

# Overview of NR 135 Reclamation Program

March 5 & 11, 2003

Wisconsin Department of Natural  
Resources



# Today's Training - Reclamation Program Overview

## ☛ I. Background & History

## ☛ II. Key Elements

- level playing field
- uniform standards implemented through reclamation permits
- self-funding - fees
- enforcement of reclamation plan & ordinance through permits

# Today's Training - Reclamation Program Overview

- ☛ III. Reclamation plan
- ☛ IV. Relationship to reclamation standards
- ☛ V. Financial assurance
- ☛ VI. Implementation issues
- ☛ VII. Discussion

# Today's Training - Reclamation Program Overview

## ☛ Key Program Elements

- reclamation plan tied to post mining land use
- public hearing opportunity
- financial assurance
- reporting
- audits
- registration
- on-going roles of DNR & RA's

# Background & History

- ☛ Governor Thompson signed state law in 1994
- ☛ DNR as required by that law embarks on a six year consensus rulemaking process with advice of a TAC
- ☛ DNR & advisors writes model ordinances for use by counties
- ☛ DNR focuses on technical support & audits

## *Background & History - timeline*

- December 1, 2000 - NR135 Effective Date
- Summer, 2001 - County enact ordinances
- August 1, 2001 - deadline to apply for automatic permit
- September 1, 2001 - Counties issue permits
- Aug. '04 - deadline: final reclamation plans
- ~ 90 days later - Issuance of Final Permits

# Reclamation Program Overview

## Key Program Elements - Principles

- ☛ Local Control
- ☛ Level Playing Field to ensure via fair applications of reclamation standards through reclamation permits
- ☛ Not funded by taxpayers
- ☛ Preserve Nonmetallic Resource for Future

# Reclamation Program Overview

## Key Program Elements - Self Funded

- ☛ Fees collected on unreclaimed acres only.
- ☛ Those acres currently being mined or expected to be mined in the upcoming year + those reclaimed but awaiting certification of successful reclamation
  - Includes those areas affected by: roads, storage and processing areas
  - Includes those areas where reclamation features such as soil stockpiles, sediment ponds, channels for surface water diversion



# PERMITTING - Reclamation Program Overview

- ☛ Reclamation Permit
- ☛ Information required
- ☛ Reclamation Permits based on review and approval or conditional approval of Reclamation Plan and Financial Assurance
- ☛ Use available discretion to work towards the best plan in compliance with performance based reclamation standards

# *Public Notice and Hearings*

- Public Notice of Opportunity for Informational Hearing on Reclamation Plan for those with Standing
- Required for New Mines
- Required for New Reclamation Plans
- Discretionary Public Notice on Substantial Revisions to Existing Reclamation Plan for Mines holding Automatic Reclamation Permits

# REPORTING REQUIREMENTS

## Operator Annual Reports to Regulatory Authority

- ☛ Annual report within 60 days of the end of the year for all mine sites
- ☛ Basic contact information & location of nonmetallic mining site
- ☛ Acreage currently affected by extraction but not reclaimed
- ☛ Acreage reclaimed to date (both final and interim)
- ☛ Plan, map or diagram depicting site specifics

# REPORTING REQUIREMENTS

## Regulatory Authority Annual Reports to DNR

- Total Number of Reclamation Permits in effect
- Total acreage currently affected by extraction but not reclaimed
- Total acreage reclaimed to date (both final and interim)
- Other: permit modifications, public hearings, enforcement etc..

# Registration

- The land containing a Nonmetallic Mineral Deposit may be Registered to “Freeze” Zoning
- Landowners may register property
- Definition: a marketable deposit that can be or is reasonably anticipated to be commercially feasible to mine and has significant economic or strategic value

# The Long-term Program

- County or Local Programs in place
- DNR receives input from NMAC & others (Videoconference is a result of this)
- DNR Provides Technical Support (Newsletter and Guidance Publications are examples)

# The Long-term Program

- DNR ensure uniform application of reclamation standards - Program audits and acts as a “fail-safe”
- Reports to Natural Resource Board on Appropriateness of fees as required by code

# Important Dates

- September 1, 2001 - Counties issued automatic permits
- **Before December '03 - DNR reports to NRB on fees**
- Aug. '04 - deadline: final reclamation plans
- ~ 90 days later - Issuance of Final Permits



# Reclamation Plans Preparation & Review of

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**Abandoned sites pose risk  
of pollution (lubricants,  
metals) to groundwater**



**Loss of  
Property  
Values**

**Safety Hazards**

# What the Reclamation Permit Program, Requires

- No mining without a permit - NR 135 & ordinances require that a permit based on a reclamation plan
- Contents of reclamation plan
- Post mining land use
- Connection of reclamation plan to uniform standards
- Success criteria and financial assurance

# What the Reclamation Permit Program Does Not Require

- NR 135 Adds to the Status Quo
- It doesn't affect local land use decisions
- Siting, as always, is based on location of the deposit and local zoning
- Dose NOT regulate mine operations - these are regulated by local ordinances (hours of operation, truck traffic, noise etc.)

# WHAT IS RECLAMATION?

*Reclamation* is a process that renders a nonmetallic mining site capable of supporting the approved post-mining land use(s) in accordance with an approved reclamation plan.

*Reclamation* is accomplished in a manner so as to prevent any pollution or other environmental impacts while carrying out reclamation activities.

# Site grading and backfilling



# Reclamation- Final Grading



# Reclamation- Final Grading





# Surface prepared for seeding



# Hydroseeding in Reclamation



# Early Reclamation Results



# *Reclamation plan: post-mining land use*

Wildlife habitat: pond, forest, meadow, prairie



# **TARGET POST MINING**

## **LAND USE**

- ☛ key in determining all aspects of the reclamation plan.**
- ☛ demonstrates compliance with uniform reclamation standards in the context of the local physical and socioeconomic environment.**
- ☛ dictates final grades, site hydrology, seed mix,**
- ☛ sediment control, fate of structures, etc.**

# Reclamation Keyed to Local Environment

- ☛ Local environmental factors
- ☛ (soils, groundwater, wildlife and vegetation)
- ☛ and location of manmade structures are
- ☛ among other variables important in the
- ☛ design of the mine reclamation plan

## *Reclamation plan: post-mining land use*

The reclamation plan is a “blue print” used to return the site to one or more (i.e. a combination) of land uses, including:

- *Passive recreation*: green space, hiking, biking, skiing or nature trails
- *Wildlife habitat*: pond, forest, meadow, prairie
- *Agriculture* -pasture, row crops, forestry
- Reclaimed lake shoreline w/ or without development
- Many other options; be imaginative

# Post-mining land use Agriculture





# Post-mining land use Pond & Recreation



# Post-mining land use Wildlife Habitat



# Content of Reclamation Plan

- ☛ Maps of:
  - ☛ Pre-mining topography
  - ☛ Groundwater and surface water
  - ☛ Mine operation and erosion control measures
  - ☛ Post-mining topography with post mining land use(s)

# Content of Reclamation Plan

- ☛ Maps of:
- ☛ Previously mined areas, if applicable, including stockpiles, wash ponds and sediment basins
- ☛ Geologic composition and depth of deposit
- ☛ Topsoil distribution and thickness

# Content of Reclamation Plan

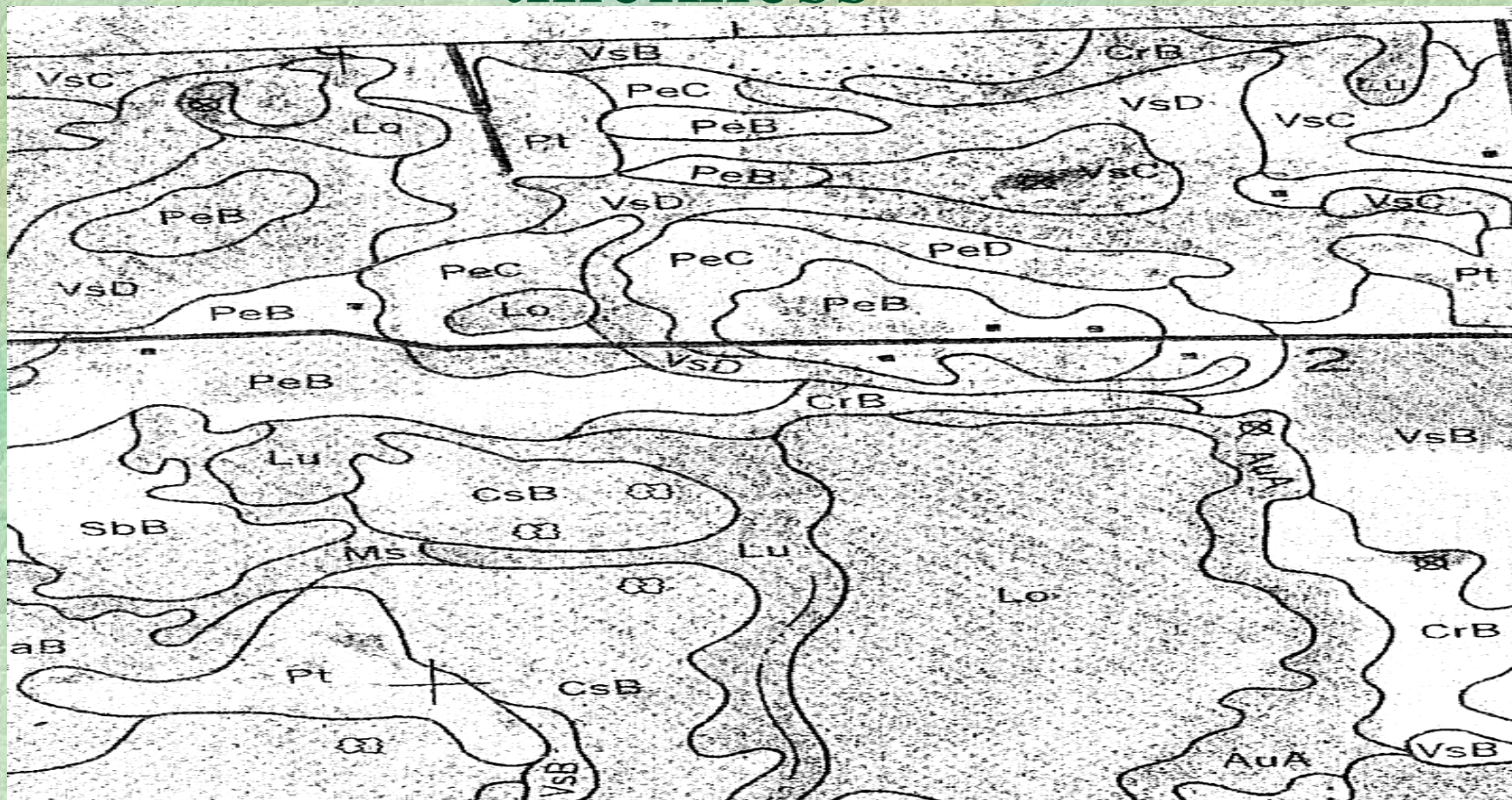
☛ Biological Information:

☛ Operators will need to provide information regarding the biological resources, plant communities and wildlife present at and adjacent to the mining site

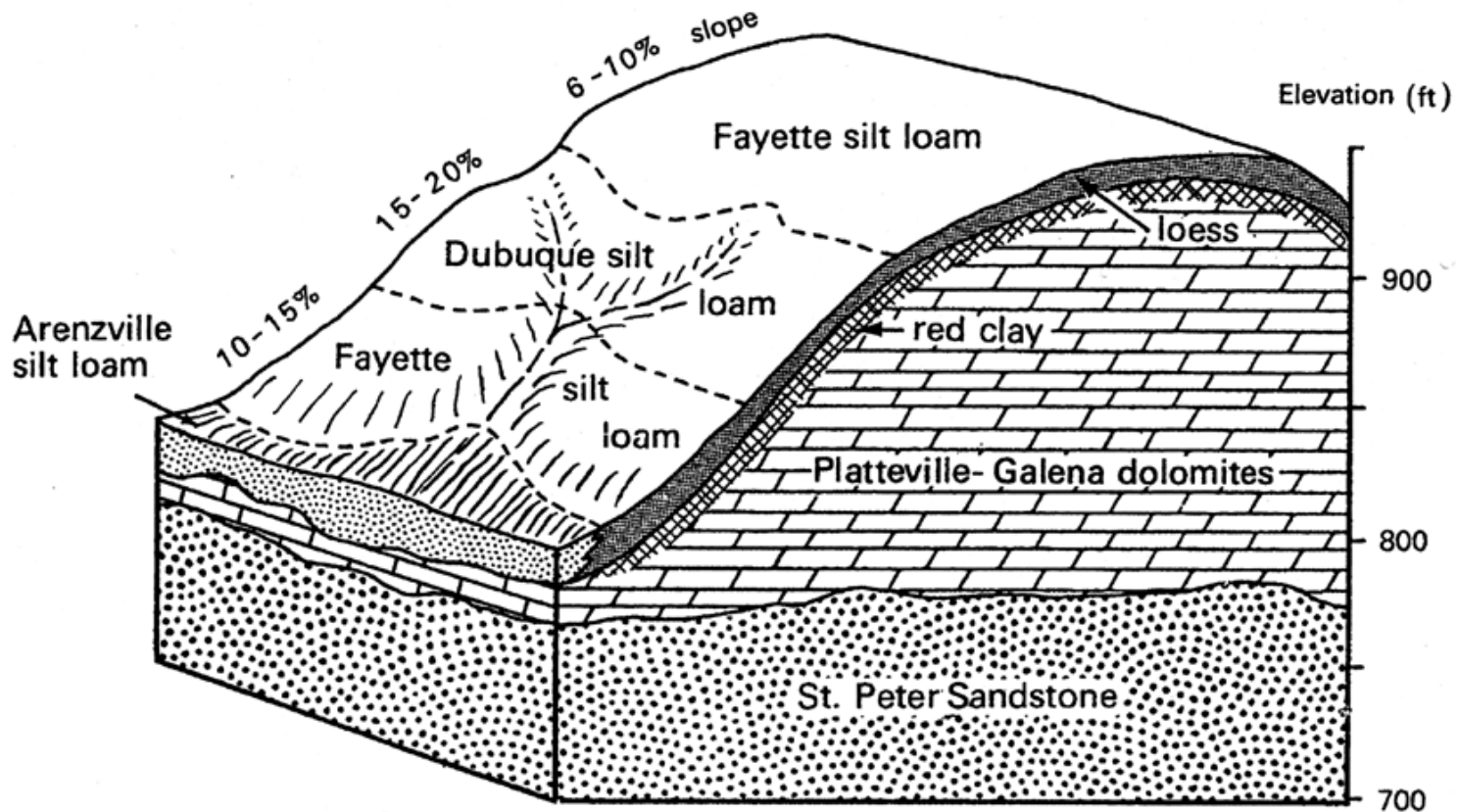
☛ This section should be based on information gathered from existing resources.

# Content of Reclamation Plan

## Topsoil distribution and thickness



# Content of Reclamation Plan: maps of Geologic composition and depth of deposit



# Plan - sequence of mining & reclamation

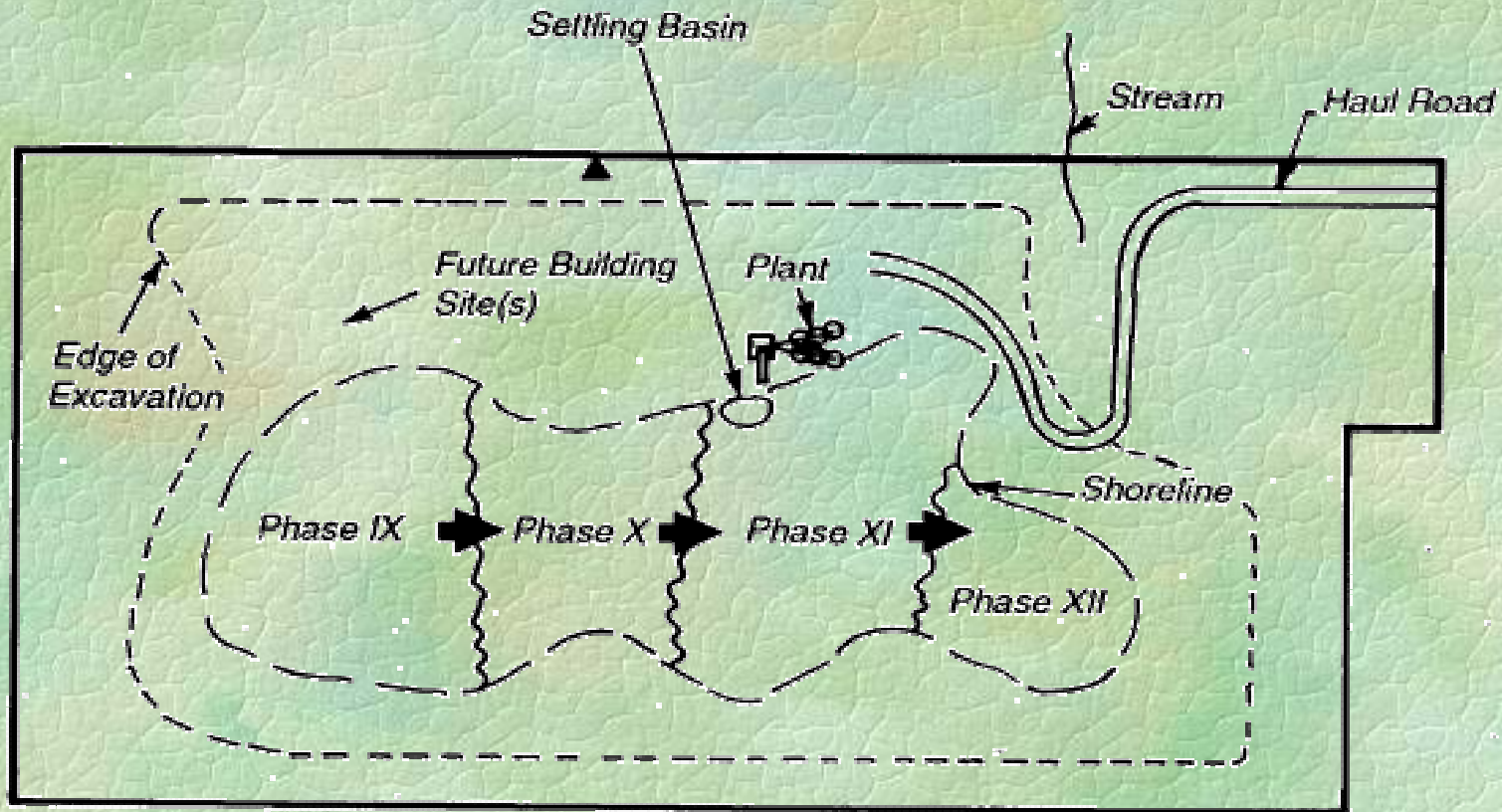
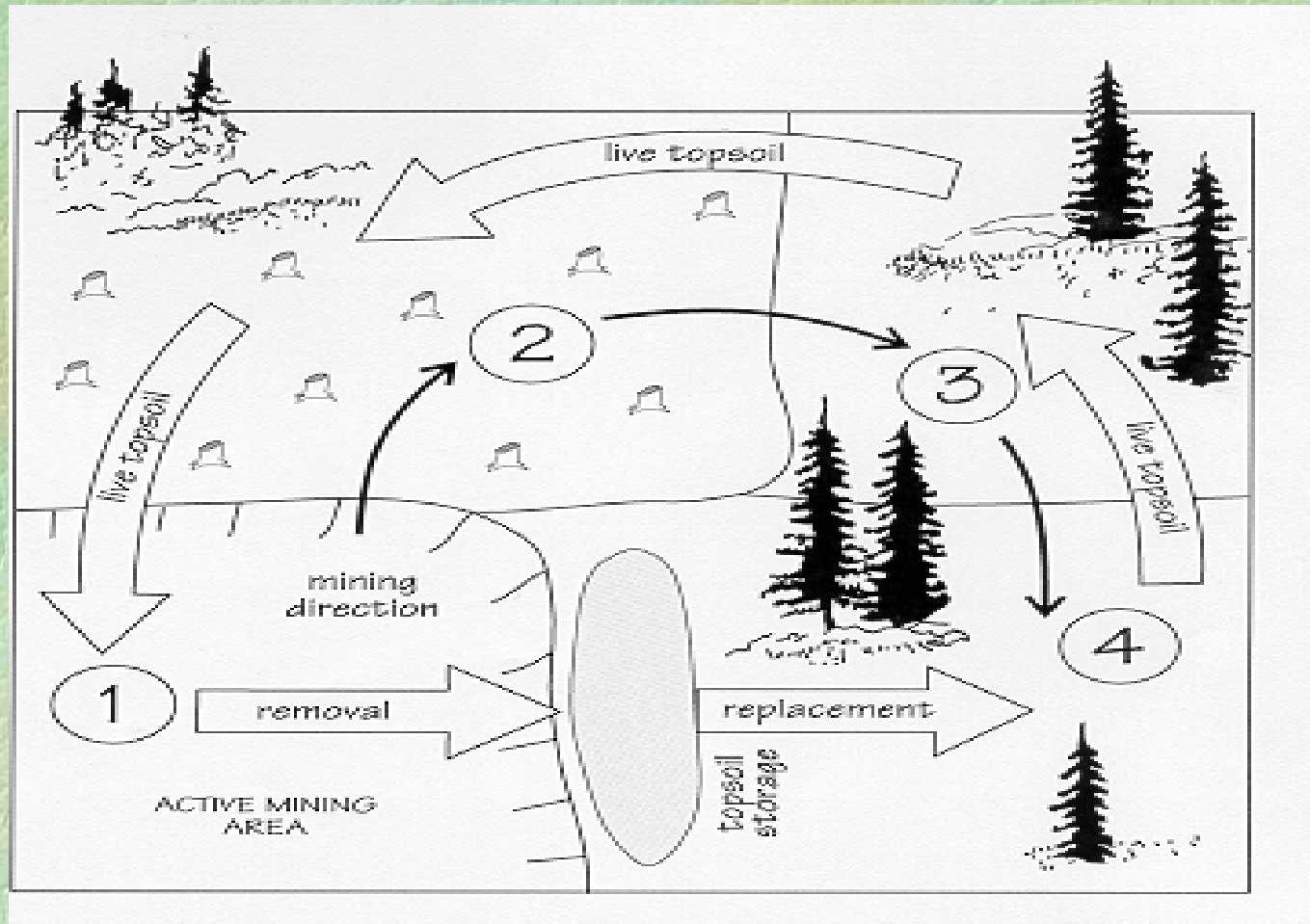


Figure 5. Mining phases below the water table.



# Plan - topsoil management & handling sequence

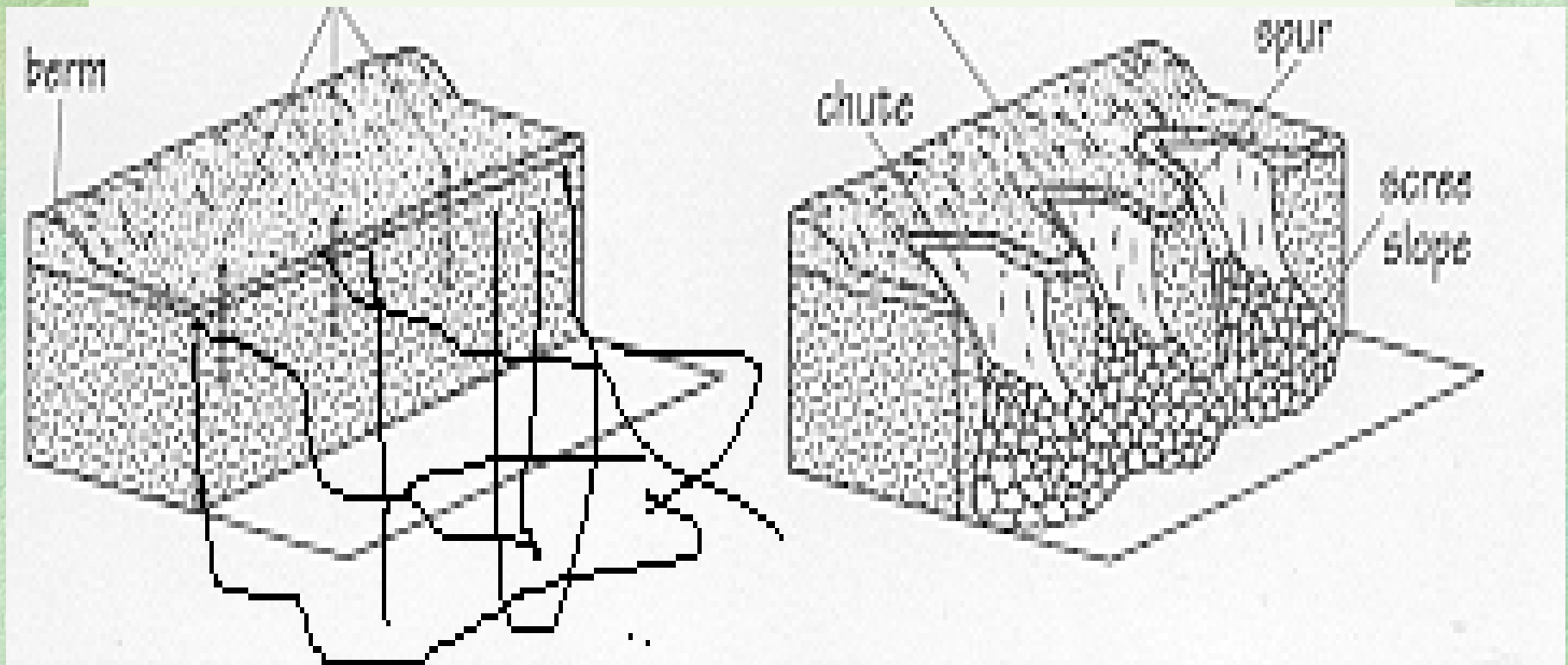


# *Contents of a Reclamation Plan*

Description of the proposed earthwork and reclamation measures that will address the following:

- final slope angles,
- high wall reduction,
- benching,
- terracing,
- or any other structural slope stabilization measures

# Description of the proposed reclamation earthwork:



# *Reclamation plan: More Information*

*A Guide to Developing Reclamation Plans  
for Nonmetallic Mining Sites in Wisconsin.*

PUBL-WA-834-2002.


<http://www.dnr.state.wi.us/org/aw/wm/publications/mining.html>

# *RECLAMATION PLAN*

- Preparation & Review of reclamation plan to:
- demonstrate that the target land use is achieved
- demonstrate that all necessary reclamation activities are in compliance with the performance-based, statewide uniform reclamation standards.



## *RECLAMATION STANDARDS*

- \* Refuse and other solid waste removal
  - \* Minimization of the area disturbed
  - \* Public health, safety and welfare
- 

# Reclamation Standards

## Contemporaneous Reclamation



# RECLAMATION STANDARDS

- \* Habitat restoration
- \* Compliance with environmental regulations
- \* Surface water and wetlands protection
- \* Groundwater protection



# **Drainage Diversion Above Mine Routes Water Around Disturbed Area**



# Reclamation plan shows how erosion & sediment control will be done

Partial list of best management practices  
used to reduce or eliminate erosion and control sedimentation.

- Check dams, Energy dissipaters
- Buffer areas
- Straw bales, Erosion control blankets, Mulch or artificial surface cover
- Silt fences
- Sediment basins
- Surface water diversions
- Cover crop of vegetation

If you need additional resources, please access the Wisconsin  
Stormwater Management Program webpage at:

<http://www.dnr.state.wi.us/org/water/wm/nps/staff.htm>

# Sediment Basin During Site Development



# **Energy Dissipators Work in Tandem With Sediment Control Features During Site Development**



# Erosion and Sediment Control During Site Development



# RECLAMATION STANDARDS

- \* Topsoil management
- \* Final grading and slopes
- \* Topsoil redistribution for reclamation

# Removal of Valuable Topsoil Before Mining



# **TOPSOIL STORAGE AND PROTECTION**

The topsoil will be stockpiled where necessary and in as close proximity as possible to the site where it will be used to support the post mining land use. Any topsoil stockpile(s), will be located immediately protected so as to avoid contamination and erosion.



# **Site grading and topsoil redistribution**

The topsoil will be redistributed on a properly sloped and prepared surface awaiting reseeded to support the post mining land use.

All recently topsoiled surfaces will be immediately protected from erosion.

# Site grading and backfilling



# Site grading according to reclamation plan



# Redistribution of Topsoil Following Site Grading




# Surface Graded and Prepared Prior to Seeding





# *RECLAMATION STANDARDS*

- \* Re-vegetation and site stabilization
  - \* Assessing completion of successful reclamation
  - \* Intermittent mining
  - \* Maintenance
- 

# **Stable Slopes Offer Habitat for Wildlife After Reclamation**



# Revegetation Plan Contains

- ☛ Plant selection - *Please see Appendix C in Reclamation Plan Guidance.*
  - timing, rates and methods of seeding
  - seedbed preparation, including application rates and types of soil amendments,
  - description of mulching, netting or any other stabilizing
  - Equipment & techniques to be used.



# **Yellow Coneflower in Restored Wildlife Habitat - grows well in clay soils**



# Reclamation Test Plots



# TYPICAL SEED MIX FOR WILDLIFE HABITAT/ PASSIVE RECREATION

## GRASSES/SEDGES AND SIMILAR PLANTS

		<u>pounds per acre *</u>
Big Bluestem	<i>Andropogon gerardi</i>	1
Canada Wild Rye	<i>Elymus canadensis</i>	3
Switchgrass	<i>Panicum virgatum</i>	1
Indiangrass	<i>Sorghastrum nutans</i>	3
	<u>Total</u>	8#

## FORBS AND LEGUMES \*\*

		<u>ounces per acre *</u>
Purple Prairie Clover **	<i>Dalea purpurea</i>	2
Canada Tick-trefoil **	<i>Desmodium canadensis</i>	5
New England Aster	<i>Aster novae-angliae</i>	0.2.
Purple cone flower	<i>Echinacea purpurea</i>	4
Dotted Mint	<i>Monarda punctata</i>	4
Bergamot	<i>Monarda fistulosa</i>	5
Yellow coneflower	<i>Ratibida pinnata</i>	3
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.5
Blue Vervain	<i>Verbena hastada</i>	1
	<u>Total</u>	24.5 oz.

# Revegetation Plan - Soil

☛ Topsoil and Substitute Soil - *Commodity or Resource?*

- including specifications for building a substitute soil - again, highly dependent on target land use
- the rates and types of soil amendments,
- mixing with other materials to achieve specifications and generate a viable substitute soil
- Equipment & techniques to be used.

# Hydroseeding Makes Seeding on Steep Slopes Easier



# Straw mulch applied to protect reclaimed area



## *Reclamation plan: content*

- **The operator is required to include some detailed success criteria in their reclamation plans.**
- **Success Criteria may include cover, productivity, diversity and other measures.**
- **Please Refer to Appendix D of Guidance**

## **Success Criteria - *Keep as Simple as Possible***

- **Cover (can be as simple as 70% of area covered by vegetation)**
- **Productivity (yield)**
- **Diversity**
- **Survival**
- **Others**



# **One Meter Hoop Used In Monitoring Revegetation - For Cover - Success Criteria**



# **Financial Assurance**

**It is important to understand the relationship of the approved reclamation plan to the financial assurance requirement.**

**The financial assurance is intended to guarantee that the reclamation plan is faithfully executed.**

# **Financial Assurance**

## **RELATIONSHIP TO RECLAMATION PLAN**

**A GUIDE TO PREPARING AND REVIEWING  
FINANCIAL ASSURANCE  
FOR  
RECLAMATION OF NONMETALLIC MINING  
SITES IN WISCONSIN**

**PUBL-WA-835 2002**

# Financial Assurance - Purpose

:

The proposed proof of financial assurance is provided at the same time that a completed reclamation plan is submitted to the RA.

The **purpose of financial assurance** (FA) is to ensure that the regulatory authority has access to enough funds to perform the site reclamation.

# **Success Criteria & Financial Assurance**

***Success criteria* in the reclamation plan provide an objective basis for the RA to make decisions regarding the success of reclamation and thus the release of the financial assurance.**

# Financial Assurance

The amount of financial assurance will vary depending on the size and complexity of the site.

FA must be in effect for reclamation permit to be valid.

FA reflects the cost of the RA to hire an outside contractor to do the work, not the cost if an operator completed the work.

# Financial Assurance - Amount

The best way to calculate and present the anticipated costs is in a table that breaks down each activity and the cost associated with each one.

Please see PUBL-WA-835 2002 “A Guide to Preparing and Reviewing Financial Assurance for Reclamation of Nonmetallic Mining Sites in Wisconsin”

Also, consult with references and local contractors to obtain realistic cost estimates for your area.

# Financial Assurance

Element / Reclamation Activity	Dollar Amount
A. Earthwork and Grading	
B. Topsoil Management	
C. Revegetation Plan	
D. Erosion Control: Stabilization of Soil Conditions	
E. Maintenance and Monitoring Prior to Release of Financial Assurance and Until Declaration Of Completion (DOC)	
F. Management of Refuse or Other Solid Waste (may Include Removal of Structures, Roads, Foundations, etc.)	
G. Other Reclamation Activities (List as Many as Necessary)	
<b>GRAND TOTAL</b>	



# Financial Assurance - *Many forms to choose from*

- Bonds
- Cash
- Certificates of Deposit
- Irrevocable Letter of Credit
- Irrevocable Trusts
- Escrow Accounts
- Net Worth Tests
- Government Securities
- Combination of above or others

# Completion of Reclamation

## *Reclamation Success Criteria & Relationship to Retrieval of Financial Assurance*

**(pursuant to NR 135.13 standards) as documented  
in the reclamation plan).**

# Was Reclamation Successful?

Upon completion of reclamation activities, for a portion of a mining site or for the entire mining site, the RA will inspect the site to verify that reclamation to date is successful enough to concur that site evaluation period ought to begin

# Process for the Release of Financial Assurance

- ☛ NOC - Notice of Completion given to the RA by the operator - begins evaluation period (site maintenance conducted)
- ☛ The RA completes evaluation of reclamation
- ☛ COC - Certificate of Completion given to the operator by the RA acknowledges that success has been achieved.

# Release of Financial Assurance

Once the reclamation is complete and certified by the regulatory authority, the financial assurance funds will be released back to the operator.

# *IMPLEMENTATION ISSUES*

- FEES
- PERFORMANCE BASED v. PRESCRIPTIVE STANDARDS
- GENERIC TARGET POST-MINING LAND USE
- ZONING VERSUS RECLAMATION
- HIGHWALLS

# *Public Notice and Hearings*

- Public Notice of Opportunity for Informational Hearing on Reclamation Plan for those with Standing
- Required for New Mines
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# *IMPLEMENTATION ISSUES*

- PUBLIC HEARINGS





# *IMPLEMENTATION ISSUES*

- FEES
- PERFORMANCE BASED v. PRESCRIPTIVE STANDARDS
- GENERIC TARGET POST-MINING LAND USE
- ZONING VERSUS RECLAMATION
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# DISCUSSION

