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Memorandum

To:	Scandia City Council	Reference:	Tiller Corporation—2014 Annual Operating Permit Application for the Zavoral Mine
Copies To:	<hr/> Kristina Handt, City Administrator <hr/> Mike Caron, Tiller Corporation <hr/> Kirsten Pauley, Sunde Engineering	Project No.:	15485.002
From:	<hr/> Sherri Buss, RLA AICP, Planner	Routing:	<hr/> <hr/>
Date:	<hr/> February , 2014		<hr/> <hr/>

SUBJECT: Tiller Corporation, Inc. - Annual Operating Permit (AOP) Application for a Mining and Processing Operation

MEETING DATE: February 18, 2014

LOCATION: East of the Intersection of State TH 97 and State TH 95

APPLICANT: Tiller Corporation
P.O. Box 1480
Maple Grove, Minnesota 55311

60-DAY PERIOD: March 25, 2014

ZONING: Aggregate Mining Overlay District

ITEMS REVIEWED: Application, Plans and Related Submittals; monitoring reports and recommendations from City's subconsultants; comments from agencies

BRIEF DESCRIPTION OF THE REQUEST:

The City of Scandia approved a Conditional Use Permit (CUP) and an Annual Operating Permit (AOP) for the Zavoral Mine and Reclamation Project on February 19, 2013. 2013 was the first year of mine operation. Tiller Corporation submitted its application for the 2014 AOP on January 24, 2014. The 114-acre site (Site) is located along St. Croix Trail North (State Trunk Highway [TH] 95), a State Scenic Byway, east of its intersection with Scandia Trail North (State TH 97). The plans approved with the CUP permit mining and reclamation to occur on 64 acres

of the Site (the “Project”). No processing or concrete and asphalt recycling activities are proposed as part of the project.

The City’s Mining Ordinance specifies an AOP cycle that coincides with the active mining season. Applications are due by January 31 each year, so that permits can be approved before the start of the mining season in that year.

The conditions approved with the CUP and the 2013 AOP apply to the project and its operation.

EVALUATION OF THE AOP REQUEST

The Applicant is requesting an Annual Operating Permit (AOP) for a mining operation. The permit requirements are governed by the City’s Ordinance No. 103, Regulation of Mining and Related Activities, which is Chapter 4 of the Development Code. The Ordinance requires review of the following items for the AOP:

1. The operating conditions of the previous year and conditions required by the CUP and AOP.
2. Proposed operating conditions and any variation from the previous year.
3. Results of the annual inspection by the City.

The applicant submitted the following materials with the AOP application:

- Application Form including Annual Report for activities in 2013, proposed activities in 2014, and reclamation report
- Groundwater sampling results
- Well Water Use data
- Raptor nest survey results
- Annual Reclamation Report for 2013
- Aerial Photo—2014 Activity
- Site Plan—2014 Activity

The CUP conditions require that the City complete a variety of monitoring activities and reports that will be used to evaluate the AOP application and develop any conditions for operations in 2014. The monitoring reports that City staff used to evaluate operations at the site include the following:

- Zavoral Mine and Reclamation Project—Annual Surface Water Monitoring Report, Washington Conservation District (WCD), January 15, 2014
- Zavoral Mine and Reclamation Project—Annual Wetland Boundary Monitoring Report, WCD, January 8, 2014
- Zavoral Mine and Reclamation Project—Annual Erosion and Sediment Control Inspection Report, January 6, 2014
- 2013 Groundwater Monitoring Summary—Zavoral Aggregate Mining and Reclamation Project, Leggette, Brashears & Graham, Inc (LBG), January 15, 2014
- Zavoral Mine Traffic Monitoring Memo, Bolton & Menk, Inc., January 14, 2014
- Dust Emissions Monitoring—Zavoral Mine, Indoor Environment Group, Inc., January 14, 2014
- Zavoral Mine Noise Monitoring Results, SBP Associates, Inc., January 15, 2014



CUP AND AOP REQUIREMENTS: SUMMARY TABLE

The City of Scandia approved a Conditional Use Permit and an Annual Operating Permit for the mining operation and reclamation activities on the Zavoral Site on February 19, 2013. The conditions included the items noted on the table below. Tiller’s performance is also indicated on the table and in the text sections that follow:

In the status column, a + indicates that the operator is meeting the requirement, and a – indicates that the requirement has not been met during the 2013 operating year. The symbol * indicates partial completion. Further discussion on the conditions and performance in 2013 is discussed in the text sections that follow the table. The CUP conditions are identified by number in standard text; the AOP conditions are identified by number in **Bold** text in the first column on the table below.

CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
1/1&2. Comply with Project approved by City February 19, 2013	Ongoing	+	In process--monitored by City staff and consultants. Activities during 2013 were generally consistent with those proposed in the approved AOP.
2. Comply with Rules and Regulations	Ongoing	+	In process--monitored by City staff and consultants. No violations of federal, state or city regulations identified in 2013.
3. Maximum mining depth 840 amsl and 25 separation between mining and groundwater	Ongoing	+	Tiller established a benchmark to monitor the elevation of the mine floor in 2013. City monitoring of groundwater levels by LBG identified the maximum mining depth provided by Tiller in 2013 between 850 and 855 amsl, and the separation between the bottom of the mine and groundwater surface as 40-65 feet across the site in 2013.
4. No frac sand minning	Ongoing	+	Depth of mining information and bedrock depth information confirmed that no frac sand mining occurred in 2013.
5. No dewatering	Ongoing	+	No dewatering occurred on the site in 2013, and is not included in the mining plan or activity proposed for 2014.
6. & 7. Daily pumping from well shall not	Annual	+	Production well records are being kept by Tiller Corp. and are available to the City. Water use at



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
exceed 10,000 gallons; annual pumping shall not exceed 1 million gallons; pumping records.			the site in 2013 was 16,000 gallons. The DNR Water Appropriation Permit for the site allows up to 1 million gallons to be pumped each year. Pumping records were provided to the WCD, Washington County Health Dept., and Minnesota DNR as required.
8. Revise groundwater plan	2013	+	The revised Groundwater Quality Protection Plan (GWQPP) was submitted to the City in April, 2013.
9. Groundwater observation wells	Ongoing	+	Monitoring wells were installed at the site in 2013 and meet the CUP requirement.
10 /6. Groundwater data and annual report	Ongoing	+	Groundwater samples were analyzed and no changes in conditions were noted. Data are included in the 2014 AOP Application. Slow rise and fall in groundwater levels were consistent with seasonal variations.
11. Review GWQPP	Annual	+	Tiller submitted the revised GWQPP in April, 2013. The plan meets the CUP requirement.
12. Diesel Range Organics (DRO) sampling	Annual	+	Baseline groundwater samples were collected before the start of mining and before a diesel fuel tank was installed at the site. Sampling results after the start of mining (1/15/14) show no DRO was detected.
13. Fuel storage requirements	Ongoing	+	Tiller installed a portable 500-gallon double-walled diesel fuel tank on the site in October, 2013. Fuel storage meets Federal, State and City requirements.
14. Equipment fueling	Ongoing	+	Tiller installed a hard-surfaced fueling pad in 2013 and equipment is fueled over the pad.
15. Spill cleanup equipment on site	Ongoing	+	A spill kit is stored on-site when the site is active or there is equipment on the site.
16 Stormwater permit	Prior to operations	+	Applicant obtained required NPDES General Permit (MNG490000) and CMSCWD Stormwater and Erosion and Sediment permits prior to the



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
			start of operations. Permits are on file at City.
17. Stormwater Best Management Practices	Ongoing	+	Stormwater BMP's installed at the site as required by permits. Inspections completed by CMSCWD twice per month and WCD as required by CUP. No significant issues identified.
18. Air Emissions Permit	Prior to operations	+	MPCA Permit obtained prior to beginning mining operations (Permit no. 05301018-001).
19. Endangered Species Take Permit	Prior to operations	*	Status of Butternut tree changed to endangered in August, 2013. WCD could not locate tree during inspection, but the tree is outside the mining limits and area mined in 2013. WCD will search again in 2014.
20. Blanding's Turtles protection	Ongoing	+	Blanding's Turtles Plan submitted and WCD verified compliance. No Blanding's Turtles identified at the site in 2013.
21. Raptor nests inspection	Ongoing	+	Raptor survey conducted prior to tree clearing on September 9, 2013. No active nests identified.
22. Berm on south end of site	Prior to operations	N/A	Berm is required before Phase 2 mining—no mining occurred in Phase 2 area in 2013.
23. Minimize unnecessary equipment; reduce soil tracking	Ongoing	+	City site visit verified that unnecessary equipment is not stored at the site, and that BMP's are being implemented to reduce soil tracking.
24. Monitor equipment for leaks	Ongoing	+	Tiller reported that it monitored equipment for leaks and prohibits "topping off" of tanks. No evidence of leaks observed in site visit.
25 & 26. Location of above-ground storage tanks	Ongoing	+	A portable 500-gallon double-walled diesel fuel tank is located on-site as a fuel source for equipment. Location meets CUP requirement. Tiller submitted AST form to MPCA within 30 days of tank installation.
27. Water quality monitoring and	Annual	+	WCD completed water quality monitoring and submitted annual



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
reports			report. No mining impacts identified to surface waters.
28/8. Monitoring point in Zavoral Creek	Ongoing	+	Monitoring station installed at Zavoral Creek and baseline monitoring completed. No negative impacts related to mining identified.
29/7&8. Monitoring station near Crystal Springs- installation and reporting	Annual	*	Monitoring station installed at Crystal Springs but removed before mining commenced due to winter conditions. No data available for 2013.
30/9&10. Wetland boundaries	Annual	*	Applicant provided wetland delineation boundary as required. No on-site review during 2013 because mining commenced after the growing season ended.
31. Mn/DOT Access Permit	Prior to driveway construction	+	The applicant obtained the required permit (TP 1721) prior to driveway construction in October 2013. A copy is on file at the City.
32 & 33. Construct new driveway access and right-turn lane	Prior to operations	+	New driveway access and right-turn lane constructed by November, 2013.
34/26-28. Traffic monitoring	Annual	+	The City completed traffic monitoring as required. Bolton & Menk report includes results and recommendations.
35. Truck-hauling records between Zavoral and Scandia mine sites	Annual	+	Approximately 3,620 truckloads (83,500 tons) of Class C add-rock were hauled to the Scandia Mine from the Zavoral Mine after operations began in the 4 th quarter of 2013. Tiller indicated that this is the only Class C add-rock hauled to the Scandia site in 2013.
36. Traffic maximum levels	Ongoing	*	Traffic monitoring data indicate that the average truck traffic was 402 trips per working day, with a peak of 598 trips per day. The average daily numbers were slightly above the counts analyzed for Alternative 3 in the EIS (334-400 daily average) and slightly below the Alternative 3 peak (600 per day).
37. Hauling on	Ongoing	+	Trucks primarily utilized TH 97, TH



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state, county and local streets			95, CR 91, and existing haul route to Scandia Mine. One haul event utilized Oakhill Road to deliver aggregate to Lilleskogen Park—the City was notified in advance of this activity.
38. Truck warning signs	Prior to traffic operations	*	Tiller applied to Washington County to install truck warning signs on County Road 91 near the mine entrance, but the County denied the request because adequate site distances exist near the mine on Lofton. Tiller applied to MN/DOT to install warning signs at the requested locations, but has not received a decision on the request.
39. Parking and circulation	Ongoing	+	All parking occurred within the site.
40. Crash reporting	Ongoing	+	No truck that was hauling for Tiller was involved in a crash or cited for a traffic violation in 2013.
41. Fence	Prior to mining operations	+	Fencing located along TH 95 per approved site plan was maintained and in-place prior to start of operations.
42/3. Hours of operation	Ongoing	+	Hours of operation were consistent with the CUP requirement. No additional hours requested during 2013.
43. Berm removals	Project completion	N/A	Berm removals required upon completion of project.
44/17-19. Dust Control Plan implementation	Ongoing	+	Applicant submitted updated dust control plan to the City as required in April, 2013.
45. Dust Control materials	Ongoing	+	Dust control plan includes use of dust control materials required by CUP conditions. Only water was needed for dust control in 2013.
46/ 12-16. Dust Control monitoring	Annual	+	The City completed dust control monitoring as required by the CUP and AOP. Results indicate all parameters were below federal and state standards.
47. Review Dust Control procedures	Annual	+	City consultant suggestions for 2014 procedures included in annual report and proposed conditions.



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
48. Berms and screens	Ongoing	+	Phase I screening berm constructed in 2013.
49. Truck idling	Ongoing	+	Observed truck idling times were less than 30 minutes.
50 & 51/ 21-25 . Noise standards and monitoring	Ongoing	*	Noise monitoring completed. Recommendations for winter-time monitoring included in consultant report. Noise did not exceed state standards.
52-54. Broadband alarms and noise control	Ongoing	+	All Tiller equipment is equipped with broadband alarms. Equipment and alarms observed during City site visit. Equipment inspected twice weekly during operations and maintenance completed as needed.
55. Vegetative Clearing	Sept.-April	+	Clearing completed from mid-September to end of November in 2013
56. Recycle debris	Ongoing	+	Vegetation cleared was converted to wood chips. The majority of chips went to the St. Paul biofuel plant. Some trunks remain on the site and will be converted to chips and used in erosion control logs in 2014. Recycling meets CUP requirement.
57. Weed control and site maintenance	Ongoing	+	City inspections in 2013 indicated that site maintenance met CUP requirements. Reclamation area was dormant-seeded in fall, 2013 so no weed control needed in 2013.
58. Sanitary facilities	Ongoing	+	On-site sanitary facilities met CUP and Mine Safety and Health Administration requirements.
59. Waste disposal	Ongoing	+	Waste disposal met CUP requirements.
60. Updated Reclamation Plan	April 19, 2013	+	Updated Reclamation Plan provided on April 18, 2013.
61. Reclamation proportional to mining	Ongoing	+	Phase I reclamation completed per mining plan and CUP requirement.
62-64./ 29-30 Reclamation and monitoring	Ongoing	+	Grading, soil placement and seeding met CUP requirements. Monitoring of reclamation success will begin in 2014.



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
65/31. Tree transplants	Ongoing	–	White pine transplants did not meet CUP requirement for 80% survival. Revised condition regarding replacement proposed for 2014.
66. Reclamation report	Annual	+	Annual reclamation report for 2013 was submitted with the 2014 AOP Application.
67. Reclamation monitoring by City	Ongoing	+	WCD completed reclamation monitoring and report.
68-69. Final reclamation	End of project	N/A	Final approval of reclamation will occur at end of project.
70. Woodlands outside mining	Ongoing	+	Mining activities did not disturb woodlands outside of mine area limits.
71. Stockpile height	Ongoing	+	There is one existing stockpile of engineered soil for reclamation on the site. The stockpile is not visible from TH 95 and 97, and meets the CUP requirement.
72. Lighting	Ongoing	+	No lighting was added at the site in 2013,
73. Sign permit	Before placement	+	Tiller submitted truck-warning sign permits to Washington County and Mn/DOT as required. No other signage was added to the site in 2013.
74. Pay monitoring costs	Ongoing	+	The applicant has paid the monitoring costs to date.
75. Provide site access	Ongoing	+	The applicant provided site access as requested by the City and its consultants.
76. GWQPP Plan	April 19, 2013	+	The applicant provided a final corrected copy of the GWQPP in April 2013.
77.CUP and Reclamation Agreement	March 5, 2013	+	Compliance and Reclamation Agreement signed by Applicant and City.
78. Additional monitoring	Ongoing	N/A	No additional monitoring requested by the City in 2013.
79. Financial guarantee	Ongoing	+	Compliance and Reclamation Agreement included the financial guarantee.
80. AOP	Annual	+	Applicant obtained the 2013 AOP and has applied for the 2014 AOP.



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
81. Letter of Credit	Prior to activity	+	Applicant provided Letter of Credit as required by CUP.
82. Fees and escrows	Ongoing	+	Applicant paid fees and escrows as required by CUP.
83. Compliance with agreements and permits	Ongoing	+	Applicant complied with agreements and permits in 2013.
4. Trucking contractor information	Ongoing	+	Tiller provided a copy of the Safety Procedures form it provided to hauling companies and each operator, and described the verbal review of procedures with haulers.
5. Ground and surface water monitoring reports	Ongoing	+	The City submitted the ground and surface water reports to other agencies as required. DNR responded that it reviewed the report and has no comments.
11. Macro-invertebrate monitoring	2 times annually	*	WCD gathered baseline macroinvertebrate monitoring as required. No additional monitoring due to commencement of mining in winter season.

OPERATING CONDITIONS - EVALUATION FOR THE 2014 AOP

The sections that follow include an evaluation of the operations at the site in 2013, based on the requirements of the City's Mining Ordinance and the AOP approved in 2013.

Site Operations - Background Information

2013 was the first year of operation at the Zavoral Mine site. Installation of erosion control practices and vegetation clearing began in September, 2013. In mid-October, work began on Phase 1 Reclamation activities, construction of the screening berm, and the internal haul road. The applicant received its Mn/DOT permit at the end of October, and subsequently constructed the access realignment and right-turn lane, which was completed in November, 2013. Mining commenced in the Phase I mining area in November, 2013, and trucks began hauling material out of the Zavoral Site on November 25, 2013. All of the material was hauled to the Scandia Mine and included approximately 3,620 truckloads (83,500 tons) of Class C add-rock. Phase I reclamation activities were completed in 2013.

The City and several of its consultants established monitoring locations and gathered baseline data and monitoring data during mining operations in 2013. The reports that describe the monitoring protocols, results, and recommendations for the 2014 AOP are available on the City website and discussed in this staff report.



The applicant indicated that in 2014, construction of the main access road into the site will continue and final grades will be completed. Mining will continue in the Phase I area and may be extended into the Phase II mining area. Sand and gravel mined at the Zavoral Site in 2014 will continue to be hauled to the Scandia Mine Site. As mining advances, overburden materials will be separated from the marketable aggregate, and placed in reclamation areas to be used for reclamation. Reclamation will follow the mining activities. Reclamation activity in 2014 will occur in the Phase 2 reclamation area. A site plan that identifies the mining and reclamation areas is included in the application.

Annual Activity

The application generally includes the data required by the ordinance regarding annual activity on the site, as follows:

	<u>2013</u>
The amount of material removed from the site:	3,620 truckloads (83,500 tons)
Amount of add-rock brought onto the site:	0 Tons
Recycled asphalt and concrete brought to the site:	0 Tons
Average number of trips to and from the site each day:	402 Trips/day; the peak number of trips per day was 598.

Depth of Excavation

The CUP requires that the maximum mining depth shall be 840 feet above mean sea level (amsl), and that the separation between the depth of mining and ground water level shall be 25 feet or more. The City's groundwater consultant, Leggette, Brashears, and Graham, Inc. (LBG) reviews the mining depth and groundwater separation each year. LBG's Summary report (January 15, 2014) indicates that the depth of mining in 2013 was 850 to 855 feet amsl across the site, based on mining depth information provided by Tiller. The separation between the depth of mining and groundwater level in 2013 was 40 to 65 feet across the site. The activity of the site met the CUP requirements for mining depth and groundwater separation.

Silica Sand Mining

No silica sand ("frac sand") mining occurred at the site in 2013.

Ground Water Monitoring Plan and Monitoring Issues

The CUP and AOP include several conditions related to groundwater monitoring, listed below in *italics*. The City's groundwater consultant, Leggette, Brashears, and Graham, Inc. (LBG) reviews the ground water monitoring results each year for the AOP and provides comments to the City.

The section below summarizes LBG's findings related to each of the conditions. LBG's annual report to the City includes the data gathered, complete findings, and recommendations for 2014.

- *No dewatering is permitted at the site*
 - No dewatering occurred with the mining activities in 2013. None is proposed for 2014.
- *Daily pumping from the Zavoral Site Well shall not exceed 10,000 gallons at a maximum rate of 1,200 gallons per minute, and annual pumping shall not exceed 1 million gallons.*



- Tiller pumped the Zavoral Site Well on two occasions in 2013. Water was used for dust control and watering planted trees. Tiller pumped 8,000 gallons on each occasion, and the total annual use was 16,000 gallons. The pumping was within the levels permitted by the CUP.
- *The applicant shall provide records of Zavoral Well pumping that document the daily and annual use, and provide records to several agencies.*
 - The applicant provided records of the Zavoral Well pumping to the City. The records and the LBG 2013 report were provided to the Minnesota DNR, Carnelian-Marine St. Croix Watershed District (CMSCWD), WCD, and the Washington County Health Department. The DNR staff responded to the report and indicated that the information identified no problems encountered and that the agency had no further comment (Brooke Haworth email, January 28, 2014). Jim Shaver of CMSCWD noted that the District had reviewed the information and “The District doesn't have any concerns or recommendations for changes to the Tiller AOP for the Zavoral mine.” (Jim Shaver email, February 12, 2014.)
- *The applicant shall provide a revised Groundwater Monitoring Plan to the City, including the locations of monitoring wells.*
 - The applicant completed the update to the Groundwater Quality Protection Plan (GWQPP) that was required by the CUP, and the updated plan (dated April 2013) is on file at the City.
- The applicant shall maintain the groundwater monitoring wells and piezometers and complete required monitoring.
 - Tiller installed the monitoring wells and maintained the wells as required. The locations of the wells are shown on Figure 1 in the LBG report.
- The City's consulting hydrologist shall make regular site visits while the mine is operating, download and analyze data, and provide an annual report to the City.
 - LBG completed site visits and the annual report as required. LBG's findings and recommendations are summarized below.
- The City shall review the GWPP annually and modify the plan as needed.
 - Recommendations for 2014 are included below.
- Monitoring shall include Diesel Range Organics (DRO's).
 - The groundwater analytic results for 2013 show that DRO's were not detected at or above the method detection limits.

LBG Analysis and Recommendations Based on 2013 Monitoring Data

- The 2013 groundwater monitoring was completed in accordance with the approved GWQPP.
- The groundwater level data shows groundwater flows across the Site from west-northwest to south-southeast toward the St. Croix River.
- The depth of mining and separation from groundwater levels met the CUP requirements. The deepest mining in 2013 was at an elevation of approximately 850 ft amsl, which is approximately 40 to 65 feet above the water table surface.
- The Zavoral Site Well was pumped twice at rates and volumes below the maximum allowable limits prescribed in the CUP, and no impacts to the water table aquifer were observed as a result of pumping.
- The groundwater levels and groundwater quality parameters remained relatively stable during 2013, particularly during mining operations.



- The chemistry results indicate no concerns, and Diesel Range Organics (DRO) were not detected above the method detection limit in any samples.
- No impacts to groundwater levels or quality were observed as a result of the 2013 mining operations.
- LBG provided a conceptual hydrogeologic cross-section of the mine site and the graphic summarizes the estimated mining depths and groundwater level data in their summary report.
- LBG's report concludes that based on the evaluations of the 2013 monitoring data, Tiller's activities at the Zavoral site met all of the CUP conditions related to groundwater. LBG recommends that the current conditions included in the CUP and AOP be maintained as written in 2014. The Planner has included the groundwater conditions from the 2013 AOP in the proposed conditions for 2014.

Washington County Comments and LBG Responses

Washington County provided comments on the groundwater monitoring protocol and results. City staff review the comments with LBG. The bullets below (italics) provide the County comments, and the plain text that follows provide LBG's responses.

- *The (Groundwater Monitoring Report) discusses a data anomaly for Monitoring Well -1, which occurred because the testing lab had to remove the automatic monitoring equipment in order to sample the well for VOC's (DRO and BTEX). It led to "off" measurements for salinity, temperature, TSS, and groundwater elevation and it took several weeks for some of the parameters to return to normal. Now that the city and its consultant(s) are aware of this complication, are there alternatives for future sampling, which may prevent such a disturbance in the data?*

LBG has contacted Tiller and their consultant, Sunde Engineering, to have them notify us when Pace Analytical Services is conducting the sampling. This will allow LBG to be on site in the future to observe, download the data prior to a sampling event, remove the probe from the well, then reinstall the probe after the sampling is completed. The large fluctuation that was observed is the result of the groundwater returning to pre-sampling conditions after the water was purged from the well and not because of the probe being removed and malfunctioning. LBG will continue to evaluate this and confirm with the manufacturer (In Situ). With only one sampling event per year, the disruption of the readings will be minimized and will occur for only a very short period of time relative to the year-long monitoring period between sampling events.

- *VOCs were only tested once in 2013, since the project was just beginning. With a fully active construction set to begin this spring, does the monitoring plan includes testing for VOCs more than once? The possible unintended consequences of sampling as described above should be considered while determining a sampling schedule for VOCs in 2014.*

At this time, LBG does not see a reason for sampling for VOCs more than once per year. These samples are being collected as baseline data in the event a release occurred at the Site. There are no known former contamination sources at the Site that could potentially be disturbed and migrate to groundwater while mining nor releases of



petroleum. Tiller is required by law to report any releases of petroleum to the MPCA, and if this would occur Tiller's SPCC plan would be implemented and GWQPP will be reevaluated and revised to include additional sampling as necessary to meet the MPCA and City's requirements. Tiller did collect a sample in January 2014 following the installation of a 500 gal. double-walled steel diesel tank at the Site in October 2013.

Surface Water Monitoring

The Zavoral Mine CUP and AOP include several conditions related to surface water monitoring, listed below in *italics*. The Washington Conservation District (WCD) monitors the potential impacts of the mining operation on surface waters on behalf of the City. The following section summarizes the WCD's findings related to each of the conditions. The complete findings and recommendations for 2014 are presented in the WCD's annual reports to the City.

- *The applicant shall obtain the required permits for stormwater management prior to beginning operations at the site.*
 - The applicant obtained the required MPCA and CMSCWD permits prior to beginning operations at the site. Copies of the permits are on file at the City.
- *The applicant shall implement the Best Management Practices included in the Storm Water Pollution Prevention Plan (SWPPP) and Surface Water Plan.*
 - The WCD completed an annual report on the Zavoral Mine project compliance with its approved SWPPP and Surface Water Plan. WCD staff completed inspections to the site after mining operations began. The annual report notes deviations from the SWPPP (one site area was not disturbed, and therefore no BMP's were applied in that area). The report notes that BMP's had been adequately installed in areas disturbed for mining. The WCD requested the addition of biologists in two locations during the site visits, and Tiller added the logs as requested. The annual report notes that overall, the erosion and sediment control activities on the site were acceptable—the controls were “professionally installed, well maintained, and fortified where deemed necessary” during the site visits. The report concluded that the erosion and sediment control on the site was implemented per the CUP requirements. The WCD did not recommend changes to the AOP conditions for 2014, and therefore the proposed conditions are the same as those included in the 2013 AOP.
- *The City or its consultant shall monitor the potential impacts of mining activities on the water resources of the site, and submit monitoring reports to the CMSCWD, WCD and the Minnesota DNR.*
 - The WCD and LBG monitored the potential impacts of the mining activities on the site during 2013 on behalf of the City. Each consultant submitted the required annual report. The City provided the reports to the CMSCWD, WCD (the LBG report), Minnesota DNR and submitted the groundwater report to the Washington County Department of Health. The DNR responded to the report and said that it indicated that no problems were encountered in 2013, and the agency had no further comments (Brooke Haworth email, January 28, 2014). The CMSCWD also reviewed the monitoring and data and noted that the District doesn't have any concerns or recommendations for changes to the Tiller AOP for the Zavoral mine. All inspections to date have been satisfactory and their response to the



few problems observed has been timely. (Jim Shaver, CMSCWD, email February 12, 2014).

- *The monitoring station on Zavoral Creek shall be maintained and monitored for the lifetime of the project.*
 - The WCD installed stream monitoring equipment on Zavoral Creek on June 12, 2013, prior to the start of mining operations to gather baseline data. The WCD gathered data through November 14, 2013. The WCD notified the City on November 20 that on November 14, the agency removed some of the monitoring equipment from the site that is sensitive to freezing, to prevent damage to the equipment. The equipment will be reinstalled in the spring of 2014. Monitoring equipment that was submerged in the stream and therefore protected from freezing remained in place. WCD staff requested that the City add the words "weather permitting" to conditions requiring that monitoring be completed in all months when the mine is in operation to the conditions for the 2014 AOP. The Planner has included that phrase in the proposed conditions.
- *The City shall install a monitoring station upstream of or near Crystal Springs, analyze the data, and report at least annually on any impacts.*
 - The WCD installed stream monitoring equipment near Crystal Springs. Due to the harsh winter conditions, the equipment at Crystal Springs was removed on October 31, 2013. Surface water data were analyzed and included in the WCD's annual monitoring report to the City. The WCD will replace the equipment complete monitoring on Crystal Springs during mining operations in 2014.
- *The City shall complete an annual field review of the wetland boundaries of wetlands within the project area and determine any potential impacts.*
 - The WCD did not complete the annual field review of wetland boundaries in the project area in 2013 because the mining activities at the Zavoral site did not begin until after the growing season ended. The WCD reviewed the hydrologic data provided by LBG that indicated that fluctuation in groundwater elevations at the site were less than 1 foot in 2013, and the WCD stated that this degree of fluctuation would be consistent with natural variations of wetland hydrology, assuming that the elevation of the wells can be reasonably extrapolated to the seepage discharge at the wetlands. The groundwater elevation data do not predict detrimental impacts to the seepage wetlands. The WCD will complete the field review in 2014 to meet the conditions.
- *The City or its consultant shall download the data from the monitoring sites on Zavoral Creek and Crystal Springs at least twice per month while the mine is in operation and after large storm events. The consultant will provide a summary of the data and analysis annually for use in the AOP evaluation.*
 - The WCD gathered baseline and storm event data from the monitoring stations on Zavoral Creek during 2013. No data was gathered at Crystal Springs in 2013. Mining operations began in late 2013, and the Crystal Springs monitoring equipment was removed due to winter conditions on October 31, 2013.

The WCD reported that the data results do not indicate any impacts to the stream caused by the mining operations. The monitoring data included quick, unsustained spikes in turbidity at both of the stream monitoring stations,



independent of each other, prior to the beginning of mining activity and in the absence of recorded rainfall. The explanation is unknown, but the WCD indicated that it could be due to data logger error, sediment adhering to the sensor, animal activity, or other natural phenomenon. The data are included in the annual report.

- *The applicant shall provide the wetland boundary delineation data to the City. The City shall monitor any changes to the wetland boundaries.*
 - Tiller provided the boundary delineation data to the City as required. As noted above, the WCD reviewed the groundwater data gathered in 2013 to identify potential impacts to wetlands, but did not complete on-site wetland boundary monitoring due to the start of mining operations after the end of the growing season.
- *The City or its subconsultant shall complete twice annual macro-invertebrate monitoring on Zavoral Creek and provide the information to the CMSCWD.*
 - In 2013, the WCD collected macroinvertebrate samples in June and September to be used as baseline data for comparisons to future data collection. No additional data was collected during mining activities in 2013 because mining started during the late fall and winter months. The WCD provided the baseline information to the CMSCWD in August and December, 2013.

WCD Analysis and Recommendations Based on 2013 Monitoring Data

- The WCD annual reports on surface waters, erosion and sediment control, and wetlands concluded that the results of the data analysis and site visits do not indicate any impacts to the stream or wetlands caused by the mining operations.
- While baseline data was gathered for Zavoral Creek, Crystal Springs and macroinvertebrate populations, limited data related to some CUP and AOP conditions was gathered in 2013 due to the late start of mining operations. The WCD will gather the required data during mining operations in 2014.
- The WCD reviewed the groundwater data analyzed by LBG that suggests that groundwater is flowing in a southeast direction toward Middle Creek. The WCD recommended that a surface water monitoring station that collects the same data as the station on Zavoral Creek be installed on Middle Creek. The WCD recommended that the same locations on Zavoral Creek and Crystal Springs be monitored in 2014, following the same procedures and methods used in 2013. The proposed conditions for 2014 include the WCD recommendations.

Resident Questions and Complaints about Surface and Ground Water Monitoring

The City received several questions about surface or ground water monitoring at the mine site in 2013, and one complaint that mining activities were impacting a neighbor's well. City staff provided answers to questions using its monitoring subconsultants. The monitoring completed at the site indicated that the potential well problems were not related to mining activity.

Air Quality Monitoring and Dust Control

The Zavoral Mine CUP and AOP include several conditions related to air quality monitoring and dust control, listed below in *italics*. Indoor Environment Group, Inc. (IEG) monitors the potential impacts of the mining operation on air quality on behalf of the City. The following section



summarizes IEG's findings related to each of the conditions. The complete findings and recommendations for 2014 are presented in IEG's annual report to the City.

- *The applicant shall obtain the required Air Emissions Permit from the MPCA prior to beginning any operations at the site, and provide a copy of the permit to the City.*
 - Tiller obtained the required permit prior to the start of mining operations, and provided a copy of the permit to the City.
- *The applicant shall implement the Dust Control Plan within 60 days of approval of the CUP.*
 - IEG indicated that the dust control implemented at the site complied with the Dust Control Plan, and that the plan is working effectively to keep dust and exhaust emissions to a minimum.
- *The applicant shall utilize non-chloride, agriculturally derived organic polymers or naturally-occurring polymers on internal haul roads to control dust. The applicant shall reapply the polymers if they are no longer effective.*
 - Dust control was accomplished at the site in 2013 by watering unpaved roadways. Polymers were not needed due to the late start in operations.
- *The City or its consultants shall perform periodic on-site review and monitoring of dust control activities during the months that the mine is in operation to assure compliance with the CUP.*
 - IEG completed monitoring at the site in 2013 as required by the CUP and AOP. Monitoring and analysis included respirable dust, silica, particulate monitoring, diesel particulate matter and nitrogen dioxide. The IEG analysis indicated that emissions at the site for all categories of particulates were below particulate levels and below EPA standards.
- *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.*
 - IEG reviewed the Dust Control Plan and recommended no changes for 2014. The report noted that if mining occurs during summer months, monitoring should be completed during that time in 2014.
- *The City or its consultant shall establish air monitoring stations at a minimum of five locations, and collect samples as prescribed in the AOP.*
 - IEG indicated that the air monitoring stations were established and samples collected as required in the AOP.
- *The City or its consultant shall analyze and compare the air monitoring results to current State and Federal Ambient Air Quality Standards, and take action as prescribed in the AOP if the results indicate levels that are above the standards.*
 - IEG completed monitoring at the site in 2013 as required by the CUP and AOP. Monitoring and analysis included respirable dust, silica, particulate monitoring, diesel particulate matter and nitrogen dioxide. The IEG analysis indicated that emissions at the site for all categories of particulates were below particulate levels and below EPA standards.



- *The applicant shall water and wash haul roads on the site during active mining operations, in accord with the Dust Control Plan.*
 - Tiller completed the watering of haul roads during active mining as required in the Dust Control Plan.
- *The applicant shall wash hauling and loading equipment on a regular basis during active mining operations.*
 - Tiller completed the equipment washing during active mining as required in the Dust Control Plan.
- *The applicant shall complete sweeping activities as required by the AOP.*
 - Tiller completed regular sweeping at the site entrance.

IEG Analysis and Recommendations Based on 2013 Monitoring Data

- The IEG monitoring and analysis indicated that the Dust Control Plan implementation is working to control particulates and emissions at the site. There were no violations of federal or state air emissions standards identified in 2013.
- Based on the monitoring results, IEG recommended the following for 2014:
 - Complete dust sampling activity during the summer months if the mine is in operation.
 - Continue monthly dust control site review, as required by the 2013 AOP conditions.
 - Maintain compliance with the current Dust Control Plan
 - The Planner included the IEG recommendations as proposed conditions for the 2014 AOP.

Noise Monitoring

The Zavoral Mine CUP and AOP include several conditions related to noise monitoring, listed below in *italics*. SBP Associates monitors the noise generated by the mining operation on behalf of the City. The following section summarizes SBP's findings related to each of the conditions. The complete findings and recommendations for 2014 are presented in SBP's annual report to the City.

- *The project shall comply with the City's adopted noise standards (the City has adopted the MPCA standards as its 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.*
 - SBP chose 5 monitoring locations including sensitive receptors around the mine site perimeter, and mapped the locations in their report. Noise from mining operations was apparent intermittently at some sites, and not audible at others. Noise levels were within State standards at each of the monitored locations. In residential areas, for example, the maximum L10 daytime noise limit is 65 decibels (dBA), and the maximum noise level among the five monitoring sites was 52.0 dBA. The maximum L50 daytime noise level permitted in residential areas is 60 dBA, and the maximum level monitored at any of the five sites was 47.0 dBA. Detailed results and explanation of terminology are provided in the SBP report.



- *The AOP specifies that monitoring shall include one or two-worst case residential locations for each phase of mining, and conduct at least one hour of monitoring at each location on a quarterly basis during operations in the morning and one hour of monitoring during operations in the afternoon.*
 - SBP's monitoring locations and duration met the AOP requirements.
- *Noise monitoring shall include at least one hour of monitoring at a representative location along the St. Croix Scenic Riverway quarterly during mining operations.*
 - SBP's monitoring included the required monitoring along the St. Croix River.
- *A noise monitoring event will be conducted within three weeks of the beginning of each mining phase, weather permitting, during a typical haul event.*
 - SBP noted that it was difficult to complete the noise monitoring within the short time frame due to the project start in winter. The results of monitoring are affected by weather conditions, including cold and snow, so it was difficult to find a date when readings would be accurate. SBP recommended that the time frame be extended to within six weeks of the beginning of each mining phase, to account for winter conditions.
- *The City shall request access to properties as necessary and notify residents.*
 - Access was requested as required.
- *If the noise levels at the site exceed State standards, the applicant shall stop all work on the site, and the applicant will identify and take corrective actions to bring the noise levels into compliance.*
 - Noise levels at the site did not exceed State standards in 2013.

SBP Analysis and Recommendations Based on 2013 Monitoring Data

- SBP found that noise levels were within the State Standards at each of the five monitoring locations during each of the required monitoring events. Sound from mining operations was intermittently audible at some of the sites, and not audible at others, but did not exceed State Standards.
- SBP recommended that time period for initiating monitoring at the beginning of each mining phase be lengthened to 6 weeks, so that monitoring can avoid adverse winter conditions that may affect the results if needed. The Planner has revised the condition to include a 6-week period for initiating monitoring with a new mining phase in the proposed conditions for 2014.

Noise Complaints

The City received six complaints about noise issues after clearing activities began on the site in September, 2013. The majority of complaints were about back-up beeper noise from equipment. Two complaints related to noise heard outside the hours permitted for activity. One complaint was about truck noise and jake breaking. The majority of complaints were about equipment that was used for site clearing completed in fall, 2013. City staff and officials followed up on all complaints that the City received from residents, as follows:



- City staff reviewed the CUP conditions with residents submitting complaints, and noted that Tiller is required to use the quieter back-up alarms on its equipment, but cannot require contractors to use the quieter alarms.
- Staff informed residents about the working hours allowed in the CUP, and that the activities at the site were occurring within those hours.
- Staff contacted Tiller, who indicated that they would request that contractors voluntarily lower the volume of the beepers on their equipment. The beepers cannot be eliminated as they are required to meet OSHA standards.
- City staff called the City's noise monitoring consultant to determine that noise monitoring activities would include the issues identified by residents, and request that locations for monitoring include areas where complaints were received.
- Staff contacted Tiller and the Washington County Deputy regarding the truck noise/jake breaking complaint and requested that the Deputy monitor truck traffic for jake breaking.

Traffic and Monitoring

The Zavoral Mine CUP and AOP include several conditions related to traffic and monitoring, listed below in *italics*. Bolton and Menk monitors traffic generated by the mining operation on behalf of the City. The following section summarizes Bolton and Menk's findings related to each of the conditions. The complete findings and recommendations for 2014 are presented in their annual report to the City.

- *The City or its consultant shall complete traffic monitoring of the project. The traffic monitoring protocol and requirements shall be identified in the AOP.*
 - Bolton and Menk completed the traffic monitoring as required in the AOP.
- *The AOP requires that the consultant complete a 14-hour video log of the TH 97 and 95 intersection including the new access to the Zavoral site, an count the numbers of trucks entering and exiting the site. The consultant shall provide a summary of observations and identify any issues or problems.*
 - Bolton and Menk's monitoring included the required video log. The analysis of traffic operations at TH 97 and 95 states that the addition of trucks entering/exiting the mine did not appear to appreciably lower the level of service at the intersection in 2013. The intersection operated at B and C service levels during peak hours, which is within acceptable service levels. The analysis indicated that there is reserve capacity available at the intersection to handle additional traffic.
- *The City shall review the crash records for roadways in the area that will be used for hauling every six months to identify safety issues.*
 - Bolton and Menk reviewed the Mn/DOT crash data along the TH 97 and CR 91 (Lofton Avenue) corridors from 2008 through November 4, 2013, the time frame for which data was available. Crashes in 2013, from January 1 – November 4, included 3 at the TH 97 and CSAH 15 intersection; 1 on TH 97 between CSA 15 and Lofton Avenue, 1 at the Lofton Avenue and TH 97 intersection, and 1 on TH 97 between Meadowbrook Avenue and Newberry Avenue. The crashes did not involve trucks related to the Zavoral Mine and Scandia mine operations.



- The summary noted that the TH 97 and CR 91 (Lofton Avenue) intersection had an above average crash rate in 2008. After 2008, Washington County added signs at the intersection. The report suggests that the TH 97 and Lofton intersection may need improvements such as turn lanes to improve safety. Washington County has scheduled improvements to the intersection, including the addition of turn lanes, in 2014.
- City staff have included a proposed condition for the 2014 AOP that “The City or its consultant complete a 14-hour video log of the TH 97 and CR 91 (Lofton Avenue) intersection in early 2014, prior to any improvements, to observe traffic, trucking operations, and identify potential safety issues. The consultant shall provide a summary of observations to the City and identify any issues or problems.”
- *Traffic generated by the project shall not exceed the maximum levels analyzed in the EIS for Alternative 3 (average 334 to 400 round trips per working day; 600 peak round trips per day.)*
 - Tiller reported that the average number of truck trips per day was 402, and the peak number of trips per day was 598. The average number of trips per day slightly exceeded the number analyzed for Alternative 3 in the EIS, and the peak number was slightly less than the number analyzed for Alternative 3. The Planner included a proposed condition for the 2014 AOP that Tiller maintain the average and peak number of trips per day at or below the numbers analyzed for Alternative 3 in the EIS.

Trucking Operation Complaints

The City received five complaints about trucking operations in 2013, including complaints about mud and gravel on roadways, uncovered loads and rock falling from trucks, truck noise and jake-braking.

The City responded to each of the complaints, as follows:

- The Washington County deputy monitored trucking actions at the intersections, and the City contacted Tiller to remind subcontractors to turn tighter corners at Lofton Avenue
- Tiller swept the roadways earlier than required to address mud and gravel
- Tiller followed up with subcontractors on truck maintenance for the loud truck, and determined that the truck was a substitute and would not normally be used at the site.

The Planner has included the conditions for trucking operations from the 2013 AOP in the 2014 AOP.

Reclamation Plan

Tiller submitted a detailed Reclamation Plan for the Zavoral Mine site that was approved as part of the CUP. The plan specified that Phase I of the reclamation would include work in the northeastern portion of the project site, in the previously mined area within the St. Croix River District and Scenic Easement Areas. Phase I included removal of existing stock piles, grading, top soil placement, and seeding to establish native dry and mesic prairie seed mixes. It also include transplanting white pine trees from other portions of the mine site to locations within the Phase I area.



The CUP for the Zavoral Mine included the following conditions for reclamation (in *italics*). Tiller's performance follows each condition in plain text.

- *Tiller required to revise the Reclamation Plan within 60 days of approval of the CUP.*
 - Tiller submitted a revised Reclamation Plan that met the CUP requirements on April 13, 2013.
- *Reclamation to proceed concurrently and proportionally to mining operations. Progress to be demonstrated in each AOP application.*
 - The Phase I reclamation proposed in the Reclamation Plan was completed in 2013, and summarized in the 2014 AOP application.
- *Tiller required to use clean, non-contaminated fill and topsoil for all reclamation, and establish permanent native vegetation on reclaimed areas per the schedule in the Reclamation Plan.*
 - Clean fill and topsoil were applied in the Phase I area in 2013, and the site was seeded with native prairie mixes as specified in the Reclamation Plan. 3.2 acres were seeded with native dry prairie and mesic seed mixes, and .8 acres of native woody vegetation in the Phase I area were left undisturbed.
- *Reclamation success must meet the criteria included in the CUP conditions. Vegetation establishment and monitoring shall continue for five years after completion of the project.*
 - Reclamation success will be monitored in 2014 and subsequent years to determine if it meets the criteria for success.
- *City shall monitor transplanting of trees to ensure a survival rate of at least 80%. Survival rates of less than 80% will require replacement of dead trees by the applicant.*
 - The results of transplanting did not meet the required 80% survival rate. The issue is discussed in the next section.

Tree Transplanting 2013 and Recommendation for 2014

The 2014 AOP application indicated that Tiller made attempts to transplant white pines from other portions of the mine site to the Phase I reclamation area. The Reclamation Plan required transplanting 100 trees. Initial attempts to remove and transplant the trees with tree spades failed due to the rocky and stony soils. The trees spades were unable to penetrate the ground more than two feet from the surface. The reclamation plan indicates that Tiller's contractor was able to transplant 25 of the proposed 100 white pines to new locations. The survival rate of those trees will be determined in 2014.

The 2014 application suggests that continuing the efforts to transplant white pines is unlikely to meet the goals proposed in the reclamation plan. The application notes that the Reclamation Plan discusses using adaptive management techniques if problems are identified during reclamation activities. The application suggested that as an alternative to additional tree planting, a 0.8-acre area along the eastern border that was originally scheduled to be cleared of existing vegetation and planted as native prairie should be managed instead to improve the existing woodland community to serve as a transition between the restored prairie areas and existing woodlands. Management would include management of invasive species and



installation of additional native grass seed. The area is within the National Park Service Scenic Easement Area.

City staff reviewed the conditions related to tree transplanting, and determined that Tiller's proposed alternative to address the lack of transplant success did not meet the condition that requires replacement of dead trees by the applicant, and requested that Tiller revise the reclamation proposed for 2014 to include replacement of the trees that could not be transplanted. City staff contacted the National Park Service and requested that the agency comment and provide recommendations on transplanting. The NPS comment letter (February 10, 2014), suggested the following: *"The NPS feels that all options to get the trees transplanted properly and according to the original reclamation plan have not been exhausted. We would like to see a second effort made to possibly use balled/burlap white pines in the identified locations. This solution may work better than the use of the tree spades to transplant the white pines from other locations on the pine property to the Phase 1 reclamation area. If the survival rate of at least 80% is not achieved after the growing season of 2014 expires, then we would be willing to discuss an adaptive management solution to include the .8 acre area within the Scenic Easement area."*

The Planner has included a proposed condition for the 2014 AOP that requires that Tiller replace the quantity of white pines proposed for transplanting that were not successfully transplanted in 2013 with balled and burlapped white pines that are a minimum height of 5'.

Other Operating Requirements

Setbacks

The AOP application indicates that the minimum setbacks are maintained as follows:

- 50 feet from the adjoining property line
- 200 feet from an existing occupied structure
- 100 feet from residential property boundaries of 5 acres or less
- 100 feet from any road right-of-way

The setbacks meet the requirements of Ordinance No. 103. City inspection during 2013 indicated that the setbacks were maintained and meet City requirements.

Fencing

A portion of the site along State Highway 95 is fenced with a four-foot high chain link fence, as indicated on the approved site plan, with a locking metal gate at the site entrance. The fencing meets the intent of the City's Ordinance. City staff reviewed the fencing during site visits in 2013, and verified that it meets the requirements of the Ordinance and CUP. One resident complained that fencing had not been installed around the site; City staff confirmed that the fencing installed is consistent with the approved site plan.

Hours of Operation

The site is operated from 7 a.m. to 7 p.m. Monday through Thursday and between 7 a.m. to 2 p.m. on Friday, excluding Federal holidays, and 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. The Applicant is required to obtain the City's permission for any extended hours in accordance with procedures set in Ordinance No. 103. No extended hours were requested in 2013.

Screening

Screening berms, wooded buffer areas, TH 95 and agricultural fields separate the mining site from surrounding properties, per the site plan approved with the CUP. The required screening berm shown in the site plan was constructed along the west and southwest perimeter of the property from October to December 2013. The berm exceeds the 6-foot height required by the CUP. Seeding and mulching on the berm will be completed in 2014. City staff reviewed the screening during annual site visits in 2013, and the screening meets the requirements of the CUP.

Noise

The site is required to comply with State and City noise standards. The monitoring completed in 2013 indicated that the site did not violate the standards in 2013.

Site Clearance

Site clearance began in September, 2013 with the removal of vegetation in areas to be mined. The vegetation removed was converted into wood chips and stockpiled. The majority of the chips were transported to the biofuel plant in St. Paul, and the remainder of the materials were stored on the site and will be converted into chips for erosion control logs in 2014. The clearance and disposal of waste meet the CUP requirements..

Appearance/Condition

The City's site inspections in 2013 confirmed that the site and facilities are maintained in a neat condition. The CUP does not include conditions for improvement of the appearance or condition of the site.

Sanitary Facilities

The application indicates that site is served by portable sanitary facilities that meet the requirements of the City's Ordinance and the Mine Safety and Health Administration. City staff inspection confirmed that the City's requirements were met in 2013.

Waste Disposal

The application indicates that waste generated by the operation is disposed of in accordance with Federal, State and City requirements. Site visits in 2013 confirmed that the Applicant is meeting the requirements of the CUP.

Fuel and Chemical Storage

Tiller installed a portable 500-gallon double-walled above ground storage tank at the site, which is used to fuel the operating equipment. Tiller filed an AST Notification form with the MPCA within 30 days of tank installation, as required. Fueling occurs over a hard-surfaced pad constructed of compacted millings. The tank location is up-gradient of the on-site groundwater



monitoring well and more than 500 feet from any surface waters. The location is indicated on the Site Plan, and meets the ordinance and CUP requirements.

Contingency Response Plan

The site operates under an Emergency Contingency Response Plan that was submitted and is on file at the City.

Processing

No processing is occurring or planned at the site.

Trucking Operations

The site has access to State Trunk 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) to the Scandia Mine. Lofton Avenue is a paved 9-ton road. The applicant constructed the required northbound right turn lane from State Highway 95 into the Zavoral Site in 2013.

Signs

The CUP required installation of truck warning signs, contingent upon approval from the appropriate road authority. Tiller applied to Washington County to request installation of a truck entering sign at Lofton Avenue near 223rd street. Washington County denied the request, and indicated that there are adequate site distances to the Scandia Mine on Lofton Avenue.

Tiller applied to Mn/DOT to install warning signs near the TH 95 and 97 intersection. Mn/DOT has not ruled on the request to date.

Sign Complaint

The City received a complaint that the truck warning signs were not installed at the TH95/TH 97 intersection and on Lofton Ave prior to the start of mining. The City provided information to the resident that CUP condition stated that the installation of the signs was “contingent on approval from the appropriate road authority.” In this case, Washington County is the road authority and the County denied the request for the sign on Lofton Ave. MNDOT has not ruled on the signage for the Trunk Highways.

SITE INSPECTION

City staff completed site visits to the Zavoral site on October 24, 2013. Staff and city officials also completed site visits in response to complaints during site operations in the fourth quarter of 2013. The site visit in October reviewed site operations in relation to the AOP and CUP conditions, and including documenting conditions on the site in site photos. The site visit also reviewed the reclamation activities and included discussion of difficulties encountered in transplanting white pines.

ACTION REQUESTED:

The City Council can:



1. Approve the AOP;
2. Approve the AOP with conditions;
3. Deny the application if it is found that the request is not consistent with the Comprehensive Plan, CUP, AOP Criteria, and Mining Ordinance, and is not in the best interest of the community;
4. Table the request if the Council needs additional information to make its decision.

PLANNING STAFF RECOMMENDATIONS:

The Planner recommends approval of the Tiller Corporation 2014 AOP for the Zavoral Mine and Reclamation Project, with the following conditions:

(Dates were updated as needed. Proposed new or revised conditions are underlined.)

1. All site operation and reclamation activities shall, in addition to the requirements of the Conditional Use Permit and this Annual Operating Permit, comply with and be governed by the Conditional Use Permit Compliance and Reclamation Agreement between the City, the Applicant and the Owner approved by the City on February 19, 2013.
2. Site operations in 2014 shall be consistent with the application and plans submitted to the City in November 2008, and as required by the Conditional Use Permit and these conditions.
3. The applicant's requests for operating hours or haul routes outside those specified in the Conditional Use Permit shall be accompanied by a proposed truck haul route for approval by staff.
4. The applicant shall inform all of its contractors about the following requirements related to trucking operations, and monitor compliance with the requirements by all of its contractors:
 - a. Engine braking is prohibited in Scandia per City Ordinance.
 - b. Lofton Avenue is restricted to daylight hours only as defined in the CUP for the Zavoral Mine and Reclamation Project.
 - c. Haul loads are required to be covered.
5. The City or its consultants shall monitor the potential impacts of mining activities on the ground and surface water resources at the site while mining activities are occurring at the site. The applicant shall cooperate with the City as requested to complete the monitoring activities. The City shall submit all status reports and ground and surface water monitoring reports to the applicant, CMSCWD, the WCD and the Minnesota DNR.
6. The City's consulting hydrogeologist shall make monthly site visits to download groundwater monitoring data and collect manual measurements. Monitoring shall occur during all months when the mine is in operation. The hydrogeologist shall evaluate the data and report the results to the City at least quarterly or more frequently if the consultant identifies issues or problems during the monitoring activity.
7. The City or its consultant shall install a monitoring station upstream of or near the existing monitoring station near Crystal Springs in order to isolate potential effects due to mining from other effects to due unrelated activities within the watershed. The applicant shall permit installation of the monitoring station on the Project Site if requested. 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. Monitoring shall occur during all months when the mine is in operation, weather permitting.
8. The City or its consultant shall install a monitoring station on Middle Creek to collect the same continuous parameters as the stations installed on Zavoral Creek and Crystal Springs. The applicant shall permit installation of the monitoring station. The City or its consultant will analyze the monitoring data to determine the effect, if any, to the creek due to Zavoral mine operation, and identify any negative impacts. Monitoring shall occur during all months when the mine is in operation, weather permitting.
 9. The City or its consultant shall visit the monitoring sites on Zavoral Creek, Middle Creek, and near Crystal Springs at least twice per month to download the automated data loggers at the monitoring stations and gather data for analysis and analyze the water quality and quantity data gathered at the site. Monitoring shall occur during all months when the mine is in operation, weather permitting. The consultant may also visit the sites after large storm events to gather and analyze monitoring data. If the consultant detects any negative impact to Zavoral Creek, Middle Creek or Crystal Springs, due to the Zavoral Mine operation, they will notify the City immediately. The consultant shall provide a summary of the monitoring data and analysis by early January for use in the AOP evaluation.
 10. The applicant shall provide the wetland delineation boundary data to the City or its consultant in a Geographic Information System format (such as an ArcGIS shapefile) that was obtained as part of the wetland delineation conducted by Critical Connections Ecological Services (CCES) in October, 2010. RECOMMEND DELETION OF THIS CONDITION AS IT WAS COMPLETED IN 2013.
 11. If a change to the boundaries of the wetlands within the project area is observed that cannot be attributed to climatic influences or other local disturbances not related to mining, the City shall require that quantitative monitoring (including but not limited to, the installation of shallow monitoring wells and piezometers) be initiated for all wetlands within the project area. This monitoring could include the installation of wetland hydrology monitoring equipment along multiple transects across each wetland boundary. The City may conduct this comprehensive monitoring to verify whether the Zavoral Mine is causing the changes to the wetlands. If the City determines that the Zavoral Mine is impacting the wetlands, the quantitative data will be used by the City in consultation with the Technical Evaluation Panel to prepare a Restoration Order and calculate the required replacement for unpermitted wetland impacts.
 12. The City or its consultant shall complete twice annual macro-invertebrate monitoring on Zavoral Creek and provide this information to the CMSCWD.
 13. The City or its consultant shall perform periodic on-site review and monitoring of dust control activities to assure compliance with this permit. Monitoring shall occur during all months that the mine is in operation. The applicant shall cooperate with the City as requested to complete the monitoring activities.
 14. The City or its consultant shall establish air monitoring stations at a minimum of five locations: upwind of mining and loading operations, downwind of mining and loading operations, at the site entrance, downwind of the site entrance, and downwind of one location on the haul route. The City may establish additional monitoring locations based on City or public concerns.



15. The air quality monitoring plan shall include the collection of the following samples at each sampling location: Airborne particulate matter PM10 (monitor using a fibrous aerosol monitor fitted with a PM10 impactor); Respirable dust (using cyclones/37mm PVC cassettes and lab analysis [NIOSH method 0600/7500; mod OSHA ID-142]); Respirable silica, quantitative (using cyclones/37mm PVC cassettes and lab analysis); Diesel particulates (37 Quartz Fiber NIOSH 5040) and Nitrogen dioxide (TEA Tude, OSHA ID-1820; or equipment and methods that meet current OSHA or State standards. A monitoring station for respirable dust and respirable silica shall be established as close as possible to and downwind of the on-site operations.
16. The City or its consultant shall analyze and compare the air monitoring results to current State and Federal Ambient Air Quality Standards, ACGIH TLV or OSHA PELs or current applicable standards.
17. If sample results indicate levels above generally accepted or mandated action levels, the applicant shall stop all work on the site, review operating procedures and modify Project operations as necessary to reduce emissions. The City shall complete additional monitoring immediately after new procedures are in place to confirm that an acceptable reduction in emissions has occurred.
18. The applicant shall water and wash haul roads on the site during active mining operations, in accord with the applicant's updated Dust Control Plan, unless recent precipitation is keeping haul roads washed and wet.
19. The applicant shall wash hauling and loading equipment on a regular basis during active mining operations.
20. The applicant shall complete sweeping activities using vacuum-assisted sweeping equipment or similar equipment that ensures that sweeping operations do not generate visible airborne emissions.
21. The City or its consultant shall complete noise monitoring at the Project site. The applicant shall cooperate with the City as requested to complete the monitoring activities.
22. Noise monitoring shall include identification of one or two worst-case representative residential locations for each phase of mining and conduct at least one hour of monitoring at each location on a quarterly basis during operations in the morning and one hour of monitoring during operations in the afternoon.
23. Noise monitoring shall include at least one hour of monitoring at a representative location along the St. Croix Scenic Riverway quarterly during mining operations.
24. A noise monitoring event will be conducted within six weeks of the beginning of each mining phase, weather permitting, during a typical haul event. The City may conduct additional monitoring if needed based on site conditions. Monitoring shall be conducted in accord with Minnesota Rules.
25. The City shall notify residents of monitoring periods and request access to properties as necessary to conduct monitoring activities.
26. If monitoring results indicate levels above state standards, the applicant shall stop all work on the site, review operating procedures and modify Project operations as necessary to reduce noise to permitted levels. The City shall complete additional monitoring immediately



- after new procedures are in place to confirm that an acceptable reduction in noise has occurred.
27. The City or its consultant shall complete traffic monitoring of the Project. The applicant shall cooperate with the City as requested to complete the monitoring activities.
 28. The Applicant shall maintain the traffic generated by the Project so that traffic does not exceed the maximum levels analyzed in the EIS for Alternative 3—average 334 to 400 round trips per working day and 600 peak round trips per day.
 29. The City or its consultant shall complete a 14-hour video log of the TH 97 and 95 intersection that shall include the new access to the Zavoral site and count the numbers of trucks entering and exiting the site. The City's consultant shall review the log, and shall provide a summary of the observations related to traffic operations to the City, and identify any issues or problems related to the conditions required for operations. If issues are identified, the City may order additional video traffic counts.
 30. The City or its consultant shall complete a 14-hour video log of the TH 97 and CR 91 (Lofton Avenue) intersection in early 2014, prior to any intersection improvements, to observe traffic, trucking operations, and identify potential safety issues. The consultant shall provide a summary of observations to the City and identify any issues or problems.
 31. The City shall review the crash records for the roadways in the area that will be used for truck-hauling every six months, to identify safety issues. The City shall contact Mn/DOT to discuss safety issues if identified.
 32. The City or its consultants shall complete monitoring of reclamation activities on the site on behalf of the City. The applicant shall cooperate with the City as requested to complete the monitoring activities. The City shall inspect the reclamation activities on an as-needed basis.
 33. The applicant shall submit to the City quarterly reclamation activity progress reports during the growing season post-seed installation of each monitoring area, and shall submit an annual reclamation report with the AOP application for 2014.
 34. The applicant shall plant balled-and-burlapped (B&B) white pine trees in the locations proposed in the Reclamation Plan for transplanting trees to replace the trees that could not be transplanted due to site conditions, and to replace trees planted in 2013 that do not survive. The B&B white pines shall be a minimum 5 feet in height.
 35. The City or its consultant shall monitor the transplanted trees to ensure the survival rate required by the CUP.
 36. This Annual Operating Permit shall expire on March 31, 2015.
 37. The applicant shall pay all fees and escrows associated with this application.

ACTION REQUESTED:



Staff request that the Council review this report and approve the AOP at the meeting on February 18.

