

Table of Contents

Introduction.....	3
1.0 Site Information	4
1.1 Site Location	4
1.2 Topography and Drainage.....	4
1.3 Geology.....	5
1.4 Wetlands	5
1.5 Structures	5
1.6 Soils.....	5
1.7 Groundwater	6
1.8 Threatened and Endangered Species	7
1.9 Landscape	7
1.10 Cultural or Historical Resources.....	7
2.0 Mine Plan.....	8
2.1 Volumes	8
2.2 Methods of Resource Removal.....	9
2.3 Storm Water Management and Erosion Control.....	10
2.4 Temporary Erosion Control Vegetation Plan	12
2.5 Site Safety and Monitoring.....	13
3.0 Post Mining Land Use	13
3.1 Reclamation Measures.....	13
3.2 Revegetation Plan	14
3.2.1 Site Preparation.....	14
3.2.2 Stabilization Treatments	16
3.2.3 Reclamation Concept Plant List.....	16
3.2.4 Landscape Restoration Costs	17
3.3 Revegetation Standards.....	17
3.4 Criteria for Successful Reclamation	18
4.0 Certification of Reclamation Plan.....	19

Figures

Figure 1	General Site Location Map
Figure 2	Site USGS Topographic Map
Figure 3	Existing Five Foot Topographic Contours
Figure 4	Bedrock Geology
Figure 5	Soils
Figure 6	Surface Drainage
Figure 7	Groundwater Elevations
Figure 8	Historical & Archaeology Site Locations
Figure 9	Surrounding Property Ownership
Figure 10	Conceptual Proposed Mine Plan
Figure 11	Conceptual Reclamation Surface Contours

Appendices

Appendix I	Conditional Use Permit, Notice of Intent
Appendix II	NRCS Soil Type Details, WisDOT Standard Specifications, Natural Heritage Index Key

**NONMETALLIC MINE RECLAMATION PLAN
KENDALL KLEVGARD
GILMANTON TOWNSHIP
BUFFALO COUNTY, WISCONSIN**

Site Owner/Operator:

Kendall Klevgard
S788 State Road 88
Mondovi, Wisconsin 54755
(715) 946-3831

Plan Preparer:

Summit Envirosolutions, Inc.
1217 Bandana Boulevard North
St. Paul, Minnesota 55108
Contact: Tom Gapinske (651)842-4214

Introduction

This Nonmetallic Mine Reclamation Plan is prepared for the Kendall Klevgard Property located in the Town of Gilmanton, Buffalo County, Wisconsin. This plan has been prepared by Summit Envirosolutions, Inc. (Summit) on behalf of Kendall Klevgard in general accordance with Wisconsin Statute Chapter 295, Wisconsin Administrative Code Chapter NR 135, and Buffalo County Non-Metallic Mining Reclamation Ordinance Chapter 757.

Kendall Klevgard received a Conditional Use Permit for a nonmetallic mine in Gilmanton Township, Buffalo County, Wisconsin, located east of State Road 88 in Section 11, Township 23 North, Range 11 West. The parcel identification number of this property is 014-00284-0000, 014-00281-0000, 014-00287-0000, 014-02288-0000, and 014-00344-0000. It is projected that 575,000 tons of industrial sand will be transported off-site annually. The site consists of approximately 180 acres, of which approximately 75 acres will be progressively mined and reclaimed to agriculture. Mining will be accomplished to the extent practical, using earthmoving equipment, including a backhoe, dozer with ripper, and front-end loader.

Mining operating hours are listed in the CUP as 24 hours a day, 7 days a week. Summer (May 1st to October 31st) haul hours are 6:00 am to 8:00 pm, Monday through Friday, Saturday 7:00 am to 3:00 pm. Winter (November 1st to April 30th) haul hours are 7:00 am to 5:00 pm, Monday through Friday, Saturday 7:00 am to 3:00 pm. There will be no hauling of product on weekends April 1st to October 31st.

Progressive phasing will create the excavation program. There are seven phases in the mine development program that are approximately 9 to 13 acres each, encompassing approximately 75

acres. The phases will be utilized for excavation, stockpiles, haul roads, and equipment staging. Phases will be sequenced in a manner that the overburden and out of specification material will replace the excavated material, and temporary reclamation will be implemented to establish a vegetative cover, build soil structure and viability and aid in controlling erosion. Final reclamation will occur when the land will no longer be disturbed during the mining process.

Erosion control and storm water Best Management Practices (BMP's) will be implemented prior to excavation. Proposed mining will not take place within a 50 foot buffer from surrounding property boundaries. Mining will commence in the southeast of the property. Excavation of the material will take place within Phase 2 and progress to the northwest to Phase Three, which is adjacent to Highway 88. Excavation will then continue clockwise to Phase Seven (Figure 10). The sandstone will be excavated to approximate elevations of 840 to 850 feet Above Sea Level (ASL). Overburden and topsoil material will be used for the construction of berms that will aid in visual screening.

The following site information and reclamation plan are submitted on behalf of Kendall Klevgard to supply information regarding reclamation as required by the Buffalo County Nonmetallic Mining Ordinance Chapter 757.

1.0 Site Information

1.1 Site Location

Kendall Klevgard's property is the owner of approximately 180 acres, of which 75 acres will be phased for excavation, mining the sandstone and reclamation. The mine site is located in Gilmanton Township, approximately 1/4 mile northwest of Gilmanton town, adjacent to highway 88. It is located in in Section 11, Township 23 North, Range 11 West Gilmanton Township, Buffalo County, Wisconsin (Figure 1).

1.2 Topography and Drainage

Currently, the mine site is primarily agricultural and hardwood forests. Figure 2 presents a topographic map showing dendritic drainage patterns west into the Hadley Creek. The site is located within the Lower Buffalo Watershed. Surface waters will be contained on-site during mining operations or discharged consistent with an approved Wisconsin Department of Natural Resources (WDNR) stormwater management plan. Figure 3 presents five-foot topographic contours of the site based on the United States Geological Survey (USGS) National Elevation Dataset (NED).

1.3 Geology

According to the *Bedrock Geology of Wisconsin, West-Central Sheet* originally published by the Wisconsin Geological and Natural History Survey, the local bedrock geology is comprised of Cambrian-aged sandstone consisting primarily of coarse-grained quartz arenite sandstones of the Wonewoc Formation, which is underlain by shaly sandstone, siltstone, and shale of the Eau Claire Formation. A generalized bedrock geology map adapted from the *Bedrock Geology of Wisconsin, West-Central Sheet* is presented on Figure 4.

1.4 Wetlands

According to the Wisconsin Department of Natural Resources Surface Water Viewer, there are no wetlands or wetland indicators located on the site. Additionally, according to the Wisconsin DNR Surface Water Viewer, the site is not located within the 100 year flood plain of the Lower Buffalo River Watershed (Figure 6). **Prior to mining, wetlands on the proposed mining parcel will be delineated by a qualified professional.**

1.5 Structures

Located on the proposed mine site are approximately four manmade structures. The existing buildings will remain onsite.

Adjacent property owners within one half mile, based on available records, are presented on Figure 9 and are listed in Appendix I.

1.6 Soils

According to National Resource Conservation Service (NRCS) maps, 20 soil types are present on the mine site (Figure 5). These units are described in Appendix III and summarized below:

Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ar	Arenzville silt loam	12.6	7.10%
BoC2	Boone fine sand, 6 to 12 percent slopes, eroded	22.4	12.60%
BuB	Burkhardt sandy loam, 2 to 6 percent slopes	1.3	0.70%
CaB	Chaseburg silt loam, 2 to 6 percent slopes	1.4	0.80%
HfC2	Hixton fine sandy loam, 6 to 12 percent slopes, moderately eroded	44.2	24.80%
HfD2	Hixton fine sandy loam, 12 to 20 percent slopes, moderately eroded	12.4	7.00%
HsC2	Hixton loam, 6 to 12 percent slopes, moderately eroded	6.4	3.60%
HsD2	Hixton loam, 12 to 20 percent slopes, moderately eroded	3.3	1.90%
MeB2	Meridian fine sandy loam, 2 to 6 percent slopes, moderately eroded	16.5	9.20%
MmB	Meridian loam, 2 to 6 percent slopes	3.1	1.70%
MmB2	Meridian loam, 2 to 6 percent slopes, moderately eroded	3.5	2.00%
NfD3	Norden fine sandy loam, 12 to 20 percent slopes, severely eroded	6.5	3.60%
NoD2	Norden loam, 12 to 20 percent slopes, moderately eroded	2.7	1.50%
PfB2	Plainfield loamy fine sand, 2 to 6 percent slopes, eroded	0.5	0.30%
PfC2	Plainfield loamy fine sand, 6 to 12 percent slopes, eroded	0.1	0.10%
SpB	Sparta loamy fine sand, 2 to 6 percent slopes	18.7	10.50%
SpC2	Sparta loamy fine sand, 6 to 12 percent slopes, eroded	7.6	4.30%
TeB	Tell silt loam, 2 to 6 percent slopes	5.3	3.00%
Tm	Terrace escarpments, loamy	1.2	0.60%
UnF	Urne-Norden loams, 30 to 40 percent slopes	8.6	4.80%
Totals for Area of Interest		178.5	100.00%

The NRCS descriptions indicate that the majority of the site has A and B horizons comprised of fine sandy loam, silt loam and loamy fine sand with a total average thickness ranging from nine to sixty inches. Restoration soil estimates used in this permit have assumed a total topsoil thickness of 16 inches. A topsoil thickness for the A horizon of eight inches and a topsoil thickness for the B horizon of eight inches was used in the topsoil banking and reclamation balance considerations. During stripping and excavation in preparation for mining, the A and B horizons will be stockpiled and banked separately. Signage will be used to label the topsoil stockpiles in the field.

The soils report is included in Appendix III.

1.7 Groundwater

Based on observations made during subsurface assessment and the Generalized Water-Table Elevation Map of Buffalo County, Wisconsin Map (William G Batton and Alexander Zaporozec, Wisconsin Geological and Natural History Survey 2000), groundwater flow direction appears to be generally to the southeast. Groundwater elevations are shown on the map to range from 800 to 840 feet above sea level (ASL). In our opinion, it is likely that the surficial water table is below

an elevation of 800 feet ASL at the property, as water is only present in the drainage way bisecting the mining area during precipitation events with significant intensity and duration.

The mine floor for extraction of the sandstone resource from the mine site is anticipated to be at an elevation of 840 feet ASL. This elevation will be adjusted as necessary to maintain a minimum separation of 10 feet between the groundwater elevation and the mine floor based on conditions encountered during excavation activities.

1.8 Threatened and Endangered Species

The Wisconsin DNR Natural Heritage Inventory (NHI) database was reviewed for the occurrence of threatened and endangered species in relation to the proposed development at the Klevgard site. The database was specific to the Township and Range location within Buffalo County when compared to the Klevgard site.

Township 23 North Range 11 West					
Scientific Name	Common Name	State Status	State Rank	Global Rank	Group Name
<i>Artemisia frigida</i>	Prairie Sagebrush	SC	S2	G5	Plant
<i>Carx torreyi</i>	Torrey's Sedge	SC	S1	G4	Plant
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC/P	S4B, S4N	G5	Bird
<i>Notropis texanus</i>	Weed Shriner	SC/N	S4B, S4N	G5	Fish
<i>Ophiogomphus smithi</i>	Sioux (Sand) Snaketail	SC/N	S2	G2G3	Dragonfly

The NHI review indicates there five species of concern within the WDNR's working list with the NHI Program. The entire NHI list is located in Appendix III.

1.9 Landscape

The site is located within the Western Coulee and Ridges Ecological Landscape. The Coulee and Ridges Landscape is the largest of Wisconsin's Ecological Landscapes. The sites current vegetation is made up of a mix of agriculture and forest.

Typical wildlife in the area includes deer, raccoon, coyote, bear, fox, rabbit, ruffed grouse, wild turkey, Red-tailed Hawk, Barred owl, Northern Flicker, Blue Jay, American Crow, Black-capped Chickadee, White Throated Sparrow, Northern Cardinal, Brown-headed Cowbird and the Purple Finch.

The current vegetative data for this site was determined through visual observation. Native vegetation is mixed deciduous forest with oaks being the dominant species; Red Oak, White Oak, Burr Oak, Red Maple and Black Cherry are also present. Shrubs include, brambles, Gray Dogwood, Elderberry, Gooseberry, American Hazelnut and Buckthorn. Frequent herbaceous species are Wild Geranium, False Solomon's Seal and Hog Peanut.

1.10 Cultural or Historical Resources

The Wisconsin Historic Preservation Database (WHPD), which houses and allows users to access up-to-date information within the Wisconsin Historical Society's Archaeological Sites Inventory (ASI), Architecture and History Inventory (AHI), and the Bibliography of Archaeological Reports (BAR), was accessed on October 28, 2013, in order to research previously identified archaeological and architecturally historic cultural resources within or adjacent to the property boundary. Based on the current ASI and AHI information, two historic properties, BF-0150 and No. 2438, have been previously identified on or near the Klevgard property as shown on Figure 8.

Site BF-0150 (Meyers II) comprises a prehistoric campsite/village containing Archaic and/or Woodland components located in the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 14, T23N, R11W, on a terrace north of Elk Creek near the southernmost end of the Klevgard property. In 1987, it was reported that a "concentration of artifacts," including corner-notched projectile points, had been recovered from the site, and additional field investigation was recommended at that time. There will be no ground-disturbing activities to take place in the vicinity of the artifacts.

Architectural-history property No. 2438 is located within the Klevgard property on the east side of State Highway 88 in the SW $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 11, T23N, R11W. This historic residence comprises a two story cube clapboard house with small square windows in the gables and gabled wall dormers that project from a central hip roof. There will be no ground-disturbing activities to take place in the vicinity of the architectural-history property.

Based on the BAR data, no archaeological survey has been previously conducted within or adjacent to Klevgard's property.

2.0 Mine Plan

2.1 Volumes

The total estimated resource volume for raw sandstone is approximately 6.7 million tons. The sandstone volume was estimated using an approximate thickness of 40 feet based on information supplied by Mr. Klevgard. Topsoil A-Horizon and B-Horizon soil volumes were estimated using thickness discussed in section 1.6. Volume and tonnage estimates are summarized below:

Phase	Phase Area (acres)		~8" Topsoil A Horizon (yd3)	~8" Topsoil B Horizon (yd3)	~Overburden (yd3)	Reclamation Material Available (30% Raw Material) (<#70 - yd3)	Estimated Raw Sandstone (tons)
1	10		10,000	10,000	0	190,000	892,000
2	13		13,000	13,000	0	244,000	1,140,000
3	11		11,000	11,000	170,000	381,000	970,000
4	9		9,000	9,000	143,000	314,000	800,000
5	12		13,000	13,000	198,000	435,000	1,107,000
6	9		9,000	9,000	140,000	309,000	785,000
7	11		12,000	12,000	180,000	394,000	1,000,000
Total	74		77,000	77,000	831,000	2,267,000	6,694,000

2.2 Methods of Resource Removal

Excavation will begin once the storm water best management practices are installed, stockpile areas and haul roads are constructed. Mining will be accomplished to the extent practical using earthmoving equipment such as backhoes, dozer with a ripper, and a front-end loader. Machinery will utilize white noise back-up alarms, if possible.

Mining will consist of 7 phases, each 9 to 13 acres in size. The phases will be mined in smaller portions, approximately one acre at a time, resulting in smaller disturbed area and a more controlled operation. The mining will commence with the stripping of topsoil and overburden. As the final depth is reached, reclamation will be initiated after each 1-acre of mining is completed. There are reportedly 4,780,000 cubic yards of industrial sand that is accessible on this property. The proposed average annual quantity of sand removal from the mine is approximately 575,000 tons. Following sandstone removal, slopes will be reclaimed to 3:1.

Proposed hours of the mining operation are listed as 24 hours a day and 7 days a week as presented in the Conditional Use Permit (Appendix I).

Blasting, if required, will be completed in compliance with Federal, State and local laws and ordinances. Blasting will be limited to the hours between 10:00 AM and 2:00 PM and notice will be given to residents within half a mile a minimum of 24 hours prior to blasting.

The mine floor is anticipated to be at an approximate elevation 840 feet to 850 feet ASL. Groundwater is predicted to be at an approximate elevation of 800 to 840 feet ASL.

Storm water runoff will be controlled following the Storm Water Pollution Prevention Plan (SWPPP) that will be prepared by a professional engineering firm and approved by the WDNR.

Figure 10 presents the conceptual mine plan. The operation plan calls for 7 separate phases each approximately 9 to 13 acres, together totaling approximately 75 acres. Mining activities will begin in Phase 1 and concurrently proceed to Phase 2. In Phase 1, trees will be clear cut and removed from the area. Topsoil and overburden will be removed and stored. A and B soil horizons will be stockpiled separately. Scrapers, bulldozers, backhoes, and dump trucks shall accomplish topsoil removal as needed to recover as much of the existing topsoil as possible. Silty subsoil will be stockpiled separately to be used later as subsoil backfill in the reclamation process.

Once the sandstone has been removed, the sidewalls will be reclaimed at a 3:1 slope utilizing the overburden and out of specification material. Reclamation will be initiated once one acre has been completed, allowing for minimal surface disturbance at one time. This will be the same operational activities that will take place for the subsequent six phases.

Setback distances are defined below and will be maintained throughout the project.

Feature	Setback (feet)
Highway 88	100
Property Boundaries	50

Topsoil and excavated overburden will be placed in separate berms within the 50 foot property setback. These earthen berms will be constructed with a 3:1 slope and an anticipated height of 3 feet. To the extent possible, the A and B horizons soil berms will be isolated during the stripping operation and seeded with a protective starter vegetative cover. These berms will serve as both site screening and material storage for final reclamation. Overburden material will be stockpiled adjacent to the topsoil berms, as shown on Figure 10.

The mine floor will be reclaimed to an approximate elevation of 850 and will be reclaimed to a gently rolling 10:1 floor. The sides will be reclaimed to a 3:1 slope or less.

2.3 Storm Water Management and Erosion Control

A detailed erosion and sediment control plan and Storm Water Pollution Prevention Plan (SWPPP) will be prepared and approved by the WDNR. Storm water will be totally controlled on-site during mining operations and retention structures will control off site discharges consistent with pre-mining conditions. Storm water Discharge permits and Runoff management will comply with NR 216 and NR 151, respectively.

Prior to construction or mining within a drainage area, the offsite receiving areas will be protected by the installation and construction of the appropriate erosion control BMPs and storm water collection ponds. Erosion control BMPs and storm water ponds will be installed according to the guidelines provided in the WDNR Technical Standards (Appendix III). Storm water basins will be maintained to collect surface water run-off from onsite drainage areas.

Diversions channels will be installed to route storm water run-off to the constructed storm water basins, where necessary to protect offsite drainage areas. Temporary erosion control measures employed at the site may include (WDNR Technical Standards are in parentheses and a copy can be found in Appendix III):

- Mine roads outside the active mine area will employ silt fence or lined channels as necessary (Silt Fence - 1056, Channel Erosion Mat – 1053)
- Erosion bales and sediment logs will be placed as ditch checks in swales and ditches (Ditch Checks – 1062, Sediment Bale Barrier – 1055)
- Silt fence will be installed at road perimeters, the edges of berms and stockpiles around the wet plant area and outside the active mine area where it is not protected by previously installed erosion control measures (Silt Fence – 1056)
- Seed and mulch will be applied on berms, permanent stockpiles, diversions, channels, road slopes, pond slopes located outside the active mine area, and mine area that is no longer active (Seeding – 1059, Mulch - 1058)
- Temporary erosion control seeding is discussed in Sec 2.3
- Final reclamation seeding is discussed in Section 3.2.2
- Erosion mats will be placed in concentrated flow channels and on slopes greater than 4: 1 (Channel Erosion Mat – 105, Non-channel Erosion Mat – 1052)
- Rock rip-rap will be placed where necessary as ditch checks, channel liners, and at inlet/outlet structures (Ditch Checks — 1062)
- Stone tracking pads will be used at the site access point during initial construction. The site access road entrance will be paved to prevent off-site sediment deposition (Stone Tracking Pad — 1057)

Erosion control BMPs will be inspected weekly and within 24 hours after rainfall events of ½ inches or greater until the drainage area has been either temporarily or permanently reclaimed. In the event of slope failures, failed seeding, or persistent erosion problems, additional BMPs will be assessed and applied where practicable. BMPs may include hydro seeding, silt fence, erosion control mats, turf reinforcement mats, water diversions, rock-lined chutes, slope breaks, soil stabilizers, and inlet protection.

Storm water on the proposed project site is regulated by the WDNR and Buffalo County. Mine operation shall be conducted in a manner that assures compliance with applicable water quality and storm water management requirements.

2.4 Temporary Erosion Control Vegetation Plan

A temporary stabilization seed mix, followed by mulching will be used to provide erosion control, where disturbed areas require vegetation and are not at final reclamation grade or at prime season (spring or fall). Winter Rye will provide fast-growing vegetative cover as well as nitrogen to the soil. Hay and straw mulches will be applied using a conventional blower and then crimped in. On steeper slopes, the mulch will be tacked in perpendicular to the slope. A nurse crop may be necessary where seeding must be performed outside of the normal growing season. The temporary stabilization seed mix will include species such as, Tall Fescue, Perennial Ryegrass, Hard fescue and Kentucky Bluegrass.

Seeding will be performed using the best available methods for each disturbed area and will follow procedures described in Section 630 of the Wisconsin Department of Transportation Standard Specification for Highway and Structure Construction (2011 Edition) (WisDOT Standard Specifications, Appendix III). The seed will be spread at a rate of approximately 50 pounds per acre. After seeding, areas will be mulched using the best available methods and will follow procedures described in Section 627 of the WisDOT Standard Specifications (Appendix III).

2.5 Site Safety and Monitoring

Measures that address public safety on and off site, such as warning signs and fencing will be implemented according to United States Department of Labor Mine Safety and Health Administration (MSHA), Occupational Safety and Health Administration (OSHA), and WisDOT standards. The property lines of active phases will be clearly identified and posted with warning signs at 50-foot intervals. The entrance will be secured by a locked gate of sufficient size to preclude vehicular access.

Dust control will be implemented consistent with NR 415.075.

Noise will be monitored upon request at the active mine phase at property boundaries of adjacent landowners. If noise exceeds 60dbs, implementation of berms, trees, or other suitable measures will be used to minimize the noise impacts.

3.0 Post Mining Land Use

The reclamation concept will be to create more tillable acreage as the sandstone-containing slopes are mined and restored. The final landscape of the mine site will include a gently rolling reclaimed mine floor area that will be reclaimed into agriculture. Sidewalls will be reclaimed to a 3:1 slope and the reclaimed surface will be graded to achieve a gently rolling landscape suitable for agriculture. Post mining drainage patterns are shown on Figure 11. **The land will be reclaimed back to an agricultural use with no slopes greater than 3:1, therefore, there are no anticipated long-term safety issues associated with the reclamation. No structures or roads built for mining purposes will remain after reclamation, except that haul roads may be maintained as field roads in a similar configuration to existing, pre-mining conditions.**

3.1 Reclamation Measures.

Mining refuse will be reused whenever possible. Other solid wastes will be disposed of in accordance with applicable rules of the Wisconsin Department of Natural Resources adopted pursuant to Chapters 289 and 291 of the Wisconsin Statutes.

The site will be reclaimed in a manner so as to comply with federal, state and local regulations governing public health, safety and welfare.

Reclamation will comply with any other applicable federal, state and local laws including those related to environmental protection, zoning and land use control.

Phase 1 will be active during the lifetime of the progressive mining program. Soil and overburden stockpiles will be seeded within 72 hours. Out of specification material from the material conveyed to the site will be used to reclaim a natural rolling landscape to eventually promote natural drainage toward Hadley Creek.

Haul roads will be designed to create access to new phases, leaving prior excavated phases undisturbed, allowing a succession of final reclamation to begin as soon as possible. Final reclamation plans of particular phases will be designed appropriately for elevation, slopes, surface water detention and drainage patterns, and the pre-existing conditions.

As restoration efforts begin, out of specification material and overburden will be used for fill material to establish necessary grades. The stockpiled soil will be returned to the reclaimed phase and the A horizon soils will be returned to the uppermost soil position. At a minimum, eight inches of top soil will be placed, disked and raked after final grading on each reclamation area.

Slopes which will be no steeper than 3:1 will be seeded, mulched, and protected from erosion using WisDOT and NRCS BMPs (Appendix III). A combination of silt fencing, hay bales, and ditch checks will be placed around areas with newly-placed topsoil to help minimize loss of soil and to protect on-site surface water.

The mine floor will be reclaimed with 3:1 side slopes to intercept undisturbed areas. The top of the reclaimed surface will be graded to a slightly rolling surface suitable for planting agricultural crops and pastures.

Soil and topsoil will be hauled from excavation areas or stockpiles via truck and will be worked using dozers, graders and or skid loaders to achieve rough grades and final grades. Water will be used to control dust and aid in compaction. Topsoil will be watered but not otherwise compacted.

3.2 Revegetation Plan

The objective of the revegetation plan is to reclaim the environment to agricultural crop land. Intermittent reclamation species may include alfalfa, clover and forage grasses.

Depending on the amount and viability, the stockpiled subsoil and topsoil will be replaced on the material used to reclaim the excavated phases. The steepest slopes will be less than 3:1.

Figure 11 illustrates the generalized reclamation surface that will be implemented on the site.

3.2.1 Site Preparation

Stockpiled subsoil and topsoil will be sprayed at least twice per year to prevent the establishment of weeds. The soil profile (subsoil and a minimum of 8 inches of topsoil) will be replaced throughout the site. During replacement, the subsoil and topsoil will be tilled up to 24 inches to break up compaction, increase rooting depth and create surface stability. Topsoil will be placed with the care to maintain the horizon sequence to the extent possible. Soil tests providing information such as pH, organic matter content, soil texture, and levels of nitrogen, potassium and phosphorous will be used to develop soil amendments, such as compost and fertilizer, considerations. Amendments, seeding and planting will be carried out using local NRCS recommended technical guides.

3.2.2 Stabilization Treatments

Forage grasses, winter and annual ryegrass seeding will be completed into graded, disked and cultipacked areas within 72 hours of topsoil reapplication. Mulch will be applied to all seeded areas greater than a ten percent slope, in accordance with WisDOT standards (Appendix III). Sodding, rip-rap, or other appropriate measures may be used in drainage-ways or critical erosion areas. Stabilization treatments requiring ongoing maintenance (e.g. silt fence) will not be used during final reclamation activities.

At minimum, inspections will take place within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24 hours period. Until vegetation is densely established the stabilization treatments will be inspected weekly during the growing season.

3.2.3 Reclamation Concept Plant List

All Purpose Temporary Pasture Seed Mix

Common Name	Scientific Name	Composition
Grasses		
Premium Medium-maturing Orchardgrass	<i>Dactylis glomerata</i>	25%
Premium Endophyte-free Tall Fescue	<i>Festuca arundinacea</i>	25%
Premium High-sugar, Tetraploid Perennial Ryegrass	<i>Lolium perenne</i>	25%
Climax Timothy	<i>Phleum pratense</i>	25%

3.2.4 Landscape Restoration Costs

Landscape restoration costs were calculated based per acre basis as summarized below:

Mine Area Financial Assurance

Reclamation Item	Description	Units	Cost Per Unit	Number of Units	Amount (\$)
A. Topsoil	Topsoil Regrading	YD3	\$1.30	154,000	200,200
B. Revegetation Plan	Soil Prep - Discing	Acre	NA	75	0
*Interim Phase	Hydroseeding	Acre	\$200.00	75	15,000
	Mulch	Acre	\$800.00	75	60,000
	Organic Matter/ Fertilizer	Acre	\$75.00	75	5,625
*Final Revegetation	Soil Prep - Discing	Acre	\$200.00	75	15,000
	Seed Costs	Acre	\$150	75	11,250
	Seed, Fertilize and Mulch	Acre	\$100	75	7,500
C. Erosion Control	Erosion Mat on Slopes	Acre	\$2,080	20	41,600
D. Maintenance and Monitoring	Annual Inspections	Annual	\$2,000	10	20,000
Total Financial Assurance					\$376,175
*Total Estimated Financial Assurance Cost per Acre					\$5,015.67

*Total Financial Assurance Cost per Acre is based on 75 Acres

Unit descriptions per reclamation item:

- A. Topsoil Units: Approximately 8” Topsoil for A horizon, and 8” Topsoil for B horizon.
- B. Revegetation Plan: Maximum disturbed acreage based on current mine plan.
- C. Erosion Control: Acres that will be reclaimed to a 3:1 slope. This does not include erosion mats on soil and stockpile berms.

3.3 Revegetation Standards

Monitoring and management of revegetation establishment will be carried out for five years, in compliance with NRCS Critical Area Planting Code 342 (Appendix III), the project’s objectives, and to correct results in order to meet successful reclamation criteria. Specific sampling units on

reshaped vegetated slopes and in open seeded areas will be identified and monitored yearly via seasonal field visits and using field forms and logged photo point documentation.

Monitoring will include establishment of sample plots on the site at the rate of one plot per 10 acres. Each plot will be a circular area with a radius of approximately one meter. Monitors will measure moist bulk density and soil strength of reconstructed soil. Testing of macro nutrients, such as nitrogen, phosphorous, potassium, calcium, magnesium and sulfur, as well as trace elements including iron, manganese, copper and zinc will be performed.

If the inventory indicates soil compaction or a lack of nutrient concentrations that promote successful plant growth, incorporation of soil amendments such as deep tillage or ripping and application of necessary organic amendments such as manure, compost and mulch will be applied. Buffalo County will be notified prior to completion monitoring events. This site specific monitoring and reporting will be completed by Summit.

3.4 Criteria for Successful Reclamation

Annual inspections will be conducted by Summit. In addition, seasonal, on site-inspections during years 1, 3 and 5 will be documented through reports and photo monitoring to evaluate the following protocols:

1. Soil Characteristics (viability for agriculture)
2. Agricultural yield after a harvest year comparable to regional yields
3. Less than 5% invasive species cover
4. Greater than 85% viable vegetative cover

An annual reclamation report and activities plan will be prepared and submitted by March 1st of each calendar year. The report will be developed to meet the requirements of NR135.36 and will include information to document:

- The extent of current mine development.
- The existing groundwater elevations, as recorded quarterly at the groundwater monitoring wells.
- The results of reclamation and storm water facility site inspections completed during the reporting period.
- The results of storm water discharge monitoring.
- The reclamation and storm water management activities planned during the next calendar year.
- A daily record of the type, volume, and use of material brought to the mine for reclamation.
- Reevaluation of financial assurance based on past year's operation

This report and activity plan will be used by the mine operator and regulatory authorities to systematically record, plan, and schedule construction activities that will be used to meet

reclamation performance standards, schedule operational inspections and maintenance activities, and systematically document for the public, site conditions, and current compliance with permit conditions

These proposed final post mine land uses comply with applicable current federal, state and local laws.

4.0 Certification of Reclamation Plan

The owner hereby certifies that reclamation will be carried out in accordance with the reclamation plan and that the post mining land use complies with federal, state, and local laws in effect at the time of the submittal.

Kendall Klevgard
Owner/Operator