



# LAND INFORMATION DEPARTMENT

John Lefebvre  
*Director*

Greg Cleereman  
*Conservationist*

Tina Barnes  
*Property Lister*

## AGENDA LAND INFORMATION COMMITTEE

DATE: Monday, February 11<sup>th</sup> 2013

TIME: 9:00 a.m.

PLACE: Jury Assembly Room # A027 - Marinette County Courthouse Annex

1. Call meeting to order
2. Approve agenda
3. Approve minutes of the January 14<sup>th</sup> 2013 meeting.
4. Public Informational Hearing
  - Non-Metallic Mining Reclamation Plan -NE1/4 SE1/4 S23 T38N R20E, Town of Niagara**
    - Open Informational Hearing
    - Presentation of Proposed Reclamation Plan
    - Accept Public Comments Concerning Proposed Reclamation Plan
    - Close Hearing
    - Discuss/consider proposed reclamation plan for Non-Metallic Mining Site located in the NE1/4 SE1/4 S23 T38N R20E, Town of Niagara. Action, if any.
5. Public Comment - Any person desirous of addressing the Committee on any subject under the Committee's jurisdiction shall first obtain permission from the Committee Chairperson. All such addresses shall be limited to 5 minutes unless otherwise extended by the Committee Chairperson.
6. Reports by cooperating agencies. Action, if any.
  - UWEX – Harmony Arboretum Schedule of Events
7. Discuss/consider the installation of an onsite leachate treatment system Marinette County North County Landfill and the funding for project. Action, if any.
8. Discuss/consider Resolution Supporting Restoration of Base-Level Funding as Recommended by the Wisconsin Counties Association and Wisconsin Farm Bureau and draft letter to Governor Walker and Marinette County's State Representatives requesting their support for restoration of the base funding levels. Action, if any.
9. Discuss/consider soliciting request for proposals for Lake Noquebay Dam Inspection. Action, if any.
10. Discuss/consider accepting a \$100.00 donation from the Lake Michigan Land & Water Conservation Association. Action, if any.
11. Discuss/consider the Education Specialist attending Youth Conservation Camp June 25-28, 2013 at Trees for Tomorrow in Eagle River, WI. Action, if any.
12. Discuss/consider the Register of Deeds attendance at the Wisconsin County Constitutional Officers Conference at the Inn on the Park in Madison, WI on March 3-6, 2013. Action, if any.
13. Correspondence. Action, if any. (Correspondence if not specifically listed below will be for information only)



14. Report(s) by Land Information Staff on Departmental programs and activities. Action, if any.
  - Manure Hauling meeting on January 22, 2013 at Grover Town Hall
  - Yellow Floating Heart eradication project and grant application.
15. Discuss/consider the January 2013 schedule of invoices. Action, if any.
16. Schedule next meeting – Monday, March 11, 2013.
17. Identify possible items for discussion and consideration at the next meeting
18. Adjourn

Alice Baumgarten	Ted Sauve	Larry Nichols	Joe Policello
Clancy Whiting	Robert Holley	John Fendryk	
Kathy Brandt, County Clerk		Renee Miller, County Register of Deeds	

NOTE: Agenda items may not be considered and acted upon in the order listed

If you are an individual with a disability and need a special accommodation while attending this meeting, as required by the Americans with Disabilities Act, please notify the County Clerk, Marinette County Courthouse (715-732-7406) at least 24 hours prior to the meeting in order to make suitable arrangements. Thank you. (TDD# 715-732-7760)



## LAND INFORMATION DEPARTMENT

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### MEETING OF THE LAND INFORMATION COMMITTEE MONDAY, JANUARY 14, 2013 COUNTY BOARD ROOM – COURTHOUSE

**Members Present:** Ted Sauve, Alice Baumgarten, Clancy Whiting, Larry Nichols, John Fendryk, Robert Holley and Joe Policello.

**Others Present:** John Lefebvre, LID; Greg Cleereman, LID-LWC; Aleta DiRienzo, LID-LWC; Peshtigo Times; and the Eagle Herald. Bart Sexton, Sand Creek Consultants; Ellen Sorensen, Administrator and Renee Miller, ROD were present for a portion of the meeting.

1. The meeting was called to order by Chairperson Sauve at 9:00 a.m.
2. APPROVAL OF AGENDA  
**MOTION** (Nichols/Fendryk) to approve the January 14, 2013 agenda as presented.  
Motion carried no negative vote.
3. APPROVAL OF MINUTES  
**MOTION** (Holley/Policello) to approve the minutes of December 10, 2012 as presented.  
Motion carried no negative vote.
4. PUBLIC COMMENT  
None
5. ONSITE LEACHATE TREATMENT SYSTEM AT NORTH COUNTY LANDFILL  
Bart Sexton, Sand Creek Consultants, gave a presentation about the proposed onsite leachate irrigation system for North County Landfill. The system would use solar power to pump leachate from the tank and distribute it onto the landfill where the existing vegetation would utilize the moisture for growth instead of the current practice of hauling the leachate to Green Bay Metropolitan Sewage Treatment Plant. The estimated cost of the work to be provided by Sand Creek consultants would be between \$38,000 and 43,000 which does not include the cost associated with a perimeter fence.

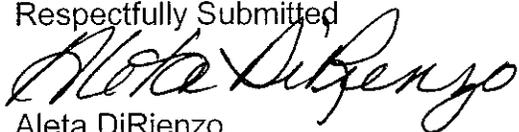
**MOTION** (Nichols/Policello) for Land Information Director to work with Sand Creek Consultants and Corporation Counsel to draft a professional services agreement which identifies the anticipated costs and the scope of the project and to bring this information back to committee for further consideration. Motion carried no negative vote.



6. **CHAPTER 21 (SHORELAND/WETLAND ZONING CODE) AMENDMENTS**  
**MOTION** (Policello/Baumgarten) to recommend to the County Board the proposed ordinance amending section 21.05 (6), Table 21.05-6 and section 21.10 (3) c. in an effort to comply with Wisconsin Act 170 enacted by the State of Wisconsin on April 2, 2012 and published on April 16, 2012. Motion carried no negative vote.
  
7. **TOWN OF PESHTIGO REZONE**  
**MOTION** (Nichols/Whiting) to forward to County Board the Town of Peshtigo rezone of part of parcel 024-00680.000 and all of parcel 024-00681.000 from Ag-2 Agriculture and R-1 Residential to Ag-1 Agriculture. Motion carried no negative vote.
  
8. **GREAT LAKES COASTAL FLOOD STUDY**  
Land Information Director gave an informational report on the Great Lakes Coastal Flood Study and related Discovery Report being conducted by the Federal Emergency Management Agency (FEMA). A study is being done to create a regional flood elevation which includes wave run up during the perfect storm. It will be 6 months to a year before any proposed flood data will be available for review.
  
9. **SET PUBLIC HEARING ON NON-METALLIC MINE RECLAMATION**  
**MOTION** (Policello/Fendryk) to hold the Public Informational Hearing in the beginning of the Land Information Committee Meeting on February 11, 2013 at the Courthouse regarding the Non-Metallic Mining Reclamation plan located in the NE SE S23 T38N R20 in the Town of Niagara. Motion carried no negative vote.
  
10. **RESOLUTION SUPPORTING AN AQUATIC INVASIVE SPECIES CONTROL GRANT FOR YELLOW FLOATING HEART**  
**MOTION** (Policello/Whiting) to support and forward to County Board the Resolution Supporting an Aquatic Invasive Species Control Grant for Yellow Floating Heart. Motion carried, Supervisor Holley opposed.
  
11. **38<sup>TH</sup> ANNUAL KELLY LAKE SEMINAR**  
**MOTION** (Nichols/Policello) to approve the attendance (with per-diem and expenses) of Land Information Department – Zoning and Sanitary Staff and Land Information Committee Members to the 38<sup>th</sup> Annual Kelly Lake Seminar for Plumbers, Certified Soil Testers, POWTS Inspectors and Septic Haulers to be held on February 7, 2013 at 9:15 a.m. at the Holiday Inn at Kelly Lake in Oconto County. Motion carried no negative vote.
  
12. **60<sup>TH</sup> ANNUAL WISCONSIN LAND & WATER CONSERVATION ASSOCIATION CONFERENCE**  
**MOTION** (Policello/Holley) to approve the attendance (with per-diem and expenses) of Land Information Department – Land Conservation Staff and Land Information Committee Members to the 60<sup>th</sup> Annual Wisconsin Land & Water Conservation Association Conference in Wisconsin Dells on March 11-13, 2013. Motion carried no negative vote.

13. 2013 MIDWEST MANURE SUMMIT  
**MOTION** (Nichols/Fendryk) to approve the attendance of the Land & Water Conservation Division Conservation Technician to the 2013 Midwest Manure Summit held in Green Bay on February 26-27, 2013. Motion carried no negative vote.
14. 26<sup>TH</sup> ANNUAL WISCONSIN LAND INFORMATION ASSOCIATION CONFERENCE  
**MOTION** (Nichols/Fendryk) to approve the attendance of Land Information Director and the GIS Coordinator to the 26<sup>th</sup> Annual Wisconsin Land Information Association Conference in Lake Geneva on February 13-15, 2013. Motion carried no negative vote.
15. 2013 AQUATIC INVASIVE SPECIES GRANT BUDGET AMENDMENT  
**MOTION** (Whiting/Holley) to approve the budget amendment to reflect a carryover of \$9,664.27 for the Outlay Expenditure Account from 2012 into 2013. Motion carried no negative vote.
16. CORRESPONDANCE  
None
17. LAND INFORMATION DEPARTMENT REPORTS
- Lake Michigan Land & Water Conservation Association Budget and Planning Meeting report was given. Dates were set for the meetings throughout the year. Marinette County will be the host for the Fall Conference on October 11, 2013.
  - Wisconsin Counties Association Meeting report was given on the new mining bill AB426 going through state legislation. The people in favor of the bill state the mine will bring a lot of money and jobs to the area, while the people who are opposed state the environment will greatly suffer.
18. DECEMBER SCHEDULE OF VOUCHERS  
The December Schedule of Invoices (\$12,191.19) was presented to the committee.
19. SCHEDULE NEXT MEETING  
Next meeting is scheduled for 9:00 a.m. Monday, February 11, 2013 at the Courthouse.
20. IDENTIFY POSSIBLE ITEMS FOR NEXT MEETING  
Public Hearing for Non Metallic Mining Reclamation
21. ADJOURNMENT  
**MOTION** (Nichols/Holley) to adjourn 10:50 a.m. Motion carried no negative vote.

Respectfully Submitted



Aleta DiRienzo  
Database Specialist/Program Assistant



# RECLAMATION PERMIT APPLICATION FOR NEW NONMETALLIC MINING SITES

PLEASE COMPLETE ALL INFORMATION ON THIS APPLICATION. PRINT OR TYPE. Use of this form is required for any nonmetallic mining reclamation permit application filed pursuant to 20.12(3) Marinette County Code of Ordinances. Marinette County will not consider your application unless you complete and submit all information required by this application form.

**1. Applicant/Operator**

Chris Webber

**Address**

N 21891 Hwy 141

**City, State, Zip Code**

Niagara, WI 54154

Telephone No. ( 715 ) 251-1536

Fax # ( 715 ) 251-1536

E-mail cweber @ borderlandnet.net

**2. Property Owners/Lessors (if different from Applicant/Operator)**

**Address**

**City, State, Zip Code**

Telephone No. ( )

Fax # ( )

Email

(Additional owner/lessor information can be submitted on separate sheet)

**3. Property Description: Provide the complete legal description of the property on which the mine is located.**

NE ¼, SE ¼, S23, T38N, R20E

Town of Niagara, County of Marinette

Tax Parcel Number 020-00704.000 Total Non Metallic Mining Site Acreage 3.5

4. **General Location Map** - draw the location of the site on the section map below. Include roads and any other pertinent information and label ¼ ¼ section points. It is also acceptable to attach a plat map, topographic map or other map providing it contains sufficient detail.



The entrance to the mine is located in the Town of Niagara on Highway 141 approximately 1.6 miles south of the City of Niagara near the intersection of Highways 141 and 8.

5. **Project Information: Please provide a brief description of the general location (including surrounding land use) and the nature of the nonmetallic mine (i.e., type of deposit, proposed frequency of mining activity).**

The mine site consists of a main gravel pit and stockpile area along with several smaller areas of excavation on the 21-acre property (see "Current Mine & Land Use" map). Most of the mining activity has taken place on land previously cleared for agricultural purposes. Land use surrounding the mine is primarily low-density rural development and recreational land. Land cover in the Town of Niagara is primarily forested land and wooded wetland. In the immediate vicinity of the mine there is a considerable amount of cedar swamp, spruce swamp, and upland forest.

Topography at the site is flat to moderately sloping. Soil at and surrounding the mine site is classified as Menahga-Mancelona-Menominee complex, 6-15 percent slope (MmC). This complex contains deep loamy sand or sand & gravel with a thin sandy or loamy sand surface layer (topsoil). The soils are well drained to excessively drained. Due to the excessively drained soil and surrounding topography very little runoff will leave the site except when the ground is frozen.

Figure 1 indicates the current mine size and existing topography. Sand and gravel are extracted from the main pit while clean sand has been extracted from the smaller excavations along the highway and adjacent to the driveway. At the current rate of use it is estimated that an additional acre will be mined within the next 10 years and the mine will be in operation until approximately 2020.

Excavation and material processing occurs intermittently at the mine site. Common practice is to excavate and process and stockpile gravel for two to four weeks each year.

**6. Description of the type of material(s) to be extracted, the methods of extraction, and processing methods to be used in the permit area.**

The primary materials extracted are pit run sand & gravel, crushed gravel and sand for fill, road construction and road maintenance. Extraction is generally done using wheeled loaders. Processing consists of on-site crushing and screening.

**7. Estimated elevation of groundwater:**

In the spring of 2010 a test pit in the center of the mine had a standing water elevation of 1125 feet (USGS datum), which is approximately 5 feet below the current floor of the mine. This corresponds well with the elevation of nearby wetlands.

**8. Information available to the operator on the biological resources, plant communities, and wildlife use at and adjacent to the site.**

The plant community at the site consists primarily of species typical of fallow agricultural fields including timothy, orchard grass, crown vetch and other nonnative species. Nearby forest vegetation includes red and white oak, aspen and red pine. Most of the nearby agricultural land is fallow or has been converted to pine plantation.

There is evidence at and adjacent to the mine site of whitetail deer, turkey and coyote. The surrounding forest is home to the normal compliment of wildlife including many non-game species, furbearers, amphibians and other forest wildlife.

**9. Estimated timetable for beginning and ending of operations on the site including any phases or stages:**

It is estimated that mining will continue at the site for another 15 years. Mining and reclamation will be completed in stages with much of the area to be reclaimed in 2010 (see "Reclamation Areas & Schedule" map). Excavated and disturbed areas east of the driveway will be graded, spread with a minimum of 3" of topsoil and seeded in 2010. Approximately 0.8 acres of the site will be graded level to be used as a future building site. The two small stockpile areas north of the mine will be reclaimed, or incorporated into the mine as they the materials are used up. The attached map "Post-Mining Land Use & Topography" indicated the anticipated extent of excavation and final topography when the mine is fully reclaimed in 2020. The actual progress of the mine will depend on the local demand for sand & gravel and other factors.

**10. Describe the methods of salvaging and storing topsoil and other overburden that will be used in reclamation. If topsoil substitute or off site material is to be used in reclamation, list the source and timetable for acquiring it.**

In wooded areas the native soil at the site is poorly developed and typically less than 2 inches thick. However, much of the land is fallow farmland with a much improved soil layer. Approximately 6 inches of topsoil will be stripped from all newly mined areas and stockpiled for future reclamation purposes. To prevent erosion all topsoil stockpiles will be seeded with a temporary seed mix as specified in the revegetation plan. Topsoil to reclaim the areas east of the driveway will be borrowed on-site from areas that will be graded and from adjacent land. Areas currently used for stockpiling still have the topsoil layer in place. Topsoil for reclaiming the slopes around the pond (approximately 1 acre) will be stripped from new areas to be mined and stored on-site.

**11. Describe proposed earthwork necessary for site reclamation including final slope angles, high wall reduction, benching, terracing, and other slope stabilization measures.**

Earthwork for final site reclamation will consist of shaping the mine walls to achieve a final grade not to exceed 3:1 (33%). The finished grade will be achieved by pushing in the existing high walls and reducing slope angles by back-filling high walls with boulders and other unsuitable material as it is encountered during normal mine operation.

After final reclamation the pond surface will be at an elevation of 1125 feet. Slopes above this elevation pond surface will be covered with a minimum of 3" of the salvaged topsoil, seeded with a conservation cover seed mix and mulched. The maximum slope lengths will be approximately 60 feet.

**12. Describe any conservation practices to be used during reclamation. The location of all conservation practices are to be shown on the reclamation plan.**

Conservation practices will consist primarily of on-site detention and infiltration of runoff. The excessively drained soils located at the site have a very low potential for producing runoff. Runoff from most of the site currently flows toward the main pit where it infiltrates into the porous subsoil. Runoff from areas east of the driveway also collect in excavated areas and infiltrate before leaving the property.

Areas being reclaimed will be seeded as soon as practicable according to the attached revegetation plan. All newly seeded areas will contain a companion/nurse crop to speed revegetation. Mulch will be used on slopes when needed according to the WDOT Slope Erosion Control Matrix (attached). Figure 3 depicts typical cross sections through the mine showing final slope angles and erosion control practices used during reclamation.

**13. Description of anticipated topography, water impoundments, artificial lakes, created wetlands and other site features.**

Post-mine topography will be gently sloping to steeply sloping with reclaimed slopes no steeper than 3:1 as shown in the "Post-Mining Land Use and Topography" map. A 1.3-acre artificial pond will be created. The pond will have side slopes of 3:1 and a maximum depth of 25 feet. Approximately 0.8 acres of the site will be graded level and used as a future building site and parking area.

**14. Description of the proposed post mine land use.**

Post mine land use will consist of open land for wildlife habitat. In time, many reclaimed areas will likely revert to forested land.

**15. Description of plans for disposition of manmade features that are not part of the post mine land use after completion of mining.**

Presently the only manmade features located on the property are a residential home and a pole building associated with the excavating business. Both buildings will remain in use after mining at the site is complete.

**16. Describe or attach a copy of a seeding plan which shall include methods of seed bed preparation, seed mix seeding rates, mulching, netting, and/or other techniques needed to accomplish soil and slope stabilization.**

See Attached Revegetation Plan

**17. Description of the quantifiable standard that will be used to determine successful establishment of vegetation on reclaimed areas.**

See Attached Revegetation Plan

**18. In addition, the following drawings or documents must be attached to this application. All maps must be drawn at a scale of no less than one (1) inch equals two hundred (200) feet:**

- A. A copy of the lease or proof of ownership.
- B. Copies of local and state permits or approvals including a statement from the local zoning or planning authority that the proposed post mine land use is consistent with the current zoning or land use plan unless a change to the zoning or the plan is proposed.
- C. An estimate of the cost of site reclamation and the methodology used to calculate the estimate.
- D. Four copies of a map of the site as it presently exists. The map shall include:
  - 1) Property boundaries and the location of all man made features on or within 300 feet of the site and, to the best of the applicants knowledge, the purpose for which each man made feature and the adjoining land is used.
  - 2) Contours of the affected land at intervals no larger than ten (10) feet.
  - 3) The location and names of all streams, other water features and roads on or within three hundred (300) feet of the site.
  - 4) Boundaries of previous excavations on the site, and the location and description of boundary stakes for the proposed site. The stakes shall be referenced to a permanent reference point. The area staked shall include all stockpiling and storage areas.
- D. If the site is to be mined in phases or stages, four copies of a plan, which shall include the following:

- 1) A plan view and description of sequential phases of mining including haulage ways, storage areas and processing areas.
- 2) If necessary, a plan showing temporary erosion control measures to be employed during reclamation.

E. Four copies of a reclamation plan which shall include the following:

- 1) A plan view showing final slope angles, high wall reduction, benching, terracing, other stabilization measures and water impoundments at contour intervals of no larger than ten (10) feet.
- 2) Cross-sectional drawings of any water impoundments, high wall reductions, benching or terracing, or other conservation practices.

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19. Fees:

1. Total Acreage of the nonmetallic mine site	_____ 3.5 _____
2. # of unreclaimed acres (per sec. 21.10 Marinette County Nonmetallic Mining Ordinance) that are part of a nonmetallic mining site (per sec. 21.10 Marinette County Nonmetallic Mining Ordinance) where mining will take place after August 1, 2001	_____ 3.5 _____
3. Estimated # of unreclaimed acres that will be activated between January 1, 2010 and December 31, 2010	+ _____ 0 _____
4. Total estimated unreclaimed acres (combine lines 2 & 3)	= _____ 3.5 _____
5. Fee established by County (See Fee Schedule)	\$ _____
6. Fee established by the WDNR (See Fee Schedule)	\$ _____
7. Plan Review Fee	\$ _____
8. <b>Total Fee for 2001</b> (combine lines 5 , 6 & 7)	= \$ _____

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20. Certification:

To the best of my knowledge, I certify that the information provided on this application and accompanying documents are true and accurate. I certify that the areas identified within the permit that are impacted by mining activities will be reclaimed as specified in the approved permit for the site. I also understand that submitting this application authorizes the Zoning Administrator or his/her designee to enter onto the property for the purposes outlined in the Nonmetallic Mining Reclamation Ordinance.

X Christopher R Weber  
**Applicant's signature**

10-30-12  
**Date**

Land Owner Certification if landowner is different than applicant.

I certify that I concur with the reclamation plan authorized by this permit and will allow it to be implemented.

X Christopher R Weber  
**Land Owner's Signature**

10-30-12  
**Date**

Pursuant to §21.10(6)(j) of the Nonmetallic Mining Reclamation Ordinance, the department may require the submittal of such other information as may be necessary to determine the feasibility of the nonmetallic mining reclamation.

Permits decisions shall be made by the department no sooner than thirty (30) days nor later than sixty (60) days of receipt of a complete application, unless a public hearing is required under 20.15 (1) (b.) of the Nonmetallic Mining Reclamation Ordinance in which case a permit decision shall be made no later than 60 days following the hearing.. An expedited application review is available under 20.16 (6).

Failure of the applicant to notify the Department within five (5) workdays of the receipt of a permit granted by the Department will constitute an acceptance of the permit and all conditions and amendments to the application and plans.

Permit decisions or administration decisions may be appealed pursuant to 20.31 of the Nonmetallic Mine Reclamation Ordinance.

An annual operating report that complies with Sec. 20.25 of the Marinette County Code of Ordinances shall be submitted to the Marinette County Zoning Department-1926 Hall Avenue, Marinette, WI 54143. The annual report shall cover the activities for a calendar year and shall be submitted within 60 days following the end of the year.

LEAVE BLANK – FOR COUNTY USE ONLY	
Permit No.	Date Reclamation Plan is Due
Permit No.	Date Received                      Date Application Was Complete

**Submit Application to: Marinette County Zoning Department, 1926 Hall Avenue, Marinette, WI 54143**

# Mine Location and Neighboring Properties

Howard L. Willis

DBSC Realty LLC

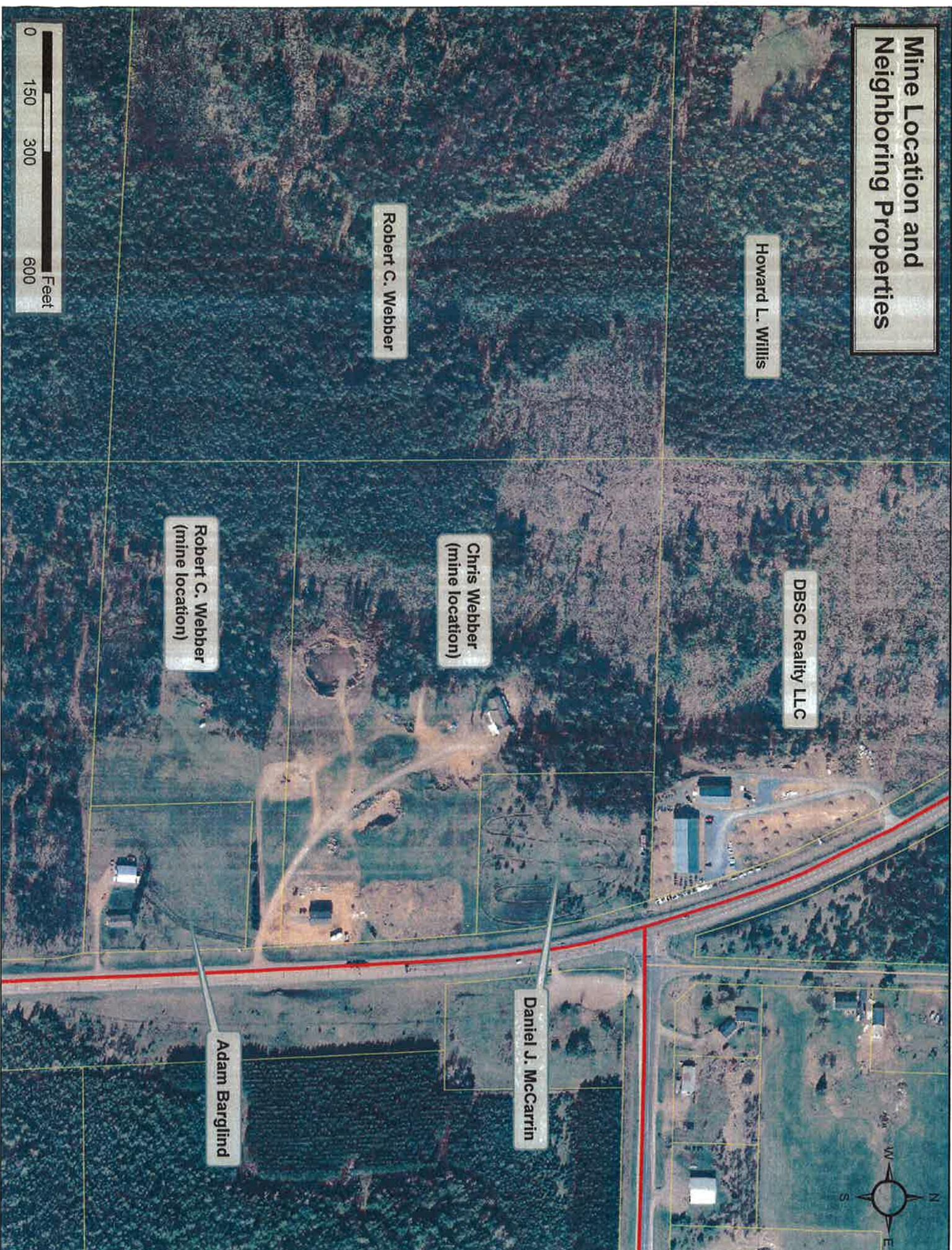
Robert C. Webber

Chris Webber  
(mine location)

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(mine location)

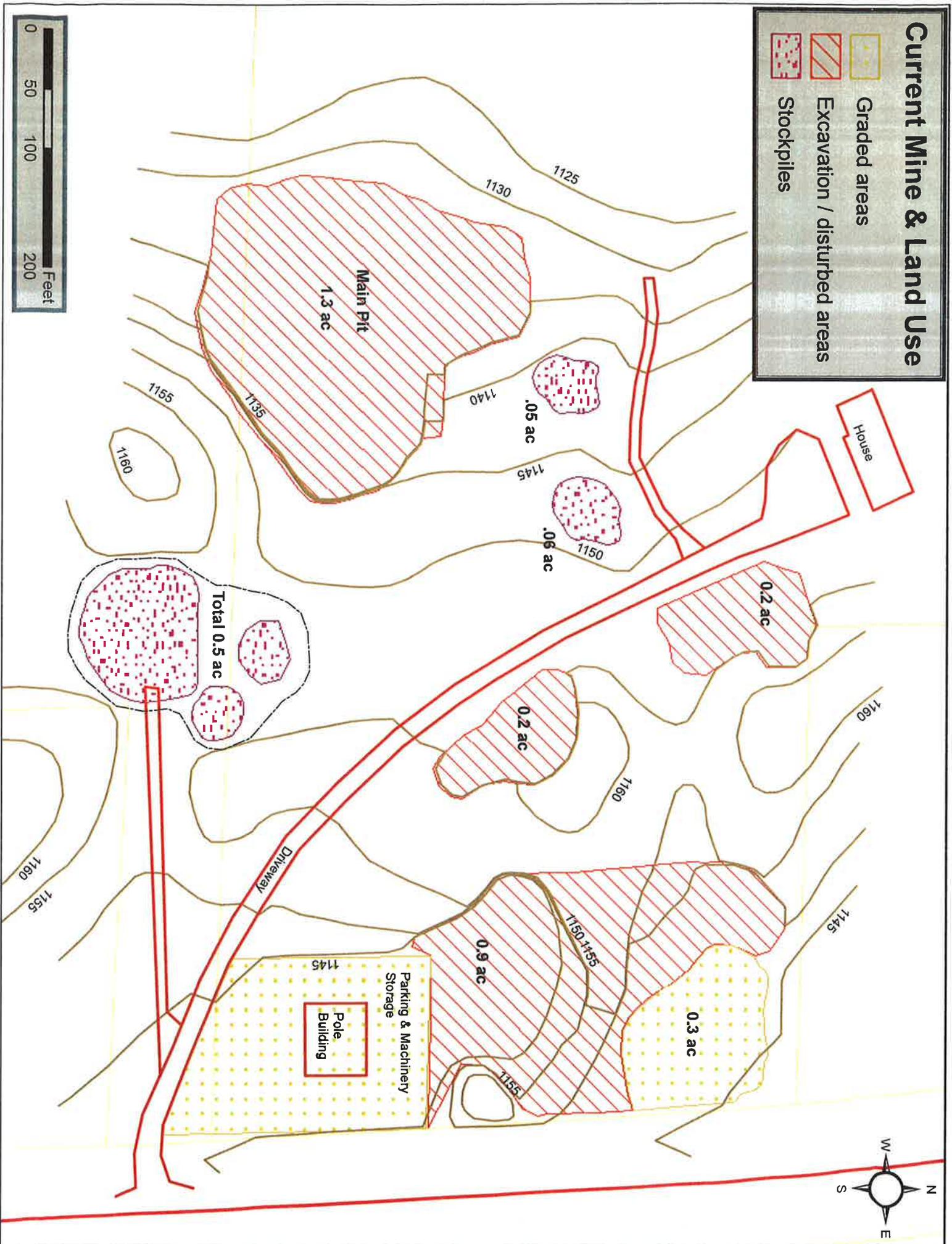
Daniel J. McCarrin

Adam Barglind

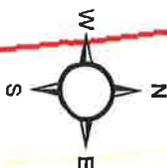
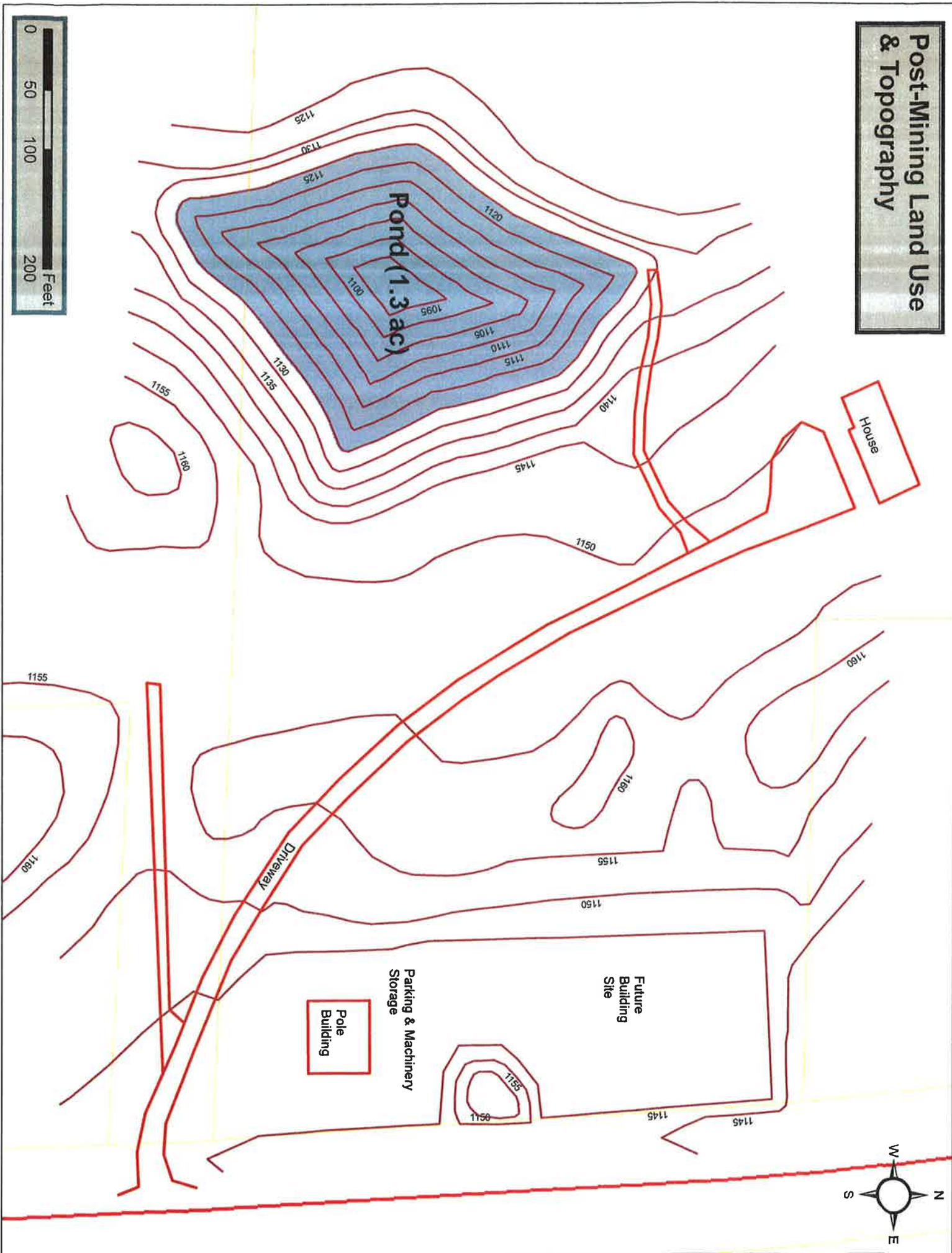


# Current Mine & Land Use

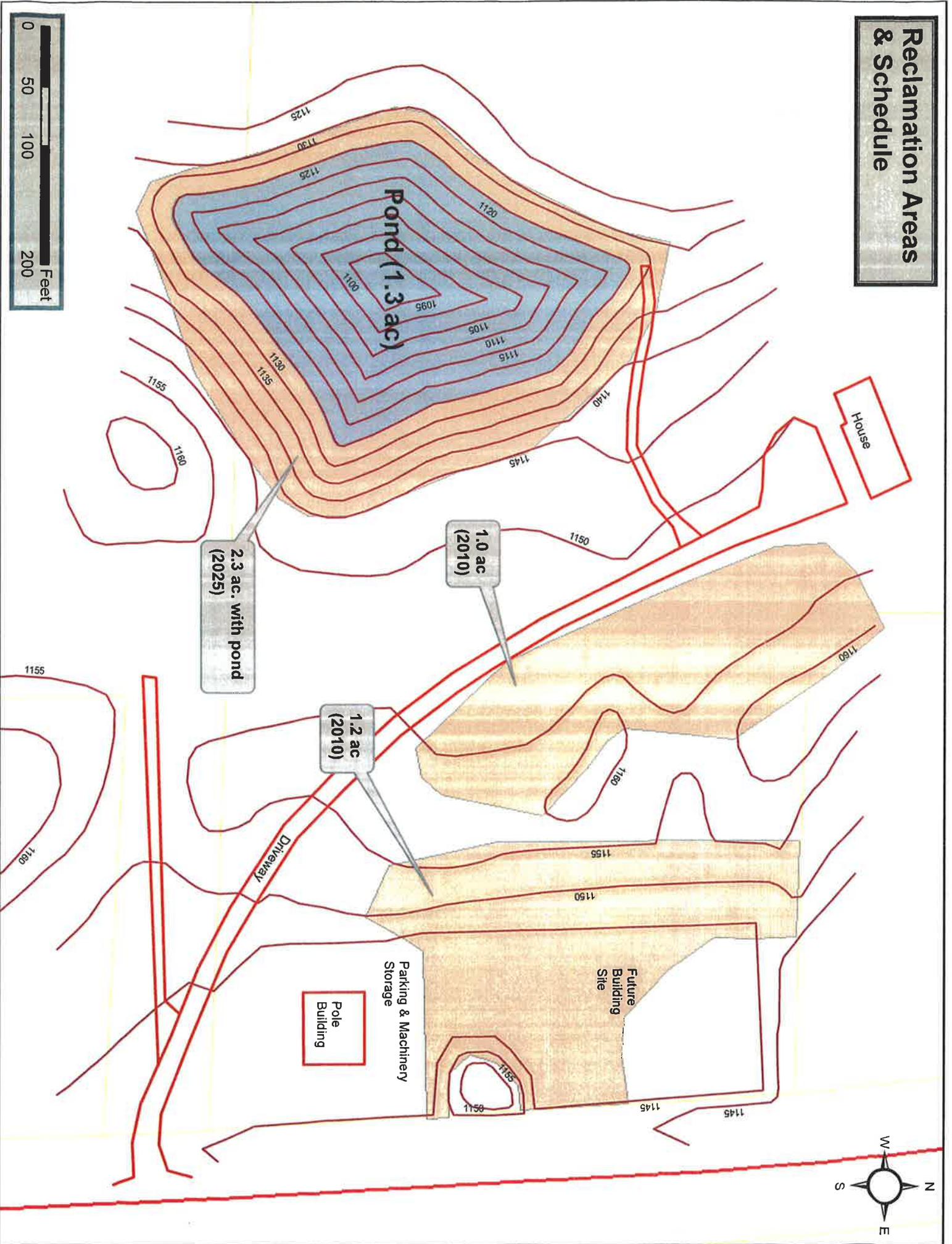
- Graded areas
- Excavation / disturbed areas
- Stockpiles



# Post-Mining Land Use & Topography



# Reclamation Areas & Schedule



# Revegetation Plan

For the  
Chris Webber Mine (T38N, R20E, S23)

## **Topsoil removal, storage, and protection**

Topsoil that was previously stripped is currently piled east of the mine site. This pile has already revegetated. Newly stripped topsoil will be seeded to prevent erosion if it is not used immediately for reclamation. Runoff from topsoil stockpiles does not leave the mine site.

## **Grading and slopes**

All reclaimed areas will be graded according to the reclamation plan to a slope no steeper than 3:1. Slope lengths will not exceed 80 feet.

## **Topsoil redistribution, site preparation and seeding**

Reclaimed areas will be covered with a minimum of three inches of topsoil. All areas that are to receive topsoil must be scarified (roughened) or otherwise treated to promote good bonding between the topsoil and subsoil, to promote root penetration and enhance infiltration. Special attention should be paid to breaking up and scarifying haul roads and other highly compacted areas prior to topsoil spreading.

A fine but firm seedbed is needed to provide good seed-to-soil contact. Prepare the seedbed according to NRCS Standard 342 (Critical Area Planting). For areas reclaimed outside of the recommended seeding dates, a temporary cover crop should be used to stabilize the site until the final seeding can be accomplished.

## **Soil amendments**

Material used as a topsoil substitute should be tested to determine nutrient and pH deficiencies. Soil amendments should be applied as directed. Do not apply nitrogen where native warm season grasses are to be planted.

## **Seed mixes**

### Interim seed mix (areas needing long term stabilization prior to final reclamation)

A seed mix containing 20% Annual Ryegrass, 70% Perennial Ryegrass and 10% Red Clover shall be used at 15 lbs per acre.

### Temporary cover crop (to stabilize areas until the following spring seeding)

A temporary cover crop of oats or winter rye at 1-1/2 bu/ac or annual ryegrass at 6 lbs/ac. should be used.

### Reclamation seed mix

A cool season (introduced species) or warm season (native species) seed mix equivalent to those shown in Table 4 or Table 5 of NRCS Standard 342 (Critical Area Planting) for dry-mesic sites will be used for final reclamation.

### Nurse/Companion crop

A nurse/companion crop of oats or winter rye (1 ½ bu/ac), or annual ryegrass (3 lbs/ac) should be included in all cool season mixes according to NRCS Standard 342. A nurse/companion crop of Canada Wild Rye shall be included in all native seed mixes at a rate of 2 lbs per acre.

### **Seeding methods**

Seeding can be accomplished by drilling, broadcasting or hydroseeding. Drill seed no deeper than 1/4inch. Broadcast seed should be lightly dragged after seeding to provide some soil cover and improve seed-soil contact.

### **Mulching**

Properly anchored mulch shall be used on all slopes steeper than 10% (10:1) with a slope length exceeding 30 feet according to the Wisconsin Construction Site Best Management Practices Handbook.

### **Follow up inspection and maintenance**

Newly seeded areas require periodic inspection during the first growing season. Bare spots should be seeded with the original mix or equivalent.

### **Criteria for successful revegetation**

Revegetation will be considered successful when 80% coverage is achieved. Native prairie plantings can be considered successful with 80% coverage and at least two native prairie plants per square foot are found during the first growing season.

Cover can be measured with randomly selected 1 square foot sample plots. Cover includes plants or plant parts overhanging but not rooted in the sample plot.

# CRITICAL AREA PLANTING

(Acre)  
Code 342

Natural Resources Conservation Service  
Conservation Practice Standard

## I. Definition

Planting vegetation, such as trees, shrubs, vines, grasses, forbs, or legumes on highly erodible or critically eroding areas.

## II. Purposes

The purposes of this practice are to revegetate bare soils and stabilize eroding sites.

## III. Conditions Where Practice Applies

This practice applies to sites where bare soils and erosion are found in conjunction with agriculture, construction, forestry, mining, and wetland restoration activities and where natural revegetation is unlikely to occur.

This practice does not apply to tree planting mainly for wood products.

## IV. Federal, State and Local Laws

Critical area planting practices shall comply with all federal, state and local laws, rules or regulations. The operator is responsible for securing required permits. This standard does not contain the text of the federal, state or local laws.

## V. Criteria

### A. Site Assessment

A site assessment shall be conducted, documented, and incorporated into the design. The assessment shall be performed to determine physical site characteristics that will influence the appropriate seeding mixture and establishment procedures. The site assessment shall include evaluation of: soil characteristics, aspect, slope, exposure to sunlight, proximity to natural plant communities, proximity to nuisance, noxious and/or invasive species, site history, moisture regime, climatic patterns, soil fertility, and previous herbicide applications.

## B. Site Preparation

Site preparation activities shall include:

### 1. Slope Stabilization

Grade to a stable slope when shaping. For slopes steeper than 2H:1V, special practices such as *soil bioengineering*<sup>1</sup> may be required. These practices shall follow approved design procedures located in the NRCS Engineering Field Handbook (EFH), Chapter 18. Eliminate all overfalls. The toe of the slope, or the outlet of the concentrated flow channel, shall be stable before attempting seeding on the slope. In some cases, concentrated flow may need to be diverted during establishment period.

### 2. Topsoiling

A minimum of 4 in. of friable soil material or topsoil shall be added and mixed to exposed rocky, sandy, gravelly, shaley material, or extremely fine textured subsoil.

### 3. Seedbed Preparation

Do not use conventional tillage where desirable vegetation is already present or where the site is environmentally sensitive.

During recommended seeding periods seedbed preparation shall immediately follow construction activities. For seeding outside recommended seeding periods other erosion control methods such as applying mulch or seeding temporary cover, shall be performed. Seedbed preparation methods include:

#### a. Conventional Tillage

Prepare a tilled, fine, but firm seedbed. The seedbed shall contain enough fine soil particles for uniform shallow

coverage of the seed and contact with moisture and nutrients.

When preparing a site for *native species*, it is important to have a firm seedbed. Cultipack or roll before and after seeding if broadcast.

b. No-Till

Control existing vegetation through mowing, burning, or herbicide application. If desirable species are present, consider spot treatment to control unwanted species.

4. Fertilization

- a. When using introduced species on dry, dry-mesic, and mesic sites, ensure proper pH and fertility. In lieu of soil testing, apply a minimum of 150 lbs. Of 20-10-10, and 2 tons of 80-85 lime or equivalent.
- b. For native species, fertilizer and lime are not recommended.

C. Seeding

1. Seed Selection

Seeding rates are based on pounds or ounces of *Pure Live Seed (PLS)* per acre. Where seed germination and purity can not be assured, a waiver will be required from the State Agronomist.

Use *introduced species* only in places where they will not spread into existing natural areas. For example, a dam is constructed in the middle of a pasture that is composed of bluegrass, quackgrass and smooth brome grass. Since abundant introduced species surround the dam, it could be seeded with either the standard mesic native mixture composed of native species or introduced species mix #6, which is composed of introduced species. Another example is if an embankment is constructed as part of a wetland restoration which is adjacent to an existing natural wetland. Introduced species would grow in this location, but due to the presence of the natural wetland, the embankment shall be seeded with a native species mix.

a. Seed Mixtures - Native Species

Where available, local *genotype* species are preferred. Refer to Agronomy Technical Note 5 and the following guidelines to develop your seed mixture, considering cost and availability of seed. Example seed mixtures are shown in Table 4.

(1) *Dry, dry-mesic, and mesic sites*

For these mixtures select: 4 grasses (a minimum total of 80 oz. (5 lb.)/acre of grass seed, each grass to be seeded at a minimum of 8 oz./acre), plus 5 forbs, including 1 legume. Forbs must be seeded at a minimum of 6 seeds/ft<sup>2</sup>. This guideline should result in a mixture containing a minimum of 30 seeds/ft<sup>2</sup>.

(2) *Wet-mesic and wet sites*

Seed mixtures may be developed from Agronomy Technical Note 5 using the following guidelines. For seeding at these sites, select 8 species, with a minimum of 3 from forbs and 3 from grass/sedge/rush. Apply a minimum of 16 oz. PLS per acre.

b. Seed Mixtures - Introduced Species

Plant mixtures that are potentially invasive and harmful to native plant communities shall be evaluated prior to seeding. See Table 5 for standard seeding mixtures for introduced species. See Table 6 for guidelines for custom seeding mixtures for introduced species. When designing a custom mixture, 50% of the mixture must be grass.

2. Concentrated Flow Channels

For dry, dry-mesic, and mesic sites seed introduced species. For wet-mesic sites, consider using native species. For wet sites use native species.

3. Inoculation

Legume seed shall be inoculated in accordance with the manufacturer's recommendations. When seeding with a hydroseeder, the amount of inoculant shall be increased 5 times the

recommended rate. Inoculant shall not be mixed with liquid fertilizer.

4. Methods - Seed grasses and legumes no more than ¼ in. deep. Distribute seed uniformly. Mixtures with low seeding rates require special care in sowing to achieve proper seed distribution. Seed may be broadcast or drilled, as appropriate for the site. If drilled, proper calibration is essential.
5. Seeding Dates - Tables 1 and 2 show typical dates for normal seasons. Specific seasonal conditions may require adjustments to the seeding dates. Date of seeding is a critical factor in determining whether a seeding will succeed or fail. The specific date that provides the best chance for success will vary from year to year with prevailing moisture and temperature conditions. Planting at either end of the allowable range is riskier than the middle of the range. See Figure 1 for planting zones.

- a. Native Specie Summer Seeding

Seeding may occur after the Spring Seeding dates if adequate moisture is present for germination and early seedling growth. Mulching is required during this time period. Field moisture evaluations must be documented in the case file. Seeding is not allowed after the end date for Late Summer Seeding from Table 1. This gives the plants 6 weeks of growth before the median date of the first killing frost.

- b. Introduced Specie Summer Seeding

Seeding may occur between the spring and late summer dates shown in Table 2 if adequate moisture is present for germination and early seedling growth. Mulching is required during this time period. Field moisture evaluations must be documented in the case file.

# Figure 1

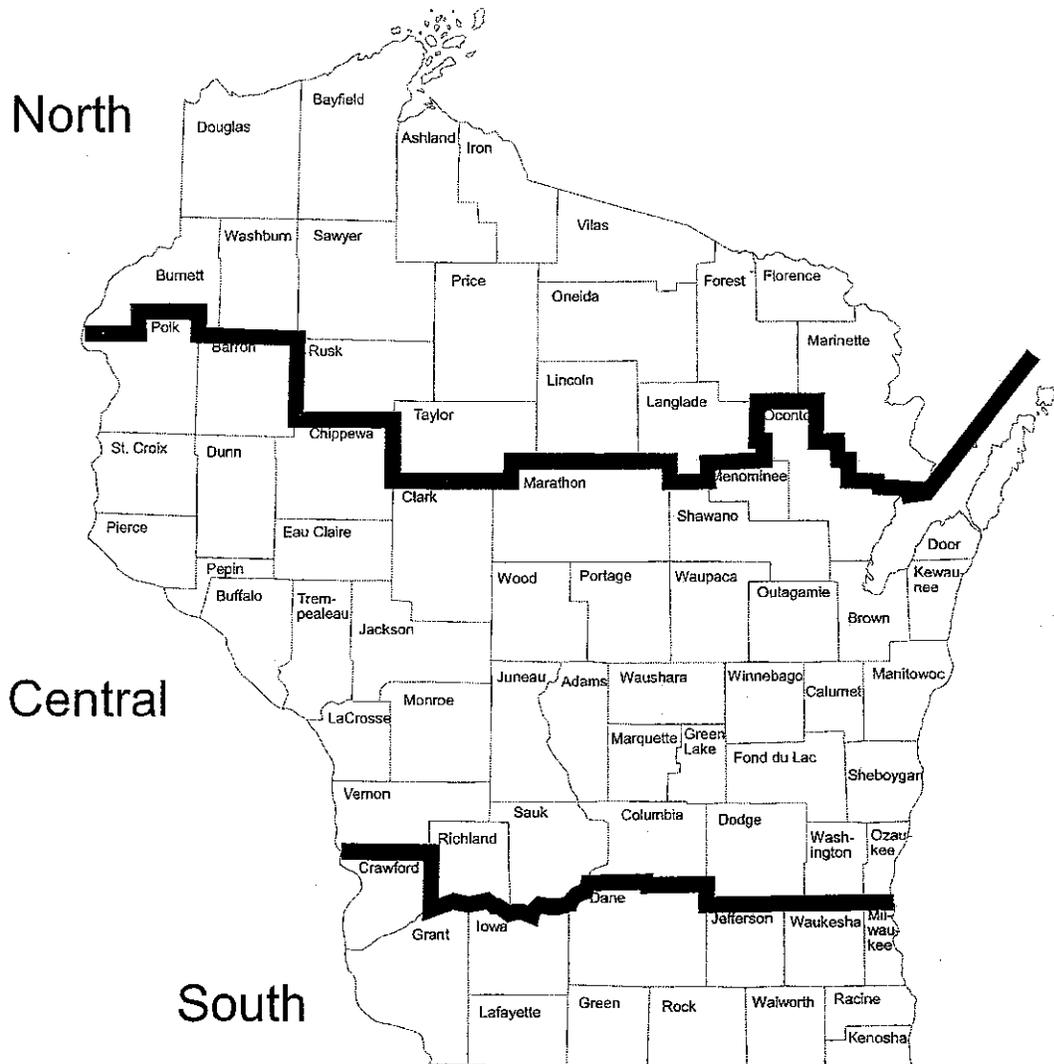


Table 1  
Seeding Date/Ranges for Native Mixtures

	Spring Seeding	Fall Dormant Seeding
Northern Zone	Thaw - 7/15	10/8 - Snow Cover
Central Zone	Thaw - 6/30	10/15 - Snow Cover
Southern Zone	Thaw - 6/30	11/1 - Snow Cover

Table 2  
Seeding Date Ranges for Introduced Grasses and Legumes

	Spring	Late Summer
North	5/1 - 6/15	7/15 - 8/10
Central	4/15 - 6/1	8/1 - 8/21
South	4/1 - 5/15	8/7 - 8/29

a. Dormant Seeding

Dormant seeding for introduced specie plantings occur when construction is completed and seedbeds are prepared between the end of the late summer seeding period and November 1. Seeding will be done after November 1. These seeding dates are risky. A split application of seed may also be made, using half in November and the balance in the early spring.

b. Frost Seeding

Frost seeding is only available for introduced specie plantings. Frost seeding is sowing the seed on the soil surface that has been made friable by freezing and thawing. The soil surface is usually "honeycombed" with small cracks. These seeding are made beginning in late February and March in the south through mid April in the north. Seeding is on seedbeds which were prepared in the fall and were limed, fertilized, and mulched according to needs, and where a fall seeding of an annual crop may have been

established for temporary protection. No further seedbed preparation is required. Frost seeding shall not be made on areas covered with ice or snow. Do not frost seed into winter wheat or winter rye.

6. Companion Crop

Where erosion is a concern, a companion crop or mulching will be used.

a. For Introduced Mixtures

Oats, barley, winter wheat, rye, or spring wheat shall be seeded at the rate of 1½ bushels/acre in the spring or fall. Annual rye grass may be used in lieu of small grain at the rate of 3 lb/acre. With the exception of annual ryegrass, the companion crop shall be mowed before heading. Mow 8 - 10 in. high to avoid harm to the permanent seeding.

b. For Native Mixtures

Where planting a companion crop, use a mixture which contains: Canada Wild Rye (*Elymus canadensis*), seeded at 1-2 lbs. PLS/acre or Side-oats Grama (*Boutelouea curtipendula*), seeded at 1-2 lbs. PLS/acre, or Oats (*Avena sativa*) seeded at ½ bushel/acre (spring only).

7. Temporary Cover Crop

Areas needing protection during periods when permanent seedings are not made shall be seeded to annual species for temporary protection. See Table 3 for seeding rates. The residue from this crop may either be incorporated into the soil during seedbed preparation at the next permanent seeding period or left on the soil surface and the planting made as a no-till seeding or frost seeding. Do not seed temporary covers after October 15 in the southern and central zones and October 1 in the northern zone.

Table 3  
Temporary Cover Crop

Species	Rate/Acre
Oats	3 bushels
Corn (drilled)	3 bushels
Sudangrass	35 pounds
Cereal Rye <sup>1</sup>	2 bushels
Winter Wheat <sup>1</sup>	2 bushels
Annual Ryegrass	25 pounds

<sup>1</sup>Rye and winter wheat will be destroyed by seedbed preparation at next permanent seeding period.

#### 8. Mulching

Construction that exposes sand, gravel, or rocky material shall be mulched after seeding. Steep areas that are topsoiled shall be mulched. After the seeding period has passed, mulch shall be applied for protection on all disturbed areas subject to erosion. If companion or temporary cover crops are being used, mulching may not be necessary unless site conditions dictate the use. Mulch shall be applied following criteria outlined in NRCS Field Office Technical Guide (FOTG) Section IV, Standard 484, Mulching.

#### 9. Protection

Protect all critical area plantings from animals and traffic (vehicle or foot) during the establishment period. In some cases, silt fences and/or erosion control matting/netting may be needed to protect the seeding.

### VI. Considerations

- A. Consider seeding at a lower rate and making 2 passes to ensure adequate coverage. Check seed boxes regularly to ensure even distribution.
- B. Heavy traffic and/or compacted soil areas may need special site preparation prior to seeding.
- C. Sprigs, root stocks, crowns, cones, culms, and sod may be considered where appropriate.
- D. Woody shrubs or trees may be used only after initial stabilization. Plant in accordance with the purpose of the planting. See NRCS FOTG Section IV, Standard 612 - Tree Planting, Standard 562 - Recreation Area Improvement, Standard 580 - Streambank and Shoreland Protection, and the DNR

Interim Best Management Practice Shoreline Habitat Restoration for Developed Areas. Also see NRCS Engineering Field Handbook, Chapter 16, Streambank and Shoreline Protection and Chapter 18, Soil Bioengineering for Upland Slope Protection and Erosion Reduction.

- E. Consider using carriers such as vermiculite, sawdust, and soybean meal to increase volume and weight for uniform distribution.
- F. Consider limited or no use of herbicides one year prior to seeding. If herbicides must be used, be sure there is no potential for carryover.

### VII. Plans and Specifications

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Consideration, and Operation and Maintenance sections described in this standard. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

### VIII. Operation and Maintenance

- A. Noxious weeds and other undesirable species must be controlled at all sites. During the first year, mow native plantings at 30-day intervals or when weeds are 18"-24" high. Mowing height should range from 6"-12". Spot spraying or hand pulling may be needed for some noxious species such as Thistles and Purple loosestrife.
- B. Sites may require periodic maintenance consisting of mowing, burning, or herbicide treatment.
- C. Sites should be inspected periodically to ensure objectives are being met.

### IX. References

- Curtis, J. T. 1959. *The Vegetation of Wisconsin: an ordination of plant communities*. University of Wisconsin Press, Madison, Wisconsin, 657pp.
- Henderson, R. A. 1995. *Plant Species Composition of Wisconsin Prairies: an Aid to Selecting Species for Plantings and Restorations Based Upon University of Wisconsin-Madison Plant Ecology Laboratory Data*. Wisconsin Department of Natural Resources Technical Bulletin No. 188.
- Ladd, D. and Oberle, F. 1995. *Tallgrass Prairie Wildflowers, A Field Guide*. The Nature Conservancy.

Nichols, S. and Entine, L. 1976. *Prairie Primer*. University of Wisconsin - Extension, publication G2736, - 44pp.

Packard, S. and Mutel, C. 1997. *The Tallgrass Restoration Handbook for Prairies, Savannas and Woodlands*. Society for Ecological Restoration, 463pp.

Rock, H. W. 1971. *Prairie Propagation Handbook*. Boerner Botanical Gardens, 60pp.

United States Department of Agriculture - Natural Resources Conservation Service. Engineering Field Handbook, Chapters 16 and 18.

United States Department of Agriculture - Natural Resources Conservation Service-Wisconsin, Agronomy Technical Note 5.

United States Department of Agriculture - Natural Resources Conservation Service. Wisconsin Field Office Technical Guide, Section IV, Standards 612, 562, and 484.

## X. Definitions

*Soil Bioengineering* (V.B.1) Practice of combining mechanical, biological and ecological concepts to arrest and prevent shallow slope failures and erosion.

*Dry Prairies* (V.C.1.a.(1)) Dry Prairies occur mostly on somewhat excessively drained and excessively drained soils. This would include soils such as; Sparta, Impact and Plainfield.

*Dry-Mesic Prairies* (V.C.1.a.(1)) Dry-Mesic prairies are transitional prairies between Dry Prairie and Mesic Prairie. They occur on some somewhat excessively drained and some well drained soils. Examples of Dry-Mesic soils would include Billett, Dickinson and Rasset.

*Genotype* (V.C.1.a) A group of individual plants which share a specified genetic makeup. For example, all big

bluestem plants that are genetically adapted to grow and mature in the climatic conditions found in the driftless region could be considered a genotype.

*Introduced Species* (V.C.1.) Plant species that historically would not have been found in North America until they were brought here by travelers from other parts of the world. This would include smooth bromegrass and alfalfa. Some of these species may have a wide distribution such as Kentucky bluegrass.

*Mesic Prairie* (V.C.1.a.(1)) Mesic Prairies will be found on most moderately well and well drained soils which have moderate to very high Available Water Capacity. Mesic Prairies also occur on some somewhat poorly drained soils with low or very low available water capacity or perched water tables. Mesic prairies would be expected on soils such as; Markham, Varna, Parr, Plano, Dresden, Warsaw, Tama, and Downs.

*Native Species* (V.B.3.a.) Plants species that historically would have been found growing in North America such as Big bluestem or Green needle-grass.

*Pure Live Seed* (PLS) (V.C.1.) A relative value representing the quality of the seed of a given specie. PLS is calculated by multiplying the percent germination times the percent purity.

*Wet-Mesic Prairie* (V.C.1.a.(2)) Wet-Mesic prairies are transitional between Wet Prairie and Mesic Prairie. Most Wet-Mesic Prairies occur on somewhat poorly drained soils. Wet-Mesic Prairies would occur on soils such as Beecher, Elliott, Lamartine, Locke, Elburn, Kane, Matherton, Muscatine, Curran and Rawley.

*Wet Prairie* (V.C.1.a.(2)) Wet prairies occur on soils with poor and very poor drainage. They can also be found on some frequently flooded sites. Wet prairies can be found on soils such as; Ashkum, Barry, Brookston, Ossian, Pella, Sebewa, Garwin and Ettrick.

Table 4 - Example Seeding Mixtures for Native Species <sup>1</sup>

Site Type	Common Name	Genus and species	Plant Type	Seeding Rate in oz/acre PLS
Dry	Little bluestem	Schizachyrium scoparium	Grass	32
	Big bluestem	Andropogon gerardii	Grass	24
	Side-oats grama	Bouteloua curtipendula	Grass	16
	Switchgrass	Panicum virgatum	Grass	8
	Sand dropseed	Sporobolus cryptandrus	Grass	4
	Rough blazing star	Liatris aspera	Forb	1
	Evening primrose	Oenothera biennis	Forb	1
	Prairie cinquefoil	Potentilla arguta	Forb	1
	Black-eyed Susan	Rudbeckia hirta	Forb	1
	Purple prairie clover	Dalea purpurea	Legume	2
Dry	Side-oats grama	Bouteloua curtipendula	Grass	24
	Little bluestem	Schizachyrium scoparium	Grass	24
	Switchgrass	Panicum virgatum	Grass	16
	Sand dropseed	Sporobolus cryptandrus	Grass	16
	Rough blazing star	Liatris aspera	Forb	1
	Spotted bee balm	Monarda punctata	Forb	1
	Black-eyed Susan	Rudbeckia hirta	Forb	0.25
	Hoary vervain	Verbena stricta	Forb	0.25
Purple prairie clover	Dalea purpurea	Legume	3	
Dry-Mesic	Side-oats grama	Bouteloua curtipendula	Grass	20
	Little bluestem	Schizachyrium scoparium	Grass	20
	Big bluestem	Andropogon gerardii	Grass	16
	Indian grass	Sorghastrum nutans	Grass	16
	Switchgrass	Panicum virgatum	Grass	8
	Sand dropseed	Sporobolus cryptandrus	Grass	4
	Rough blazing star	Liatris aspera	Forb	2
	Yellow cone flower	Ratibida pinnata	Forb	1.5
	Evening primrose	Oenothera biennis	Forb	1
	Butterfly milkweed	Asclepias tuberosa	Forb	1
	Black-eyed Susan	Rudbeckia hirta	Forb	0.5
Illinois tick trefoil	Desmodium illinoense	Legume	10	
Dry-Mesic	Big bluestem	Andropogon gerardii	Grass	24
	Little bluestem	Schizachyrium scoparium	Grass	24
	Indian grass	Sorghastrum nutans	Grass	24
	Switchgrass	Panicum virgatum	Grass	8
	Heath aster	Aster ericoides	Forb	0.5
	Bergamot	Monarda fistulosa	Forb	0.5
	Black-eyed Susan	Rudbeckia hirta	Forb	0.25
	Pale spiked lobelia	Lobelia spicata	Forb	0.1
	Round-headed bush-clover	Lespedeza capitata	Legume	5

<sup>1</sup> Consult Agronomy Technical Note 5 and Section IV.C.1.a.(1) for guidelines for species substitution.

Table 4 (continued)

Site Type	Common Name	Genus and species	Plant Type	Seeding Rate in oz/acre PLS
Mesic	Indian grass	<i>Sorghastrum nutans</i>	Grass	24
	Big bluestem	<i>Andropogon gerardii</i>	Grass	16
	Canada wild rye	<i>Elymus canadensis</i>	Grass	16
	Little bluestem	<i>Schizachyrium scoparium</i>	Grass	16
	Switchgrass	<i>Panicum virgatum</i>	Grass	8
	Ox-eye Sunflower	<i>Heliopsis helianthoides</i>	Forb	2
	Prairie blazing star	<i>Liatris pycnostachya</i>	Forb	2
	Yellow cone flower	<i>Ratibida pinnata</i>	Forb	1.5
	Cupplant	<i>Silphium perfoliatum</i>	Forb	1
	Golden Alexander	<i>Zizia aurea</i>	Forb	1
	Prairie cinquefoil	<i>Potentilla arguta</i>	Forb	0.5
	Black-eyed Susan	<i>Rudbeckia hirta</i>	Forb	0.5
	Evening primrose	<i>Oenothera biennis</i>	Forb	0.25
	Purple prairie clover	<i>Dalea purpurea</i>	Legume	1.5
Canada milk vetch	<i>Astragalus canadensis</i>	Legume	1	
Mesic	Big bluestem	<i>Andropogon gerardii</i>	Grass	24
	Indian grass	<i>Sorghastrum nutans</i>	Grass	24
	Switchgrass	<i>Panicum virgatum</i>	Grass	16
	Little bluestem	<i>Schizachyrium scoparium</i>	Grass	16
	New England aster	<i>Aster novae-angliae</i>	Forb	1
	Bergamot	<i>Monarda fistulosa</i>	Forb	1
	Yellow cone flower	<i>Ratibida pinnata</i>	Forb	1
	Black-eyed Susan	<i>Rudbeckia hirta</i>	Forb	0.5
	Purple prairie clover	<i>Dalea purpurea</i>	Legume	2.5
Wet-Mesic	Indian grass	<i>Sorghastrum nutans</i>	Grass	26
	Big bluestem	<i>Andropogon gerardii</i>	Grass	26
	Canada wild rye	<i>Elymus canadensis</i>	Grass	18
	Switchgrass	<i>Panicum vergatum</i>	Grass	8
	Fowl managrass	<i>Glyceria striata</i>	Grass	1
	Prairie cordgrass	<i>Spartina pectinata</i>	Grass	1
	Cupplant	<i>Silphium perfoliatum</i>	Forb	2
	Yellow cone flower	<i>Ratibida pinnata</i>	Forb	1.5
	Golden Alexander	<i>Zizia aurea</i>	Forb	1
	Bergamot	<i>Monarda fistulosa</i>	Forb	1
	Boneset	<i>Eupatorium perfoliatum</i>	Forb	0.5
	Black-eyed Susan	<i>Rudbeckia hirta</i>	Forb	0.6
	Common Ironweed	<i>Vernonia fasciculata</i>	Forb	0.5
	Sawtooth sunflower	<i>Helianthus grosseserratus</i>	Forb	0.1
Canada milk vetch	<i>Astragalus canadensis</i>	Legume	3	
Wet-Mesic	Big Bluestem	<i>Andropogon gerardii</i>	Grass	16
	Switchgrass	<i>Panicum virgatum</i>	Grass	8
	Little Bluestem	<i>Schizachyrium scoparium</i>	Grass	18
	Prairie Dropseed	<i>Sporobolus heterolepis</i>	Grass	20
	Canada Wild Rye	<i>Elymus canadensis</i>	Grass	18
	Yellow Coneflower	<i>Ratibida pinnata</i>	Forb	1.5
	Blue Vervain	<i>Verbena hastata</i>	Forb	1
	Prairie Blazing Star	<i>Liatris pycnostachya</i>	Forb	3
	Virginia Mt. Mint	<i>Pycnanthemum virginianum</i>	Forb	1
	Prairie Dock	<i>Silphium terebinthinaceum</i>	Forb	2
	New England Aster	<i>Aster novae-angliae</i>	Forb	1
	Bergamot	<i>Monarda fistulosa</i>	Forb	1
	Black-eyed Susan	<i>Rudbeckia hirta</i>	Forb	0.5
	Showy Tick Trefoil	<i>Desmodium canadense</i>	Legume	1
	White Wild Indigo	<i>Baptisia lactea</i>	Legume	2

Table 4 (continued)

Site Type	Common Name	Genus and species	Plant Type	Seeding Rate in oz/acre PLS
Wet	Rice Cutgrass	<i>Leersia oryzoides</i>	Grass	2
	Prairie Cordgrass	<i>Spartina pectinata</i>	Grass	2
	Fowl Mannagrass	<i>Glyceria striata</i>	Grass	2
	Wool Grass	<i>Scirpus cyperinus</i>	Sedge	1
	Fox Sedge	<i>Carex vulpinoidea</i>	Sedge	2
	Great Blue Lobelia	<i>Lobelia siphilitica</i>	Forb	0.5
	Joe-Pye Weed	<i>Eupatorium maculatum</i>	Forb	2
	Blue Vervain	<i>Verbena hastata</i>	Forb	2
	Sneezeweed	<i>Helenium autumnale</i>	Forb	1
	Marsh Milkweed	<i>Asclepias incarnata</i>	Forb	2
	Spotted Touch-me-not	<i>Impatiens capensis</i>	Annual	2
Wet	Canada Bluejoint	<i>Calamagrostis canadensis</i>	Grass	1.5
	Giant Mannagrass	<i>Glyceria grandis</i>	Grass	3
	Virginia Wild Rye	<i>Elymus virginicus</i>	Grass	16
	Awl-fruited Sedge	<i>Carex stipata</i>	Sedge	2
	Common Rush	<i>Juncus effusus</i>	Rush	1
	Great St. Johns Wort	<i>Hypericum pyramidatum</i>	Forb	0.5
	Nodding Beggarstick	<i>Bidens coronata</i>	Forb	1
	Blue Vervain	<i>Verbena hastata</i>	Forb	2
	Culver's Root	<i>Veronicastrum virginicum</i>	Forb	0.25
	Virginia Mt. Mint	<i>Pycnanthemum tenuifolium</i>	Forb	1
	Boneset	<i>Eupatorium perfoliatum</i>	Forb	2

Table 5  
Example Seeding Mixtures for Introduced Species

Mix #	Common Name	Genus & Species	Seeding Rate in lb./ac PLS
1 - Dry-Mesic and Mesic Sites	Smooth Bromegrass	<i>Bromus inermis</i>	10
	Creeping Red Fescue	<i>Festuca rubra</i>	3
	Alfalfa	<i>Medicago sativa</i>	3
	Red Clover	<i>Trifolium pratense</i>	3
2 - Dry-Mesic and Mesic Sites	Smooth Bromegrass	<i>Bromus inermis</i>	15
	Alfalfa	<i>Medicago sativa</i>	3
3 - Mesic Sites	Smooth Bromegrass	<i>Bromus inermis</i>	5
	Creeping Red Fescue	<i>Festuca rubra</i>	2
	Kentucky bluegrass	<i>Poa pratensis</i>	2
	Birdsfoot trefoil	<i>Lotus corniculatus</i>	2
4 - Mesic Sites	Smooth Bromegrass	<i>Bromus inermis</i>	15
	Creeping Red Fescue	<i>Festuca rubra</i>	2
5 - Mesic Sites	Kentucky Bluegrass	<i>Poa pratensis</i>	4
	Creeping Red Fescue	<i>Festuca rubra</i>	3
6 - Mesic Sites	Smooth Bromegrass	<i>Bromus inermis</i>	14
	Timothy	<i>Phleum pratense</i>	1
	Red Clover	<i>Trifolium pratense</i>	2
	OR Alsike Clover	<i>Trifolium hybridum</i>	1
	OR Birdsfoot trefoil	<i>Lotus corniculatus</i>	2
7 - Wet Mesic Sites	Redtop	<i>Agrostis alba</i>	1
	Timothy	<i>Phleum pratense</i>	2
	Red Clover	<i>Trifolium pratense</i>	5
8 - Wet Sites	Redtop	<i>Agrostis alba</i>	2
	Alsike Clover	<i>Trifolium hybridum</i>	2

Table 6  
Custom Seeding Mixture for Introduced Species <sup>1</sup>

Genus and species	Name	Plant Type	Moisture Regime	Single Species Seeding Rate (lb/ac PLS)	Deep rooted species
<i>Bromus inermis</i>	Smooth brome	Grass	DM, M, WM	20	yes
<i>Agrostis alba</i>	Redtop	Grass		4	---
<i>Festuca rubra</i>	Creeping red fescue	Grass		5	---
<i>Festuca rubra ssp falax</i>	Chewings red fescue	Grass		5	---
<i>Festuca arundinacea</i>	Tall fescue	Grass		10	yes
<i>Phleum pratense</i>	Timothy	Grass		8	---
<i>Poa pratensis</i>	Kentucky bluegrass	Grass	M, WM	8	---
<i>Lotus corniculatus</i>	Birdsfoot trefoil	Legume	M, WM	6	---
<i>Medicago sativa</i>	Alfalfa	Legume	D, DM, M	12	yes
<i>Trifolium hybridum</i>	Alsike clover	Legume		3	---
<i>Trifolium pratense</i>	Red clover	Legume	DM, M, WM	10	---
<i>Trifolium repens</i>	Ladino clover	Legume	M, WM	3	---

<sup>1</sup> It is required that at least 50% of the custom mixture is composed of grass.

Example: A seed mixture of 50% red clover, 25% brome, and 25% red fescue is desired. What would be the seeding rate of each specie in the mixture in pounds of Pure Live Seed (PLS)?

To solve this problem, take the pure stand seeding rate in PLS pounds per acre for each specie, multiply this value times the percent of that specie desired in the mixture and the answers will be the seeding rates of each specie in pounds of PLS per acre.

Specie	Pure Stand Seeding Rate (pounds/acre)	Percent in Mix	Seeding Rate Pounds PLS/acre for Mixture
Red Clover	10	50%	5
Brome	20	25%	5
Red Fescue	5	25%	1.25

Total pounds PLS/acre = 11.25

## John Lefebvre

---

**From:** Bart Sexton [bart.sexton@sand-creek.com]  
**Sent:** Friday, January 25, 2013 11:10 AM  
**To:** John Lefebvre  
**Subject:** Irrigation system components information

Hi John,

Getting back on the information requested by your committee.

### **Spray irrigation**

I had misspoken during my presentation, our original conceptual design on sprayers would have required 30 units, not 60 as I said.

I have found some taller, 12" pop up sprayers with a 26 degree spray angle that I think would work for this application. Since the site is probably only mowed once a year, my concern with a typical pop-up was that the grass would get too tall and intercept much of the spray and concentrate the applications. This sprayer should avoid that problem.

We can also cover the 2/3rds acre with only 6 of these units. Lateral lines would be put in subsurface, as long as they are kept no deeper than 6" to avoid cutting into the clay. Economically for the install it is about 'a horse a piece' as there will be additional install and trencher time with the fewer sprayers.

### **Warranties**

The Grundfos pump has a 1 year factory warranty. An extended 5 year warranty is available for \$200. The pump costs approximately \$2,200. Our experience with these pumps have been very good and we have not taken out any extended warranties on them. The Grundfos SQ Flex pumps are of heavy duty stainless steel construction and the design has been working in the field for over 20 years. There are cheaper pumps available, but the proven field track record of the Grundfos pumps with a solar powered DC motor is well worth the couple hundred dollars extra initial investment.

The flow meter has a 2 year factory warranty, cost of the meter is approximately \$200.

The aforementioned pop up sprayers have a 5 year warranty. Replacement costs are \$30 apiece and we would include 3 additional sprayers with the installation.

Solar panels typically have a 20 or 25 year factory warranty for 80% of their original power output. Panels in place for this amount of time have generally exceeded this power percentage and the current generation panels are even better.

We would include an annual maintenance amount, primarily for replacement parts, as a part of the system design. For a small system like this, the annual parts amount would be \$200 - \$400. Important to include for your final Return on Investment calculations.

Any other questions that your or your folks have, just give me a call or e-mail.

Thanks John and have a good weekend!

Regards,

Bart Sexton, M.S., Sr. Construction Manager  
Sand Creek Consultants, Inc. | 108 E. Davenport | Rhinelander, WI 54501  
main 715.365.1818 | direct 715.365.1819 | cell 715.499.1891 | fax 866.608.6473  
[www.sand-creek.com](http://www.sand-creek.com) | [bart.sexton@sand-creek.com](mailto:bart.sexton@sand-creek.com)

## **AGREEMENT FOR PROFESSIONAL SERVICES**

between  
**MARINETTE COUNTY**  
and  
**SAND CREEK CONSULTANTS, INC.**

THIS AGREEMENT is made by and between Marinette County, (COUNTY), a municipality, and Sand Creek Consultants, Inc., a Wisconsin Corporation, (CONSULTANT), for the purpose of designing, permitting, providing all materials and installing an onsite leachate treatment system at the Marinette County North County Landfill.

The parties agree as follows:

1. **Scope of Services:** CONSULTANT will design, submit a plan of operation modification request to the Wisconsin Department of Natural Resources (WDNR) under NR 500, Wis. Admin Code, and, upon approval of the plan modification request from WDNR, install an on-site leachate treatment system on a property known as Marinette County North Landfill, located N1/2 NW1/4 of Sec 16 T37N R20E, Town of Pembine, Marinette County, Wisconsin. The project is further described in a letter dated November 14, 2012, to Mr. John Lefebvre/Marinette County Zoning Department from Bart Sexton/Sand Creek, Subject: Proposal to Permit/Install On-Site Leachate Treatment, Attachment A, attached and incorporated by reference.
2. Both parties agree that the relationship between the parties shall be that of an independent CONSULTANT and shall not be construed to be an Employer-Employee relationship; specifically the parties agree that:
  - CONSULTANT will be responsible to pay all Federal, State and social security taxes on any income received under this Agreement.
  - COUNTY will pay no fringe benefits or other compensation to CONSULTANT.
3. Total estimated cost, as shown in Attachment B, attached and incorporated by reference, to complete the scope of services ranges from \$32,735 (without contingency funds) to \$42,556 (with 30% contingency funds). Estimated cost does not include perimeter fencing or WDNR review fees.

The work will be performed on a time-and-material basis at the rates specified on the rate sheet included as Attachment C, attached and incorporated by reference.

The higher cost estimate which includes the contingency funds will serve as the project budget, and shall not be exceeded without COUNTY'S written approval. In the event CONSULTANT anticipates exceeding the project budget, CONSULTANT shall provide a written explanation and a revised cost estimate. Significant changes to the scope of work or cost shall be incorporated as a written Amendment to this Agreement.

Payment shall be made by the COUNTY within thirty (30) days of receipt of monthly invoices from CONTRACTOR.

4. CONSULTANT will provide and maintain certificates of insurance with minimum limits as follows:

General liability, each occurrence	\$ 1,000,000
Auto liability, each occurrence	\$ 300,000
Workers Compensation	Statutory Requirements

Certificates of insurance indicating COUNTY as additional insured must be presented to COUNTY's agent with a signed copy of this agreement prior to commencing work. Additionally, all policies shall contain endorsements by respective insurance companies waiving all rights of subrogation, if any, against COUNTY and shall further provide that policies are not cancelable except upon thirty days written notice to COUNTY.

5. CONSULTANT hereby agrees to release, indemnify, defend and hold harmless the COUNTY, its officials, officers, employees and agents from and against all judgments, damages, penalties, losses, costs, claims, expenses, suits, demands, debts, actions and/or causes of action of any type or nature whatsoever, including actual and reasonable attorney fees, which may be sustained or to which they may be exposed, directly or indirectly, by reason of personal injury, death, property damage, or other liability, alleged or proven, resulting from or arising out of the performance under this agreement by vendor, its officers, officials, employees, agent or assigns. Marinette County does not waive, and specifically reserves, its right to assert any and all affirmative defenses and limitations of liability as specifically set forth in Wisconsin Statutes, Chapter 893 and related statutes.

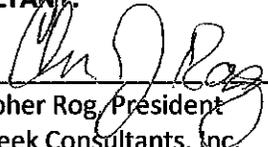
6. Agreement Contacts:

COUNTY: John Lefebvre  
1926 Hall Ave  
Marinette, WI 54143  
Phone: 715.732.7536  
e-mail: [jlefebvre@marinettecounty.com](mailto:jlefebvre@marinettecounty.com)

CONSULTANT: Bart Sexton  
108 E. Davenport  
Rhineland, WI 54501  
Phone: 715.365.1819  
e-mail: [bart.sexton@sand-creek.com](mailto:bart.sexton@sand-creek.com)

7. This agreement shall be governed by the laws of the State of Wisconsin.
8. COUNTY may terminate this agreement in the event CONSULTANT breaches any of the terms of the agreement or for unsatisfactory performance by CONSULTANT. Termination shall be immediate upon written notification by the COUNTY.

**CONSULTANT:**

By:  \_\_\_\_\_  
Christopher Rog, President  
Sand Creek Consultants, Inc.

Date: \_\_\_\_\_

**COUNTY:**

By: \_\_\_\_\_  
Kathy Brandt, County Clerk  
Marinette County

Date: \_\_\_\_\_



November 14, 2012

Mr. John Lefebvre  
Marinette County Zoning Department  
1926 Hall Avenue  
Marinette, WI 54143

**Re: Marinette County Landfill - North**  
WDNR License #3052

**Subject: Proposal to Permit/Install On-Site Leachate Treatment**

Dear Mr. Lefebvre:

Thank you for taking time last month to discuss the leachate treatment options at Marinette County's closed North Landfill.

Sand Creek Consultants, Inc. (Sand Creek) is pleased to provide the following proposal for permitting and installation of an on-site leachate treatment system at Marinette County's closed North Landfill, outside of Pembine.

Based on a cautiously favorable initial opinion received from the Wisconsin Department of Natural Resources (WDNR), the projected cost to permit and install a leachate irrigation system that will use on-site vegetation for treatment is between \$38,000 and \$43,000.

The reason for the range in pricing is to allow for additional permitting work since the WDNR views this project as 'precedent setting'. Some extra work in the permitting phase can save the County money in the long run. As an example, Sand Creek recently permitted an industrial landfill for a site north of Merrill and received WDNR approval with no added conditions. I have attached a copy of that approval for your reference.

The above pricing would not include an anticipated \$1,650 WDNR review fee for the plan of operation modification.

Sand Creek's scope of work for this project would include:

1. Create a final system design to include solar powered pump, controls and a 0.6 acre irrigation system to be centered on the landfill.
2. Create a plan of operation modification request to implement the system design and on-site leachate treatment from April 1 to October 31<sup>st</sup> each year.
3. Provide a draft of the plan modification request to the County for comment prior to submittal to WDNR.
4. Once approved, install the solar powered on-site leachate treatment system including all travel, per diem, materials and labor.

5. Create an as-built report of the installed system for submittal to the County and WDNR.
6. Provide on-site training and a reference sheet outlining system operations, maintenance and monitoring to County personnel.

Long-term benefits of implementing an on-site leachate treatment system at the North Landfill include:

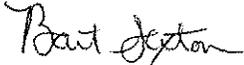
1. Reduced annual leachate transport and treatment costs.
2. Increased life of the site's long-term care fund.
3. Reduction of an estimated 12 tons of carbon emissions annually.

If you have any questions, or would like Sand Creek to make a brief presentation on the above proposal, please contact me via phone at 715.365.1819 or by email at [bart.sexton@sand-creek.com](mailto:bart.sexton@sand-creek.com).

Thank you for your time and considerations of this proposal.

Sincerely,

**SAND CREEK CONSULTANTS, INC.**



Bart Sexton, MS  
Project Manager/Sr. Soil Scientist

Via e-mail only

Enclosures: WDNR Conditional Approval to Expand the Phytotechnology Systems at the Former Ward Paper Landfill

**State of Wisconsin**  
DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor  
Cathy Stepp, Secretary  
Telephone 608-266-2621  
Toll Free 1-888-936-7463  
TTY Access via relay - 711



June 4, 2012

Mr. Philip Slowiak, Project Manager.  
International Papers  
6400 Poplar Avenue  
Memphis, TN, 38197

FILE REF: FID #735031660  
Lincoln County  
SW/APP

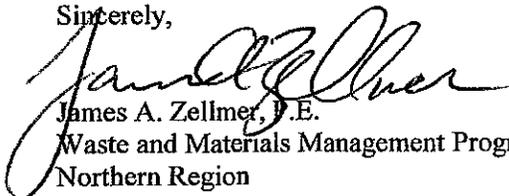
Subject: Plan Modification request to expand the Phytotechnology Systems at the Former Ward Paper Landfill (Lic No. 2991)

Dear Mr. Slowiak:

Your requested modification to the plan of operation for the Ward Paper landfill has been reviewed and approved subject to the conditions listed in the attached approval. The request dated April 2012 includes modifications and expansion to the annual reporting requirements, additional hybrid poplar plantings on Cells 1 thru 3 on the landfill cap, planting hybrid poplars on Cell 4, and the use of leachate as an irrigation source for the hybrid poplars.

If you have any questions regarding this letter feel free to call Tom Bennwitz at (608) 275-3211, or John Morris at (715) 635-4046.

Sincerely,

  
James A. Zellmer, D.E.  
Waste and Materials Management Program Supervisor  
Northern Region

cc: John Morris - Spooner  
Tom Bennwitz - Fitchburg  
Sherry Otto - Rhinelander  
Bob Grefe - GEF 2  
Bart Sexton - Sand Creek Consultants (email) bart.sexton@sand-creek.com

## PROJECT SUMMARY

### Landfill Development:

On July 29, 1981, Lincoln Disposal, Inc. was issued a Plan of Operation Approval for a paper mill sludge landfill. The landfill approval was for trench filling having eight cells that was expected to last approximately eight years, and receive primary and secondary sludge from the Ward Paper Company. The total site volume was 106,400 cubic yards. Each cell was designed with a length of 300 feet, and width of 120 feet, and a depth of 14 feet. The entire site is 14 acres in size.

The liner for cells 1-3 consists of 5 feet of re-compacted silty soil. The cap for cells 1-3 is comprised of two feet of on-site silty sand with 6" of topsoil. Cell 4 has a 5 foot silty soil liner, and the cap consist of 6" - 12" of on site soil stabilization layer over the sludge, followed by 6" thick gas venting layer, a 2 foot thick re-compacted clay layer, an 18" thick rooting layer followed by 6" of topsoil. All four cells have leachate collection.

In a letter dated January 14, 1992, the Department notified Ward Paper Company that groundwater monitoring around the facility indicated the landfill was causing contamination, thus prompting a revision to the liner and cap for Cells 5-8. Cells 5-8 were excavated, but only Cell 5 was filled. Cell 5 has a 60 mil polyethylene membrane placed over a 5 foot compacted soil component of the liner system and a leachate collection system. The cover consists of two feet of re-compacted silty soil followed by a 60 mil polyethylene membrane, with one foot of drainage layer above the membrane and one foot rooting soil and six inches of topsoil to complete the cap.

Cells 1-3 were officially closed on August 7, 1992. Cell 4 was officially closed on January 4, 1994. Cell 5 was officially closed on May 2, 1997.

On October 1, 1996, International Paper (Ward Paper Landfill) was issued a "Solid Waste Facility Closure and Long Term Care License".

### Leachate Management

Currently leachate is collected in two tanks at the landfill. Cells 1-4 have an independent leachate collection system and discharge to the north leachate tank (tank #1), and cells 5-8 were designed to collect leachate in the south leachate tank (tank #2). Each leachate tank has a 20,000 gallon capacity. Leachate data compiled since 2000 shows annual leachate production ranges from 300,000 to 870,000 gallons per year (Sand Creek Consultants (SCC)). All leachate is currently being hauled to the Merrill Wastewater Treatment Plant (WWTP).

### Leachate Reduction Plan

In order to reduce the amount of leachate generated at the Ward Paper landfill, and subsequent hauling of leachate to the Wastewater Treatment Plant, SCC proposed a modification to the landfill cap (July 11, 2003). The modification focused on phyto-technology as a means to reduce leachate volumes by planting poplar trees on the landfill cap. The poplar trees absorb moisture through the root system and pass moisture to the leaves for evapotranspiration into the atmosphere. The proposal was approved by the Department of Natural Resources (Department) on August 19, 2003, for poplar tree planting on a section of Cell 1.

On January 6th, 2004, SCC requested an expansion to the plan modification to include planting on Cells 1, 2, and 3 at the Ward Paper landfill. As a part of that proposal SCC indicated that no irrigation would be needed due to the soil moisture holding capacity combined with the seasonal rainfall that would supply all water needed by the trees. This proposal also stated that water stress would occur during certain periods of the year, but the water storage void that is created in the soil profile will allow added storage of water during the portion of the year

when little evapo-transpiration occurs, thus increasing root depths and enhance the sponge and pump function of the cover.

On March 31, 2004, a conditional plan modification was approved to expand the poplar tree plantings onto Cells 1, 2, and 3. As a part of this approval several conditions were applied to determine the success or failure of the sponge and pump cover system. Results from the planting of poplar trees on the cap have shown that after the first five years, survival rates for the trees have been good and the trees are maturing rapidly which has contributed to a reduction in leachate generated. The reduction in leachate generated is a combination of a number of factors, including several dry years since the plantings. Currently success is based on literature findings, but it is unknown as to how successful the sponge and pump system is working due to the inability to compare the leachate production totals from cell 4 (no poplar tree plantings) vs. cells 1, 2, & 3.

#### **Leachate Application Proposal:**

In order to better define the results from the experimental sponge and pump cover system, SCC has proposed to utilize leachate from the leachate tanks as a source of irrigation water to the poplar trees during periods when moisture to the trees are low. Based on transpiration rates presented by SCC, poplar trees have far more capacity to absorb and transpire the moisture, thus reducing leachate volumes that would need to be hauled to a WWTP.

The current proposal also calls for pumping leachate from the south tank into the north tank for maximum usage of the total leachate production.

#### **Plan Modification Request:**

1. Change the reporting date for the annual report to January 31st of each year rather than December 31st.
2. Install additional hybrid poplar trees on the perimeter of the existing landfill cap on Cells 1, 2, & 3.
3. Install hybrid poplar trees on the cover of Cell 4.
4. Use leachate from the North and South Leachate tank as an irrigation source for the hybrid poplar trees on Cells 1 thru 4.
5. Expand the annual report to include specific details on the hybrid poplar installation, irrigation summaries, and other information as specified in the plan modification request.

The plan modification includes details for the plumbing and irrigation system, details, and controls. The system is intended to operate based on on-site meteorological data with feedback to the irrigation controls. Irrigation is intended to be shut off during periods of rain or adequate soil moisture for the hybrid poplars.

The areas of this proposal that the Department will focus on evaluating the merits include: environmental protection (groundwater monitoring trends), cap maintenance (tree management and maintenance), and leachate contaminant fate (retention in soil and vegetation).

**CONDITIONAL APPROVAL  
TO EXPAND THE PHYTOTECHNOLOGY SYSTEMS  
AT THE WARD PAPER LANDFILL**

The Department hereby approves the proposed plan for expanding the phytotechnology systems at the Ward Paper landfill subject to the following conditions:

1. IP shall provide baseline soil sample chemistry for Cell 4 according to Table 1 in the Plan Modification submittal.
2. IP shall provide baseline vegetation sampling according to Table 2, and test frequency listed in section 7.2 of the plan modification submittal.
3. A map showing the location of each genotype planted, and number of plantings shall be provided in the 2012 annual report.
4. The Department's Waste Management Engineer and Waste Management Specialist shall be notified one week prior to leachate irrigation startup.
5. Groundwater monitoring reports shall be submitted annually with the annual report, with the electronic data and exceedance summary submitted semi-annually to the GEM's database.
6. Root depth penetration analysis is no longer required.
7. Change in growth rates from year to year shall be reported in the annual report.

This approval is based on the information available to the Department as of the date of approval. If additional information, project changes or other circumstances indicate a possible need to modify this approval, the Department may ask you to provide further information relating to this activity. Likewise, the Department accepts proposals to modify approvals, as provided for in state statutes and administrative codes.

**NOTICE OF APPEAL RIGHTS**

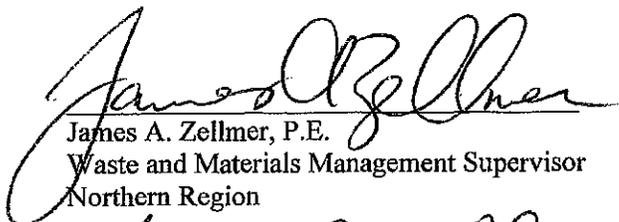
If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes and administrative codes establish time periods and requirements for reviewing Department decisions.

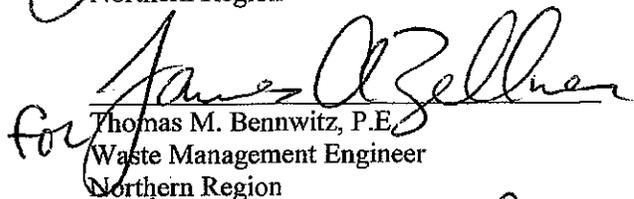
To seek judicial review of the Department's decision, sections 227.52 and 227.53, Stats., establish criteria for filing a petition for judicial review. You have 30 days after the decision is mailed or otherwise served by the Department to file your petition with the appropriate circuit court and serve the petition on the Department. The petition shall name the Department of Natural Resources as the respondent.

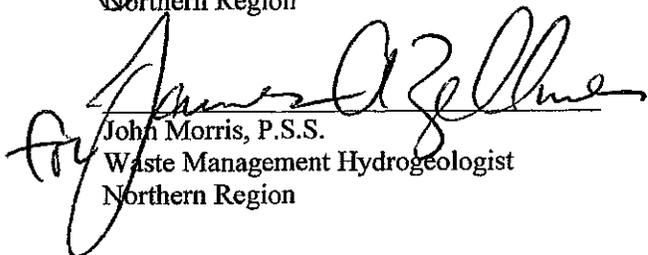
DEPARTMENT OF NATURAL RESOURCES

Dated: June 4, 2012

For the Secretary

  
James A. Zellmer, P.E.  
Waste and Materials Management Supervisor  
Northern Region

for   
Thomas M. Bennwitz, P.E.  
Waste Management Engineer  
Northern Region

by   
John Morris, P.S.S.  
Waste Management Hydrogeologist  
Northern Region

# Attachment B

## Proposal to Permit/Install On-Site Leachate Treatment Marinette County Landfill - North

<b>Plan Mod/Permitting/Design</b>	
Sr. Project Manager	\$1,680
Project Manager	\$4,680
Professional Engineer	\$3,960
Drafter	\$960
Administrative Support	\$800
<hr/>	
Subtotal:	\$12,080
15% Contingency:	\$1,812
Total:	\$13,892

<b>Installation: Materials/Labor Materials/Expenses</b>	
Solar Pumping System	\$5,933
Irrigation Materials	\$2,490
Misc. Equipment/Expenses	\$1,716
Subtotal:	\$10,139

<b>Installation Labor</b>	
Project Management and Support	\$2,860
Labor: Preparation and Install	\$7,656
Subtotal:	\$10,516
<hr/>	
Subtotal:	\$20,655
15% Contingency:	\$3,098
Total:	\$23,753

**Grand Total**                      **\$37,645**

<b>Plan Mod/Permitting/Design</b>	
Sr. Project Manager	\$1,680
Project Manager	\$4,680
Professional Engineer	\$3,960
Drafter	\$960
Administrative Support	\$800
<hr/>	
Subtotal:	\$12,080
30% Contingency:	\$3,624
Total:	\$15,704

<b>Installation: Materials/Labor Materials/Expenses</b>	
Solar Pumping System	\$5,933
Irrigation Materials	\$2,490
Misc. Equipment/Expenses	\$1,716
Subtotal:	\$10,139

<b>Installation Labor</b>	
Project Management and Support	\$2,860
Labor: Preparation and Install	\$7,656
Subtotal:	\$10,516
<hr/>	
Subtotal:	\$20,655
30% Contingency:	\$6,197
Total:	\$26,852

**Grand Total**                      **\$42,556**

# Attachment C



## Sand Creek Consultants, Inc. Schedule of Labor Rates

<b>Professional Staff</b>	<b>Hourly Rate</b>
Principal/Senior Project Manager	\$140
Project Manager/Senior Scientist/Senior Engineer	\$130
Professional Engineer/Professional Geologist	\$100
Associate Scientist/Associate Engineer	\$95
Project Scientist/Project Engineer	\$90

<b>Support Staff</b>	<b>Hourly Rate</b>
Senior Technician	\$85
Technician	\$70
Junior Technician	\$50
Draftsperson	\$60
Administrative Assistant	\$55

<b>Litigation Support</b>	<b>Hourly Rate</b>
Research & Evaluation	Standard Staff Rates
Deposition	Standard Rate X 1.5
Courtroom	Standard Rate X 2

<b>Specialty Disciplines</b>	<b>Hourly Rate</b>
Groundwater Modeler/Geochemist (Ph.D, PG, 20+ Years Experience)	\$130
Civil or Mechanical Engineer (PE, 20+ Years Experience)	\$130
Cultural/Anthropological Scientist (Ph.D., 10+ Years Experience)	\$120
Air Permit Specialist (M.S., 10+ Years Air Permit Exp.)	\$120
Environmental Chemist (M.S., 20+ Years Experience)	\$120
Registered Land Surveyor (RLS, 20+ Years Experience)	\$120
Wetland Delineator (M.S., 10+ Years Experience)	\$120

### Notes:

Rates effective September 2012. Rates subject to change.



**Sand Creek Consultants, Inc.  
Schedule of Fees and Expenses**

**Office Expenses Included at No additional Cost**

Includes office materials, supplies, computer use, telephones, faxes, rental equipment, photocopies and prints made in-house (except teleconference fees).

No additional hourly charges as these costs are built into hourly labor rates.

**Services and Expenses Billed Directly to Client**

Unless otherwise requested, the client will be billed directly by the provider for materials or services costing more than \$500.

No additional charges.

**Services and Expenses Billed Through Sand Creek**

Unless otherwise agreed to in writing, an administration and handling charge of 10% will be added to services and expenses billed through Sand Creek.

Unit Number	Description	Cost/Unit	Unit
<b>DETECTORS/METERS/FIELD SCREENING TOOLS</b>			
1	pH/Temperature/ORP	\$50	Day
2	Temp/Conductivity/Salinity/Dissolved Oxygen	\$50	Day
3	Water Level Indicator	\$20	Day
4	Slug Testing Data Logger/Equip Including Laptop	\$100	Day
5	Qualitative Test Kit (NO <sub>3</sub> , NH <sub>4</sub> , P)	\$5	Each
6	Field Detector (such as Cardy Meter)	\$50	Day
7	4-Gas Meter	\$100	Day
8	Photoionization Detector	\$75	Day
<b>SAMPLING EQUIPMENT</b>			
9	Hand Auger	\$15	Day
10	Metal Detector	\$25	Day
11	Hammer Drill (includes bits)	\$75	Day
12	Electric Submersible Pump - 2-inch	\$50	Day
13	Peristaltic Pump	\$75	Day
<b>MISCELLANEOUS EQUIPMENT</b>			
14	Chain Saw and Associated Equipment	\$50	Day
15	Laser Level	\$60	Day
16	Trimble GPS Survey Equipment	\$620	Day
17	Dibble Bars (each)	\$10	Day
18	Refrigeration (Mobile, in-trailer)	\$20	Day
19	High Wheel Trimmer (includes fuel)	\$50	Day
20	Gas Weed Eater (includes fuel)	\$25	Day
21	Freezer (storing)	\$25	Day
22	Propane Torch (winter field work only)	\$15	Day
23	Honda Trash Pump	\$30	Day
24	Grout Pump	\$100	Day
<b>GENERAL FIELD SUPPLIES/EQUIPMENT</b>			
25	Field Equipment Kit (digital camera, measuring wheel, tool kit, metal detector, etc.)	\$30	Day
26	Water Sampling Kit (per well: rope, tubing, gloves, paper towels, decon supplies, etc.)	\$8	Well
27	Bailer - Disposable	\$17	Each
28	Soil Sampling Kit (per boring: gloves, bags, paper towels, decon supplies, etc.)	\$3	Boring
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>			
29	Respirator	\$25	Day
30	Level B Safety Equipment	\$150	Day
31	Level C Safety Equipment	\$75	Day
32	Tyvek Suit, Booties, Cap	\$25	Each
<b>MEALS, LODGING, AND VEHICLES</b>			
33	Meals and Lodging/U.S. General Services Administration Per Diem Rates		Each
34	Vehicle: Truck (mileage) <sup>1</sup>	\$0.86	Mile
	Vehicle: Truck (daily) <sup>1</sup>	\$120	Day
35	Vehicle: Auto (mileage) <sup>1</sup>	\$0.66	Mile
	Vehicle: Auto (daily) <sup>1</sup>	\$90	Day
36	Trailer <10,000 lb GVWR	\$100	Day
37	Tractor - 25 HP including attachments, trailer and delivery	\$185	Day

**Notes:**

<sup>1</sup>Vehicles will be charged by either a mileage or daily rate, not both. Rates effective October 2012. Rates subject to change.



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

01/16/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER  <b>Favell Insurance Services, LLC</b> 134 N Brown Street PO Box 10 Rhineland, WI 54501	CONTACT NAME: <b>Jodi E. Hoban</b>	FAX (A/C, No): <b>(715)365-7420</b>	
	PHONE (A/C, No, Ext): <b>(715)365-7414</b>	E-MAIL ADDRESS: <b>jodih@favellinsurance.com</b>	
INSURED  <b>Sand Creek Consultants, Inc</b> 108 E Davenport St Rhineland, WI 54501-3407	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A:	<b>Liberty Surplus Insurance Corp.</b>	
	INSURER B:	<b>Owners Insurance Company</b>	<b>32700</b>
	INSURER C:	<b>Auto Owners Insurance Company</b>	<b>18988</b>
	INSURER D:		
	INSURER E:		

## COVERAGES

CERTIFICATE NUMBER: 00002163-0

REVISION NUMBER: 4

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	N	N	UVE-DE-103651-111	03/15/2012	03/15/2013	EACH OCCURRENCE \$ <b>2,000,000</b> DAMAGE TO RENTED PREMISES (Ea occurrence) \$ <b>100,000</b> MED EXP (Any one person) \$ <b>10,000</b> PERSONAL & ADV INJURY \$ <b>2,000,000</b> GENERAL AGGREGATE \$ <b>2,000,000</b> PRODUCTS - COMP/OP AGG \$ <b>2,000,000</b>
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input checked="" type="checkbox"/> Form # 79001	N	N	4875699800	03/15/2012	03/15/2013	COMBINED SINGLE LIMIT (Ea accident) \$ <b>1,000,000</b> BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N	N/A	61055570	03/15/2012	03/15/2013	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ <b>1,000,000</b> E.L. DISEASE - EA EMPLOYEE \$ <b>1,000,000</b> E.L. DISEASE - POLICY LIMIT \$ <b>1,000,000</b>

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

## CERTIFICATE HOLDER

## CANCELLATION

**Marinette County Zoning Department**  
1926 Hall Ave.  
Marinette, WI 54143

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

(JEH)

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**SUPPORTING RESTORATION OF BASE-LEVEL FUNDING AS RECOMMENDED BY THE  
WISCONSIN COUNTIES ASSOCIATION AND WISCONSIN FARM BUREAU**

**WHEREAS**, the State Legislature and Governor enacted into law in 1997, a county-based system to protect our land and water resources from impacts associated with Non Point Source Pollution that lead to soil loss and polluted runoff; and,

**WHEREAS**, the Marinette County Land and Water Conservation Division is the necessary local delivery mechanism for a wide range of natural resource management programs; and

**WHEREAS**, Section 92.16(6)(b) of Wisconsin Statutes states the Department of Agriculture, Trade and Consumer Protection shall attempt to provide funding for an average of 3 staff per county and an average of \$100,000 for cost-sharing; and,

**WHEREAS**, the Department's Soil and Water Resource Management program has not met the funding expectations related to this statutory staffing goal; and,

**WHEREAS**, County Conservation staff supported by state grants have consistently decreased since the program began, from 219 in 1997 to 97 in 2012 under the 2011-2013 biennial budget and approved agency lapses; and,

**WHEREAS**, Counties have been required to pick up the funding shortfalls to maintain necessary program implementation or reduce needed service to clients; and

**WHEREAS**, the Department of Agriculture, Trade and Consumer Protection has requested additional reductions in base staff funding allocations in the 2013-15 biennial budget reducing funding from a 12 year average of \$9.3 million down to \$7.8 million in 2014 and \$8 million in 2015; and

**WHEREAS**, the Wisconsin Counties Association and the Wisconsin Farm Bureau Federation both adopted 2013 statewide policy directives recognizing the value of County Conservation Departments to their membership and supporting maintaining this base level of funding; and

**WHEREAS**, County Conservation staff play a critical role in our local economy by helping landowners: obtain needed state and federal funds for Non Point Source Pollution control Best Management Practices, control invasive species, and protect their investment in waterfront property.

**THEREFORE, BE IT RESOLVED**, that the Marinette County Board of Supervisors does hereby urge the Governor of the State of Wisconsin and all elected representatives in the Wisconsin State Legislature to return to the \$9.3 million appropriation for state aid to counties, recognizing the invaluable service that county conservation employees provide in helping Wisconsin farmers and growing our state's agriculture industry.

**BE IT FURTHER RESOLVED** that a copy of this resolution is to be provided to Governor Scott Walker, Wisconsin Legislators representing Marinette County, and DATCP Secretary Ben Brancel.

Adopted this 26 day of February 2013 by a majority vote of a quorum of the Marinette County Board.

\_\_\_\_\_  
Vilas Schroeder, Chairperson

\_\_\_\_\_  
Kathy Brandt, Clerk

Marinette County Finance Department  
Fiscal Impact Statement

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Number \_\_\_\_\_

Ordinance

Resolution

**SUPPORTING RESTORATION OF BASE-LEVEL FUNDING AS  
RECOMMENDED BY THE WISCONSIN COUNTIES ASSOCIATION AND  
WISCONSIN FARM BUREAU**

Fiscal Impact Statement:

*The resolution by itself has no fiscal impact to the County. However, Marinette County has averaged about \$130,000 in funding from the Wisconsin Department of Agriculture, Trade and Consumer Protection in recent years. And, any reduction in this funding would increase the funding burden to the County or result in a reduction of cost sharing, technical, and other service assistance provided to Marinette County's citizens and landowners.*

*Patrick Kass*

Patrick Kass  
Finance Director

January 22, 2013

Date



## LAND INFORMATION DEPARTMENT

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John Lefebvre  
Director

Greg Cleereman  
Conservationist

Linda Christensen  
Property Lister

February 11, 2013

The Honorable Scott Walker  
Wisconsin State Capitol, 115 East  
Madison, WI 53702

### Re: State Support for County Land Conservation Departments

Governor Walker:

County Land Conservation Departments (LCDs) are partners with Wisconsin farmers and play an integral role in Wisconsin's growing agricultural industry. Unfortunately, state aid from the Department of Agriculture, Trade and Consumer Protection (DATCP) for county LCDs has been declining for the past decade, including a reduction of \$1.6 million last year, or roughly 15% of the total state aid for LCDs.

*We urge you to reverse those cuts and return to the 2009-11 base budget of \$9.3 million per year in state aid for county LCDs. Similarly, we urge you to oppose further reductions included in any future DATCP lapse plan.*

The recent state cuts to Marinette County, and the additional rounds of cuts proposed by DATCP, will severely impair our ability to help our landowners. For example, since 2011 we've helped more than 300 landowners control phragmites on their shoreline property and helped twenty-four farms obtain state and/or federal cost sharing for best management practices to protect water quality. Without sufficient state aid, our LCD may not be able to provide these cost-effective services to landowners and farmers.

Adequate state aid for county conservation staff benefits Wisconsin's rural and urban communities and offer a positive return on investment by:

- ❖ **Providing Federal and State Resources to Farmers.** Last year, with state funding to help pay for the work of LCDs, county staff assisted farmers in capturing over \$32 million in state and federal cost-share dollars, money that helped Wisconsin farmers meet their environmental responsibilities while growing their businesses. Land conservation staff help about 17,000 farmers each year stay eligible for up to \$20 million in Farmland Preservation tax credits.
- ❖ **Assisting Farms of all Sizes.** DATCP Secretary Ben Brancel plans to expand the state's dairy production to 30 billion pounds of milk by 2020. For every manure storage facility built utilizing state cost-share funds, 75-125 cows are typically added, resulting in 1.5 to 2.5 million pounds of additional milk per year. Some livestock farms are not expanding, some are going organic, and



some are including grazing options. The investment in local conservation staff helps to ensure that farmers will meet all state and federal requirements whether expanding production or not.

- ❖ **Benefiting Rural Development.** Cost-share funds distributed by county staff help put millions of dollars in the hands of local businesses involved in the diverse land conservation supply chain, including private nutrient management planners, equipment manufacturers and farm construction companies. Clean water and healthy fisheries are also critical for Marinette County's tourism economy.
- ❖ **Reducing the Spread of Invasive Species and Controlling Existing Infestations.** County LCD's are on the front lines in the battle against aquatic invasive species. These noxious pests can wreck quality of life, displace or eliminate important native species, disrupt navigation, and impact health and safety. We help at every level of this fight, providing assistance to individual landowners, lake groups, and local units of government.

**It is clear that to maintain the effectiveness of these vital services and grow Wisconsin's agricultural and outdoor recreation industry, proper funding for county LCDs is needed. Therefore, we strongly urge you to restore full funding for state aid to county LCDs, and likewise oppose any efforts that make it more difficult for us to help Wisconsin farmers and landowners.**

Sincerely,

Ted Sauve, Chairperson  
Marinette County Land Information Committee

cc: Sen. Dave Hansen, 30th Senate District  
Sen. Jim Holperin, 12<sup>th</sup> Senate District  
Rep. Jeffrey Mursau, 36th Assembly District  
Rep. John Nygren, 89<sup>th</sup> Assembly District

