:00 p.m. Monday through Thursday and between 7:00 a.m. to 2:00 p.m. on Friday, excluding Federal holidays, during daylight hours, or one hour before sunrise and one hour after sunset during seasons when

daylight is not available between 7:00 a.m. and 7:00 p.m., unless the City authorizes other hours or days for mining activities.

4. Screening: Screening berms, wooded buffer areas, a state highway and agricultural fields separate the mining activity from surrounding properties. Mining operations are conducted in recessed portions of the site to minimize visibility. The construction of the proposed screening berm in the Site Plan of the CUP Application was completed in December, 2013. The berm was constructed of topsoil and overburden materials encountered during site preparation activities and Phase 1 Mining. The berm exceeds the six foot minimum height requirement for screening berms. Due to the timing and the conditions upon the completion of the berm, seeding and mulching on the berm was completed in early Spring 2014.
5. Dust control: An approved Dust Control Plan revised April 18, 2013 has been prepared for the Site and is on file with the City.

A portion of the main haul road has been paved as part of the construction of the realignment of the site entrance and the right turn lane. Asphalt millings have been applied to the main haul road from the edge of the asphalt to near the base of the main haul road. As mining is completed in the vicinity of the proposed main haul road, progress on the main haul road construction will continue.

A water truck was used to water unpaved portions of the Site to control dust. During periods of increased trucking activity, a non-chloride organic polymer may be applied to provide additional dust control, though this additional dust control was not necessary during the 2014 operating season. Once temperatures dropped below 35 degrees Fahrenheit, paved and milled portions of the haul road are not able to be washed and unpaved internal haul roads cannot be watered. Instead, precipitation in the form of snow traps particles and/or binds particles together minimizing the potential for dust.

The Site entrance is swept on a regular basis. Haul trucks are covered with tarps and a 10 mph speed limit is posted within the Site. These practices will continue into 2015.

6. Noise: All activities are conducted so as to be in accordance with all Federal, State and City noise standards. An on-site circular traffic pattern is implemented for haul trucks to minimize the need to back-up, which triggers a back-up alarm. Broadband back-up alarms are installed on all Tiller-owned equipment.
7. Depth of excavation: Maximum mining depth will be to 840 feet above msl. Reclamation grades will vary from 848-890 feet above msl. In the absence of GPS-enabled operating equipment, a benchmark is established to monitor the elevation of the mine floor. The benchmark allows the operators to continually monitor the elevation of the mine floor with respect to the maximum depth of mining or 840 feet above msl.
8. Site clearance: Site clearing activities consist of preparing new areas for mining and include removing topsoil and overburden materials from Phase 1 & 2 Mining areas. The overburden is removed and either used directly for reclamation or is set

aside for future use in reclamation. The topsoil is set aside to be used in the final grading during reclamation.

9. Appearance/condition: All equipment at the Site is maintained in a neat and orderly condition. Any unnecessary equipment is removed from the site.
10. Sanitary Facilities: Portable sanitary facilities are provided in the operating areas as required by the Mine Safety and Health Administration.
11. Waste Disposal: Waste generated from the operation is disposed of in a 4-cubic yard covered waste bin and maintained in accordance with Federal, State and City requirements.
12. Water Quality Monitoring: An approved Groundwater Quality Protection Plan (GWPP) revised April 18, 2013 has been prepared for the Site and is on file with the City.

In accordance with the GWPP, a background or baseline groundwater sample was taken from the on-site monitoring well (MW-1) by Tiller's groundwater sampling consultant on September 10, 2013 before the commencement of Site activity. A water level reading was also taken and recorded at this time. The sample was analyzed for Diesel Range Organics (DRO), Gasoline Range Organics (GRO) and benzene. The analytical results of the baseline groundwater sample have been submitted to the City

In addition to the baseline sampling event, the GWPP requires that a groundwater sample be collected and analyzed for DRO on an annual basis from MW-1. A groundwater sample was taken and a groundwater level recorded from MW-1 by Tiller's groundwater sampling consultant on January 15, 2015. The sample was analyzed for DRO. Gasoline was not stored at the Site in 2014, therefore Gasoline Range Organics (GRO) and benzene were not required to be analyzed. The analytical results will be submitted to the City when they become available.

Groundwater results for the 2013 and 2014 sampling events are on file with the City and are summarized in Attachment 1, Groundwater Sampling Results.

13. Fuel and Chemical Storage: On-site fuel storage consists of a portable 200-gallon double walled above ground storage tank, which is used to fuel the operating equipment. In accordance with MPCA rules, an AST Notification form was submitted within 30 days of tank installation. Fueling occurs over a hard-surfaced pad constructed out of compacted millings. The location selected for placement of the tank was such that the tank is upgradient of the on-site monitoring well and the tank is located more than 500 feet from any surface waters. The location of the tank is indicated on *Site Plan 2015 Activity*.

All fuel and chemicals stored on-site are stored in accordance with Federal and State standards.

14. Contingency Response Plan: The site operates under an Emergency Contingency Response Plan that was provided to the City in conjunction with the CUP application. There are no proposed changes to the Plan at this time.

Tiller accommodated local emergency response personnel at the Site in mid-December 2013 to familiarize local responders with the Site layout and access.
15. Added Provisions: The operator will comply with other such reasonable requirements that the City may find necessary to adopt for the protection of health, safety and welfare and/or prevention of nuisance.
16. Processing: Processing is not conducted at this Site.
17. Recycling: Recycling is not conducted at this Site.
18. Trucking Operations: The Site has access to State Highways 95 and 97. The main haul route from the Site is State Highway 97 westbound and then northbound on County Road 91 (Lofton Avenue), which is a paved 9-ton road, to the Scandia Mine. A northbound left turn lane from State Highway 95 into the Site was constructed in 2013.
19. Asphalt Plants: Asphalt is not produced at this site.

B. Compliance with Conditions of the CUP

1. **The Conditional Use Permit is granted only for the Project identified in the plans and application submitted to the City on November 14, 2008, and updated on October 9, 2012, and revised as required by these conditions.**

As required by the following conditions, the GWPP, Dust Control Plan and Reclamation Plan were revised April 18, 2013. The revised Plans are on file with the City.

2. **The applicant shall comply at all times with the City's ordinances and all applicable rules and regulations of Federal, State, County and local agencies, including the Carnelian-Marine-St. Croix Watershed District, and shall maintain existing permits granted by those agencies for all operations at the site.**

The Site is operated in accordance with the City's ordinances as well as the applicable rules and regulations of Federal, State, County and local agencies. The permits required to operate the Site have been obtained and are on file with the City.

3. **The maximum depth of mining shall be 840 feet above mean sea level (amsl). Modeling completed for the EIS indicated that the separation between the maximum depth of mining and existing ground water level is 25 feet or more. The City or its consultant shall monitor ground water levels as specified in the AOP, and if the separation between the maximum depth of mining and ground water level is less than 25 feet, the consultant shall report this information to the City Council. The City shall inform the Minnesota DNR, Carnelian- Marine-St. Croix**

Watershed District, and Washington County if the separation between the maximum depth of mining and ground water level is less than 25 feet, the City may require additional monitoring, may require that the applicant cease mining operations, or take other appropriate actions based on potential negative impacts to groundwater or groundwater- related resources. The City shall report ground water levels on the site on a quarterly basis to the Minnesota Department of Natural Resources.

In the absence of GPS-enabled operating equipment, a benchmark is established to monitor the elevation of the mine floor. The benchmark allows the operators to continually monitor the elevation of the mine floor with respect to the maximum depth of mining or 840 feet above msl. The current maximum depth of mining is approximately 852 feet above msl, and typically ranges between 850-855 feet above msl.

The City has determined that the elevation of the mining activities should be monitored by the City's consultant. Tiller has cooperated with the City's consultant to conduct the required monitoring of the mining elevations to comply with this condition.

4. **No mining of silica sand for industrial purposes ("frac sand mining") shall be permitted at this site.**

There was no mining of silica sand at the Site for industrial purposes in 2014. Mining into bedrock is not identified in the Project plans and is not occurring.

5. **No dewatering shall be permitted.**

There was no dewatering of the Site in 2014. Dewatering is not identified in the Project plans and is not occurring.

6. **Daily pumping from the Zavoral Site Well shall not exceed 10,000 gallons at a maximum pumping rate of 1,200 gallons per minute. Annual pumping shall not exceed 1 million gallons.**

The Zavoral Site well was pumped three times in 2014 for a total of amount of 8,500 gallons of water. The water was used for dust control on unpaved haul roads and the mining area. Records of the pumping of the Zavoral Site Well are maintained by Tiller and provided as Attachment 2, *Zavoral Site Well Water Use*.

7. **To establish that Condition No. 6 above is being met, the applicant shall keep records of when the Zavoral Site Well is pumped, and provide the records to the City, WCD, Washington County Department of Public Health and Minnesota Department of Natural Resources for groundwater monitoring activities. The records shall document both the daily use and total annual pumped volume from the Zavoral Site Well.**

Records of the pumping of the Zavoral Site Well are maintained by Tiller and provided as Attachment 2, *Zavoral Site Well Water Use*. The records have been submitted to the WCD, Washington County Department of Public Works and the

Minnesota Department of Natural Resources.

8. **The applicant shall revise the *Groundwater Quality Protection Plan (GWPP)* (October 2012) to address the corrections and issues identified in the Leggette, Brashears, and Graham Inc. (LBG) letter to the City dated November 15, 2012. The applicant shall revise the locations of the proposed borings and monitoring wells as requested by LBG. All such revisions shall be submitted to and are subject to the approval of the City and failure to obtain such approval shall be a violation of this condition.**

The approved Groundwater Quality Protection Plan was revised April 18, 2013 to address the corrections and issues identified by LBG. The locations of the proposed piezometers and monitoring well were revised per comments received by LBG. The revised GWPP has been approved by and is on file with the City.

9. **The applicant shall maintain the groundwater observation wells or piezometers installed on the mine site at the current locations or as approved by the City. The applicant shall coordinate the number and locations of the observation wells and/or piezometers and frequency of monitoring in consultation with the City and its consultants.**

The required two piezometers (PZ-1, PZ-2) and monitoring well (MW-1) have been installed. The purpose of the wells is to determine and monitor the elevation of the groundwater and to measure groundwater parameters throughout the duration of the Project.

The City has determined that monitoring will be conducted by the City's consultant. Tiller has coordinated and cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

10. **The City's consulting hydrogeologist shall make scheduled site visits to download groundwater monitoring data and collect manual measurements. The hydrogeologist shall evaluate the data and report the results to the City at least annually with the AOP application, or more frequently if the consultant identifies issues or problems during the monitoring activity.**

The City has determined that monitoring will be conducted by the City's consultant. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition. The condition requires that the City's consulting hydrogeologist evaluate the data and report the results to the City.

11. **The City shall review and evaluate the GWPP on an annual basis or more frequently if a significant change in the groundwater conditions occurs. The applicant shall modify the GWPP as needed to address concerns identified by the City.**

Data collected to date does not indicate a significant change in groundwater conditions. The City has not indicated to Tiller that they have identified any concerns with the current version (April 18, 2013) of the GWPP.

12. **If diesel fuel is stored at the site, the applicant shall sample and analyze groundwater for diesel range organics. If gasoline is stored at the site, gasoline range organics and benzene shall be added to the analyte list.**

Diesel fuel is brought to the site as needed and stored in portable double walled fuel tanks to fuel equipment during periods of mining and reclamation activity. The portable tanks are removed when site activity is suspended for a period of time. From October 2013 to March 2014 a portable 500-gallon, double-walled diesel fuel tank was brought on-site as a fuel source for the operating equipment. The diesel fuel tank was removed from the Site in March 2014 when it was no longer needed to fuel the operating equipment. In early November 2014, a portable 200-gallon, double-walled diesel fuel tank was brought on-site as a fuel source for the operating equipment. A groundwater sample was taken from the on-site monitoring well (MW-1) by Tiller's groundwater sampling consultant on January 15, 2015. The analytical results of the groundwater sample will be submitted to the City when they become available.

Gasoline was not stored at the Site in 2014, therefore Gasoline Range Organics (GRO) and benzene were not required to be analyzed. The analytical results of groundwater sampling have not indicated the presence of DROs. Groundwater results for the 2013 and 2014 sampling events are on file with the City and are summarized in Attachment 1, *Groundwater Sampling Results*.

13. **The applicant shall meet Federal, State and City requirements for storage of fuels on the Site.**

A portable 200-gallon, double-walled diesel fuel tank is located on-site as a fuel source for the operating equipment.

All fuels are stored in compliance with Federal, State and City requirements.

14. **Equipment fueling for the Project shall be conducted in a designated area over a hard-surfaced fueling pad.**

A hard-surfaced fueling pad has been constructed out of compacted millings. Equipment is fueled over the hard-surfaced pad.

15. **The applicant shall provide spill cleanup equipment on-site when other equipment is present.**

Tiller's Spill Prevention Policy is implemented at the Site. A spill kit is stored on-site when the Site is active or there is equipment on-site.

16. **The applicant shall obtain the required agency permits for stormwater management prior to beginning any operations at the site, and provide to the City copies of the permits approved by the CMSCWD and the Minnesota Pollution Control Agency.**

The Site has been issued and is operated in accordance with the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS)

General Permit MNG490000 for Nonmetallic Mining and Associated Activities and the CMSCWD Stormwater Management and Erosion and Sediment Control Permits. Copies of all of these permits have been provided to the City.

17. **The applicant shall review, update, provide to the City, obtain the City's approval and thereafter implement the Best Management Practices (BMP's) included in the Storm Water Pollution Prevention Plan (SWPPP) (July, 24, 2012), Surface Water Plan (October 2012), and CMSCWD permit to protect surface waters and manage erosion and sedimentation.**

The Site is operated in accordance with the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) General Permit MNG490000 for Nonmetallic Mining and Associated Activities, and the associated Stormwater Pollution Prevention Plan (SWPPP), the Surface Water Plan and the CMSCWD Stormwater Management and Erosion and Sediment Control Permit.

Prior to vegetation removal within the Site, a combination of siltfence and silt logs were installed along all perimeter areas that demonstrated a potential for off-site drainage. These BMPs are regularly inspected and maintained.

Phase 2 Mining commenced in 2014. The area that has been opened for mining in the Phase 2 Mining area is all internally drained. As mining progresses through Phase 2, topsoil and overburden will continue to be removed in a manner that ensures positive drainage toward the interior of the Site. Subsequent mining after topsoil and overburden removal further promotes on-site infiltration and minimizes the potential for off-site discharges.

Inspections with the CMSCWD to verify compliance with the CMSCWD permit is conducted twice per month and inspections to verify implementation of the SWPPP and Surface Water Plan on an as-needed basis with the City's consultant.

18. **The applicant shall obtain the required Air Emissions Permit from the Minnesota Pollution Control Agency prior to beginning any operations at the site, and provide a copy of the approved permit to the City.**

The Site operates in accordance with Air Emission General Permit (Permit number 05301018-001). A copy of the permit has been provided to the City.

19. **The applicant shall obtain an Endangered Species Take Permit before removing any Butternut (*Juglans cinerea*) trees identified on the site, if the Minnesota Department of Natural Resources (DNR) reclassified Butternut trees from a Special Concern to Endangered species.**

The Butternut tree was listed from Special Concern to Endangered, effective August 19, 2013. Some diseased Butternut trees were removed from the Site prior to this date. One healthy Butternut tree has been identified and is located outside of the Project Limit, but within the Property.

The City has determined that the City's consultant will verify the location of the healthy Butternut tree annually and monitor the Threatened and Endangered

Listing Status of the Butternut tree. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

20. **The applicant shall comply with the "Summary of Recommendations for Avoiding and Minimizing Impacts to Blanding's Turtles Populations" included in Appendix C of the Zavoral Mine and Reclamation Project EIS. Tiller Corporation shall provide the City or its consultant with its Blanding's Turtle Standard Operating Procedures guidelines for review and comment. The City or its consultant will conduct annual site visits to verify compliance.**

The Site is operated in accordance with the Blanding's Turtle Standard Operating Procedures Plan dated September 2013. The Plan includes photos to help identify the species and protocol on what to do if a Blanding's Turtle is spotted on-site. The Plan is kept on-site while the Site is active and is provided to all contractors who are working on-site.

No Blanding's Turtles were identified on-site in 2014.

The City has determined the City's consultant will conduct an annual site visit to verify compliance. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

21. **The applicant shall inspect all trees for raptor nests prior to tree clearing. Trees with active nests may not be cleared while the nest is actively used.**

Critical Connections Ecological Consultants, Inc. conducted a raptor stick nest survey prior to tree clearing on September 9, 2013. There were not any active nests identified during the survey. The stick nest survey results are on file with the City.

22. **The applicant shall construct the proposed berm on the south end of the Site as close to the mining and reclamation limits as possible to reduce off-site peak flow rates.**

Prior to the progression of mining into Phase 2 Mining, an effective diversion berm or swale will be constructed along the south perimeter of the project limit by conducting topsoil and overburden removal in a manner that ensures positive drainage toward the interior of the Site. Subsequent mining after topsoil and overburden removal further promotes on-site infiltration and minimizes the potential for off-site discharges.

23. **The applicant shall minimize the amount of unnecessary equipment on the Site and reduce soil tracking by off-site by vehicles.**

The Site operates with a minimum amount of necessary equipment. Soil tracking is reduced by routine sweeping, watering of haul roads and a paved Site entrance, in accordance with the site-specific SWPPP and the Zavoral Mine Dust Control Plan.

24. **The applicant shall monitor all on-site construction equipment for leaks and complete regular preventive equipment maintenance. Fueling and maintenance of vehicles shall occur within the area of active mining and no "topping off" of vehicle fuel tanks shall be allowed.**

Tiller routinely monitors all on-site construction equipment for leaks and performs regular preventative maintenance of equipment. The Site operates under Tiller's Spill Prevention Policy which prohibits "topping off" of vehicle fuel tanks.

25. **Any above-ground storage tank (AST) at the Site shall be located more than 500 feet from surface waters.**

A portable 200-gallon, double-walled diesel fuel tank is located on-site as a fuel source for the operating equipment. The location of the tank is more than 500 feet from surface waters and is indicated on *Site Plan 2015 Activity*.

26. **In accordance with MPCA rules, the applicant shall notify the Minnesota Pollution Control Agency of all AST's within 30 days of installation by submitting an AST Notification Form.**

An AST Notification Form was submitted to the MPCA within 30 days of installation of the portable diesel fuel tank.

27. **The City or its consultant shall monitor the potential impacts of mining activities on the water resources at the site. The monitoring locations, protocols, and methodology shall be specified in the AOP. The City shall submit all status reports and ground and surface water monitoring reports to the CMSCWD, WCD and the Minnesota DNR.**

The City has determined the City's consultant will conduct the monitoring of potential impact of mining activities on the water resources at the Site. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

28. **The monitoring point installed by the WCD for the EIS pump test that gathers baseline data in Zavoral Creek shall be maintained and monitored for the lifetime of the project. Monitoring shall include water quality and quantity parameters.**

The City has determined the City's consultant will conduct the monitoring of potential impact of mining activities on the water resources at the Site. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

29. **The City or its consultant shall install a monitoring station upstream of or near Crystal Springs in order to isolate potential effects due to mining from other effects due to unrelated activities within the watershed. The City or its consultant will analyze the data to determine the effect, if any, to the springs due to the Zavoral Mine operation, and identify any negative impacts. The results of the analysis shall be provided at least annually to the City for use during the review of the AOP for the Project.**

The City has determined the City's consultant will conduct the monitoring of potential impact of mining activities on the water resources at the Site. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

30. **The City or its consultant shall complete an annual field review of the wetland boundaries of wetlands within the project area, including black ash seepage swamps (Wetlands A, B, and C as shown in the CCES wetland delineation report dated January 14, 2011), to determine if the mining activities have any impact on the wetlands. The review shall occur within the growing season as defined by the U.S. Army Corps of Engineers Wetland Delineation Manual (North Central and Northeast Regional Supplement), and shall be coordinated with the applicant and when active mining operations are occurring.**

The City has determined the City's consultant will conduct the monitoring of potential impact of mining activities on the water resources at the Site. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

31. **The applicant shall obtain the required Minnesota Department of Transportation (Mn/DOT) Access permit (TP 1721) for the Project.**

The Mn/DOT Access permit was issued near the end of October 2013. A copy of the permit is on file with the City.

32. **The applicant shall construct the new driveway access directly across from TH 97 as required by Mn/DOT for safe access.**

Upon receiving the Mn/DOT Access permit, work began on the construction of the new access alignment and right-turn lane during the last week of October 2013. Work was completed on the new access alignment and right-turn lane by mid-November 2013.

33. **The applicant shall construct a new north-bound right-turn lane as required by Mn/DOT (letter to the City of Scandia, January 22, 2009). The design of the right-turn lane shall be consistent with the design of the existing left-turn lane.**

See response to Condition #32 above.

34. **The City or its consultant shall complete traffic monitoring of the Project. The traffic monitoring protocol and requirements shall be identified in the AOP.**

The City has determined the City's consultant will conduct the traffic monitoring of the Project. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

35. **The applicant shall record and report the numbers of trucks hauling Class C add-rock from the Zavoral Mine site and the number and source location of trucks hauling Class C add-rock to the Scandia Mine to the City quarterly to ensure that**

additional truck traffic would not result from hauling from the Zavoral Site at peak demand concurrently with other sites. The applicant shall submit annual truck number and source reports with the Annual Operating Permit application.

Hauling materials from the Zavoral Mine to the Scandia Mine occurred during the first quarter of 2014 and the fourth quarter of 2014. Approximately 6,324 truck loads of Class C add-rock were hauled to the Scandia Mine from the Zavoral Mine during the first quarter. Approximately 6,014 truck loads of Class C add-rock were hauled to the Scandia Mine from the Zavoral Mine during the fourth quarter. No other Class C add-rock was hauled to the Scandia Mine during the first and fourth quarters of 2014.

During the third quarter, approximately 130 truck loads of Class C were hauled from the Zavoral Mine to a local project. This information will continue to be submitted to the City on a quarterly basis in 2015 and summarized and presented in the AOP on an annual basis.

36. **Traffic generated by the Project shall not exceed the maximum levels analyzed in the EIS for Alternatives 3 (average 334 to 440 round trips per working day; 600 peak round trips per day.)**

Hauling occurred during the first, third and fourth quarters of 2014. Hauling occurred on a total of 71 days throughout 2014 with an average of 383 trips per working day. The peak number of trips per day was 601 trips.

During the fourth quarter of 2014, approximately 30 loads of millings were brought on-site to continue with construction of the main haul road.

37. **All truck traffic generated by the project for projects outside Scandia shall utilize TH 97, TH 95, CR 15 (Manning Ave), CR 91 (Lofton Ave) and the existing haul route between Lofton Avenue and the Scandia Mine. Tiller shall notify the City in advance of any hauling that will occur on local streets to serve local projects, and shall receive confirmation that the City received notice prior to the start of hauling on local streets. Trucks shall not back onto roadways.**

The majority of hauling has been limited to the existing haul route traveling over TH 95 onto westbound TH 97, then north on Lofton Avenue and into the Scandia Mine.

Hauling utilized the haul route traveling over TH 95 onto westbound TH97 for a local project in 2014.

38. **Subject to approval from Mn/DOT, the applicant shall install truck warning signs that comply with the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD) on State Scenic Byway TH 95 to advise drivers of trucks crossing TH 97 in and out of the Zavoral Site; on TH 97 at County Road 91 to advise drivers of trucks turning onto TH 97; and on County 91 at 223rd Street.**

An application to install truck warning signs at County Road 91 at 223rd Street was submitted to Washington County Public Works Department. The request was

denied noting adequate site distances near the entrance to the Scandia Mine on Lofton Ave. A copy of the denial letter was submitted to the City.

An application to install truck warning signs at the requested locations has been submitted to the Minnesota Department of Transportation (MnDOT) but Tiller has not yet received a permit decision from MnDOT.

39. **The applicant shall provide parking for all employees and visitors within the site. Circulation and parking shall minimize internal and external traffic conflicts.**

Adequate parking is available and will be maintained on-site. The location of parking is subject to change due to the dynamic nature of the mine site. Circulation and parking minimizes internal and external traffic conflicts.

40. **If the applicant has knowledge that a crash or traffic violation occurs involving a truck hauling for Tiller, Tiller shall contact the City to report the incident immediately. The applicant shall report actions it will take to respond to the incident.**

To the best of our knowledge there have not been any crash or traffic violations that have occurred involving a truck hauling for Tiller during the 2014 calendar year.

41. **The applicant shall construct the fence included in the Project plans prior to beginning mining operations, and shall maintain the fence until reclamation is complete.**

A portion of the Site along State Highway 95 is fenced with a four foot high chain link fence. The fence is currently used in conjunction with an in place screening berm and established vegetation to provide access control and screening from State Highway 95. There is a locking metal gate at the entrance to the Site.

The fence is being maintained and is in good condition.

42. **The hours of operation and hauling shall be conducted only between 7 a.m. and 7 p.m., Monday through Thursday and between 7 a.m. and 2 p.m. on Friday, excluding Federal holidays, during daylight hours, or one hour before sunrise and one hour after sunset during seasons when daylight is not available between 7 a.m. and 7 p.m., unless the City authorizes other hours or days of operation.**

The Site operates in accordance with the hours of operation as defined in the City's Mining Ordinance. During the operating season of 2014, we sought authorization for extended hours on February 6, 2014 due to favorable weather conditions, but did not receive approval.

43. **The applicant shall coordinate any proposed berm removals associated with Project completion with the City.**

Tiller will coordinate any proposed berm removals after Project completion with the City.

44. **The applicant shall implement the Dust Control Plan (dated 10/8/12 and updated within 60 days of approval of the CUP), including all activities proposed during stripping, grading and active mining operations.**

Tiller implemented the approved dust control plan with the commencement of construction activities at the site. The Dust Control Plan revised April 18, 2013 is on file with the City. Please see section II. A.5. for more information on the Dust Control Plan.

45. **The applicant shall utilize non-chloride agriculturally derived organic polymers or naturally- occurring polymers on internal haul roads to control dust in accordance with the Dust Control Plan. The applicant shall review the coverage of the material on a regular basis, and reapply the polymers if they are no longer effective.**

Dust control on internal unpaved haul roads was achieved with the use of water during the 2014 operating season in accordance with the Dust Control Plan. The use of water was adequate for dust control, therefore the use of non-chloride agriculturally derived organic polymers was not necessary during the 2014 operating season.

46. **The City or its consultants shall perform periodic on-site review and monitoring of dust control activities to assure compliance with this permit. The monitoring locations, protocols and methodology shall be specified in the AOP.**

The City has determined the City's consultant will conduct on-site review and monitoring of dust control activities for the Project. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

47. **The Dust Control Plan and air monitoring procedures shall be reviewed and updated as necessary on at least an annual basis with the AOP application.**

A Dust Control Plan, revised April 18, 2013, has been prepared for the Site and is on file with the City. Tiller has reviewed the plan and the air monitoring procedures in conjunction with this AOP and found them to be adequate.

48. **The applicant shall implement the berms and screens proposed in the site plan.**

The proposed screening berm on the site plan submitted with the CUP was constructed during the 2013 operating season. See section II.A.4 for more information about screening berms.

49. **Trucks shall not idle on the site and approach area for more than 30 minutes.**

Trucks are not allowed to idle on the Site or at the approach area for more than 30 minutes.

50. **The project shall comply with the City's adopted noise standards. The City or its**

consultant shall complete noise monitoring at the Project site. The monitoring locations, protocols and methodology shall be specified in the AOP.

Site activities are conducted so as to be in compliance with all Federal, State and City noise standards. The City or its consultants will conduct noise monitoring for the Project. Tiller has cooperated with the City and/or its consultant to ensure compliance with this condition.

51. **If the noise levels at the Project exceed State Standards the applicant will identify and take corrective actions to bring the noise levels into compliance. The City may order additional testing to confirm that the Project is in compliance.**

The City has not indicated to Tiller that they have identified any concerns about compliance with Federal, State and City noise standards.

52. **The applicant shall require that all Tiller-owned equipment on the site use broadband alarms and haul trucks shall utilize a circular traffic pattern or other traffic pattern to the extent feasible that minimizes the need for haul trucks to back up on the site.**

All Tiller-owned equipment on-site is equipped with broadband alarms.

53. **The applicant shall ensure that on-site Tiller-owned equipment is properly muffled and shall inspect mufflers on the on-site equipment on at least a weekly basis and document inspections.**

Tiller-owned equipment is properly muffled. The equipment is inspected regularly and at least weekly during active operations to document the condition of the equipment on-site. Appropriate maintenance is conducted as needed.

54. **The applicant shall ensure that the mining plan will minimize any time when the noise from the on-site equipment and haul trucks are operating without noise mitigation from berms and/or the mine face.**

The Site is operated with appropriate noise mitigation from berms and the mine face.

55. **The applicant shall complete any clearing of vegetation (trees and brush) from previously-unmined areas from September through April to minimize noise impacts.**

No clearing of trees or brush was conducted in 2014.

56. **The applicant shall recycle debris created by clearing, grubbing and excavation, or dispose of stumps, trees and debris in another manner approved by the City.**

See Section II.A.8 for information about Site clearing.

57. **The applicant shall maintain the mine site and equipment in an orderly condition, and shall control weeds in planted and reclaimed areas. The applicant shall**

preserve, maintain and supplement existing trees, berms and topsoil along existing public rights-of-way as proposed in the Site Plan and Reclamation Plan.

Tiller maintains mine site equipment in an orderly condition. The Phase 1 reclaimed area received a targeted spot herbicide treatment and maintenance mowing in 2014.

58. **The applicant shall provide and maintain portable sanitary facilities to serve the site and shall meet all applicable standards and regulations for wastewater disposal.**

Portable sanitary facilities are provided in the operating areas as required by the Mine Safety and Health Administration.

59. **The applicant shall dispose of any waste generated from the mining operation, including waste from vehicles or equipment maintenance, in accordance with Federal, State and City requirements.**

Waste generated from the operation is disposed of in a 4-cubic yard covered waste bin and maintained in accordance with Federal, State and City requirements.

60. **Within 60 days of the approval of the CUP, the applicant shall prepare and provide to the City an updated reclamation plan (revising the Reclamation Plan dated October 9, 2012), which includes performance standards identified in the conditions that follow for approval by the City. Reclamation on the site shall be implemented in accordance with the updated and approved reclamation plan. Such updated reclamation plan shall be subject to review by and approval of the City.**

An updated Reclamation Plan, revised April 18, 2013, has been prepared for the Site and was provided to the City within 60 days of CUP approval. Site reclamation was completed in Phase 1 Reclamation in accordance with the approved Reclamation Plan.

61. **Reclamation shall proceed concurrently and proportionally to mining operations. Progress on reclamation shall be demonstrated in each AOP application.**

Reclamation is proceeding concurrently and in proportion to mining operations conducted in accordance with the approved Reclamation Plan. Progress on reclamation for 2014 is included in Attachment 3, *Annual Reclamation Report*.

62. **The applicant shall use clean, non-contaminated fill material and topsoil for all reclamation. The applicant shall use sandy subsoil available at the site with added organic soil amendments for reclamation topsoil. The applicant shall successfully establish permanent native vegetation in reclaimed areas as per the schedule, extents and methods as provided in the Zavoral Reclamation Plan and Zavoral Reclamation Plan Topsoil and Prairie Establishment Memorandum (October 3, 2011) by CCES.**

Clean, non-contaminated fill material derived from on-site was used for all

reclamation conducted in 2014. As overburden is removed from areas being prepared for mining, the overburden is then placed directly in reclamation areas to work towards achieving the final reclamation grades.

Clean, non-contaminated organic material was brought on-site in 2014 in anticipation of soil blending activities required to engineer the topsoil for final grading. Soil blending with on-site sands commenced in late 2014 and is expected to resume in 2015 when weather conditions are more favorable and when the engineered topsoil is in demand for the final grading.

Reclamation activities were conducted in accordance with the approved Reclamation Plan, which includes the Zavoral Reclamation Plan Topsoil and Prairie Establishment Memorandum.

63. **Reclamation success shall be defined as follows:**
- **90% areal coverage of vegetation for each reclaimed area, within 3 years post seed installation;**
 - **Non-native and invasive plant species (as defined and listed by the Minnesota DNR) and potentially-aggressive native plant species (Rhus spp. And Juniperus virginiana) shall account for no more than 20% cover of the reclaimed area at the end of the 5th growing season, post seed installation.**
 - **The reclaimed areas shall contain at least 50% of the species for both grasses and forbs contained in the specified seed mixes at the end of the 5th growing season, post seed installation;**

Performance monitoring, in accordance with this condition, began in 2014 with the monitoring of the Phase 1 Reclamation area. Vegetation establishment is occurring as expected. A random meander survey of the planting area revealed that native seedling establishment was high, with at least one native seedling per square foot present in the areas that were sampled, which is an appropriate seedling density for a first year planting.

64. **Vegetation establishment and monitoring shall continue for a period of 5 years after completion of the Zavoral Mine Project, in its entirety.**

Phase 1 Reclamation completed the first year of monitoring in 2014. Vegetation establishment is occurring as expected. One herbicide application and one mowing treatment were completed during 2014.

65. **The City shall monitor the transplanting of trees to ensure a survival rate of at least 80% for all transplanted trees. The Applicant shall provide the City with the quantity, location, species and proposed maintenance plan for all trees transplanted as part of the reclamation. Survival rates of less than 80% will require replacement of the dead trees by the applicant. Replacement tree species will be selected in consultation with the City and its consultant and approved by the City.**

During Fall 2013, 25 trees were transplanted at the Site during vegetation removal at the start of the Project. At this time, one (1) of the twenty-five (25) transplanted

white pines has proven to be unsuccessful. The remaining twenty-four (24) successfully transplanted white pine trees will continue to be monitored.

The development of the Transition Area within Phase 1 Reclamation includes the planting of additional trees and shrubs. Once these trees and shrubs are transplanted, the transplants will be monitored for a survival rate of at least 80% in accordance with this condition and as indicated in the Transition Area Development Plan.

66. **The applicant shall submit annual reclamation monitoring reports to the City, with the AOP application, that describe the reclamation activities that occurred in the specified year, and the status of all reclaimed areas. The applicant shall provide detailed information such as percent coverage of vegetation, species composition, etc., pertaining to compliance with the performance standards, as provided above. If the City determines that a reclaimed area has not met the vegetative performance standards listed above, the city shall order corrective action(s) including, but not limited to, reseeding, over-seeding, spot seeding, or other actions so that the reclamation meets the criteria for success. The specific corrective actions may be dependent on site conditions. The city will determine the appropriate actions in consultation with its consultants, the applicant, and other experts, as necessary. The applicant shall include the required corrective actions in the reclamation monitoring report and AOP application.**

Attachment 3, *Annual Reclamation Report* has been prepared for the Site for activities conducted in 2014.

67. **The City or its consultants shall complete monitoring of reclamation activities on the site on behalf of the City. Monitoring locations, protocols and methodologies shall be specified in the AOP.**

The City has determined the City's consultant will monitor the reclamation activities of the Project. Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

68. **Final reclamation shall include removal of any equipment and backfilling and seeding the operations area.**

Not applicable in 2014.

69. **Approval of the reclamation plan shall not constitute an approval by the City of Scandia of an ultimate use for the site. Ultimate use shall be determined based on the Scandia Comprehensive Plan and ordinances in effect at the time the mining is complete and applications for development of the site may be submitted.**

No response needed.

70. **The applicant shall not disturb existing woodlands and screening outside the mine area limits.**

Tiller has not disturbed any of the existing woodlands or screening outside the mine area limits.

71. **The applicant shall establish a maximum stockpile height of 880 feet above mean sea level. Stockpiles located in the Phase 1 mining area of the Site shall be maintained at a lower height as needed so that the stockpiles are not visible from the key viewpoints identified in the EIS.**

There are three stockpiles of material set aside to be used in reclamation that are currently stored south of the Phase 1 Reclamation area, in Phase 3 Mining. This location was chosen for storage because it is an area that contained pre-existing stockpiles and the area is located in the only phase that it not being actively mined or undergoing reclamation. The stockpiles do not exceed 880 feet above mean sea level and are not visible from key viewpoints located on State Hwy 95 and State Hwy 97, except for one viewpoint on State Hwy 95 southbound, just north of the intersection between State Hwy 97 and State Hwy 95.

72. **All lighting on the site shall be hooded or controlled and meet the requirements of the City's Development code. Lighting shall be limited to the hours of mine operation. Lighting shall be arranged to deflect light away from any adjoining residential property or from public streets.**

No lighting plants were utilized at the Site during the 2014 operating season.

73. **The applicant shall obtain the required sign permits for all signs proposed at the site.**

The installation of truck warning signs per condition #34. is contingent upon approval from the appropriate road authority. Washington County Public Works Department denied the application for a right-of-way permit requesting a truck hauling sign on County Road 91 (Lofton Ave.) near 223rd Street, noting adequate site distances near the entrance to the Scandia Mine on Lofton Ave. An application has been submitted to the Minnesota Department of Transportation (MNDOT) but MNDOT has not yet ruled on it.

74. **The applicant shall pay all costs associated with site monitoring activities identified in this permit and the AOP including, but not limited to monitoring of traffic, air quality, noise, ground water and surface water, and the reclamation plan, and the costs of equipment, installation, site visits, data collection, data analysis, reporting, maintaining compliance and all other costs associated with all of the monitoring activities identified in these conditions.**

Financial agreements have been established for the Project and are on file with the City and are reviewed annually with the AOP. The escrow account is replenished as necessary to cover costs incurred by the City.

75. **The applicant shall cooperate with the City and provide access to the site as needed to conduct the monitoring activities required by this permit.**

Tiller has cooperated with the City and/or its consultant to ensure access to the Site as needed to comply with this condition.

76. **The applicant shall provide a final, corrected copy of the Groundwater Monitoring Plan, Reclamation Plan and Dust Control Plan to the City within 60 days of approval of the CUP. All such updated plans shall be subject to review by and approval of the City. The Applicant shall implement the updated and approved plans.**

Final corrected copies of the GWPP, Reclamation Plan and Dust Control Plan were provided to the City within 60 days of CUP approval.

77. **The applicant and owner shall enter into a Conditional Use Permit Compliance and Reclamation Agreement ("Development Agreement") with the City within fifteen (15) days of approval of the CUP. The Agreement shall specify that the project will be implemented to comply with Alternative #3 in the EIS. The Agreement shall specify that all Project activities, except reclamation, shall be completed within 3.3 years beginning 30 days after all permits required prior to the start of mining operations are obtained. Reclamation activities and reclamation monitoring shall continue for five years after completion of the mining activities, as specified in this permit.**

A Development Agreement has been entered into between Tiller and The City. The Development Agreement satisfies this condition and is on file with the City.

78. **If negative impacts or issues due to mining activities are identified by the City or its consultants during any of the monitoring described in the CUP or AOP, the City may request additional monitoring, may require the Applicant to cease mining operations, or may consult with other agencies to take appropriate actions.**

No negative impacts or issues due to mining activities were identified by the City or its consultants in 2014.

79. **The Agreement shall include a financial guarantee acceptable to the City to assure compliance with the reclamation plan, and provide for an escrow that the City will use to pay for City staff and consultant costs related to monitoring and reporting activities.**

Financial agreements have been established for the Project and are on file with the City. The financial guarantee is reviewed annually with the AOP. The escrow account is replenished as necessary to cover costs incurred by the City.

80. **The applicant must apply for and obtain an Annual Operating Permit from the City.**

The Site operates in accordance with the AOP issued in 2014. The Site will continue to make application for each subsequent AOP for the duration of the Project.

81. **The applicant shall, on or before the earlier of (1) commencement of any Project activities on the Project Site or (2) April 15, 2013, provide to the City an Irrevocable Letter of Credit, Performance Bond or other security satisfactory to the City in the amount of \$550,000 and the LOC required by the Development Agreement to guarantee the completion of the reclamation plan and the performance of its obligations set forth by this permit. The City may require the amount of this security to be adjusted in future years based on inflationary increases in construction and monitoring costs, or upon re-evaluation of the needs for reclamation, as a condition of approval of an Annual Operating Permit. Future reductions in this security shall be made as provided by the ordinance. The City may allow reductions in portions of the Letter of Credit or other security for completed and approved reclamation on a five-year basis.**

A Performance Bond issued by Liberty Mutual in the amount of \$550,000 and a Letter of Credit to guarantee the expected reclamation have been issued and are on file with the City. The Letter of Credit is reviewed annually with the AOP.

82. **The applicant shall pay all fees and escrows related to this application.**

Tiller has cooperated with the City and/or its consultant to ensure the fees are issued in accordance with this condition. An escrow is on file with the City.

83. **The Applicant shall at all times comply with the terms and conditions of this Conditional Use Permit, the Annual Operating Permit and the Development Agreement.**

Tiller will comply with the terms and conditions of the CUP, AOP and the Development Agreement that have been issued for the Project.

C. Annual Activity

1. Amount of material removed from the site: Approximately 327,120 tons of material was removed in 2014.
2. Amount of add-rock brought onto the site: 0 tons.
3. Amount of recycled asphalt brought to the site: 0 tons.
4. Amount of recycled concrete brought to the site: 0 tons.
5. Other: Approximately 585 tons of millings were brought on-site for the construction of the main haul road and fueling pad and approximately 38,565 tons of organic material was hauled on-site to engineer topsoil for final reclamation grading.
6. Area reclaimed and type of reclamation: Monitoring and maintenance activities for Phase 1 Reclamation and monitoring of the transplanted white pine trees was ongoing in 2014 and is detailed in Attachment 3, *Annual Reclamation Report*. Ongoing reclamation activities are anticipated to progress as mining advances through Phase 1 Mining and into Phase 2 Mining. Progress on reclamation is being

made within Phase 2 Reclamation from west to east as suitable materials are encountered to accomplish the reclamation grades. Quarterly reclamation progress reports will continue to be submitted to the City during the growing season.

7. Average number of trips hauling material to and from the site per day for the season: The average number of trucks travelling to and from the site per day in 2014 during hauling were 383 trips per day.

D. Description of operating conditions planned for the coming year:

1. During the 2015 mining season, the Site will continue with construction of the main access road into the Site which includes bringing the side slopes of the road to final grades and extending the road further into the site as mining is completed in this area and the final grades of the access road can be achieved.

Mining commenced in the Phase 2 Mining area in November 2014 and will continue to advance through this phase. Depending on the materials encountered within Phase 2 Mining, mining may advance into Phase 3 Mining within the 2015 operating season.

The mining operation includes the removal of overburden and the excavation of sand and gravel. The marketable sand and gravel is loaded into haul trucks and transported to the Scandia Mine as Class C add-rock or may be transported directly to local projects.

As mining advances throughout the Site, overburden materials are separated from the marketable aggregate and placed in reclamation areas to be used to achieve final reclamation grades. The progression of reclamation activities will follow the advancement of mining throughout the Site.

2. Site Plan: A *Site Plan 2015 Activity* is attached which illustrates the areas planned to be mined in 2015.
3. Aerial Photo: An aerial photo is attached which illustrates the areas planned to be mined in 2015.
4. Reclamation: Reclamation activities performed during 2014 consisted of monitoring and maintenance of the Phase 1 Reclamation area and monitoring the transplanted white pine trees in accordance with the approved Reclamation Plan for the Site. In addition, progress on reclamation is being made within Phase 2 Reclamation from west to east as suitable materials are encountered to accomplish the reclamation grades. A more detailed summary of the reclamation activities that occurred in 2014 are included as Attachment 3, *Annual Reclamation Report*.

Reclamation activities planned for 2015 will be in the Phase 2 Reclamation area and the Transition Area located within Phase 1 Reclamation. Transition area development will continue to progress as indicated in the plan approved by the City August 19, 2014. Reclamation activities will be conducted in accordance with the approved Reclamation Plan.

5. Operating Conditions for 2015: Active mining will occur within the Phase 1 Mining area and into Phase 2 Mining. Depending on the materials encountered, mining may advance into Phase 3 Mining as indicated on the *Site Plan 2015 Activity*.

E. Inspection:

The City conducts an annual inspection of the Site. The last inspection occurred on October 23, 2014.

III. CERTIFICATION

I certify that the plans, specifications or reports for the above described facility were prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.



Kirsten Pauly

Date: January 22, 2015 Reg. No. 21842

Attachment 1: Groundwater Sampling Results

MW-1	9/10/2013	1/15/2014	1/15/2015	units
Diesel Range Organics	ND*	ND	Results Expected	mg/l
Ethylbenzene	ND	ND		ug/L
Benzene	ND	ND		ug/L
Toluene	ND	ND		ug/L
Xylene	ND	ND		ug/L

* ND = Not Detected.

In accordance with the GWPP, a background or baseline groundwater sample was taken from the on-site monitoring well (MW-1) by Tiller's groundwater sampling consultant on September 10, 2013 before the commencement of Site activity. A water level reading was also taken and recorded at this time. The baseline sample was analyzed for Diesel Range Organics (DRO), Gasoline Range Organics (GRO) and benzene.

Subsequent samples are required to test DRO. Gasoline was not stored at the Site, therefore Gasoline Range Organics (GRO) and benzene are not required to be analyzed. The analytical results of the groundwater samples have not indicated the presence of DROs.

Attachment 2: Zavoral Well Water Use

Date	Amount Pumped (gallons)
October 30, 2014	4,000
November 3, 2014	1,500
November 4, 2014	3,000
Total for 2014	8,500

Attachment 3: Annual Reclamation Report

1. Reclamation Activities 2014

During the majority of 2014, efforts focused on reclamation planning, maintenance activities, monitoring, and importation of organic materials to be used in engineering of soils for final reclamation. In late 2014, additional reclamation activity occurred as overburden and additional material not suitable for processing aggregate were encountered and used as fill material in reclamation areas. This activity led to the initiation of Phase 2 Reclamation which continues to progress generally from west to east and with continued construction of the main access road.

In 2015, it is anticipated that reclamation activities will continue in the Phase 1 Reclamation Area with maintenance and monitoring activities and the continued development of the transition area. In addition, progress will continue to be made on Phase 2 Reclamation, which includes work on the relocation of the utility poles and continued construction on the main access road.

Reclamation activity progress reports will continue to be submitted to the City of Scandia on a quarterly basis during the growing season and will document progress of reclamation implementation activity, planning, monitoring, and corrective actions, if any, that need to be taken in 2015 for the planted native prairie or for the transition area.

a. Transition Area

In August, the Scandia City Council approved the Transition Area Development Plan. Implementation of the Transition Area Development Plan began with the selective removal of non-native herbaceous species through a spot herbicide application in the transition area zone in September. Herbaceous species targeted for selective removal included white and yellow sweet clover, spotted knapweed, birds-foot trefoil, leafy spurge, smooth brome, and hoary alyssum. Herbicide was applied in a sensitive manner by a state-licensed applicator using a backpack sprayer and care was taken to avoid beneficial native herbaceous species.

b. Year One Maintenance of Phase 1 Reclamation (2014)

Site vegetation management within Phase 1 Reclamation during 2014 followed the approved reclamation plan and included a maintenance mowing and spot herbicide treatments of non-native and invasive weed species occurring within the Phase 1 Reclamation area. Critical Connections Ecological Services (CCES) worked closely with the sub-contractor Minnesota Native Landscapes, Inc. (MNL) to oversee and direct reclamation implementation activities and to monitor the seeded reclamation area(s) during the 2014 season in order to determine and advise on adaptive management techniques which included optimum timing and extent for both mowing and spot spraying treatments.

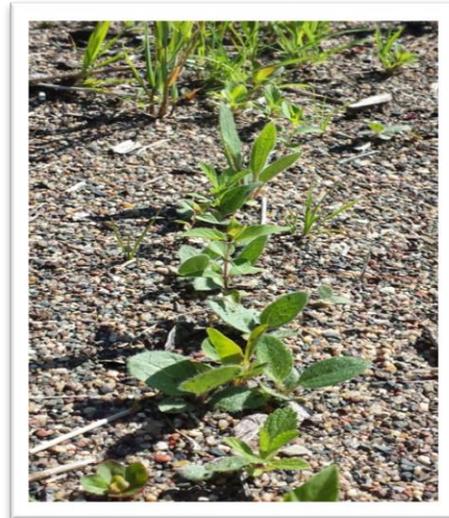
In August, MNL mowed the Phase 1 Reclamation area. Due to the late start of the growing season, one maintenance mowing was all that was necessary in 2014 to control undesirable species and to promote native seeding establishment within the Phase 1 Reclamation area. In September, CCES implemented spot herbicide treatments of non-native and invasive weed species as necessary within the Phase 1 Reclamation area to further control undesirable species.

2. Status of Reclaimed Areas

Active reclamation occurred in Phase 1 and Phase 2 Reclamation during 2014.

a. Phase 1 Reclamation

CCES has monitored the progress of the native prairie seeding installed within Phase 1 Reclamation as well as the success of the trees transplanted along the north perimeter of the Site. The native prairie seeding is establishing as expected. As is typical of a first year planting, species including Canada wildrye, sideoats grama, black-eyed Susan, wild bergamot, and partridge pea were observed in abundance throughout the planting area. Additional species of warm season grasses were also observed in the planting area with rows of emerging native seedling species becoming evident throughout the planted area. A random meander survey of the planting area revealed that native seedling establishment was high, with at least one native seedling per square foot present in the areas that were sampled (an appropriate seedling density for a first year planting). As outlined above, weed pressure in the native planting area was controlled through a well-timed mowing and a highly targeted spot herbicide application during 2014. The most abundant weed species in the planting area is yellow sweet clover which was targeted during 2014 weed treatment efforts. CCES will continue to monitor weed pressure in the planting area and manage weed species to ensure the successful establishment of the native prairie planting within the reclamation area.



The photograph on the left above depicts rows of native seedlings observed in the native planting area. The photograph on the right depicts common native seedling species typical of a first year planting including black-eyed Susan, wild bergamot, and Canada wildrye.

At this time, one (1) of the twenty-five (25) transplanted white pines has proven to be unsuccessful. The remaining twenty-four (24) successfully transplanted white pine trees will continue to be monitored.

b. Phase 2 Reclamation

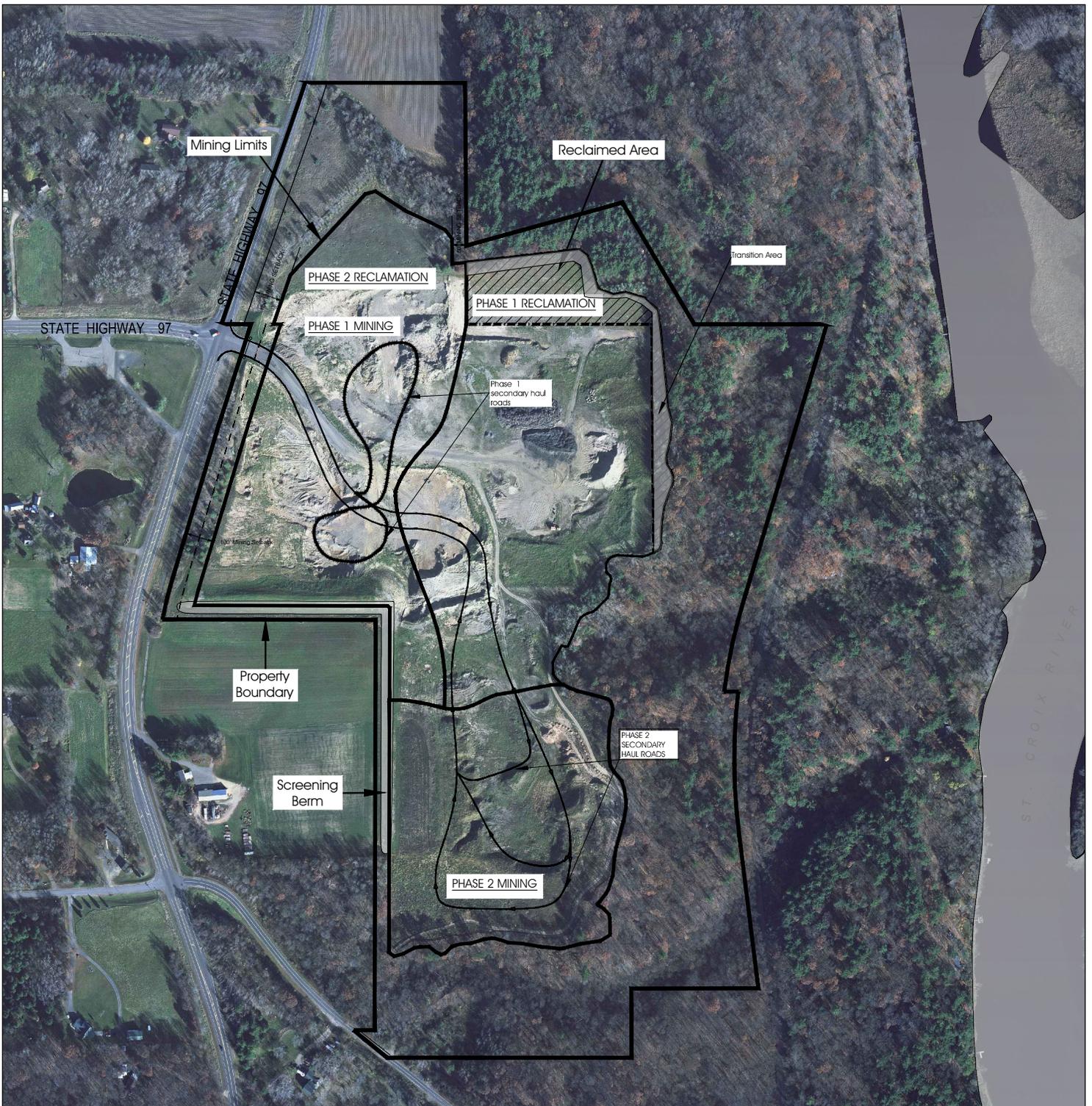
Commencement on Phase 2 Reclamation began in 2014 and continues to occur generally from west to east and with continued development of the main access road. As suitable fill material is encountered during the advancement of mining, the fill material may be directly placed within the reclamation area in order to work towards accomplishing the final grades of the phase.

c. Phase 3 Reclamation

Not applicable in 2014.

d. Phase 4 Reclamation

Not applicable in 2014.



Aerial image by Williams Aerial October 2014.

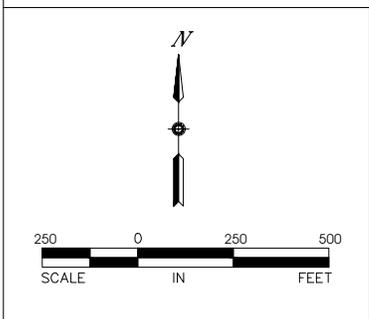


Figure 1
 Aerial Photo
 2015 Activity
 Annual Operating Permit



PHASE 2 RECLAMATION

- RECLAMATION WILL CONTINUE TO PROGRESS FROM WEST TO EAST WITH CONTINUED DEVELOPMENT OF THE ACCESS ROAD
- THE GRADING, TOPSOIL PLACEMENT AND SEEDING WILL BE CONDUCTED IN ACCORDANCE WITH THE APPROVED RECLAMATION PLAN.
- RECLAMATION WORK MAY EXTEND BEYOND PHASE 2 RECLAMATION TO ALLOW SUFFICIENT ROOM FOR RECLAMATION ACTIVITY.

PHASE 1 RECLAMATION

- RECLAIMED THE ST. CROIX RIVER DISTRICT AND USA SCENIC EASEMENT AREAS DURING 2013 OPERATING SEASON.
- REMOVED EXISTING STOCKPILES
- THE GRADING, TOPSOIL PLACEMENT AND SEEDING WAS CONDUCTED IN ACCORDANCE WITH THE APPROVED RECLAMATION PLAN.
- RECLAMATION WORK MAY EXTEND BEYOND THE RIVER DISTRICT/SCENIC EASEMENT AREA AND INTO THE MINING AREA TO ALLOW SUFFICIENT ROOM FOR RECLAMATION ACTIVITY.
- A PORTION OF PHASE 1 RECLAMATION WILL CONTINUE TO BE ESTABLISHED AS A TRANSITION AREA.
- 3.93 ACRES

PHASE 3 MINING

- DEPENDING ON THE MATERIAL ENCOUNTERED IN PHASE 2, MINING MAY CONTINUE INTO PHASE 3 MINING

PHASE 3 RECLAMATION

- PROGRESS ON RECLAMATION WILL OCCUR IN PHASE 2 MINING AS MINING ADVANCES
- THE GRADING, TOPSOIL PLACEMENT, AND SEEDING WILL BE CONDUCTED IN ACCORDANCE WITH THE APPROVED RECLAMATION PLAN
- RECLAMATION WORK MAY EXTEND BEYOND PHASE 3 RECLAMATION TO ALLOW SUFFICIENT ROOM FOR RECLAMATION ACTIVITY

PHASE 2 MINING

- CONTINUE PHASE 2 MINING
- MINIMUM EXCAVATION ELEVATION = 840 FT ABOVE MEAN SEA LEVEL.
- 16.26 ACRES



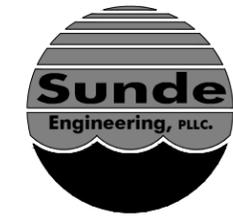
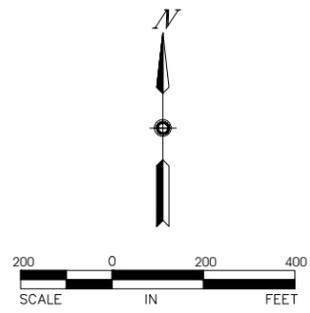
NOTES:

THIS PLAN DEPICTS ACTIVITIES ANTICIPATED FOR THE 2015 MINING SEASON.

TOPOGRAPHIC AND PARCEL INFORMATION FROM WASHINGTON COUNTY LAND SURVEY DIVISION. DATE OF AERIAL PHOTOGRAPHY: APRIL 2000. PARCEL DATA IS CURRENT TO MAY 31, 2008.

MINING SETBACKS: 50' FROM ADJOINING PROPERTY LINES; 100' FROM ANY PUBLIC RIGHT-OF-WAY.

-  RESTORATION ONLY
-  POWER POLE
-  TRANSITION AREA



CONSULTING CIVIL ENGINEERS
10830 NESSBITT AVENUE SOUTH
BLOOMINGTON, MINNESOTA 55437
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TILLER CORPORATION

ZAVORAL MINING AND RECLAMATION PROJECT

SCANDIA, MINNESOTA

DATE	REVISION
08/27/2012	proposed berm setback/access road
10/8/2012	construct new access and turn lane
1/21/2014	2014 AOP
1/13/2015	2015 AOP

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kristen Pauly
Kristen Pauly
DATE: 1/13/2015 REG. NO.: 21842

INFORMATION:

PROJECT NO.:	02-626
DRAWN BY:	
CHECKED BY:	KP
APPROVED BY:	KP
SCALE:	Graphic
DATE:	1-13-2015
DESCRIPTION:	

SITE PLAN 2015 ACTIVITY

SHEET NO.

AOP