

**NON-METALLIC MINING RECLAMATION PLAN  
“124 PIT“**

**Operator:** Chippewa County Highway Department

**Owner:** Chippewa County

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**Summary**

This reclamation plan has been developed to provide information about the existing site of the proposed mine, the proposed site operations, and how the mine will be reclaimed to the proposed post mining land use.

This reclamation plan is for a 37.1 acre mine located on the east side of State Highway 124, 0.4 miles south of State Highway 64. The land is currently an inactive mine. The site has already been stripped of topsoil for a majority of the mine area.

The operator will mine sand and gravel that is located on stream sediment of the Copper Falls Formation. A majority of the site will be mined below the water table and reclaimed as a wildlife pond. The remainder of the site will be reclaimed to wildlife habitat.

**A. Site Information**

**1. Landowner**

Landowner: Chippewa County  
Address: 711 N. Bridge St.  
City, State, ZIP: Chippewa Falls, WI 54729

Applicant: Chippewa County Highway Department  
Address: 711 N. Bridge St.  
City, State, ZIP: Chippewa Falls, WI 54729

**2. Lease:**

There is no lease. Operator and landowner are the same.

**3. Legal Description**

Tax Parcel Number(s): 23008-0523-00020000

Described as follows: S 1/2 OF W 1/2 OF NW 1/4 OF SECTION 5, T20N, R08W. SW TO NW EXCLUDE 1.35 ACRES FOR STATE HWY 124 & EXCLUDE THE S 22' FOR ACCESS

**4. Property Owners Within 660 Feet of Project Site**

State of Wisconsin - DOT	Charles F III ETAL Morning & Delores Morning	Raymond J & Lanna B Michels
Leonard & Joseph Sykora	Mathy Construction Co.	Daniel L Bischel
Cathy A Morning		

**5. Soil Information**

Soil Survey of Chippewa County shows the soils at the mine site are mapped as follows. Approximately 28.5 acres of the mine site are mapped as Pits, gravel (Pc). Approximately 0.5 acres of the mine site are mapped as Chetek-Mahtomedi complex, 12 to 25 percent slopes, eroded (CkD2). Approximately 3.3 acres of the mine site are mapped as Chetek sandy loam, 2 to 6 percent slopes (CkB). Approximately 4.8 acres of the mine site are mapped as Chetek sandy loam, 6 to 12 percent slopes, eroded (CkC2).

During site investigations the operator documented the following soils horizon thicknesses in the area to be mined.

A horizon – 0-6 inches of topsoil

B horizon – Pits, gravel (Pc)

Almost all of this topsoil has already been removed in past mining activities.

**B. Site Operations**

**1. Description of Materials to be Extracted**

Sand and gravel products will be extracted and processed at the site.

**2. Extraction and Processing to be Conducted at the Site**

A driveway will be installed along the northern mine boundary off of State Highway 124. Sand & gravel will be mined, crushed, washed, and removed from the site. A portable crushing & washing plant will be used to process the material and stockpile it on site. Materials within the mine will be excavated and transported using bulldozers, excavators, draglines, dump trucks, front end loaders and conveyors.

Sand and gravel will be excavated from the mine above the water table in one lift approximately 4 feet deep. An area in the floor of the mine will be excavated below the water table to create one large pond. No flocculants or other chemicals will be used to support sand and gravel processing.

Mining will begin at the base of the existing berms that surround the mine site on the west

and south sides. The existing berms have 3:1 side slopes that will not be disturbed. The berms have a good growth of pine trees that create a vegetative screen. These pine trees surrounding the mine on the west and south sides will remain in place. Additionally, a small grove of pine trees exist on the north side of the mine at the entrance that will remain in place as well.

Good, un-contaminated, topsoil may be brought on-site and stockpiled for the purpose of on-site reclamation or for use on off-site Chippewa County Highway Department roadway projects. Additionally, the Highway Department may store typical highway construction materials (such as guardrail, culvert pipe, un-contaminated clay fill material, etc...) onsite for future use.

**3. Volumes of Materials**

A sequence of mine Cells are planned to systematically mine and reclaim the site. The anticipated area of disturbance and estimated volume of raw materials to be removed during the life of the mine is as follows.

Cell	Area (acre)	During 1 <sup>st</sup> two years (cubic yards)	During Full Life of Operation (cubic yards)*
1	6.77	160,000	371,900
2	6.16	0	338,500
3	7.51	0	412,600
4	6.88	0	378,000
5	5.50	0	302,000
Total	32.82	160,000	1,803,000

\*10% swell factor for sand & gravel

**4. Site Dewatering and Effluent Discharge**

This will be an internally drained site. No site dewatering or effluent discharge will take place. It is anticipated that sand and gravel will be mined below the water table in Cells 1 through 5.

**5. Stormwater Permits/Management**

The operator will obtain a Wisconsin DNR Nonmetallic Mining stormwater permit and manage stormwater in accordance with the standards established in the permit. At a minimum stormwater will be contained within the mine boundaries for all rainfall events up the 10 year, 24 hour frequency storm (4.1 inches).

Existing soil berms around the east, west and south perimeter of the existing property were created during the initial topsoil stripping and have been stabilized and are used to contain and direct stormwater runoff towards the excavated floor of the mine where it will infiltrate. Stormwater will be managed this way over the entire life of the mine. A notice of intent will be sent to the DNR.

## 6. Erosion Control & Permits

All topsoil and subsoil stockpiles will be graded to a slope of 3:1 or flatter and stabilized as soon as conditions allow to conserve soil and limit erosion. Berms will be stabilized using best management practices including seeding, mulching, erosion control mat, hydro-seeding, etc. Erosion and sediment control best management practices will be installed as determined by the current Wisconsin Erosion Control Product Acceptability List (PAL) found on the WisDOT website and the Channel and Slope Erosion Control Matrices (Appendix D).

## 7. Reclamation Activities During Operations

A process of contemporaneous reclamation will be used to systematically mine and reclaim the site. Under this process the site will be reclaimed as soon as possible after materials have been extracted and processed using the planned Cell sequence.

Cell 1 will be restored as Cell 2 is being mined. Cell 2 will be restored as Cell 3 is being mined. Cell 3 will be restored as Cell 4 is being mined. Cell 4 will be restored as Cell 5 is being mined. Cell 5 will be restored at the completion of mining operations.

At the beginning of the mining operations for each Cell any of the remaining topsoil (estimated 0-6 inches) will be stripped and stockpiled in berms. Mining operations will then excavate, process, and remove sand and gravel from the site.

Upon completion, soils testing will be performed following procedures established in the Wisconsin Nutrient Management Standard 590 to determine the organic matter, phosphorus, potassium and pH. Soil amendments (including lime and fertilizer) will be applied based on the soil test results to meet the fertility requirements needed to achieve the intended post mining land use.

The site will then be seeded. Areas with slopes steeper than 10:1 will have straw mulch applied. Areas flatter than 10:1 will not receive mulch.

Reclamation test plots will be established within the first two years of mining. Test plots will be established for each post mining land use. These test plots will be monitored and used to help determine success in future areas of mine reclamation.

## 8. Timetable/Sequence of Operations

The following periods of operation/extraction are estimated and may increase or decrease based on Highway Department projects and planning.

<u>Location</u>	<u>Activity</u>
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Cell 1	Plant will be set and we will mine and establish the initial stockpile and plant area. We will start on the east boundary of Cell 1 and mine towards the west until we reach the Cell 2. This will take approximately 5 years.
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Cell 2	The operator will set and pile on the north side of Cell 2. Then we will mine out the initial area from south to north. This will take approximately 3 years. We will restore the east and south boundaries of Cell 1 during this time.
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- Cell 3      The operator will set plant in Cell 3 on the west side. Then we will mine Cell 3 from east to west. This will take approximately 3 years. We will restore the south and west boundary of Cell 2 during this time.
- Cell 4      The operator will then set the plant in Cell 5 on the west half, and mine Cell 4 from south to north. This will take approximately 3 years. We will restore the east boundary of Cell 3 during this time.
- Cell 5      The plant will remain in Cell 5 on the west half, and the operator will mine from east to west. This will take approximately 3 years. We will restore the west boundary of Cell 4 during this time.
- Final      Upon completion of Cell 5 mining, the operator will restore the north, east and west boundary of Cell 5.

**9. Timetable**

Estimated period of operation/extraction for each cell:

Cell 1	5 years
Cell 2	3 years
Cell 3	3 years
Cell 4	3 years
Cell 5	3 years
<b>Total</b>	<b>17 years</b>

These periods of operation/extraction are estimated and may increase or decrease based on Highway Department projects and planning.

**C. Final Site**

**1. Disposition of Structures and Roads**

A gravel paved driveway approximately 100 feet long will remain in place at the location of the mine access road connection to State Highway 124. The driveway will provide access to the wildlife habitat area.

Structures such as the scale house and scale will be removed prior to final reclamation. The pond created in Cells 1 through 5 will remain in place as shown on the Final Site Map. There are no areas of concentrated flow entering, leaving, or within the reclaimed mine site.

**2. Soil Reapplication & Reconditioning**

Overburden piles will be leveled off or used on slopes. This work will be done with scrapers or bulldozers. Slopes will be stabilized using best management practices including seeding, mulching, erosion control mat, hydro-seeding, etc. Erosion and sediment control

best management practices will be installed as determined by the current Wisconsin Erosion Control Product Acceptability List (PAL) found on the WisDOT website and the Channel and Slope Erosion Control Matrices (Appendix D).

Any available topsoil material will then be removed from the berms with excavators or loaders and transported in dump trucks to the sloped areas in the mine to be reclaimed. Trucks will be routed to limit traffic over areas where subsoil or topsoil has already been applied. Trucks will dump topsoil and bulldozers will spread the material to be up to 6 inches thick on the slopes of the mine. The use of tracked equipment while spreading topsoil will limit soil compaction.

In the event that rubber tire equipment cannot be routed to prevent topsoil compaction deep tillage equipment will be used to alleviate compaction in the upper 12 to 14 inches of the soil profile.

Existing evergreen trees around the mine will be left in place. However, trees on the east boundary may be removed if a connection is made between the future pond and the future adjacent mine site pond.

Soils testing will be performed following procedures established in the Wisconsin Nutrient Management Standard 590 to determine the organic matter, phosphorus, potassium and pH. Soil amendments (including lime and fertilizer) will be applied based on the soil test results to meet the fertility requirements needed to achieve the intended post mining land use.

### **3. Safety Assurances**

Given the slopes on the reclaimed mine site and the post mining land uses there are very limited safety concerns. The pond will have a 3:1 slope that extends 6 feet below the water line. Areas reclaimed as Wildlife habitat will have 3:1 slopes.

### **4. Seeding Plan**

Seeding will be selected to achieve the post mining land use that is planned for each designated area. Areas that will be reclaimed to wildlife habitat will be seeded to native grasses. Seed will be broadcast seeded and rolled to improve seed – soil contact. DNR Seed Mix 2 will be used in these areas. The wildlife pond area will be allowed to vegetate below the water line using natural seed distribution without seeding by the operator.

### **5. Future Use**

The mine site will be reclaimed to establish three different post mining land uses including upland grassland wildlife habitat, wildlife pond habitat, and low density residential. A one acre building pad will be constructed in the northeast corner of the site and will also be suitable for well and septic. The approximate location of each post mining land use is shown on the Final Site Map.

### Upland Grassland Wildlife Habitat Post Mining Land Use

Steep slopes around the perimeter of the mine will be reclaimed to an Upland Grassland Wildlife Habitat.

The proposed performance measures used to determine reclamation success are:

- a. The establishment of a mine soil profile with a minimum pH of 6 to 8 and organic matter greater than 1 percent.
- b. The establishment of target soil chemistry and fertility to achieve and sustain the post mining land use.
- c. 75% or more of select plant species are present, 25% or less are weeds, and 2% or less are invasive weeds as measured following standardized methods during and at the end of the established performance period.
- d. A minimum of 70% ground cover during the growing season.
- e. No visible erosion (rills, gullies, sluffing, etc.).
- f. Attainment of “tolerable (sustainable) levels” of select noxious weeds and invasive species as measured following standardized methods during and at the end of the growing season.

### Wildlife Pond Habitat Post Mining Land Use

Areas of the mine that are below the water table will be reclaimed as a Wildlife Pond.

The proposed performance measures used to determine reclamation success are:

- a. The establishment of irregular shorelines that vary in shape and slope.
- b. The establishment of shoreline slopes that vary from 3:1 to 10:1 and extend a minimum of 6 feet vertically below the water line.
- c. The establishment of a minimum of 6 inches of topsoil placed along the shoreline and on the slope a minimum of two feet vertically below the water line to encourage vegetative growth.
- d. The presence of aquatic vegetation along the shoreline.
- e. No visible erosion (rills, gullies, sluffing, etc.).
- f. Attainment of “tolerable (sustainable) levels” of select noxious weeds and invasive species as measured following standardized methods during and at the end of the growing season.

The approach that will be used to manage and monitor the disturbed areas will be defined in a Soil Rehabilitation and Vegetative Management Plan. At a minimum the Soil Rehabilitation & Vegetative Management Plan shall describe the management practices methods and techniques that will be used to:

- Recondition the disturbed “mine soil” to assure the success of the vegetative planting and the sustainability of selected plant communities and associated wildlife habitat.
- Monitor and control noxious weeds and invasive species to target levels.
- Limit or otherwise actively manage the reclaimed area for anticipated plant species that will occur through natural succession.

The criteria that will be used by the County to measure reclamation success include species diversity, plant density, biomass, soil chemistry and fertility, and soil organic matter.

In order to achieve the prescribed post-mining land use the operator will implement a reclamation program to reclaim, manage, and monitor the reclaimed areas for a prescribed performance period.

Upon reclaiming any portion of the site the post-mining land use specified in the reclamation plan shall be maintained while the mine site is under the permit.

In evaluating whether areas subject to reclamation meet the evaluation criteria and performance measures the County may consider the results of onsite test plots established at the site; or the extent of site restoration and ecological development achieved as compared to existing upland grassland wildlife habitat monitoring sites or reclamation research test plots that have been previously established for this purpose in the surrounding area.

The criteria that will be used by the county to measure reclamation success include species diversity, plant density, biomass, soil chemistry and fertility, and soil organic matter.

Attachments

Location Map with DNR Wetlands..... Appendix A  
Parcel Map..... Appendix B  
Soils Map..... Appendix C  
Erosion Control Matrices..... Appendix D