

Hi Dan,

The area where the proposed sand plant is proposed to be entering is in one of my favorite recreational areas. My family uses Elk Creek for trout fishing, and I caught a beautiful rainbow trout this spring. If the creek was affected by run-off and the river wasn't as beautiful or fish-able, it would be disappointing to me. We would be forced to go to other destinations for our fishing adventures.

We were considering purchasing recreation land from friends that live within a mile of the proposed sand plant. We would hunt and hike and work on keeping a healthy forest. It is hard to consider purchasing land that will be in parts connected directly to a sand plant. The noise and disruption of nature would have enough of an adverse effect to convince us not to invest in the area and look in other County's. One of the draws of the area is it's peaceful, quiet, and natural environment. This is why people chose to build their lives in this area. We visit our friends and appreciate the landscape and mix of forest, grassed areas, and farm land. For me, thirty years of mining plus reclamation time means that I will no longer be able to enjoy what is great about the land and area for the rest of my life. Please consider not allowing the sand plant to enter the area.

Sincerely,

Becky Jahnke

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4 August, 2015

Mr. Don MacIntosh &
Mr. Keith Steel,
I attended the public information meeting for the proposed Altonville Road Mine and have several areas of concern.

Budget City the budget for the project mentioned prairie and wetland reclamation but she never mentioned the ability to have an agritoural reclamation. Cost mining 85% prairie and 15% woods in what she said.

Will the natural plants and willowow native to the area survive a reclamation? Can the native lupines, wild rose, wing, play, & hardhorn, also the white thullium which prepare a shaded area survive?

I see white tail deer frequently in the fields and in my yard eating apples from my apple trees. Does the reclamation plan call for planting apple trees in the forest area for the deer population? I have also observed four black bears since the land on county highway N. what does the reclamation plan allow for their habitat?

My neighbor, Oler saw saw a wolf on my property but no endangered species were reported at the meeting. How will the reclamation plan protect this animal?

Please vote no on this project as our agricultural, wildlife, natural plants and wilderness, and endangered species are too precious to lose.

Sincerely
Barry M. Mickle

NR 135 states, "POST-MINING LAND USE. (a) The reclamation plan shall specify a proposed post-mining land use for the nonmetallic mine site. The proposed post-mining land use shall be consistent with local land use plans and local zoning at the time the plan is submitted, unless a change to the land use plan or zoning is proposed. The proposed post-mining land use shall also be consistent with any applicable state, local or federal laws in effect at the time the plan is submitted."

State law Sec.66.1001. Wis. Stats. also requires that local land use-related decisions be consistent with the goals and objectives of that community's comprehensive plan.

The proposed post-mining land use given in 3.0 of the Howard Township Properties Nonmetallic Mine Reclamation Plan is not consistent with local land use plans given in the Howard Township Comprehensive Plan.

If the proposed post-mining land use is not in accordance with NR 135 or Wis. Stat. Sec.66.1001, then the reclamation plan should be denied, as according to NR 135, "The post mining land use will be key in determining the reclamation plan."

Brian Hostak
E9679 780 Ave.
Colfax, WI 54730

How many more of these mines do we need when the EOG trucks are sitting idle and Chippewa Sand sends their people out to volunteer so they don't lay them off? I feel for the people in the Town of Howard. Their lives have been turned upside down.

Connie Russell
Town of Eagle Point

Sent from my iPad

6417 Odana Road, Suite 20, Madison, WI 53719

August 5, 2015

VIA E-MAIL: LCD@co.chippewa.wi.us; dmasterpole@co.chippewa.wi.us

Chippewa County Land Conservation Department
711 N. Bridge Street
Chippewa Falls, WI 54729

Re: Northern Sands LLC NR 135 Application

To Chippewa County Land Conservation Department:

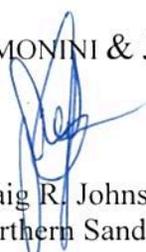
This correspondence is in regard to the NR 135 application for Northern Sands LLC in the Town of Howard, Chippewa County, Wisconsin. The Chippewa County Land Conservation Department conducted a public hearing on July 29, 2015 relating to said application.

Chippewa County's professional and experienced Land Conservation staff members conducted a thorough review of the reclamation plan and application and have deemed it complete by verifying its compliance with State of Wisconsin NR 135 and Chippewa County's reclamation ordinance. Chippewa County is in good standing with the DNR and applied the same rationale for permit review on the permit in question as it has with previously issued permits.

Northern Sands LLC will apply for a license/mining agreement with the Town of Howard in the near future and looks forward to working with the Town and County officials and establishing itself as a positive resource to the community.

Very truly yours,

SIMONINI & JOHNSON LAW OFFICE, LLC



Craig R. Johnson
Northern Sands LLC

CRJ:ajs

S: 15080514.25

July 25, 2015

Chippewa County Land Conservation and Forest Management Department

Attn: Dan Masterpole & Seth Ebel

We are writing this letter in regards to the reclamation permit filed by Northern Sands LLC for the Albertville Valley sand mine and processing plant near Colfax, Wisconsin. Our family, which includes 3 young children, lives approximately 2 miles away from this proposed site.

One point of concern that the reclamation permit fails to address is the long-term stability of Northern Sands LLC and this proposed mine. Northern Sands LLC is a new company without a proven track record. We are concerned about the permitting of another frac sand mine when other sand companies in Chippewa County have recently laid off personnel. For example, this past June, Preferred Sands put mining on hold at its Cooks Valley mine near Bloomer.¹ This followed the layoff of 55 workers in May from Chippewa Sand Transport.² In fact, the fracking industry overall is slowing down.³⁻⁵ Based on this, there is the very real possibility of intermittent mining operations, and nothing in the Northern Sands reclamation permit mentions anything about it. According to NR 135.14 Intermittent Mining:

Intermittent mining may be conducted provided that the possibility of intermittent cessation of operations is addressed in an operator's reclamation permit, no environmental pollution or erosion of sediments is occurring, and financial assurance for reclamation pursuant to s. NR 135.40 is maintained covering all remaining portions of the site that have been affected by nonmetallic mining and that have not been reclaimed.⁶

We're concerned about what will happen if this sand mine starts operations and then abruptly stops. What sort of financial assurance will be given? From what we understand, bonds are commonly used. Will the bond be irrevocable? What will happen to the abandoned site? And who will pay to clean it up and reclaim the land? Will this financial burden be passed onto local taxpayers? We are concerned about the reliability of Northern Sands LLC since they are a new company and because there has already been an issue of them not properly abandoning their exploratory bore holes for this mine.^{7,8}

An additional matter is we don't recall seeing agreement from the landowners about the reclamation plan (just the signed lease agreements as an attachment to the plan). According to NR 135.19(6) Certification of the Reclamation Plan:

The operator shall provide a signed certification that reclamation will be carried out in accordance with the reclamation plan. **If the operator does not own the land, the landowner or lessor, if different from the operator or owner, shall also provide signed certification that they concur with the reclamation plan and will allow its implementation.⁶**

It is mentioned on pages 21 and 22 of the plan that nonmarketable, treated material will be tested annually and returned to the site and used in reclamation. What will happen to this treated material if it fails testing? Is annual testing frequent enough?

In section 3 of the reclamation plan, it states that the processing plant and transloading facility is to be repurposed after mining operations cease. How does this fit in with the Town of Howard comprehensive land use plan? Will sand processing continue indefinitely? The plant's other proposed uses include grain, fertilizer or liquid natural gas storage. Some of these uses appear to be in direct conflict with NR 135.19(3) Post-Mining Land Use which states:

The reclamation plan shall specify a proposed post-mining land use for the nonmetallic mine site. **The proposed post-mining land use shall be consistent with local land use plans** and local zoning at the time the plan is submitted, unless a change to the land use plan or zoning is proposed. The proposed post-mining land use shall also be consistent with any applicable state, local or federal laws in effect at the time the plan is submitted.⁶

Finally, on Figure 10 of the reclamation plan, we are concerned that the elevation of the water table is unknown for several areas of this proposed mine. How can they mine to within 10 feet of the water table when they don't even know where the water table is located? What happens if they breach the water table? What consequences and remediation are in place if the water table is breached and/or potentially contaminated?

We have several additional concerns about this proposed mine, including the quality of our air and water, safety issues due to increased train and possibly truck traffic, and declining property values, but they are beyond the scope of this letter.

Based on the aforementioned points of concern over the long-term stability of Northern Sands LLC and frac mining in general, missing landowner reclamation plan agreements, an inconsistent post-mining land use plan, and lack of knowledge about where the actual water table is located in relationship to this mine, we recommend that you deny Northern Sands LLC a reclamation permit for the Albertville Valley sand mine and processing plant.

Thank you for your time.

Sincerely,

Diane & John Rose

E9665 County Rd N

Colfax, WI 54730

1. Preferred Sands shuts down in Bloomer. Chris Vetter, Eau Claire Leader Telegram, 6/12/15. <http://www.leadertelegram.com/News/Region/2015/06/13/Preferred-Sands-shuts-down-in-Bloomer.html>
2. Company that hauls frac sand to lay off 55 workers due to slowing demand. Rich Kremer, Wisconsin Public Radio, 3/27/15. <http://www.wpr.org/company-hauls-frac-sand-lay-55-workers-due-slowing-demand>
3. U.S. sand mines expected to ship a lot less to oil drillers. Associated Press, The Washington Times, 4/7/15. <http://www.washingtontimes.com/news/2015/apr/7/us-sand-mines-expected-to-ship-a-lot-less-to-oil-d/>
4. Mining towns worry frac sand's gifts will dry up with oil price slump. Pamela King, EnergyWire, 6/2/15. <http://www.eenews.net/stories/1060019442>
5. U.S. fracking activity expected to slow considerably, reports predict. Mike Ivey, The Capital Times, 1/13/2015. http://host.madison.com/news/local/writers/mike_ivey/u-s-fracking-activity-expected-to-slow-considerably-reports-predict/article_4826dfb2-a85a-5a31-9dea-53dd49597417.html
6. Nonmetallic mining reclamation. Chapter NR 135. http://docs.legis.wisconsin.gov/code/admin_code/nr/100/135.pdf
7. Howard resident alleges sand mines not closing bore holes. Colfax Messenger, 8/14.
8. Town of Howard approves frac sand borehole ordinance. Colfax Messenger, 10/15/14.

From: Jim Kiesow <kiesow67@gmail.com>
Sent: Tuesday, August 04, 2015 9:15 AM
To: LCD
Subject: Albertville Valley Sand Mine

We would like to take the opportunity to comment regarding this proposed project. We were one of the first landowners approached by Northern Sands regarding leasing our land for this project. We spent hours researching the entire subject of fracking and sand mining. This included discussions with two geologists, one who works with UW-Extension. My main concerns were air and water quality monitoring and reclamation of the land. Also important was the process by which the sand would be mined, processed and transported. We studied geological maps of west central Wisconsin and examined the history of prospecting for minerals in our state.

In-the-end we were satisfied that the health and safety of the residents of the area could be assured by taking pro-active monitoring and reporting. Our final concern dealt with the changing esthetics of our land as a result of mining. We were satisfied that while the land would look different post extraction of the sand, we could work to be creative in establishing the type of environment we wanted through reclamation efforts.

Finally, we have a core belief that landowners ought to have the ability and the right to utilize their land in a manner in which they want. I understand that it's important to be mindful of the desires of neighbors, but in-the-end, the landowner needs to have the right to develop their personal property in a lawful manner.

We attended the meeting last week at the Chippewa County Courthouse and were very impressed with both the presentations by the mining company and the County officials. We appreciated the professionalism with which the meeting was conducted.

James and Rebecca Kiesow



My name is Johnne Smalley and address is E9760 780 Av., Colfax, WI

The Howard Township Properties Nonmetallic Mine Reclamation Plan states "The final site reclamation will include a combination of commercial and passive recreational uses."

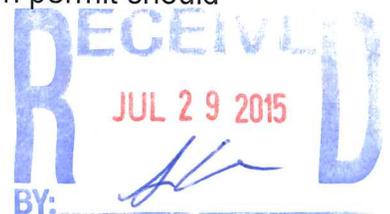
I don't know what these commercial and passive recreational uses include specifically, but unless they include "maintenance and improvement of the crop productivity" and "protecting the scenic beauty of the forested Hills of Howard", they are not consistent with the goals of Howard's Comprehensive Plan.

Section 3.2 of this reclamation plan states that "railroad transload facilities and rail car storage track will remain on the site. The site would serve the agricultural business community and provide a commerce center for grain, fertilizers, and/or liquefied natural gas." This is not consistent with Sec. 6.3 Economic Development Goals of Howard Township's Comprehensive Plan which "encourages additional commercial development in the two areas already occupied by commercial activity" and "the allowance of forms of economic activity compatible with the preservation of the agricultural land base".

The Howard Township Comprehensive Plan states that Howard Township's goals and objectives are to maintain and improve agricultural land and preserve forested hillsides. Prairie grasses planted according to WisDOT Standards for roadsides is not agricultural cropland. Fifteen (15%) forested areas in a gently rolling landscape is in no way "Preserving the scenic beauty of the forested hillsides of Howard Township".

The application for this Reclamation Plan should be denied because:

1. State law Sec.66.1001. Wis. Stats. requires that local land use-related decisions be consistent with the goals and objectives of that community's comprehensive plan. This reclamation plan is not consistent with Howard Township's goals and objectives as given in their comprehensive plan.
2. It should be denied because NR 135 also states, "The proposed post-mining land use shall be consistent with local land use plans." Once again, the proposed post-mining land use given in 3.0 of this plan is not consistent with local land use plans given in the Howard Township Comprehensive Plan.
3. It should be denied because NR 135.22 Denial of application for reclamation permit states, "An application to issue a nonmetallic mining reclamation permit shall be denied, if, "The proposed nonmetallic mining site cannot be reclaimed in compliance with the reclamation standards contained in the applicable reclamation ordinance". Since there is no way that the post mining land use of agricultural cropland and deciduous forested hillsides can be reclaimed once the hills and agricultural land have been removed to the extent proposed by Northern, the application to issue a nonmetallic mining reclamation permit should be denied.



4. It should be denied because, per NR 135.22 Denial of application for reclamation permit, "An application to issue a nonmetallic mining reclamation permit shall be denied if The applicant, or its agent, principal or predecessor has, during the course of nonmetallic mining in Wisconsin within 10 years of the permit application or modification request being considered shown a pattern of serious violations of this chapter or of federal, state or local environmental laws related to nonmetallic mining reclamation."

Northern Sands has a history of disregarding regulations as shown by the Notice of Violations by DNR for improper abandonment of more than 20 bore holes and for giving false information to both local and DNR officials. Northern Sands falsely reported to the Howard Town Board that the bore holes had been properly abandoned. They also gave the incorrect number of bore holes drilled to both the Town Board officials and the DNR—more than once. The total number of bore holes drilled changed several times going from seven to the current total of over 20.

Leaving holes open can create a direct conduit for entry of contaminants to waters of the state and is considered a serious violation of ch. 281, Wisconsin Statutes and ch. NR812, Wis. Adm. Code.

The serious violations of the DNR regulations of proper abandonment of nonmetallic explorative bore holes as well false reporting to both the DNR and local officials shows a pattern that should lead to the denial of this application for a reclamation permit.

Thank You.

This reclamation plan is lacking in specifics. There needs to be clearly written standards documented in the plan for what goals are going to be met and how, and who assesses when and how they are met. Examples are:

p. 19 end of sec. 2.3: "In the event of slope failures, failed seeding, or persistent erosion problems, additional BMPs will be assessed and applied where practicable". Who assess the additional BMPs and what does "practicable" mean? If it is Northern who assesses and decides these things, this is like putting the fox in charge of the hen house. If it is Chippewa County Land Conservation, the reclamation plan needs to indicate this, as well as give specifics such as what constitutes a slope failure or failed seeding and includes costs for technical assistance in assessing this. The same personnel may not be doing this assessment throughout the 30 plus years this mine expects to be operating. If it is to be decided by another entity, this needs to be stated.

"As needed, composite material will be blended with the B horizon to increase the organic matter content". Who decides "as needed"? Who tests? What organic matter content levels are to be achieved? What specific materials are acceptable as composite material for specific recharge rates?

p. 28 Sec. 2.8: "Blasting, if required" Who decides this? The geologists we have spoken to have told us that the rock layers that need to be excavated in order to get the frac sand out do not need blasting to excavate. All of the large equipment dealers have assured us that their equipment can handle the excavation of the types of soil and rock where silica sand is located in this area and blasting is not necessary. There needs to be written standards for when percussive methods are and aren't necessary.

p. 19: "Erosion control BMPs will be inspected weekly and within 24 hours after rainfall events of one-half inch or greater until the drainage area has been either temporarily or permanently reclaimed." Who inspects? This needs to be stated. What criteria need to be met to pass inspection? Who assesses and decides if and what should be done if the criteria are not met? If all of this is done by Northern, once again, this is like putting the fox in charge if the henhouse. If it is Chippewa County Land Conservation, do you have the manpower to do this? What if someone is on vacation or staffing is cut, who will do the weekly inspections? Based on the number of other mine discharges in the county and state, it is clear that there is currently inadequate DNR or other personnel with the technology or desire to inspect and stop discharges. If this is to be done by an independent contractor, it needs to state so, and that the contractor meets the approval of the state and local regulatory entities. And who pays for these inspections and compliance monitoring? These costs need to be included in the reclamation cost estimates. The same questions need to be answered for the inspections after every precipitation event of ½ inch or more stated on p. 25 at the end of Sec. 3.4

p. 16 Sec. 2.2: "Groundwater elevation data will collected quarterly from the monitoring wells. Groundwater elevation data will be analyzed in order to effectively manage groundwater onsite, including water extracted from any high capacity wells. Pending analysis of data collected on-site, Northern will consider casing any high capacity wells through the Eau Claire Formation." Who does the collection and analysis? At what point does Northern "consider" doing something to either effectively manage or to case any high capacity wells? And what does "effectively manage" actually mean anyway?

There are many references in this plan to information that will be presented in the future. How can a plan be approved when it doesn't contain what is actually going to be proposed?

Phases 2 & 3 will generally follow the sequence of phase 1. What does "generally" mean? This kind of statement would not be allowed in a high school science report! It certainly does not supply the clarity needed to assess a reclamation plan. Phase 1 itself is lacking many specifics necessary to effectively evaluate the plan.

The conveyor corridor is to be reclaimed by removal of the conveyor system, but there is no mention of the removal of the access road along this corridor. The removal of unused roads is one of the first goals listed in NR135.

The plan for reclamation to a commercial or agricultural materials business hub is very vague. The “who, what, when, why, and how” are all missing. Who is going to want this. Who is going to do this? Who is going to inspect this to make sure it meets all of OSHA’s standards, building code requirements, fire and construction safety regulations, and any possible zoning laws that may go into effect during the next 30 years? When is this acreage going to be converted to a business hub? What happens to this area when market conditions fluctuate and the frac sand mining stops for a period of time. Will the spilled sand, chemicals, and anything else that may cause erosion or pollution be removed and the area made safe? What about any unused roads and track? What exactly are the structures that they plan to leave? What is the specific use of each of these structures and how is it proposed to be converted to whatever the specific end use of this center is to be? And why is this post mining land use being proposed? It is not consistent with the Howard Township’s Comprehensive Plan.

Throughout this plan, there is no indication any of the testing will be done by independent testers. If this permit is approved, please include the condition that all monitoring, data collection, testing, and reporting be done by independent agents that meet the approval of the state or local regulatory authorities and that have no conflict of interest. This is very necessary to prevent further repetition of regulation violations and false reporting which is the only history Northern Sands has in this industry. All invoices for any independent technical assistance to monitor this site should be paid by Northern Sands. All financial insurance for any technical assistance should be in the form of an escrow account to make sure the people actually get paid as well as to prevent a conflict of interest developing.

There are no costs included in costs estimates that include inspecting, testing, or technical assistance for compliance monitoring. The cost estimates for reclamation are very low as they don’t include many of these types of things.

There are too many specifics lacking in this plan. The ones given as examples are just ones that I noticed on my scan of the reclamation plan. Someone more versed with NR135 and reclamation standards should be going over this plan with a fine toothed comb. If I found this many problems with the plan, I am sure there are many more.

I still believe that this plan should be denied for the reasons given in NR135 for denial and because of state statute 66.1001. That said, specifics are necessary to make any plan meaningful. There is no way to determine compliance with the reclamation plan if there are no standards to be met.

Johnne Smalley
E9760 Tower Rd. (780 Av)
Colfax, WI 54730

Concern: The reclamation plan calls for buildings to be repurposed for some unknown business.

The concern is that the facility, meaning buildings and land, will sit empty for many years. The facility will hold no value if left abandoned for years after mining is done. The building needs to be torn down and the land reclaimed.

- When mining ceases, the buildings and facility area need to be cleaned of sand residue and made safe per air quality standards.

- A monetary amount should be determined for the cost of tearing down and disposing of the buildings and reclaiming the land site. A bond for this cost should be part of the reclamation plan.

- A "sunset clause" needs to be placed on the facility. If a business is not found to repurpose the facility within a determined amount of time, such as 2-5 years, after mining ceases, then the facility will be torn down and the land reclaimed.

- A stipulation must be included stating that the mining company or any subsequent owners cannot sell the facility for a minimal amount and the new owners leave the facility unused. The sunset clause will go into effect of tearing down the facility and reclaiming the land when the determined amount of time from ceasing mining has been reached regardless of how often the ownership of the facility changes.

- While the buildings sit empty, there is a liability for unauthorized people to enter the buildings and facility and be injured. Who will be responsible for that liability?

Submitted by:

Joyce Hoffman
N8780 County Road A
Colfax, WI 54730

Sent: August 3, 2015

Concern: The conveyor system was not explained other than one comment of using a “covered conveyor”. This style of moving sand has been known to result in sand being blown out of the conveyor and move across the landscape while in transit. No mention was made for plans to reclaim the sand lost from the conveyors.

I have visited the Independence mine using a conveyor system during the 2014-15 winter. The system runs about 1-1/2 miles from excavation site to loading facility. At the time the system was less than a year old. All along the system the snow was colored from the sand. The conveyor cover did not prevent the wind from blowing sand out of the conveyor system.

At the time of my visit, the conveyor was not moving. Rollers were dropped down and out of place in several spots under the conveyors; it appeared broken. There were small piles of sand on the ground under the conveyors.

- The reclamation plan should include plans for reclaiming sand after the mining operations cease.

- Mining operations plans should include reclaiming sand on a regular basis when sand is blown out and dropped from the conveyor system during active operations as well as cleaning up dropped sand from breakdowns.

- Recently we had several windy days with wind speeds up to 30 mph. Will the proposed ‘covered conveyor’ hold the sand on the conveyor when winds are 30 mph? Can the mine operators provide research and data that the system they propose will contain all sand under these conditions?

Submitted by:

Joyce Hoffman
N8780 County Road A
Colfax, WI 54730

Sent: August 3, 2015

Concern: The reclamation plan includes use of excelsior in the pond system. No plan was made to reclaim the excelsior.

The excelsior is to be used as a filter. As the water filters through, the colloidal clay will settle on the wood surfaces. When the next water comes through for filtering, the clay will re-suspend and move through the system. It seems as though the clay is too fine to be caught in this type of filter. Has excelsior ever been used in any other system for this type of filtering? Can research and data be provided to show how this worked?

Will any chemicals be in the water being filtered? If so, will the contaminated excelsior be safely and properly disposed so the environment is protected? If it is put into a hole in the ground and allowed to degrade, won't the chemicals be a problem for the ground water? The excelsior would be difficult and unsafe to burn.

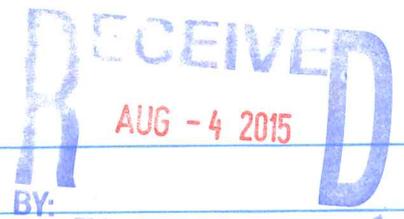
Plans need to be included in the reclamation and the mining operations for how to safely dispose of this degradable material.

Submitted by:

Joyce Hoffman
N8780 County Road A
Colfax, WI 54730

Sent: August 3, 2015

August 4, 2015 - To Seth Ebel



Page 11 of the Reclamation Plan for Northern Sands
Table - Water Well Location and Owners

The well for Dennis & Karen Wagner E10048-810th Ave
Colfax, N.I. 54730 was not listed.

Our daughter & son-in-law Randy & Krista DeMoe
were listed - their address is E10050-810th Ave

Colfax, N.I. their property is further away from
the proposed sandmine than our property

Also Daniel Bortz & John Michaels directly north
of proposed mine were not on the list

Sincerely,

Karen Stagner

my phone number is 715-962-4347 if you have
any questions

August 3, 2015

Dear Mr. Masterpole and Mr. Ebel:

Please add this to your testimony regarding Northern Sands' reclamation plan for the Albertville sand mine in the town of Howard.

My husband and I have lived on our hobby farm in Colfax for 37 years. We've raised four children here, and most of them, including our 17 grandchildren and great-grandchildren, still live in the area. Our son and daughter-in-law, Randy and Krista DeMoe, now own five of our original 80 acres and live next door.

When we bought this land, there were problems. There wasn't a worm in the soil of our farm because so many chemicals had been used. But we were careful with the land, didn't use any chemicals, and now the worms are back. Year by year this beautiful scenic valley has become our home. We share it with birds and bears and hundreds of other animals. There have been quiet nights by the campfire and lots of star-gazing. The kids ride ATVs and snowmobiles on the trails in our back forty acres. You can imagine what this land means to us.

When Northern Sands came to town, we learned that we will be its nearest adjacent neighbors. We are closer to this proposed mine than anyone—even those in Chippewa County-- but because we live in Dunn County we've had no "say". Others will profit while our health and quality of life decline. Chippewa County needs to acknowledge their role in ~~in~~ what is essentially an abuse of technicalities and county lines.

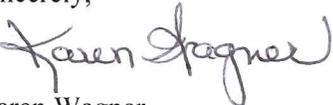
We have lots of concerns about the reclamation plan Red Flint outlined the other night. To begin, why is our well not listed as one of the wells to be tested? Why is vague language used throughout the plan (for example, it says "Final location of Equipment and Ponds to be determined" on one of the aerial pictures)? We need specific language regarding this large, disruptive undertaking, so we can fully respond when asked for "comments."

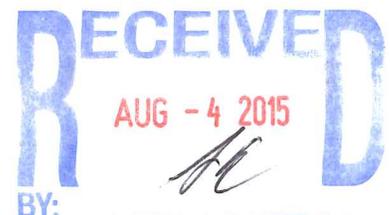
The map doesn't acknowledge that there is wetland on the property to be mined. We know there's wetland... we live next door and have two ponds. This land is wet.

We have many practical worries about how our property might be affected by storm water runoff. We are directly between a hilly area and the mine. While we need a berm to protect us from some of the sights and sounds of the mine, will this berm trap water from the hilly area onto our land? We don't feel confident that our needs and rights are being considered in this plan.

Therefore we ask that you do not approve this reclamation plan.

Sincerely,


Karen Wagner



I'm Katherine Stahl, landowner of property adjacent to land leased by Northern Sands for this proposed nonmetallic mine.

I respectfully request that you deny Northern Sands LLC reclamation permit application as it is incomplete, vague, misleading, and is presented by a company that has proven to be dishonest

In reviewing the application I see no reference to intermittent mining as required by NR 135.14. It could be said that intermittent mining will not occur but that has not been the history of other sand mines. And as Red Flint said during the public hearing, length of mining depends in part on market conditions. What will they do to handle erosion, reclamation, and financial assurance should they go through periods when they aren't operating? An intermittent mining plan should include specific plans for such matters as clean up of the buildings, conveyors, transloading areas and closure of exposed land to assure safety, and to assure air and water quality are not compromised.

There is a reference to native prairie habitat. Habitat for what? Even various grassland bird species require specific different sorts of grassland habitats. How can you determine what to plant unless you outline what you are creating habitat for?

Given my experience as Chapter Chair of The Prairie Enthusiasts, I can assure you Northern Sands plans for creating prairie grasslands are mostly inappropriate and ineffective. Additionally as you know prairie health is fire dependent. After reclamation is completed, are the landowners prepared to do prescribed burns? If not, as neighbors to this mine we will be surrounded by fields of weeds and the spread of their weeds will become our problem. Similarly their tree planting plans are lacking. They have relied on DOT standards for their revegetation plans. I remind Northern Sands, DOT builds roads, not prairies and woodlands. They should have hired a professional ecologist and a forester to help them with their prairie grassland and woodland planning.

Wisconsin Statute 289.45 indicates no person may store or cause the storage of solid waste in a manner which causes environmental pollution. What does Northern Sands plan to do with any dredging from the infiltration ponds, and other mining and industrial wastes that may include acrylamides, sulfides, heavy metals and other pollutants? The plan speaks of pond and well testing but no indication of what they will do if the ponds, wells, overburden or waste materials are contaminated. On page 16, the plan requests reduced testing frequency after the second year. Why would you reduce testing when the likelihood of accumulative contamination will increase over time or vary spot to spot?

Wisconsin statute NR 135.19 (2) (b) states the plan should include information available to mine operator on biological resources, plant communities, and wildlife use at and adjacent to the proposed or operating mine site. Northern Sands plan indicates no endangered resources were found. What the Northern Sands plan does not tell you is private lands in Wisconsin have by in large not been surveyed for threatened and endangered species. Northern Sands should have arranged a survey for wildlife use and for threatened species. Similarly they checked the DNR Wetland Inventory for wetland location although the DNR site itself offers a disclaimer that the survey was done by high altitude imagery and soil map review. The DNR site states "the most accurate method of determining the legal extent of a wetland for federal or state regulations is a [field delineation of the wetland boundary](#) by a professional

trained in wetland delineation techniques". As people who live in the area we know of wetlands that are not included on this map. How can you approve a plan that has not even delineated the wetlands and identified the impact those wetlands will have on our area surface and ground water, wetland dependent animals and plant communities?

What is the impact of moving soils from Cell 1a to Cell 1b or the interchange of soils from one cell to another in Phase 2 and 3? Since soils may be moving from one landscape niche to another such as north to south facing, does that impact the soil rehab plan or the end use of the soils?

This plan indicates they checked with the Wisconsin Historic Preservation Database for cultural or historical resources. What they fail to tell you is only 5% of the state has been surveyed for cultural/historical resources. Since we have undocumented Native American mining sites on our property adjacent to Northern Sands leased land, it is misleading to assume there are no historical resources present.

On page 22 the finish grade is said to be slightly sloping of 1:10 to 1:20. Then page 23 says the mine area sidewalls will be reclaimed to 3:1. Which is it? According to the plan, high walls or other steep slopes will not be part of the reclamation effort. Does that mean they will be left unsloped? If so according to NR 135.10 the plan has to provide all areas are stable and safe for post-mining land use even if they are not mined. If there are highwalls/steep slopes, I ask you to require a professional analysis or field test as provided in NR 135.10 (1). Also, if blasting occurs, will the blasting impact the safety of any high walls and steep slopes?

Section 2.3 of the plan is titled Surface Water and Storm Water Management. There is virtually no information about surface waters. Are they planning to measure the temperature and ph of the area surface waters to detect if their stormwater management has an impact on the area surface waters including wetlands? With the loss of seeps/springs and aquitards within the mined hills and the increase in big rain events, run off potentially will be more direct, warmer, and carry sediment from the mine. What impact will they have on the area surface waters? Since we've had greater than 100 year, 24 hour rain events in our area, how do they plan to manage these bigger events? When they say on page 17 the storm water ponds are not expected to penetrate the bedrock surface, what happens if they do? What are the discharge rates once the target mineral is removed? If during the mining process they remove aquitards the discharge will be greater.

Why are the storm water designs along the conveyor corridors allowed to be submitted after the reclamation permit application? That would be part of the sand mine operation with pollution implications from sand spilled from the conveyors along its corridor as has been seen in other sand mine sites.

NR 135.22 indicates grounds for reclamation permit denial includes the applicant, its agent, principal or predecessors within 10 years of permit application has shown a pattern of serious violation of federal, state or local environmental laws. Northern Sands failed to follow appropriate borehole abandonment as listed in Wisconsin NR 812.22 and received a notice of violation from DNR. Northern Sands

representative publicly lied during the Town of Howard meeting about appropriately abandoning the boreholes.

During the reclamation public hearing on July 29th, compliance monitoring and technical assistance was discussed. Since there are several mines in Chippewa County and the Chippewa County Land Conservation and Forest Management department is already understaffed to accomplish all of its functions, will there be adequate staff to effectively provide compliance monitoring and technical assistance for the proposed Albertville Valley Sand Mine?

If you feel compelled to grant Northern Sands a reclamation permit and I hope you don't, I request that you obtain financial assurance through an escrow cash account in advance of mining rather than a bond which could be cancelled. The company's past dishonesty and lack of experience in frac sand mining leads me to wonder how we can be assured of their ongoing bond payment. Also I request you moderate regular meetings throughout the reclamation between the Northern Sands decision makers and the community so we can have dialogue to help address the distrust this company has created for many of us in the community.

Thank you.



612 W. Main St., #302, Madison, WI 53703 tel. 608-251-5047 fax 608-268-0205

Memorandum

TO: Chippewa County Department of Land Conservation & Forest Management

FR: Kellan McLemore

DT: August 4, 2015

RE: Comments on Draft Reclamation Plan Proposed by Northern Sands, LLC Mine; Town of Howard, Chippewa County, WI

Midwest Environmental Advocates (“MEA”) reviewed the draft Reclamation Plan for the proposed industrial nonmetallic (sand) mine to be located in the Town of Howard and operated by Northern Sands, LLC. MEA reviewed this Reclamation Plan and we provide these comments at the request of concerned citizens of the Town of Howard and neighboring municipalities potentially impacted by the operation of the proposed industrial sand mine. We appreciate the opportunity to submit comments to the Chippewa County Department of Land Conservation & Forest Management regarding the draft Reclamation Plan. MEA is a non-profit environmental law center that provides legal and technical assistance to communities and families working for clean air, clean water, and clean government.

Post Mining Land Use

The Post Mining Land Use section of the draft Reclamation Plan states that the final site reclamation will include a combination of commercial and passive recreational uses. More specifically, the Post Mining Land Use section states that approximately eighty-five percent (85%) of the site will be reclaimed as prairie grasslands, while the remaining approximately fifteen percent (15%) of the site will be reclaimed as woodland.

Comments

As acknowledged in the WDNR’s “Reclamation Plan Checklist”—its guidance on reclamation plan development for nonmetallic mining sites—in order to comply with the requirements of NR 135.19(3)(a), a reclamation plan’s proposed post-mining land use must be consistent with local land use plans and local zoning at the time the plan is submitted.

“(3) Post-Mining Land Use. (a) The reclamation plan shall specify a proposed post-mining land use for the nonmetallic mine site. The proposed post-mining land use shall be consistent with local land use plans and local zoning at the time the plan is submitted, unless a change to the land use plan or zoning is proposed.” NR 135.19(3)(a).

The Town of Howard has not enacted a local zoning ordinance, nor has it adopted Chippewa County’s zoning ordinance; therefore, the local land use plans (e.g., the Town of Howard’s Comprehensive Plan) is the sole guide regarding the physical, social, and economic development of the Town of Howard. For several reasons, the proposed post-mining land use is inconsistent with the local land use plan for the Town of Howard.

The following sections of the Town of Howard’s Comprehensive Plan clearly show the Town’s commitment to the preservation of agricultural land and the promotion of the agricultural industry as top priorities.

Element one of the Comprehensive Plan, which contains “The Vision Statement” for the Town of Howard, states that “infrastructure is insufficient for any significant industrial activity” and that “the Town’s future prospects rest on maintaining its agricultural land base and supporting and promoting its agricultural economy.”

Element five discusses the Town of Howard’s agricultural, natural, and cultural resources. The number one goal articulated under this section is the “preservation of agricultural lands,” including “maximizing the total acreage of farmland as well as maintaining or improving the soil productivity of those lands.”

Element six discusses the Town of Howard’s economic development. According to this section, the basic goals of the Town’s economic development policy should be the following: (1) The preservation of the Town’s agricultural land base; (2) The encouragement of additional commercial development in the two areas already occupied by commercial activity, to the extent that expansion in these areas is feasible and does not conflict with existing agricultural or residential uses in those areas; (3) The allowance of forms of economic activity compatible with the preservation of the agricultural land base especially when this takes the form of cottage industry that does not involve the loss of agricultural land and forms of economic activity located out of the home; (4) The discouragement of economic activity that is incompatible with the preservation of the agricultural base; and (5) The support and encouragement of diversification within the agricultural economy.

And finally, **Element eight** discusses land use within the Town of Howard. This section states that “the goal of farmland preservation is the overriding priority in all land use planning and policy in the Town.” Moreover, the “preservation of farm lands and their productivity” and the “preservation of the rural character and aesthetic beauty of the Town’s landscape” are also listed as goals under this section.

The current proposed post-mining land use would remove all agricultural land within the mining site and replace it with prairie grasslands. It is difficult to see how completely replacing what has been described as “very suitable farm land” with prairie grasslands is at all consistent with the aforementioned goals and policies articulated in the Town of Howard’s Comprehensive Plan.

Recommendations

MEA recommends the following:

- Further assessment of whether the proposed post-mining land use is consistent with local land use plans for the Town of Howard, including consultation with local government officials from the Town of Howard.
- Revision of the post-mining land use to ensure that reclamation of the mine site can not only restore both the acreage of farmland being withdrawn for mining use but also restore the soil productivity lost during the process of extraction.

Sincerely,
Kellan McLemore, Staff Attorney

Comment on the Northern Sands Reclamation Permit for the Albertville Valley Mine in Howard

This permit according to NR 135 is incomplete as explained by Roberta Wall of DNR because it does not have a section dealing with how situations of intermittent operation as we have now in the industry will be dealt with-meaning periods of little or no demand for their product.

It also substantially fails in its principle goal of reclamation as there is no real vision of an end use or how to get to it. It is clear to see by reading it that they have no idea how to proceed with reclamation to establish a permanent vegetative cover much less a ecological system to attain a viable end use. For these reasons as well as others it should be denied.

It is very easy to see as one reads their plan they have no idea how different species of plants will act or what the outcome will be in the scenarios they offer when they are planted together especially under different weather scenarios as we have seen in the past few years.

They are proposing to use fescue in temporary seeding mixes which will make it nearly impossible to eradicate in order to establish the prairie plants they are proposing. They propose to seed parries mixes into either or both red and alike clovers which if it were to occur during a wet season will literally choke off most if not all of the species that they wish to permanently establish. Most of the species they are proposing are bunch types of plants; this potentially could allow erosion to lack of ground cover between plants, especially on slopes.

They do not talk about seeding rates, only percentages of species in the mixes, wrong approach, a very small rate of some of the species may be OK, but if too a high of a rate of the mix is used they will not allow the rest of the species in the mix to establish, it is all about the number seeds per pound/acre and seedling vigor of each species in a mix which will determine what the end product will look like! There is no vision as to what type of wildlife if any they are attempting to attract to the reclaimed sites. Everyone seems so concerned about soil compaction, which is valid in the top 1-2 feet of the profile is a valid concern, however I believe that the opposite is equally if not more of a concern below that point, with no retarding layer in the profile below that point there will be no way to "bank" moisture for drought conditions. Another concern in areas to be reforested how will trees be able to develop enough root structure in areas of deep fill to withstand wind to avoid uprooting?(If they are able to survive the above times of drought?)

Their final plan for disposition of the processing structures is wholly inadequate if not a total pipe dream. We have adequate facilities in the area now to handle the grain we are producing, not even considering the extra capacity which will certainly be built in the next 10-20 years or the acres of production we will lose due to the proliferation and expansion the industry tells us will occur during the same time period.

A bond for removal of the processing facilities should be required of this operator as well as the succeeding owners to insure that they are legitimate owner operators not just a shadow entity to do an end run around reclamation in order to save money. Permanent conservation easements should be required to ensure that ground water quality will not suffer because someone decides to intensively farm these areas with substantial use of manure, commercial fertilizers and crop protection products.

In their plan they write that monitoring wells will be abandoned as mining is finished in each cell, this is totally wrong! These wells must remain in place with a substantial monitoring time period of not less than 20 years to ensure that any chemical reaction between either naturally occurring elements or with chemicals used in processing is detected as soon as possible in order that steps can be taken to

sequester or mediate them (bond should also be required for this also so that taxpayers do not foot the bill for these potential issues).

Submitted by Ken Schmitt, 4988 n120th Ave., Colfax, WI 54730,
715-568-5508

Joan Schemenauer

From: lana christoffel <lchristoffel@hotmail.com>
Sent: Wednesday, August 05, 2015 1:04 PM
To: LCD
Subject: Albertville Valley Mine Reclamation Plan

We attended the public hearing on Wednesday, July 29th and found Red Flint's presentation to be informative and interesting. We felt Red Flint representatives were well prepared and professional.

We would like to extend our vote of confidence supporting Red Flint/Northern Sands and the outlined reclamation plan. We believe the plan is realistic and manageable. Red Flint's long history of mining and reclamation helps give us confidence.

As outlined in their presentation, mining operations will be done concurrently with reclamation of the previous mining cell. The reclamation of mining cells progressively will provide continuous opportunity for observation and evaluation. This is a great way to monitor their progress with regard to reclamation.

We believe Red Flint has the necessary experience and commitment to successfully reclaim this entire project.

Thank you for your time and consideration.

Sincerely,

Bob and Lana Christoffel

Sent from my iPad

To: Seth Ebel, P.E.

In addition to oral testimony I presented on July 29th I have the following concerns. Please consider them as written testimony regarding the Albertville Valley proposed sand mine.

- 1) Section 1.4 of the application indicates there are “intermittent” streams on the proposed mine site. Wrong! The creek which flows south from the SE corner of the Bethman property is a perennially active trout feeder stream that passes through a 60” diameter culvert as it crosses 80th Avenue. There are several wetlands on and immediately adjacent to the mine site, which are not indicated on the WDNR Wetland Inventory. In fact, areas within the Cells 1a and 1b are notoriously difficult to farm, even during drought years, due to wetlands in the field there. No mention is made in the application narrative about on-the-ground investigation for discovery of unlisted wetland locations. Be informed that such on-the-ground investigations in the recent case of the Gogebic Taconite iron mine application revealed four times more acreage of actual wetlands than the applicant had reported. Also, be advised that the Wetland Inventory is taken from high altitudes that can and do miss existing wetlands.

As indicated in my oral testimony the applicants’ statement that “mining at the site will be limited to the higher elevations. . .” is patently false: Cells 1a and 1b are located exclusively within some of the lowest elevations on the mine site. This cornfield is rife with wetland and water table problems that beg for boots on the ground investigation.

Again, what does it mean to say “. . . wetlands will be avoided during mining; if wetlands cannot be avoided Northern Sands will work with state and federal agencies to obtain appropriate permits. . .” If that means they plan to mitigate such wetlands to other locations it begs the question “what happens to that cold water trout stream that absolutely depends for its trout fishery existence upon those wetlands’ cold water supply sources?” Such destruction of any part of the Elk Creek trout fishery is simply unacceptable and you can count on recourse being sought if that happens.

This particular paragraph of the application narrative is an example of how critical policy decisions are being asked to be deferred until after a permit is issued. These policy issues are of paramount important to those of us who comprise “the public” and they must be exposed to public consideration, comment, and consent prior to any sort of approval.

- 2) Section 1.5. At least four domestic water wells in or immediately adjacent to the mine site are omitted – or at least missing: they include Dan Bartz, Noah and Soma Smit, John Michels and Dennis and Karen Wagner. The Dan Bartz omission is particularly troubling because both Dan and his Father Richard (who lived there and tried to farm that 1a/1b cornfield) report that the static water level in that well regularly lies at 10 to 12 feet below the surface. This is immediately across the road just north of Cell 1a. How will this work for mining at least 10’ above groundwater? If this omission was deliberate that doesn’t speak well for the veracity of the application.

- 3) Section 1.6 Soil. This part of the narrative tells us “summit conducted a limited soil survey to confirm the description of the NRCS Soil Survey Report for this location”. Who was the technician who did this work and what are his/her credentials? Where are the field notes and the work up for that survey? Where are those test pits and on what days in October of 2014 were they dug? How can I find at least two or three of them to check that work to my satisfaction?

Along those lines of inquiry, how are we to be assured that EmE soil won't be “reclaimed” to a Pbc location for instance? Why is there no discussion of this sort of concern in this application? Is it really irrelevant? How can any member of the public know this work will be done appropriately later?

The Northeastern corner of our property lies across the quarter-section corner from Cell 1b. That acreage is some of the best timber production land on our farm and it currently and historically has supported a uniform stand of Big Tooth Aspen—one of the most valuable pulp species on the market. This cloning species is what is typically found immediately downslope from seeps and springs emerging from the mid and lower-level sides of sandstone ridges. What's going to happen to our E1B soil type once the adjacent Cell 1b sandstone is mined away and then backfilled with glauconitic clay which is laced with Tunnel City and other materials that radically change the subterranean or surface drainage patterns there? Will that part of our land dry up and grow only black oak and scrub oak that has little or no value? Or, will the acreage become wetter and stagnant and perhaps produce alder brush? Who's answering these kinds of questions and if we don't have the right to answers, why not?

- 4) Section 17 Groundwater. You should be well aware that groundwater elevations based on the generalized map mentioned here can easily be 30 feet different than reality. In addition, we've been told by competent hydrologists that seasonal variations in levels can be as much as 10 feet. Therefore it seems inordinately risky to plan to mine a stratum between 1100 and 1050 when anticipated high groundwater is at elevation 1040. We reportedly had/have five or more borehole data sets within the perimeter of Cells 1a and 1B (two or three of which were apparently never found this summer when the DNR-required re-borings were conducted to correct the Notice of Violation issued to Northern Sands for improperly abandoning them. Why is that kind of information, including water levels, permitted to be considered “proprietary” when the public has every right to know where the actually/real groundwater levels are?
- 5) Section 1.8 Threatened and Endangered Species. Again, where's the “boots on the ground” baseline data? In this instance we are not even promised that kind of information after the permit is granted and mining has proceeded.
- 6) Section 1.9 Landscape. Here we're informed “this is a highly eroded, unglaciated landscape . . .” Wrong! The entire mine site is glaciated and that's the reason we have sandstone finger ridges where the intervening valleys have been eroded away at the time of the glacial melt water deluges. The most plausible reason the sandstone ridges survived is because they all contain erosion resistant aquatard/aquaclude materials in their top portions.

- 7) Section 1.10. Cultural/Historical Resources. We have at least 15 Native American mining sites (probably quartzite layers for toolmaking) on our property and we know of at least one just like them within the proposed mine. No effort has been made to discover these or others by any on-the-ground study.
- 8) Section 2.1 Area and Setbacks. There is a major natural gas pipeline running through our property and the Kiesow land less than ¼ of a mile from Cell 1b. The application ignores it and any concern about blasting percussion damage to that facility. Why?
- 9) Section 2.2. Groundwater Management. To monitor for two years and after that discontinue monitoring certain substances is ill conceived. Given the extremely slow horizontal flow velocity of groundwater aquifers trouble may still be approaching at two years. Monitoring needs to be throughout the life of the mine and through the ten year period following that.
- 10) Section 2.3 General Storm water Design Approach. The “Design approach” contains this: “Chippewa County’s stricter requirement for peak discharge to contain the run-off from the 100 year, 24 hour event will be used. . .” I remind those folks at Cooper Engineering that requirements such as the one quoted above are minimum standards that must in all cases be met. These minimum standards do not become design standards without further considerations. The Professional Engineer is expected to design for all events to be anticipated by considering all available local, historical data. There have been at least three and perhaps four storm events in the area in question during the past twelve months that have in all likelihood exceeded the 100 year-24 hour level.

What does it mean to say that “infiltration will be the preferred storm water treatment. . .?” This seems like a strangely cavalier preference given the abject failure of such a system at the EOG-DS mine last August 8th when Running Valley Creek and the lower half of 18-Mile Creek were heavily impaired as Class II trout streams by hundreds of tons of glauconitic clay sedimentation.

Who really cares about the ponds being located at least 500 feet from navigable waters. There are no navigable waters even close to the mine site. So this statement appears diversionary. The real problem is any proximity to trout streams.

What does it mean to “work with the County to implement changes to increase the infiltration rates back to the original prescribed levels?” If the rate wasn’t good enough the first time, why will it be later? And where does that “removed sediment” go?

- 11) Conveyor corridor. What happens to the conveyor 30 years from now when the other buildings, rail yards, etc are being used for something else or, more probably, abandoned? The application makes no reference to that.

The plan indicates “in the event of slope failures, failed seeding, or persistent erosion problems, additional BMPs will be assessed and applied where practicable.” What do the words “persistent” and “where practicable” mean in this context?

12) Section 2.4 Mineral Resources, Site and Overburden Management. This plan anticipates handling about 56 million tons of raw sand. 30% of that needs to be handled twice. That makes at least 70,000,000 tons. If one part in 10,000 escapes as sediment or fugitive dust that's 7,000 tons that somebody somewhere has to deal with. It seems only proper that this reclamation plan ought to tell us how this company is going to reclaim that. It doesn't.

Annual testing for many of the toxins and contaminants referred to is woefully inadequate.

13) Section 2.5 Contemporaneous Reclamation. Here we get back to that business of soil types. To do this right it looks like there ought to be 34 different stockpiles to accommodate the two horizons of 17 soil types. This needs a great deal of clarification.

14) Section 2.7 Elevations. Slopes of 1:10, 1:20, 3:1 (refer to Section 3.0)? Which? Where? In parts of phases II and III, it's difficult to imagine how anything but the 1:3 maximum can be credible.

15) Section 2.8 Methods of Resource Removal. This section contains the phrase "Blasting, if required. . ." What does that mean? What's the criteria for being "required"? Even a little insight here would be useful.

During Red Flint's presentation on 7/29/2015, they said they would "minimize trucking". What does that mean? Are they planning to truck the sand from their 40 acre Town of Auburn mine site to Albertville Valley for processing and transloading? That seems probable.

16) Section 3.0 Post Mining Land Use. Even my non-botanist eye could see what looked like a huge defect in the Red Flint picture of the gravel pit pond reclamation: all that pretty green stuff in the picture looked suspiciously like reed canary grass to me. That's one of the most pervasive, invasive plants on the face of the planet.

Thank you for considering these concerns. I request that approval of the application be denied as it is incompetently prepared and tenuous at best.

Respectfully,

Lee Boland

I'M LEE BOLAND. I LIVE WITH MY WIFE ON 361 ACRES OF PRISTINE FARM AND WOODLAND-- WITH ITS OWN TROUT STREAM-- AT N7607 1010 STREET, ELK MOUND. WE HAVE RAISED OUR FAMILY AND LIVED THERE FOR 33 YEARS. OUR PROPERTY IS ACROSS THE FENCE FROM THE PROPOSED SANDMINE AND WE SHARE ONE OF THE SANDSTONE RIDGES WITH IT.

I HAVE A BACHELORS DEGREE IN CIVIL ENGINEERING FROM VALPARAISO UNI VERSITY AND A MASTERS DEGREE IN CIVIL ENGINEERING FROM THE UNIVERSITY OF WISCONSIN AT MADISON. I HAVE BEEN REGISTERED AS A PROFESSIONAL ENGINEER FOR 50 YEARS AND AS A PROFESSIONAL LAND SURVEYOR FOR MOST OF THAT TIME. I AM REGULARLY ADVISED BY LEGAL COUNSEL AND TWO OF THOSE ATTORNEYS ARE HERE THIS EVENING.

I WILL DISCUSS SEVERAL REASONS WHY A RECLAMATION PERMIT SHOULD NOT BE GRANTED AND WHY GRANTING IT WOULD BE HARMFUL TO THE ENVIRONMENT AND TO THE SAFETY, HEALTH AND WELFARE OF ME AND MY FAMILY AND HUNDREDS OF OTHERS IN OUR NEIGHBORHOOD.

- 1) NR 135 REQUIRES RECLAMATION APPLICATIONS TO LIST ALL MINE LANDOWNERS AND TABLE ONE IS SUCH A LIST. HOWEVER, IN THIS COURTHOUSE, IN THE REGISTER OF DEEDS ARCHIVES, THERE'S A VERY OLD BOOK OF RECORDED REAL ESTATE TRANSACTIONS THAT INCLUDES ONE FROM JUNE 17, 1873. AT THAT TIME THE UNITED STATES OF AMERICA GRANTED 93,328 ACRES OF LAND TO THE WEST WISCONSIN RAILROAD COMPANY IN EXCHANGE FOR BUILDING A RAILROAD FROM TOMAH TO THE ST. CROIX RIVER. THIS IS THE CANADIAN NATIONAL RAILROAD NOW RUNNING THROUGH FAIRCHILD AND AUGUSTA AND THROUGH ALBERTVILLE VALLEY. WE OWN 160 ACRES OF THAT PROPERTY. WE HAVE TRIED FOR YEARS TO LEARN WHETHER OR NOT WE OWN THE MINERAL RIGHTS TO THAT LAND BECAUSE THE RAILROAD GRANT SPECIFICALLY EXCLUDES "ALL MINERAL LANDS SHOULD ANY SUCH BE FOUND TO EXIST..." FRAC SAND AND GASOLINE AS WE KNOW THEM WERE THINGS OF THE FUTURE IN 1873. WE'VE HAD DOZENS OF CONTACTS WITH THE DEPARTMENT OF THE INTERIOR AND IT'S BUREAU OF LAND MANAGEMENT. WE KNOW THE RAILROAD NO LONGER OWNS THOSE MINERAL RIGHTS, IF THEY EVER DID, DUE TO "LAPSE OF ACTIVITY" LANGUAGE IN WISCONSIN STATUTE 706. HOWEVER, NO STATE STATUTE TRUMPS AN ACT OF CONGRESS. THE LATEST WE HAVE FROM THE BUREAU OF LAND MANAGEMENT IS A LETTER OF JUNE 12, 2015 WHICH CONTAINS THIS PASSAGE: "THE BUREAU OF LAND MANAGEMENT HAS NOT TAKEN A POSITION ON FRACKING SAND BUT IT'S PREMATURE TO SAY THAT IT IS NOT A MINERAL." THIS APPLICATION SAYS NOT ONE WORD ABOUT MINERAL RIGHTS. PART OF THE PROPERTY IN PHASE ONE, ALL OF THAT IN PHASE TWO, AND ALL OF PHASE THREE EXCEPT 80 ACRES WAS PART OF THE 1873 RAILROAD GRANT WITH THE SAME EXCEPTION REGARDING MINERALS. THUS, MORE THAN HALF OF THIS PROPOSED MINE, INCLUDING NEARLY ALL EXTRACTION AREAS ARE UNDER A SERIOUS CLOUD OF TITLE TO MINERAL OWNERSHIP. BLM STAFF HAVE INDICATED THAT THE GOVERNMENT NEVER SELLS ITS MINERAL RIGHTS, BUT IT'S NOT IMPOSSIBLE TO SECURE A MINERAL EXTRACTION PERMIT FROM THEM. HOWEVER, IT NORMALLY TAKES A DECADE OR TWO TO GET ONE. AND THE U. S. GOVERNMENT ISN'T INTERESTED IN A DOLLAR OR TWO PER TON---THEY GET 50% OF EARNINGS FOR THE COMMONWEALTH TREASURY. IN WYOMING ALONE THIS AMOUNTS TO 50 BILLION DOLLARS ANNUALLY---MOSTLY FROM COAL ROYALTIES. DOES THE FEDERAL GOVERNMENT

HAVE ANY INTEREST IN FRAC SAND? IT MAY BE WELL TO UNDERSTAND THAT FRAC SAND IS SEVERAL TIMES AS VALUABLE AS COAL. GIVEN THESE UNCERTAINTIES IT WOULD BE PRUDENT FOR CHIPPEWA COUNTY TO CONSIDER WHETHER IT WANTS TO RISK BEING A PARTY TO FEDERAL MINERAL TRESPASS OR THEFT OF FEDERAL PROPERTY. POSITIVE PROOF OF MINERAL TITLE SHOULD BE MADE A CONDITION OF ANY APPROVAL OF THIS APPLICATION. INCIDENTALLY, BOTH PARCELS COMPRISING THE ONLY OPERATING FRAC SAND MINE IN HOWARD TOWNSHIP WERE ALSO INCLUDED IN THE 1873 RAILROAD GRANT WITH THE SAME RESERVATIONS.

- 2) BETWEEN 2:15 A.M. AND NOON ON JULY 6, 2015 MORE THAN SIX INCHES OF RAIN FELL AT OUR HOME. THIS STORM CAME IN TWO SEGMENTS WITH A LULL BETWEEN THEM. DURING THAT LULL I STOOD ON THE ROAD BETWEEN PROPOSED MINE PHASE 1a AND THE PROCESSING PLANT AND TRANSLOADING PROPERTY. I WATCHED BOTH OF THE 24" CULVERTS THERE RUNNING FLAT-OUT FULL WITH ACRES OF FLOODING ON BOTH SIDES OF THE ROAD. THIS HALF-FINISHED FLOOD WOULD IN ITS FIRST TWO HOURS HAVE OVERWHELMED THE UPSTREAM AND DOWNSTREAM "WET" PONDS AND INFILTRATION BASINS SHOWN IN APPENDIX IV. MANY TONS OF CLAY AND OTHER MINE WASTE ACCUMULATED IN THOSE PONDS WOULD HAVE BEEN FLUSHED INTO ELK CREEK, OUR PRIZED, ONE-OF-A-KIND, TROUT STREAM. THE POSSIBILITY OF SUCH AN AVOIDABLE DISASTER IS ABSOLUTELY UNACCEPTABLE. NO SCIENTIFIC METHOD OF RECLAIMING THAT CREEK TO ITS CURRENTLY EXISTING STATUS IS PRESENTED IN THIS APPLICATION SHOULD THAT HAPPEN. AND---NO ONE NEEDS TO TELL US IT CAN'T HAPPEN: ON AUGUST 8TH, 2014 AT A LOCATION FOUR MILES NORTH OF THIS PROPOSED MINE, DURING A STORM EVENT 2/3 THE MAGNITUDE OF THE STORM OF THREE WEEKS AGO, RUNNING VALLEY CREEK AND THE LOWER HALF OF 18 MILE CREEK WERE DESPOILED FOR WEEKS AND PERHAPS FOR DECADES WITH HUNDREDS OF TONS OF CLAY WHEN THAT STORM OVERPOWERED THE INADEQUATE SEDIMENTATION AND INFILTRATION ARRANGEMENTS AT THE EOG-DS MINE. SINCE THEN, EVERY TIME IT RAINS HARD THOSE TWO CREEKS, BOTH CLASS II TROUT STREAMS, RUN CHOCOLATE COLORED FOR DAYS. WE WERE TOLD LAST AUGUST BY THE REGIONAL DNR STORM WATER EXPERT THAT THERE WOULD BE NO CONSEQUENCES FOR THAT MINE OPERATOR BECAUSE THE OLD "GRAVEL PIT" RULES WERE NOT FORCEFUL ENOUGH. BUT HE SAID ,THOSE RULES WERE BEING RE-WRITTEN TO BETTER ACCOUNT FOR THE EFFECTS OF THESE NEW, VERY LARGE FRAC SAND OPERATIONS. IT'S BEEN A YEAR AND WE SEE NO REAL DNR EFFORT TO DO THAT.
- 3) THIS RECLAMATION PLAN IMPLIES THAT WETLANDS AND STREAMS WON'T BE AFFECTED BECAUSE "EXTRACTION WILL BE DONE AT HIGHER LEVELS." THAT'S FALSE INFORMATION: THE VERY FIRST EXTRACTION SITE IS AT ONE OF THE LOWEST ELEVATIONS ON THE PROPOSED MINE SITE—AND DIRECTLY BELOW A PERCHED WETLAND 300 FEET WEST OF IT. THE SAME APPLICATION PARAGRAPH SAYS "WETLANDS WILL BE AVOIDED BUT IF THEY CAN'T BE AVOIDED"---REALLY, THAT'S WHAT IT SAYS—WETLANDS WILL BE AVOIDED BUT IF THEY CAN'T BE AVOIDED NORTHERN WILL WORK WITH STATE AND FEDERAL AGENCIES TO OBTAIN NECESSARY PERMITS; PRESUMABLY THEY'RE REFERRING TO MITIGATION. HOW DOES ONE MITIGATE A WETLAND THAT FORMS THE HEADWATERS AND PRIMARY SUPPLY FOR A COLD WATER TROUT STREAM? ONE OF THE PRINCIPAL AUTHORS OF YOUR CHIPPEWA COUNTY

GROUNDWATER STUDY WRITES ME THAT REMOVING THAT HALF OF MY SANDSTONE RIDGE THAT LIES IN CHIPPEWA COUNTY MAY OR MAY NOT CAUSE MY LITTLE TROUT STREAM TO DRY UP. THAT SOUNDS LIKE 50/50 ODDS AND THAT'S NOT GOOD ENOUGH. I WANT 100% SCIENTIFIC ASSURANCE THAT EXPOSING THE PERCHED WATER TABLE IN THE UPPER LEVELS OF THAT SANDSTONE RIDGE WON'T DRY UP MY CREEK. I WANT MY FAMILY 33 YEARS FROM NOW TO BE ABLE TO LOVE AND NURTURE THAT LITTLE TROUT STREAM JUST LIKE WE HAVE FOR THE PAST 33 YEARS. THANK YOU FOR HEARING THESE CONCERNS.

I am a town of Colfax resident who lives less than a mile from the proposed mine site. I am also a member of the Colfax town planning commission, though today I speak only for myself.

My first concern about the reclamation is that it seeks to turn mined land into grassland. This is the lowest level of reclamation possible. Why not strive for a wooded area that could benefit a variety of animals and plant life? This large chunk of land in the middle of an agricultural community will no longer be fit for agriculture. A woodland would be harder to create, but it would give more value back. Agricultural land produces marketable products which are a renewable source of income. That is the kind of lost value these companies should pay for in reclamation.

Which leads to another aspect of this plan we should examine: what good will the mine's old buildings be to the community once mining is done? If this were going to be a busy agricultural hub in need of grain storage and rail shipment, it would make sense to leave the buildings behind. But it will take a lot of time and effort to grow anything on that land, once the mine is gone. If a definite purpose for those buildings isn't found by the time the mine closes, have them take their buildings down.

Another concern I'd like to address is storm water run-off. The reclamation uses specifications provided by the DNR, but it's hard to have confidence in those requirements. While the new standards are better than using plans developed for small gravel pits, they have not been tested. We all know that the DNR is no longer the independent overseer and enforcer of regulations it once was. It is led by a political appointee with no science background, is underfunded and understaffed, and will only become smaller and weaker under Wisconsin's current administration. The public has a right to be worried.

Our area has a history of trouble with storm water run-off. Last year run-off from the Cooks Valley mine contaminated 18 Mile Creek for weeks. Even now, when it rains, sediment is churned up and visible. We have no idea what the long-term effects will be for that ecosystem. What we saw last year was slow response from authorities and minor consequences for everyone involved.

Which makes us wonder: has anyone at the DNR or county level of government proactively considered climate change while evaluating this reclamation? Intense rainfall events are becoming more frequent. Recently we had 11 inches of rain in one week. This leads to run-off and erosion. What will happen to the clay and silt left behind in a "closed loop" system, especially if intense rainfalls continue to be the norm or even accelerate? So much of this seems experimental.

Finally, how is the public expected to feel confident in the reclamation when the project began with a bunch of unfilled bore holes? Have they been filled yet? Was anyone fined for improperly abandoning them, ever? It wasn't just an oversight that they went unfilled. It was a deliberate cutting of corners to save money, followed by a cover-up. Why should we believe that the reclamation, or the project itself, will be any different?

All along this mine has been received with a kind of inevitability by key people in Howard and beyond. That's too bad, because it might have been different. But if this mine has to happen, do it right. Make sure you have reclamation money in the bank before you let the digging begin. Hold these companies to the highest standard of clean-up. Monitor what they do and do not let them ease up on the water testing requirements. The people who live here deserve that kind of effort.

Lisa Bragg-Hurlburt

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Comments on Northern Sands, LCC Nonmetallic Mine Reclamation Plan for Howard Township Properties.

Prepared and submitted by Mark K. Leach, Ph.D.
July 29, 2015

Summary

With 30 years experience as a conservation biologist and planner, with deep knowledge of natural ecosystems, I am qualified to comment on the technical re-vegetation/wildlife-habitat-restoration aspects of the proposed plan. Successful environmental plans have at least three components:

1. clear statements of the intended long-term consequences,
2. sufficient details of the planned actions, and
3. an explanation of the logic of why the expected consequences will be the result of the actions.

This plan fails in all three. The proposed plan's "criteria of success" are unintelligible. Those "criteria" reveal no concern with meeting the standards of NR 135.19. Clear goals are the keystone of any plan; lacking them, this proposals makes no effort to describe how the proposed actions will affect plants, fish, wildlife, or their habitats. The actions that are described are no better than a mishmash of cut-and-paste assemblage that no expert in native ecosystems would produce.

Therefore, it is my professional opinion that this plan deserves rejection.

My qualifications

I have had a 30-year career as a research biologist and educator. I have taught college courses in ecology, conservation biology, and ecological restoration. I have published several scientific papers on native prairie and oak savanna, some of which are widely cited by ecologists. I have written ecological restoration, biological conservation, and related plans for the University of Wisconsin-Arboretum, The Nature Conservancy, The Prairie Enthusiasts, Dodge Nature Center, Universidad de Guadalajara, Northland College, tribal governments, and many private landowners, among others. I have reviewed hundreds of plans (including grant proposals). Generally displeased by the poor quality of environmental plans, I co-authored a handbook to improve the planning process of environmental organizations. A shortened version of my professional biography is attached.

I currently rent in Dunn County, and have been considering buying land in or near Chippewa County. I have walked a few properties that are near, and presumably similar in many ways to the proposed mine site. I have not been on the proposed mine site.

What a well-written plan should describe

A well-written plan:

- States clearly the intended long-term impacts or consequences.
- Describes accurately what actions will be taken to achieve those impacts.
- Honestly describes the underlying logic chain that links the proposed actions to the intended long-term impacts. In other words, a well-written plan describes why the planned actions are highly likely to result in the intended long-term impacts.
- Includes methods for determining if the results are on track and, if not, methods for responding in a way that will get them back on track.

In my judgment, the plan misses on each of these points in the areas of storm water management and post mining land use. However, given my own time limitations, I will focus on the parts of the plan I am most qualified to make comment: Post Mining Land Use with special focus on re-vegetation.

Intended long-term impacts: Habitat Restoration

Obviously, a reclamation plan should address the long-term impacts as demanded by regulation. The existing regulations were not written for a project of this acreage; but even so, the Northern Sands proposal fails to adequately address even these standards. Let's consider NR 135.19:

Habitat restoration. When the land use required by the reclamation plan approved pursuant to an applicable reclamation ordinance requires plant, fish or wildlife habitat, it shall be restored, to the extent practicable, to a condition at least as suitable as that which existed before the lands were affected by nonmetallic mining operations.

Although the regulation is clumsily phrased, its meaning is clear about intended long-term impacts concerning habitat: habitat for plants, fish, and wildlife will be restored, to the extent practicable, to their prior condition.

The place I expected to find clear statements on intended long-term impacts is in Northern Sands's proposed plan section 3.7 Criteria for Successful Reclamation.

This section is, in my professional opinion, entirely inadequate. Let's take a closer look at what it actually says.

- In the first sentence, Northern Sands claims it will “work closely with the County in making the determination of reclamation success.” That seems like they have the steps out of order. Before one can determine success, one must know what the criteria are. It’s not surprising to me, as the entire plan is woefully weak in describing what the desired long-term impacts will be, that Northern Sands has no specific criteria to suggest. This is a common conundrum of plans that do not start with clear ideas of desired results and therefore are unable to work backwards to determine the most appropriate activities. It is something I’d expect from inexperienced plan writers, or my first year students, not from professionals.
- The second sentence is, “Annual revegetation inspections will be conducted.” That’s fine, but it is not a criterion of success. Who is doing the inspecting? What are their qualifications? And what objective data – qualitative and quantitative – are they gathering? Where are the quantitative or qualitative criteria by which success is to be judged?
- The third sentence begins: “In addition, seasonal, on-site inspections during years 1, 3, and 10 will be documented through reports and photo monitoring to evaluate the following protocols.” Where are the criteria? This is followed by three items:
 1. Protocol #1 says, “Species Cover (% of grasses.) Overall percent of coverage expected within five years will be determined from the final plant list selected.”

This is neither a protocol nor a criterion. Rather it says there might be one in the future, but there is little clue as to its substance. I have been a vegetation scientist for nearly thirty years and I have no idea what they intend to measure or how they will use any measurement to determine “success.” When I use the phrase “species cover” in my research I mean the painstaking collection of sample data on the percent of ground that the aerial parts of each species present. There is no indication that that is what they mean. The parenthetical inclusion of “% of grasses” further confounds the confusion. They include this sentence: “Overall percent of coverage expected within five years will be determined from the final plant list selected.” This is incomprehensible. Who will determine what and for what purpose? In what way are we addressing “success”? Where are the criteria?

2. Protocol #2 says, “Soil Characteristics (Viability for prairie grasses and/or hardwood trees)”

Again, this is not a protocol or a criterion. If they have goals for soil conditions, they must state them.

3. Protocol #3 says, “Greater than 85% viable vegetative cover.”

This has the appearance of being something measurable. But it is not. How will they determine “viable” vegetation from vegetation that is not “viable”? This also suggests that there could be up to 15% bare soil and they would declare the re-vegetation efforts a success. I have never seen a vegetation planting deemed successful when 15% of it failed.

This protocol is unclear on another point. Which vegetation are they considering? The plan excludes several areas from the prairie and woodland plantings. Are those areas included here or not?

- The *Criteria* section concludes with these two sentences: “The county may provide a broad listing of acceptable reclamation performance measures for each standardized post-mining land use and associate (sic) cover type. These performance measures will be applied in association with standardized evaluation criteria to systematically monitor, measure, and evaluate reclamation success.”

Again, Northern Sands fails to describe what they intend the consequences to be, so they are unable to clearly state measurable criteria for judging success. Phrases like “performance measures” and “standardized evaluation criteria” have no meaning without stating what those measures and criteria are.

The *Criteria* section is a keystone section of the plan. I’ve gone to some length to describe why I have no idea what they are talking about and why the plainly don’t know what the intended results might be from their proposed actions.

The Northern Sands’ proposed plan does not state how the mining company would meet the standard of NR 135.06. Their proposed plan does not describe the long-term impacts on wildlife. It does not state the desired condition of wildlife communities during and after the reclamation process. The proposed plan does not describe the existing wildlife community nor describe in sufficient detail the kinds of habitat currently present. *Hence there is no way for them, the county, or concerned citizens to determine if their proposed actions are likely to fulfill the regulatory requirements.*

Northern Sands fails to state any useful criteria for success in regard to NR 135.19. On this basis alone, my professional opinion is that the proposed plan should be rejected.

Current conditions

I will not address fish, other than to say that the planned activities will surely alter downstream resources in water flow patterns, water temperature, and water chemistry; which in turn is highly likely to create conditions less suitable for existing aquatic plants and animals, including fish.

I will address plants and wildlife together. First a little background. Much depends upon one’s definition of “wildlife.” The popular use of the word confuses the word with “game” animals. Game animals are those that are hunted and trapped. Game animals are a small component of the regions wildlife. At a meeting with Wisconsin DNR officials, I sought their definition of “wildlife.” Although they were not willing to include plants and fungi with the definition, they did include invertebrates. In fact, considerable effort is underway by the DNR and federal agencies to protect and restore habitat for Karner blue butterfly, regal fritillary, Monarch, and other insects. Of necessity, the DNR was been expanding it’s wildlife concern beyond the tradition game animals.

Regardless of where one draws the line between “wildlife” and “habitat,” it is important to recognize that they are interdependent components of functioning ecosystems. Nature doesn’t recognize the distinction, it is merely a distinction made by people. Of course, if one considers only the most common animals as “wildlife,” then a simplified, species-poor habitat might be adequate. But clearly, regulations and common courtesy require better.

Because insects are “wildlife,” NR 135.19 requires that their habitat also be restored to “their prior condition.” Many insects are finicky, requiring certain plant species for their survival. For example, Monarch requires any of the milkweed species and the Karner blue butterfly needs wild lupine. The general rule of thumb for our region is that each native plant species has about five species that are dependent or nearly so on that species. In other words, the wording of NR 135.19, “restoring habitat to the extant practicable, to a condition at least as suitable,” requires re-establishing all the plant species that are currently present. “Practicable” means “able to be done,” and this certainly could be done, if we had a good list of species currently present. Certainly making such a list could be done.

Northern Sands has not provided helpful information that could be used to determine if and when the proposed habitat plan meets the standard of achieving at least the conditions “which existed before the lands were affected.” There is no inventory of what plant or animal species are now present. There is no assessment of the quality or natural areas status of vegetation. Hence, there is no way to determine if Northern Sands lives up to the regulations or not.

Taking a landscape features with slopes facing every direction, and turning into “gently rolling hills” has a profound impact on habitat. In our region, northeast-facing slopes are cooler, moister, and less likely to burn; where as southwest-facing slopes are warmer, drier, and more likely to burn. Intermediate conditions are found on the other slopes. Thus, the natural condition of the land is to have much different vegetation growing in close proximity. The difference in micro-climate and plant communities make for a complex habitat that is well suited to many native animals. The plan gives no attention to this fact.

I have not been on the proposed mine site. But I have visited some of the neighboring properties to get a sense of the biotic communities of the area. I was struck by the abundance of small seeps on the upper slopes. Wetland vegetation grows in these seeps, even at the upper portion of slopes. These seeps and associated wetlands are an important habitat feature. I have no doubt similar seeps and associated wetlands exist on the proposed mine site. Northern Sands does not mention these seeps, nor do they describe how, to the extent practicable, they would restore these important habitat features to a condition at least as suitable as existed prior to mining.

In 1.8, Northern Sands points out that the DNR found no record of Endangered or Threatened species within or near the proposed mine area. This is really not useful information, because the DNR database is far from complete, especially on private land. Apparently Northern Sands did not find it important enough to hire qualified biologists to make an on-site investigation. (Similarly, Northern Sands relies on the State Historical Society data base, but does not make its own search for archeologically significant sites, which seems odd since that is the area of expertise of Summit Envirosolutions, which prepared the plan for Northern Sands. For wetlands, Northern Sands says it will map those “in advance of mining commencement,” but presumably only after permits are issued. This approach to resource management is remarkably disingenuous and should not be acceptable.)

What Northern Sands’s proposed plan does do is it substitutes its own standard – 85 per cent prairie grassland and 15% woodland, but then only on a not clearly specified portion of the properties. Eighty-five percent of what? This question is not answered in the narrative.

Re-vegetation

I turn my attention now to what Northern Sands’s plan says they will actually to re-vegetate some portion of the land with prairie and woodland.

In my professional opinion, the re-vegetation plan is woefully inadequate to re-create anything like prairie or woodland ecosystems. The authors provide no information that suggests they understand how to design such plantings, how to install them, and how to monitor and manage them. I will not cover everything wrong with the plan, but for brevity give some highlights.

Prairie—Native prairie is a species rich system, including high densities of plants, animals, and soil microbes.

Species densities: Northern Sands, according to its proposal, would plant 15 species of native plants in the prairie; 14 species are listed in their Table 6 and Canada Wild Rye listed on Table 5 is also a native species. Let’s compare 15 species with reports from actual prairie.

Milbauer and Leach (2007), in a re-sampling study, compared native species data for 21 Wisconsin prairie remnants. The circa 1949 data are from the Plant Ecology Laboratory at the University of Wisconsin Madison (Curtis 1959). The 1999 data were collected by the authors.

Table 1. Number of native plants species found in 21 Wisconsin prairies at different special scales, \pm one standard deviation. Most of the sites were small, less than a few acres. Data from Milbauer and Leach (2007).

	Circa 1949	1999
Native species per 1 m ²	10.5 ± 2.3	10.1 ± 4.5
Native species per 20 m ²	38.7 ± 8.0	44.9 ± 14.2
Native species per site	60.9 ± 15.8	73.0 ± 14.3

Similarly, Leach and Givnish (1999), using a larger set of circa 1949 Wisconsin prairie data, reported that prairie has these native plant densities plus or minus one standard deviation: 11.4 ± 2.6 species/m², 41.5 8.3 species/20 ± m².

Obviously, a seed mixture of 15 species will not achieve anywhere the density of species found in remnant prairie, except at possibly the smallest scale. The implications for wildlife of a species-poor planting are not addressed in the plan.

Undesirable species: Northern Sands's proposes planting six non-native species in the "prairie," claiming the species will "improve the soil profile." My professional opinion is that this is nonsense. My first question is what do they mean by improving the soil profile? What do they think the implications are for a prairie planting?

What they are proposing is sowing seeds of plants that prairie conservationists work to remove from the prairies they manage.

Nutrient cycles: The people I know who are the most successful at prairie plantings have a keen understanding of ecosystem functions. One that is crucial to understanding prairie is the nitrogen cycle. I won't give a thorough explanation here. I will point out the specific items that make me believe the authors are unaware of the basics.

- I would never include three alien nitrogen-fixing species (red clover, alfalfa, and alsike clover) in a prairie seed mix.
- I would include several native species that fix nitrogen. The proposed plan names one (purple prairie clover).
- I would not add "organic amendments such as manure, compost and mulch" (p. 28).
- The authors let us know that alsike clover, red clover, and alfalfa "must be inoculated ... prior to seeding." They make no similar point about the legume in their native seed mix, purple prairie clover.
- Animals and soil microbes are important players in the nitrogen cycle in prairies. The plan fails to mention them.

Without basing a planting plan on a sound understanding of what drives and maintains plant and animal diversity in prairie ecosystems, the chance are high that Northern Sands's plantings will become weed patches within a few years.

Ten years: The plan calls for management of up to 10 years. There is no provision for continued management. Are the landowners expected to take over management of the prairie plantings?

When I was the research ecologist at the University of Wisconsin-Madison Arboretum, I was responsible for the management of several planted prairies. The oldest is the John T. Curtis Prairie, planted in the 1930s. The second oldest is the Henry Greene Prairie, planted in the 1940s and 50s. Keeping those prairies from becoming a weed patch requires ongoing vigilance, frequent fires, brush cutting, and spot herbicide treatment. All of this requires special knowledge and skills; it also costs time and money.

The Northern Sands's proposal includes no analysis of ongoing costs of prairie upkeep, nor does it include any recognition that there will be ongoing costs.

Who will be responsible for monitoring and managing the planted prairies beyond those 10 years? Who is going to pay for it? It seems farfetched that the landowners will willingly take this on. I certainly hope the taxpayer isn't stuck with it.

Woodland

The proposal to install "woodlands" suffers from the same inadequate and inappropriate actions as the proposed "prairie," only more so. The planting of prairies has been going on now for about 80 years. There is a lot known about how to do it (although that isn't evident in the proposal.) In comparison, there is considerably less research and experience in recreating woodland ecosystems. That being the case, I would have expected a more detailed discussion about why Northern Sands thinks it could recreate a sustainable woodland ecosystem.

In the upper Midwest, ecologists consider woodlands to be transitional ecosystems, most often spatially present between highly flammable prairies or savannas and less flammable forest, such as sugar maple-basswood forest, or open water (Leach and Ross 1995). Since fires cannot approach from every direction, woodlands overtime have been shaped by intermediate fire frequencies. The Northern Sands's proposed plan provides no information on fire management for the proposed woodlands.

The vast bulk of plant diversity found in woodlands resides in the herbaceous ground layer. However, the proposed plan does not list a single herbaceous species for the woodland planting. The decision to plant no suitable plants under the canopy of trees and shrubs requires ecologically sound justification. What I predict the results will be is the creation of a weed problem that will be difficult and costly to remedy.

The woodland planting design is inadequate, inappropriate, and I can't imagine any of my professional peers suggesting it.

Conclusion

My overall reaction to the proposal is strongly negative. My overall impression is that Northern Sands hoped no qualified person would read this shoddy piece of work. I would expect better from my first year college students, and much, much better from professionals. The document utterly fails to describe expected outcomes, fails to show how they would fulfill obligations under the law, fails to describe criteria of success, and fails to instill confidence that they are qualified and competent to meet even the most minimal standards of reclamation. I seldom use such disparaging language, but I know no other way to make the point strongly enough that this plan deserves to be rejected and not sent back for revision. It is so bad that some work here or some revision there could not possibly repair it.

Respectfully submitted,



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Professional Bio

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FORMAL EDUCATION

- **Ph.D.** 1996, Department of Botany, University of Wisconsin-Madison; emphasis in physiologic, community, and restoration ecology. Dissertation: *Gradients in groundlayer composition, structure and diversity in remnant and experimentally restored oak savanna*. Advisor: Dr. Thomas J. Givnish.
- **Master of Science.** 1990, Department of Landscape Architecture, University of Wisconsin-Madison; emphasis in the assessment, restoration, and management of native plant communities. Thesis: *Persistence and change in southern Wisconsin prairie remnants*. Advisor: Mr. John Harrington.
- **Bachelor of Science.** 1987, Department of Botany, University of Wisconsin-Madison. Advisor: Dr. Linda Graham.

CURRENT ACTIVITIES

- **Environmental Consulting.** Currently and recent clients include tribal governments and private landowners.
- **EconomoeBooks, LLC**, launched a niche e-book publishing company to meet the learning needs of environmental/social problem solvers. The first book, "Positive Participation with Nature" on ecological restoration in Wisconsin, was released in January of 2013. I am working with other authors to produce e-books on effective environmental organizations, the over abundance of deer, historical flora of Dane County, and sustainable business practices. economoebooks.com
- **Mark Leach's Science on Tap** – a series of occasional taverns talk on the fundamentals of ecology and conservation biology. Soon these will be available as webinars.
- **Volunteer, The Prairie Enthusiasts**, serving the board of directors of this 1,200

member grassroots conservation organization. I also am active in the Chippewa Savannas Chapter, focusing on organizational development, education, and ecological restoration assessment and planning.

SELECTED PROFESSIONAL ACTIVITIES

- **I retired from the University of Wisconsin System, May 2011.**
- **Lecturer.** Department of Biology, University of Wisconsin-Stout. August 2010 to May 2011. Taught classes in ecology, environmental studies, economic botany, and sustainable development.
- **Bro Professor of Regional Sustainable Development and Associate Professor of Biology.** 2006 – 2010. Northland College, Ashland, Wisconsin. Taught classes in ecology, vegetation, ecological restoration, environmental problem solving, organizational development, and indicators of sustainability. Served on committees: Provost's Council, Summer Programming, Physical Master Plan, Marketing and Recruitment, and Relations with the Native American Community.
- **Director** of the Sigurd Olson Environmental Institute. 2007 to 2009. Northland College, Ashland, Wisconsin. Programs included LoonWatch, Timber Wolf Alliance, Bi-National Forum (on Lake Superior issues), Sigurd Olson Nature Writing Awards, and regional ecological restoration projects.
- **Ecologist,** University of Wisconsin-Madison Arboretum, Madison. 1996-2006. The Arboretum is part of the Graduate School and primarily serves the teaching and research needs of the University, but also serves important outreach services. I was responsible for the care of Arboretum properties, data collections, and for their uses for formal and informal learning.
 - I wrote management plans for the 1260-acre Madison facility and the Arboretum's twelve outlying properties.
 - I supervised the Arboretum Field Manager, Native Plant Gardener, Plant Propagationist, Database Administrator/Research Associate, and students. I oversaw the creation of database for living plant collections and herbarium specimens.
 - I worked with the Arboretum's Outreach and Education staff at developing formal and informal learning opportunities related to ecological restoration and related natural history.
 - I worked with faculty and students to match ecological resources with teaching, learning, and research needs.
 - Assessed the condition of the Arboretum's ecological collections (including state natural area prairies, forests, and wetlands) and evaluated the effectiveness of management and restoration efforts.
 - Served on the Arboretum's Executive Council, which advised the Director and coordinated implementation of the Strategic Plan.

- I hired and supervised one or two undergraduate Student Restoration-Research Interns each year prior to 2005.
 - I collaborated on restoration research with faculty, undergraduate and graduate students, and other UW staff.
 - I oversaw the Garden Club of America's Graduate Student Fellowship in Ecological Restoration.
- **Research Ecologist**, The Nature Conservancy-Wisconsin Field Office, Madison, Wisconsin. Surveyed for rare vascular plants, the endangered Karner blue butterfly, the Phlox moth, and their habitats on the Fort McCoy Military Reservation, Sparta, Wisconsin. 1991-1992.
 - **Botanist**, Chequamegon National Forest, United States Forest Service, Park Falls, Wisconsin. Received an award for establishing an herbarium. 1990.
 - **Investigador**, Laboratorio Bosque la Primavera, Universidad de Guadalajara, Guadalajara, Jalisco, Mexico. In cooperation with university staff and students, designed and initiated long-term controlled experiments into the influence of grazing and fire in remnant oak savannas. 1989-1991.
 - **Plant specimen collector**. I have collected wild plant specimens in Mexico and the United States. I have around 4,000 or more specimens in herbaria, mostly at the Wisconsin Herbarium at the University of Wisconsin-Madison (<http://www.botany.wisc.edu/wisflora/>). Specimens are also on deposit at the Universidad de Guadalajara (Mexico), U. de Vera Cruz (Mexico), University of Wisconsin-Steven Point, and Chequamegon-Nicolet National Forest. I have labeled and mounted specimens for the Wisconsin Herbarium, and herbaria at the Chequamegon-Nicolet National Forest, Fort McCoy Military Installation, University of Wisconsin-Arboretum, and Northland College.
 - **Arboretum data base**. While at the University of Wisconsin-Madison Arboretum, I initiated and oversaw the establishment of a database system for the Arboretum's extensive collections of living and preserved plant material. This system included and superseded disparate and uncoordinated databases for portions of the collections. The living collections included the Longenecker Gardens (trees and shrubs), Wisconsin Native Plant Garden, Wisconsin Taxonomic Garden, over three thousand acres of natural areas on 13 properties, an herbarium, a seed collection, and over 50 years of documentation. The effort included digitization of hundreds of documents, photographs, and sound recordings, many of which are now available online from the U.W.-Madison digital collection.

SELECTIVE BUSINESS EXPERIENCE

- **Owner, Economo E-Books LLC.** I began this business to meet the learning needs of the environmental community. First e-book was released in January of 2013.
- **Board of Directors (selected)**
 - The Prairie Enthusiasts, a grassroots, volunteer-based organization protecting and restoring fire-adapted ecosystems in Wisconsin, Illinois and Minnesota. 2012 to present.
 - Camp Woodbrooke, a Quaker summer camp in Richland County, Wisconsin. (Gordon Kaplan, Director of the American Camp Association recently called Camp Woodbrooke “the best camp in the Midwest.” We incorporated in 2006. Recording Clerk (Secretary) of the Board of Directors. 2006 – 2007.

SELECTED PRIVATE & VOLUNTEER RESTORATION ACTIVITIES

- **Upper Sioux Nation.** Consulting ecologist on the ecological restoration and management of native oak savanna and prairie ecosystems. Begins March 2013.
- **Science Advisor (unpaid).** The Prairie Enthusiasts, the premier grassroots organization that protects and restores fire-adapted ecosystems in portions of Wisconsin, Illinois, and Minnesota. 2010 – present.
- **Science Advisor (unpaid).** Habitat Education Center, an environmental education and advocacy group. Among other activities, I assisted in Habitat Education Center vs. Bosworth (2005), in which Federal District Judge Lynn Adelman enjoined the Chequamegon-Nicolet National Forest from going forward with four timber sales until such time as the National Forest Service complies with the National Environmental Protection Act. 2003 – 2011.
- **Northern Forest Restoration Workshop.** Collaborated with professionals from Northland College, the Sigurd Olson Environmental Institute, and the Great Lakes Indian Fish and Wildlife Commission to foster planning and coordination of restoration in the northern Great Lakes region. 2000.
- **Ecological Restoration Design (consultant).** Collaborated with Brian Bader to develop a state-of-the-art restoration plan for the 170-acre addition to the Thomas Irvine Dodge Nature Center, West Saint Paul, Minnesota. 1995-1996.

SELECTED PUBLICATIONS

- Leach, Mark K. and Alexandra Zelles. 2014. The Nineteenth Century Flora of Dane County, Wisconsin: A Twenty-First Century Update to L.S. Cheney and R.H. True's 1893 Preliminary Flora of Madison and Vicinity. (E-Book) Economo E-Books, Menomonie, Wisconsin.
- Farrior, Marrian, and Mark K. Leach. 2014. Harnessing the Power of Logic Models for Successful Environmental Programs. (E-Book) Economo E-Books, Menomonie, Wisconsin.
- Leach, Mark K. 2013. *Positive Participation with Nature: Ecological Restoration in Wisconsin*. (E-Book) Economo E-Books, Menomonie, Wisconsin.
- Rooney, Thomas P., and Mark K. Leach. 2010. Replacing hay mowing with prescribed fire restores species diversity and conservation value in a tallgrass prairie sampled thrice: a 59-year study. *American Midland Naturalist*. 164:311-321.
- Leach, Mark K. 2008. Savanna and prairie: requiem for the past, hope for the future. In, Thomas P. Rooney and Donald Waller (eds.), *The Vanishing Present: Wisconsin's Changing Lands, Waters, and Wildlife*. University of Chicago Press. Pp. 103-114.
- Milbauer, Michelle L., and Mark K. Leach. 2007. Influence of species pool, fire history, and woody canopy on plant species density and composition in tallgrass prairie. *The Journal of the Torrey Botanical Society* 134(1): 53-62.
- Andrew, Carrie, and Mark K. Leach. 2006. Are prescribed fires endangering the endangered silphium borer moth (*Papaipema silphii*)? *Ecological Restoration*. 24(4):231-235.
- Leach, Mark K. 2001. Rare plants of Fort McCoy Military Reservation, Monroe County, Wisconsin. *The Michigan Botanist*.40:3-15.
- Leach, Mark K., and Thomas J. Givnish. 1999. Gradients in the composition, structure, and diversity of remnant oak savannas in southern Wisconsin. *Ecological Monographs* 69(3):353-374.
- Leach, Mark K., Richard A. Henderson, and Thomas J. Givnish. 1999. A caution against grazing. *BioScience* 49(8):599-600.
- Leach, Mark K., and Thomas J. Givnish. 1998. Identifying highly restorable savanna remnants. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:119-127.
- Leach, Mark K. and Thomas J. Givnish. 1996. Ecological determinants of species loss in remnant prairies. *Science* 273:1555-1558.

SELECTED PROCEEDINGS AND TECHNICAL REPORTS

- Leach, Mark K. 2015. Emerald Ash Borer Response Plan. Prepared for the Environmental Department, Upper Sioux Community, Granite Falls, Minnesota.
- Leach, Mark K. 2006. Monitoring and Assessing the Condition of Sandscapes of the Apostle Island National Lakeshore: Evaluation and Recommendations. Prepared for the Great Lakes Network Office, National Park Service, Ashland, Wisconsin.
- Leach, Mark K., and Laurel Ross (eds.) 1995. Midwest Oak Ecosystem Recovery Plan: A Call to Action. Published by The Nature Conservancy, Illinois Field Office, Chicago and the U.S. Environmental Protection Agency, Midwest Regional Office, Chicago.
- Leach, Mark K. 1993. Status and distribution of the Karner blue butterfly at Fort McCoy, Wisconsin: Final report on a two-year survey. Report prepared by the Nature Conservancy, Wisconsin Field Office for the Natural Resources Division, Fort McCoy, U.S. Army. 50 pp.
- Leach, Mark K. 1993. Survey for rare plants at Fort McCoy, Wisconsin: Final report. Report prepared by the Nature Conservancy, Wisconsin Field Office for the Natural Resources Division, Fort McCoy, U.S. Army. 142 pp.

SELECTED INVITED PRESENTATIONS

2015. Why plants grow where they grow. Eau Claire Master Gardeners Winter Conference. Eau Claire, Wisconsin.
2014. Practical techniques for determining the natural area quality of vegetation. The Prairie Enthusiasts Winter Conference. Pewaukee, Wisconsin.
2014. A burning enthusiasm: grassroots prairie conservation in the upper Midwest. Wright State University, Dayton, Ohio.
2011. Prospects for large-scale oak savanna restoration in the Driftless Area. Eau Claire Public Library, sponsored by The Prairie Enthusiasts.
- 2011 - 15. The braided stream of American conservation. Talk and discussion with industrial safety professionals. University of Wisconsin-Stout.
2010. Large-scale oak savanna restoration in Wisconsin: What regional climate change models foretell. (co-written with Keith Cherkauer, Ph.D., Purdue University). Symposium on Savanna Conservation and Climate Change, Annual Meeting of

- the Ecological Society of America, Pittsburgh.
2010. Let the prairies speak for themselves: the John Curtis legacy. The Prairie Enthusiasts Annual Conference, Monroe, Wisconsin.
2009. Experimental assembly of ground-layer communities along soil and light gradients in Wisconsin's oak savanna. North American Oak Savanna Conference, Toledo, Ohio.
2008. Assessing assessment metrics: prairie vegetation and the fate of the world. Invited speaker to Department of Forestry, Michigan Technical University, Houghton, Michigan.
2007. Conservation—Invasion—Homogenization: In the Context of Ecological Restoration. Key note speaker, Annual Meeting, Friends of the Brule River and Forest, Brule Town Hall, Brule, Wisconsin.
2006. Mutants in the Edge: Restoring the Lost Savanna. WildOnes Rockford Chapter, Burpee Natural History Museum, Rockford, Illinois.
2006. The vanishing flora of the Madison area and the efforts to restore our wildflowers. WildOnes Madison Chapter. Madison, Wisconsin.
2006. Fire effects and limitations in prairie conservation. Wisconsin Prescribed Fire Council conference "Prescribed Fire: Igniting Possibilities for Land Management as a Conservation Tool Conference." Wintergreen Resort and Conference Center, Wisconsin Dells, Wisconsin.
2006. Mutants in the Edge: Oak Savanna Restoration. WildOnes 10th Annual Natural Landscaping Conference, "Toward Harmony with Nature", Hilton Garden Inn, Oshkosh, Wisconsin.
2004. Seeking a lost landscape: oak savanna in Wisconsin. School of Forestry Seminar Series, Northern Arizona University, Flagstaff.
2004. Oak Savannas of the World. (Plenary Speaker) Annual Meeting of Society for Ecological Restoration International, University of Victoria, British Columbia, Canada.
2004. Generalists, Specialists, and the Vanishing Present. The Wild Ones 25th Anniversary Native Landscaping Conference: University of Wisconsin-Madison.

(Updated July 29, 2015)

RECEIVED
AUG - 5 2015
BY: _____

Matt & Susan LaNou in the township of Howard. There should be some kind of buyout policy for the people that want to move. When Paul set at our table they offered assessed value. We can't replace what we have for that price. Just like other people can't as well. ~~There~~ There should be some extra money for relocation costs, moving costs disturbing the family. We are in the middle of it all the mine to the North of County Rd N and to the South is the tracks.

We would like to move but can't afford to find what we have to replace it. We don't want to go backwards with land or the house we currently have. It's hard to find in Colfax School District. We have children in that School District that need to finish there. We bought our house to raise our children and retire there. We ~~to~~ never expected to move but also realize that our neighbors have an opportunity to better their life style. We didn't buy our house in a noisy busy area we bought it because of location. We would like an opportunity to move.

① INTRO: My name is Melissa Morgan and I live in the town of Colfax, Dunn Co. My home is roughly 1.5 miles, as the crow flies, from the operational base of this proposed sand mine reclamation project. My family and I share a common goal with the Town of Howard's Comprehensive Land Use Plan; that is, the protection and conservation of natural resources in order to protect the quality of our rural life + the value of our property.

② I have ~~inspired~~ examined the Town of Howard's non-metallic mine reclamation plan, as well as the Town of Howard's Comprehensive Land Use Plan, and they are not consistent. A reclamation plan is not consistent with Howard's Comprehensive Land Use Plan. The State of WI "Smart Growth law", sec. 66.1001 of the state statute, requires that land use decisions, like the Howard township non-metallic mine reclamation plan, be consistent with that community's comprehensive land use plan.

③ The goals of the town of Howard's Comprehensive Land Use Plan are:
① preservation of its agricultural lands (pg 62 sec 5.4)
② preservation + conservation of its natural resources (pg 63 sec 5.4)

When this comprehensive plan was developed, township citizens had the opportunity to respond to a survey. 95% of those who responded thought that farmland preservation should be the top priority. Roughly 80% wanted to preserve the quality of rural life and value of residential property for non-farm land owners. Howard township's non-metallic mine reclamation plan is not consistent with either land use goal.

- ④ with respect to goal #①, Howard's comp. land use plan specifies that its "future prospects rest on maintaining its agricultural land base & agricultural economy" along with any "cottage industry" that may be compatible with agriculture. The plan recognized there would be pressures & issues that would contribute to the transfer of land to non-farm use, and that preservation would include maximizing total farmland acreage as well as maintaining and improving soil productivity. The following statement was included as part of the first goal: "this should also include the restriction or prohibition of residential or other development of forested lands on slopes > 21%."
- ⑤ Regarding Goal #②, Howard's comprehensive plan seeks to protect the value of property & preserve the quality of life offered in its rural community for its citizens who are not engaged in farming. Under this goal, "protecting & conserving the township's natural resources", the ^{comprehensive} plan specifically states that the township wants to protect the scenic beauty of its forested hills by "preventing the levelling of our best & highest hills as a result of a stripmining operation."
- ⑥ Howard township's nonmetallic mine reclamation plan is only phase 1 of 3 of, part only of a total of 1310 acres of the proposed sand mine. Huge tracts of land will be transferred from agricultural land & forested hills, and supposedly replaced by "a gently rolling landscape of prairie grass". The steepest cuts into Howard's Hills will be left barren & exposed. I can only conclude that Howard's ^{proposed} nonmetallic mine reclamation plan is not consistent with its comprehensive land use plan and therefore violates it in violation of Wisconsin's Smart Growth law (eg WI statute, sec 66.1001).

Mike Freeberg E9891 810th Ave. Colfax WI. 54730.

It should be one of the top priorities of a reclamation plan to protect the interests of the landowners in and surrounding the proposed Northern Sands Mine. These landowners have chosen to live here because of the beauty and the rural lifestyle and now they are being forced to have an industrial sand mine interrupt their lives for the next 20-30 years. Our hope would be that it would be reclaimed to someday reflect the natural beauty of the area and not become piece of undesirable land. That is our expectation and anything less would be a failure of the Reclamation plan.

Therefore, I would like you to deny the Reclamation permit for Northern sands based on what I see are numerous shortcomings in the Reclamation permit for Northern Sands.

This reclamation plan is lacking in specifics. There needs to be clearly written standards documented in the plan for what goals are going to be met and how, and who assesses when and how they are met. Examples are:

p. 19 end of sec. 2.3: “In the event of slope failures, failed seeding, or persistent erosion problems, additional BMPs will be assessed and applied where practicable”-- Who assesses the additional BMPs and what does “practicable” mean? If it is Northern who assesses and decides these things, this is like putting the fox in charge of the hen house. If it is Chippewa County Land Conservation, the reclamation plan needs to indicate this, as well as give specifics such as what constitutes a slope failure or failed seeding and includes costs for technical assistance in assessing this. The same personnel may not be doing this assessment throughout the 30 plus years this mine expects to be operating. If it is to be decided by another entity, this needs to be stated.

“As needed, composite material will be blended with the B horizon to increase the organic matter content”-- Who decides “as needed”? Who tests? What organic matter content levels are to be achieved? What specific materials are acceptable as composite material for specific recharge rates?

p. 23 Sec. 2.8: “Blasting, if required” Who decides this? The geologists we have spoken to have told us that the rock layers that need to be excavated in order to get the frac sand out do not need blasting to excavate. All of the large equipment dealers have assured us that their equipment can handle the excavation of the types of soil and rock where silica sand is located in this area and blasting is not necessary. There needs to be written standards for when percussive methods are and aren't necessary.

p. 19: “Erosion control BMPs will be inspected weekly and within 24 hours after rainfall events of one-half inch or greater until the drainage area has been either temporarily or permanently reclaimed.” Who inspects? This needs to be stated. What criteria need to be met to pass inspection? Who assesses and decides if and what should be done if the criteria are not met? If all of this is done by Northern, once again, this is like putting the fox in charge if the henhouse. If it is Chippewa County Land Conservation, do you have the manpower to do this? What if someone is on vacation or staffing is cut, who will do the weekly inspections? Based on the number of other mine discharges in the county and state, it is clear that there is currently inadequate DNR or other personnel with the technology or desire to inspect and stop discharges. If this is to be done by an

independent contractor, it needs to state so, and that the contractor meets the approval of the state and local regulatory entities. And who pays for these inspections and compliance monitoring? These costs need to be included in the reclamation cost estimates. The same questions need to be answered for the inspections after every precipitation event of ½ inch or more stated on p. 25 at the end of Sec. 3.4

p. 16 Sec. 2.2: “Groundwater elevation data will be collected quarterly from the monitoring wells. Groundwater elevation data will be analyzed in order to effectively manage groundwater onsite, including water extracted from any high capacity wells. Pending analysis of data collected on-site, Northern will consider casing any high capacity wells through the Eau Claire Formation.” Who does the collection and analysis? At what point does Northern “consider” doing something to either effectively manage or to case any high capacity wells? And what does “effectively manage” actually mean anyway?

The conveyor corridor is to be reclaimed by removal of the conveyor system, but there is no mention of the removal of the access road along this corridor. The removal of unused roads is one of the first goals listed in NR135.

The plan for reclamation to a commercial or agricultural materials business hub is very vague. The future of these buildings needs to be clearly defined in the reclamation permit. The cleanup up of this area needs to be fully detailed in the reclamation plan. The people of this area did not choose to live in this area because it is an industrial site and it should not remain an industrial site after the mine closes. There is high likelihood that these buildings will be abandoned as is typical with many mining sites and it is not consistent with the Howard Township’s Comprehensive Plan.

Throughout this plan, there is no indication any of the testing will be done by independent testers. If this permit is approved, please include the condition that all monitoring, data collection, testing, and reporting be done by independent agents that meet the approval of the state or local regulatory authorities and that have no conflict of interest. This is very necessary to prevent further repetition of regulation violations and false reporting which is the only history Northern Sands has in this industry. All invoices for any independent technical assistance to monitor this site should be paid by Northern Sands. All financial insurance for any technical assistance should be in the form of an escrow account to make sure the people actually get paid as well as to prevent a conflict of interest developing.

There are no costs included in costs estimates that include inspecting, testing, or technical assistance for compliance monitoring. The cost estimates for reclamation are very low as they don’t include many of these types of things.

It is also mentioned that the land will be reclaimed to primary native prairie grassland with some woodlands. I suspect that some of this land may want to be farmed in the future. There are concerns with this turning back into farmland in the future since we have now removed the natural filtration in the soil. What happens when a farmer decides to fertilize the land, spray pesticide or herbicide. It seems like there could be a potential for groundwater contamination if this land was

converted back to farmland. Who is responsible if this was to happen? Northern Sands, or the farmer. This needs to be clearly spelled out in the lease agreements with landowners and Northern sands. If this land cannot be used for agricultural uses in the future than it needs to be clearly spelled out in the reclamation plan.

Red Flint keeps reminding us of their track record for reclamation. They do have a good track record of reclamation of sand and gravel pits. But as we want to remind you, it is Northern Sands that is applying for this reclamation permit. Look at their track record.

Northern Sands has no nonmetallic mining experience, but they start their history by deliberately disregarding the DNR regulations for properly abandoning exploratory boreholes. They signed the report to the DNR that all bore holes had been properly abandoned. They told the Howard Town Board at a public meeting that the bore holes had been properly abandoned.

When it was reported by local citizens that bore holes had not been properly abandoned, and when a DNR game warden came upon an abandoned bore hole that had been left open, Northern Sands said there were only seven bore holes left that way. As more and more boreholes were reported that were left open, Northern Sands admitted to improper abandonment of more and more violations until the current report of 26 has been given. According to NR 812, leaving holes open can create a direct conduit for entry of contaminants to waters of the state and is a serious violation. Northern Sands admitted their wrongdoing and apologized to the Howard Town Board. But what good are apologies when it comes to contaminating our ground water?

How can this track record give any credence to the self monitoring, self-reporting, and self data collection that is included in this reclamation plan? There are also no repercussions other than having to change their ways or re-do things when caught doing things wrong or cutting corners. Once again, look at Northern Sands Track record.

Another recent development is the downturn in the frac sand industry with several companies laying off employees and halting production until market condition improve. The reclamation plan should have a plan in place in the situation where the mine is started and then is put on hold due to market situations. The mine should not be allowed to stand idle for an indeterminate amount of time until it is economical to restart production. Northern sands should be required to start reclamation after a specified time as elapsed so that the citizens living in the area do not have to live by a shuttered mine. It could be several years for the market to recover.

The citizens who have lived in this area deserve to have very specific details spelled out in this reclamation plan. They deserve to have their concerns taken as a top priority in the development of this reclamation plan. If they are going to have an industrial site in their backyard they deserve to have it managed by a company that will do the right things, a company that will be environmentally and ethically responsible. **NORTHERN SANDS IS NOT THAT COMPANY.**

Please follow NR135.22(1)2a to deny this application for reclamation permit.

August 5, 2015

“The world hates change, yet it is the only thing that has brought progress.”

Charles Kettering (engineer/inventor)

Change has been a part of Wisconsin history and also the history of our own life here in this beautiful state.

No doubt many people in Wisconsin faced change during the 19th century when settlers came to homestead and clear the land to build their farms. It was also during this time that Wisconsin was the epicenter for the logging industry and billions of board feet of timber were logged and sent down the Wisconsin rivers. Railroads and highways were built which brought more changes in the appearance and use of the states' lands.

Since we moved back to Wisconsin in 1986, we have seen many changes in the area. Northwest Eau Claire was agricultural land which cucumbers were planted and harvested by Hmong immigrants. Now many industries have been developed in the area, including; Hutchinson Technologies, Silver Springs, Nestle and most recently Kurth Industries.

We have also seen the construction of the new highway 29 and later the Highway 53 bypass, which was heavily protested against by area homeowners. The Lake Hallie area has been developed with retail businesses, restaurants, a clinic and hotels. Recently we have seen the amazing changes with the development of the River Prairie area and downtown Eau Claire.

Farming has also changed over the last 25 years and we are seeing the move toward larger farming operations with the installation of many high capacity wells and irrigation systems.

Another change we have seen has been the increased number of homes in the Township of Howard from the time we purchased our farm in 1988 to the present. For each new home, land has been cleared or modified, wells drilled and wildlife habitat has been changed.

There is no doubt that all of these developments have had an impact on water quality, wildlife habitat and the general appearance of the area. If done carefully and responsibly, and with proper oversight, negative impacts can be minimized and the possibilities of improvements also evolve.

We have lived and loved our hobby farm in Albertville Valley for 27 years. It has been our home and a great place to raise our family. We have also shared our land with many neighbors and friends, allowing them to hunt wildlife on our land during the various hunting seasons.

We bought the farm in 1988 and have always considered it an investment. In order to have this privilege of land and property ownership, we have paid for it and faithfully paid our taxes. We now feel

that it is our right as property owners to enter into a new arrangement which could enhance our retirement, provide security in our old age and help to provide and inheritance for our children and grandchildren. We also want to do this in a responsible way.

Northern Sands did the initial work of laying out the area of the proposed mining operation and working with the landowners. We were very happy when Red Flint came on board as the company managing the project. They are a local company with a solid reputation and years of experience. They bring much expertise to the project. Their knowledgeable and professional engineers, geologists and project managers are willing to cooperate with county and state experts to bring best environmental practices to the project. We think that they have put together a top notch mining and reclamation plan which has taken into account water quality, habitat and quality of life for those who live in the area. We are glad that a local business has taken on this project. They have a reputation to uphold in the business community in our area and it is in their best interest to have an environmentally safe and lasting project.

This project will also contribute to our local economy and bring support for our local businesses and new jobs at the sand plant itself. It will also bring revenue into the township of Howard. We are hopeful that although there will be change, it will bring benefits to many.

We are glad and privileged to live in an area where water quality and land/wildlife conservation are practiced and monitored. It is also a privilege to live in a country where we have the freedom to voice our concerns and opinions. We have depended too long on obtaining our oil from other countries where citizens have had no voice and environmental practices are not followed. We now know that we have a resource in our area which is in demand for the current technology for obtaining oil. We have county and state agencies with expertise, experience and a vested interest in maintaining the quality of resources and life who will work with the project managers.

At the end of the meeting on July 29th all or most of us got into our gasoline powered vehicles, drove home and were glad the price of gas that day was only \$2.79 per gallon.

We are in favor of the Northern Sands Albertville Valley Mine and hope you will approve the Reclamation Plan permit.

Respectfully submitted,

Nan and John Bethmann

Landowners, Town of Howard

From: nate@springstreetsports.com [<mailto:nate@springstreetsports.com>]

Sent: Tuesday, August 04, 2015 4:50 PM

To: Dan Masterpole

Subject: Sand mine

Dear Mr. Masterpole,

I am e-mailing you today concerning the sand mine operation presented for Howard Township. I would like you to know that I am opposed to the sand mine because of the improper location due to two watersheds stemming from the mine site. I would like to see the streams and drift less areas of the landscape being preserved as natural.

Thank you for your time.

Nate Seckora

Noah Smit, Soma Pierce-Smit

8287 13th St
Colfax, WI 54730
715-962-2404

To Seth Ebel - A message
for Northern Sands
Representatives

In Table II of Northern Sands Reclamation Plan, the list of Neighboring Water wells and Owners, lists our property under the name of the prior owner, Steve Sorlak, with the Unique Well No. L1 164. We use an older well on the property, not the one listed as L1 164. Please Relist the ~~well~~ ^{Water Well Location} under our names and note that the well in use is near the house and buildings.

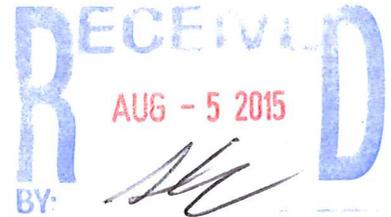
Also not listed is a well on our neighbors' property at 8088 13th St. owned by Margaret, Carolyn, and Roger Jensen. The well is functional but the home currently unoccupied.

Seth Ebel

From: Patricia J. Popple <sunnyday5@charter.net>
Sent: Wednesday, August 05, 2015 10:54 AM
To: Dan Masterpole; Seth Ebel
Cc: David Nashold
Subject: Permit Hearing for Northern Sands, LLC Additional information/request

To: Dan Masterpole
Seth Ebel

From: Patricia Popple
561 Summit Avenue
Chippewa Falls, WI 54729 715-723-6398 sunnyday5@charter.net



Greetings! I would like to add some additional information to the comments I made at the permit hearing for the Northern Sands, LLC meeting on July 29, 2015. I hope you will find the references from Linda Chalker-Scott of use in your deliberations with the company. In addition, they are great background knowledge pieces of information about the use of flocculants but from a different perspective.

Polyacrylamide "Myths"

Linda Chalker-Scott -Vitae <http://puyallup.wsu.edu/lcs/curriculum-vitae/>

Horticultural "Myths" page: <http://puyallup.wsu.edu/lcs/>

Please note the polyacrylamide collection - on that page, lower right. Please check out the active links below on Polyacrylamide Gels

-
- [The Myth of Polyacrylamide Hydrogels](#)
- [The Myth of Polyacrylamide Hydrogels Part II](#)
- [Myths, Miracles or Marketing? Super-absorbent Water Crystals \(Hydrogels\) \(References\)](#)

Excerpt from the first one above:

The Reality

My initial concern with hydrogel usage is the public perception that it is a permanent fix. Hydrogels are routinely touted as pH-neutral, non-toxic, environmentally friendly compounds, which they are in their polymerized form. The fact remains that after five years virtually all hydrogel will be depolymerized through natural decomposition processes. The rate of degradation is increased especially in the presence of fertilizer salts (and no, it doesn't make any difference if these are synthetic or organic fertilizers).

One is then left with the original soil conditions; in a permanent landscape, this can be problematic unless other water-conserving steps are then implemented.

My second, and probably greatest, concern occurred when I discovered that hydrogels are constructed of acrylamide units. When hydrogels break down, they release potassium acrylate and acrylamide. Acrylamide is a lethal neurotoxin and has been found to cause cancer in laboratory animals. It readily passes through the skin and can be inhaled as dust. Unfortunately, the chemical data sheets on hydrogels do not mention the fact that within a few years they will be composed entirely of these acrylamide units. Since polyacrylamide is defined as "not readily biodegradable" (less than 10% is degraded after 28 days), some sellers of hydrogels actually promote their products as "nonbiodegradable!"

Who is at risk to acrylamide exposure? Workers in the nursery and landscape industry who routinely use hydrogels may become exposed to them as they degrade and become toxic. Homeowners who add hydrogel-containing potting mix to their landscapes or compost piles are exposed. Dogs, cats, and wildlife that come in contact with these substances are at risk. On a larger scale, entire ecosystems are at risk as acrylamide is water-soluble and can easily enter watersheds.

Please copy the others for reference.

With all the serious ramifications related to frac sand mining and chemical use, it would appear to me that the county should consider a "moratorium" for at least a year to study the issues proposed by citizens and to factor in the economic and health devastation the county will face in coming years with research information recently uncovered such as the above.

Sincerely,
Patricia J. Popple

July 29, 2015

Reclamation Hearing: Northern Sands, LLC Chippewa Co. Court House Chippewa Falls, WI 54729

Location of site: Town of Howard, Chippewa Co., WI

Concerns about the Reclamation Plan:

1. There seems to be no mention about the financial status/investors re: Northern Sands, LLC, in the documents. Financial disclosure to the County, the Town and the citizens is critical in order to protect public interests and the investments made over the years to create a viable tax district. Successful reclamation projects depend upon the finances available at any given time to complete the promises agreed upon by the company and the county to meet the reclamation project over time.
2. A significant number of sandstone formations will be used for frac sand mining and related heavy industrial activity in the Town of Howard. A large portion of the bedrock parcels are part of the Tunnel City Formation according to maps/reports. It should be mandatory that the sandstone be tested for sulfides in that formation (and other formations known for sulfide deposits). In addition, water testing should provide information on varying pH levels. It is very apparent, according to the DNR findings and the findings of the WI Geological and Natural History Survey, that sulfides combined with low pH levels and oxygen allow heavy metals in the various formations to leach out into wells, aquifers, and surface and other water supplies. No one should allow this misfortune to occur in Chippewa Co. or elsewhere in this state.
3. If sulfides/low pH levels/oxidation/heavy metals occur in these formations, it is critical that the mining company/investors be responsible for lining the excavated areas either with clay or plastic so there is no leakage into the aquifer or wells or surrounding watersheds (of which there are two) when industrial waste/sludge is used in the reclamation process. Engineer friends indicate that "all pits leak" so if lining can't be accomplished with assurances that there will be no leakage, then the operation should be closed down to assure that heavy metals will not be polluting critical waters.
4. It has become apparent that the Tunnel City formation has become more valuable in the frac sand industry due to the fact that the fine grains of silica more effectively frack some horizontal wells.(as per discussion at the water meeting in the spring). The commentaries provide even more evidence of concern that the Tunnel City formation will be used in processing and trans-loading activities and thus introducing sulfides into other formations. It raises a RED FLAG alert to areas where frac sand mining and related heavy industrial activity is on-going.
5. Sandstone formations should be tested for the release of radon, a cancer causing gas that affects living organisms. It is a common problem in sandstone formation areas in that many homes must have mitigation procedures done to assure safe living conditions. Excavation of

sandstone formations may be allowing the escape of cancer causing gases in residential areas. There is no mention of BMP's to accommodate that release.

6. Before any permit is granted by Chippewa County, data regarding the precise location, size, type of vegetation, depth, etc. of every wetland in the mining region should be marked out and identified noting the animal and plant populations within each wetland area. Mitigation of any wetland must be considered as the last resort. The value a wetland has is beyond measurement and no mining company should be allowed to take over any or pollute any one of them for their own purposes. Wetlands provide valuable service to the two watersheds affected by this huge industrial complex.
7. Since pollution knows no boundaries in the frac sand industry, how can it be stated in 1.5 Structures (p.11) that "Houses, outbuildings and farm buildings located on the proposed mine site will be isolated from mining activities and are generally within the buffer area."? This statement cannot guarantee that these facilities will be free of pollutants (air/water/noise etc.) that are all a part of this heavy industrial operation.
8. The statement noted on p. 15 "Based upon the current ASI and AHI information, indicate no archaeology sites or architecture history properties have been previously identified within or adjacent to the property area".....is a stab in the dark and it makes a lot of presumptions that can't be verified. If anyone studies archeological studies done in various areas of the world, it should be evident that new findings based upon new technologies are being discovered every day. With two watersheds in the immediate vicinity, the potential for early settlement prevails. Burial grounds and early settlements were common on hills and near water. Have studies verified that none of these actually exist? The WI Historical Society recently verified the burial of two women on an old burial ground that was identified on an abstract, but gravesites were not marked. Some settlements and some burial sites have never been registered in modern times and yet we presume that there is nothing to be preserved. I would suggest that new **technologies** be used and that the expertise of the WHS be tapped for additional information at the same time.
9. Pending analysis of data collected on site, Northern Sands, LLC, will "consider" capping any high capacity wells through the Eau Claire formation." The statement "will consider" is highly vague and assumes the company will have control. In this case, the County should have control in order to protect the health, safety and welfare of the citizens in the area and nearby.
10. "500 feet" from navigable waters (p. 17) is not a sufficient distance to assure that stormwater/chemicals/affluent/silt and other material will not empty into the waters given heavy rains, the freeze/thaw conditions here in WI pose during fluctuating climate/weather patterns we have been experiencing. It is important that the setback expectations be increased to avoid the many problems already witnessed in Chippewa Co. with serious spills into creeks and streams, waterways, drainage systems, lakes, rivers, marshland, wetlands.

11. Conveyor systems do not assure that silica and dust will not escape. (witness the huge amounts of silica and the dust that accompanies conveyor systems in the Bridge Creek Area of Eau Claire Co. or areas in Barron Co. where conveyor systems are used.) How often will BMP's be put into practice with clean up? Often the silica dust and silica accumulated under conveyors is left to sit there. Will there be a standard for the cleanup?
12. Annual testing of non-marketable materials for all the materials listed (pp. 21/22) is not sufficient. Monthly testing and reports should be implemented given the seriousness of the issues surrounding chemical and metallic in the waste deposited back into the mine sites.
13. Does the statement on p. 22: "The mine floor elevation will be based on the depth of the available economic resource" imply that quarrying will be allowable at this site?
14. p. 23- "we anticipate that a full-time on-site water truck will be utilized to control potential dust produced during mining operations." One water truck? Mining will occur during the winter months. Watering in the winter time is not possible. How does one control dust in the winter? I see this as the only solution to an invariable problem with blowing winds. If this same truck is used at the processing plant and transloading plant for dust control, one truck is NOT enough. And there should be other alternatives for making sure NONE of the dust from blasting, blowing winds moving across large piles of silica sand , conveyors, equipment, is allowed to move across the boundaries of this huge industrial complex surrounded by residences and other life.
15. No mention in this document is made about "brownfields". Mining, processing, trans-load activities involve the use of chemicals. Mining silica is contaminating in itself given the fact that silica dust is carcinogenic. How will the County deal with the "brownfields" impact of this heavy industrial complex? What responsibility will the corporation, LLC, etc. have for cleanup of the "brownfield" impact in the Town of Howard? Over 30 years of day after day usage of an area will leave the residue of industry. Consider the long term impacts when approving this mining complex, for in the end, the taxpayers will have to pay for clean up if the company owners are not given that charge.
16. Once an area is reclaimed (if that is possible), wind farms, solar arrays and other self-sustaining industries should be encouraged to use these areas for the development of energy producing technologies to assume ownership at low cost for the benefit of future generations.
17. All plantings of trees, prairie flowers, and other vegetation should be guaranteed beyond 10 years to grow indefinitely by the company with Chippewa County assured that the company will monitor yearly and replant all dead trees, prairie flowers and other vegetation. No reclaimed site should be barren of vegetation at any given time.

Thank you for allowing public comment.

In all likelihood, additional statements could be forthcoming after hearing the presentations by the company, scientists and citizens.

Sincerely,

Patricia J. Popple

561 Summit Avenue

Chippewa Falls, WI 54729

715-723-6398

sunnyday5@charter.net

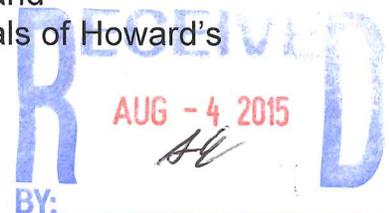
Sec.66.1001, Wis. Stats., the State of Wisconsin's comprehensive planning statute (Smart Growth Law) requires that local land use-related decisions be consistent with the goals and objectives of that community's comprehensive plan. The Howard Township Properties Nonmetallic Mine Reclamation Plan is not consistent with Howard Township's Comprehensive Plan.

Howard Township's Comprehensive Plan gives "Preservation of Agricultural Lands" as its first goal (p. 62 Sec. 5.4) and "Protect and conserve the natural resources of the Town" (p. 63 Sec. 5.4) as its second goal. As quoted from Howard Township's Comprehensive plan, "The Town's future prospects rest on maintaining its agricultural land base and supporting and promoting its agricultural economy together with any "cottage industry" that may be compatible with it." In the Town's comprehensive plan survey, 95% of the citizen respondents indicated that farmland preservation should be the Town's top priority in the coming years.

The Comprehensive Plan recognized that the issues and opportunities facing the Town would be associated with pressures that contribute to the loss of the agricultural land base, namely, the transfer of farmland to non-farm use. This led to the first goal of Howard Township's Comprehensive Plan being the "Preservation of Agricultural Lands. Preservation includes maximizing the total acreage of farmland as well as maintaining or improving the soil productivity of those lands". Under the first goal of "Preservation of Agricultural Lands", Howard Township's Comprehensive Plan also specifically states that "This should also include forested lands on slopes greater than 21% where residential or other development may be restricted or prohibited."

Secondly, citizens are concerned with protecting the value of their properties. Citizens who do not make their living by farming their land want to preserve the quality of life offered in a rural community and especially to preserve enjoyable use and the economic value of the lands and homes in which they have invested.. Roughly 80% of survey respondents, wanted to preserve the quality of life and the value of residential property for non-farm landowners within the Town. This led to the second goal to "Protect and conserve the natural resources of the Town. Under this second goal, it specifically states that Howard Township wants to protect the scenic beauty of the forested Hills of Howard by "preventing the leveling of our best and highest hills as a result of a strip mining operation."

Any reclamation plan that includes the cumulative loss of this much agricultural land, the transfer of agricultural land and forested hills to prairie grass and a gently rolling landscape, as well as fails to address maintenance and improvement of the crop productivity is not consistent with the goals of Howard's



Comprehensive Plan, and therefore is not an acceptable reclamation objective for Howard Township. Reclamation Plans for a mine within the township would need to take into account the cumulative loss of agricultural land. They would need to be for very small tracts of land—especially given that there has already been a 100 acre loss of agricultural land to another mine. Not only would contemporaneous reclamation have to be ongoing and with a minimum loss of agricultural land & forested hills at any one time, it would also need to include the restoration of deciduous forested hillsides and the maintenance or improvement of crop productivity—not prairie grass.

Johnnie Smalley E9760 780 Ave. Colfax WI 54730
 Lura L Ludwig E6341 Ct Rd. D Colfax WI 54730
 Willie Galt N8751 County Rd A Colfax, WI 54730
 Edw G. Kehr E7986 770th AVE. COLFAX, WI 54730 715-210-5953
 Dean Kihlberg 510 Pine St Colfax WI 54730
 Karen M. Wagner R10048-810th Ave. Colfax, WI 54730
 Dennis L. Wagner " " " " " "
 Kathy Petersen 8653 13th St., Colfax WI 54730
 Soma Pierce-Smit 8287 13th St Colfax WI 54730
 Myrdis Olson N8751 County Rd. A Colfax, WI 54730
 Charlotte Dodge 1009 E. Railroad Ave, Colfax WI 54730
 Brian Hostet E9679 780th Ave Colfax WI 54730
 Diana Bauer 1013 E. Railroad Ave Colfax WI 54730
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 Grille N Larson E9463, 830th Ave. Colfax, WI 54730
 Faith M. Larson E9463 830th Ave. Colfax, WI 54730
 Jim W. Hinkley E9727 780th Ave Colfax WI 54730
 Dan Smit 1328 10th Ave Colfax WI 54730
 Karen Halvorson Colfax
 + Ron Halvorson 1485 - 80th Ave
 Noah Smit 8287 13th St.

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- Chad Hal — 7904 17th St, Colfax,
 Bonnie Pederson 2537 County Hwy N Colfax,
 Le Roy Anderson 2503 Cty Hwy N Colfax
 Sylvia Anderson " "
 Dean Soulet — 2768 90th AVE COLFAX WI
 Florin Soulet 2768 90th Ave Colfax, WI
 — 2241 90th Ave Colfax, WI
 — 1028 20th St Colfax WI
 Nancy Larson
 Sidney Larson Sr.
 Margaret Wolfe E9782 810th. AV. Colfax, WI
 Dale Wolfe E9782 810th AV Colfax
 Loni Moody 9600 30th St Colfax, WI
 Dennis Fornell 1002 County Hwy N Colfax, WI
 Diane Rose E9665 County N Colfax
 Marita Poffle 507 Fairview Dr. Colfax
 Lisa Bragg - Hunt E9727 780th Ave., Colfax
 Colleen K Schwartz 9544 20th St. Colfax, WI 54730
 Donald W/n Schwartz 9544 20th St Colfax WI: 54730

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John Rose E9665 County Rd N Town of Colfax
John E. Samcoen 2377 Cty Hwy N. Town of Howard
Kelly Snider 2041 90th Ave, Colfax (Town of Howard)
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Floyd Pipkorn N6479 830th St Elk Mound Township of Elk Mound
Larah Bestel 2451 30th Ave Elk Mound WI 54739
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Haren Bauer E9436 816th Ave., Colfax, WI 54730
Auntie Bauer E9436 816th Ave, Colfax WI 54730
Linda Boehm 2377 County Hwy N Colfax, WI 54730



From: Robert Rasmussen <bandkarla1@gmail.com>
Sent: Tuesday, August 04, 2015 10:44 AM
To: LCD
Subject: Reclamation Plan Comments

LCD BOARD,

I BELIEVE THE RECLAMATION PLAN SHOULD BE APPROVED. RED FLINT IS A LOCAL COMPANY WITH A RESPECTABLE ENVIRONMENTAL REPUTATION. LANDOWNERS SHOULD HAVE THE RIGHT TO DEVELOP THEIR LAND WITHIN EXISTING STATUTES AND ORDINANCES. THE MINE HAS THE POTENTIAL TO OFFER SOME GOOD EMPLOYMENT AND ECONOMIC GROWTH FOR THE COUNTY. MOST OF THE COMMENTS AT WEDNESDAYS MEETING WERE ABOUT THE WILDLIFE AND PLANTS. MOTHER NATURE HAS SHOWN A WAY OF ADJUSTING TO CHANGES WHETHER IT IS WEATHER RELATED OR MAN MADE.

THANK YOU,

BOB AND KARLA RASMUSSEN

RECEIVED
AUG - 4 2015
BY: *AM*

From: Ron Anderson <rona8.2010@gmail.com>
Sent: Tuesday, August 04, 2015 11:42 AM
To: LCD
Subject: Sand project

Well I think it would be a good deal to have this in area job wise an I pay taxes on my land so how can people tell me what I can do with it I think it's a all around good deal

Dan and Seth,

August 1, 2015

I want to add another comment to the personal notes I read at the hearing.

This comment concerns aquitards, post-mining groundwater recharge, and wetland management.

The plan never no mentions aquitards on the mining property nor discusses the relation of those aquitards to the proposed wetland management and preservation policies. Aquitards in the geology around here are commonly marked by spring seeps associated with a small wetland into which it drains.

I was given a piece of an aquitard (rock) that was said to be located in phase 1 of the proposed mining operation just uphill of a small wetland identified in the reclamation plan. The wetland is located in the headwater area or Elk Creek based topographical drainage indicators.

I[know there has not been much scientific research on aquitards and the role they play in groundwater supply, flow and quality. I have read several scientific works on-line recently, all of which begin by lamenting this fact. It seems obvious to me that, if an aquitard that seeps groundwater into a small wetland is interrupted or removed, the wetland into which it drains will no longer infiltrate cleansed groundwater into the aquifer below. So preservation of an aquitard-dependent wetland is pointless. It also seems to me that preservation of this very same wetland for use as a flood control measure by shaping of the contours of the up-slope to route water into the wetland is the goal, then it may need to be much larger than its current size. And the water it will infiltrate may no longer be free of bacterial, viral, and chemical contaminants as would the water from an aquitard.

I think you should map not only the wetlands, but based in field observations, note on the map the wetlands that are associated with spring seeps, an almost certain indicator of an aquitard. It may also be useful to determine the location and size of an area covered by the aquitard, although if it will likely be entirely removed to get at the sandstone below, it may not be useful to do so. Aquitards are more likely to allow for some vertical flow to the aquifer than deep body of fine clay/sand that will constitute a post-mining aquitard over 446 acres. I have attached a very good primer on methods that can be used to identify the location and extent of aquitards.

As you know, the Town Licensing Ordinance requires information regarding the base flow of Elk Creek, but part of the township lies within the Eighteen Mile watershed as well. Maintaining the base flow matters to many people in our township as it does to hundreds of people in the State of Wisconsin who fish Elk Creek—a premier trout stream locally and statewide. Do you have base flows of these two streams?

My reading of the research literature on aquitards leads me to anticipate increased runoff after mining with severely constrained infiltration occurring in the 446 acres that have been mined and reclaimed. I think it is doubtful that relying on the non-excavation areas for increasing current infiltration rates will provide as much improvement as is anticipated by the plan. Mining this land may be like fiddling, while nature burns. Reclamation lands that have a base of the clay/sandy super-fines (if that is a proper way of characterizing it) fit the definition of an aquitard. Admittedly, much of the current 446 acres is moderate to extremely sloped land to begin with, but more infiltration now occurs, that will likely occur post mining.

--Ron Koshoshek

SCS ENGINEERS

July 28, 2015
File No. 25215120.00

MEMORANDUM

TO: Paul Kent, Esq. - Stafford Rosenbaum

FROM: Betty J. Socha, PhD, PG
Leslie Busse, PE

SUBJECT: Comments on Draft Reclamation Plan
Proposed Northern Sands, LLC Sands Mine; Town of Howard,
Chippewa County, WI

On behalf of the Town of Howard, SCS Engineers (SCS) reviewed the draft Reclamation Plan for the proposed industrial nonmetallic (sand) mine located in the Town of Howard. This memo provides comments and recommendations as follows.

Wetlands and Surface Water Bodies

The Site Information section of the draft Reclamation Plan states that wetlands will be delineated in advance of mining commencement on each phase of mining, and that potential wetlands will be avoided during mining. The Mine Plan section of the draft Reclamation Plan states that buffers and setback will be maintained as follows:

- 75 feet from WDNR-indicated wetlands
- 300 feet from USGS-mapped streams.

Comments

To meet the provisions for surface water and wetland protection in NR 135.07, field observations and detailed, current site data are needed to supplement the WDNR and USGS maps.

Recommendations

SCS recommends the following:

- Determine in the field the location of all wetlands and water bodies (including intermittent streams) on the mine site and establish a buffer zone of 100 feet from the wetland boundaries and centerlines of the water bodies. Review historic air photos and topographic maps in conjunction with the field determination of wetland and water body locations. Prepare a map showing the locations of the wetlands, water bodies, and setbacks, and submit it to the County as a revision to the draft Reclamation Plan.



- Delineate all wetlands within each mine phase and submit the delineation to the appropriate jurisdictional authorities for review and approval prior to commencing mining activities within the phase.
- Review and revise the final restoration plan as needed to assure that wetland and stream hydrology is preserved by final grading, revegetation, pond discharges, storm water diversion, etc.

Private Water Supply

The Site Information section of the draft Reclamation Plan states that the area water well inventory was completed using the WDNR Drinking Water Well Construction Report database, and that according to the database 10 wells are located in the mine area and eight are located on adjacent properties within 660 feet of the mine property boundaries. One other well is assumed to exist at a residence, but no construction report was found in the WDNR database. The draft Reclamation Plan states the 19 identified wells will be sampled prior to mine commencement (with owner consent) and tested in accordance with the Town of Howard's Mining Ordinance. Results will be included in the annual site report.

Comments

The water well inventory is likely incomplete, because the WDNR database only includes information for wells constructed in 1988 or later. Groundwater monitoring, in addition to that outlined in the Town of Howard's Mining Ordinance, is necessary to evaluate potential impacts to groundwater quality from mining impacts.

Recommendations

SCS makes the following recommendations:

- Search the well records on file with the Wisconsin Geological & Natural History for additional well records. The file includes records from 1936 to 1988.
- Review current air photos and County property records to identify additional properties that likely have wells for which construction records have not been submitted to state agencies.
- Revise the map showing the locations of the wells and submit to the County as a revision to the draft Reclamation Plan.
- Collect samples from all of the supply wells identified within 660 feet of the mine, prior to commencing mining, and sample for the parameters listed below.
- Collect samples from supply wells located identified within 660 feet of the active phases of the mine, annually, and sample for the parameters listed below.

- Submit the testing results to Chippewa County, and the Town of Howard in the annual report.
- Submit the results to the well owner within 30 days of receiving the analytical reports, along with a comparison of the results to relevant and applicable groundwater standards, and a discussion and explanation of indicated changes in groundwater quality. (If a groundwater standard is exceeded, submit the report to the WDNR within 10 days of report receipt.)

Hydrogeologic Evaluation/Groundwater Monitoring

The Mine Plan section of the draft Reclamation Plan states that the regional water table is predicted to be at an elevation of about 1,000 to 1,040 feet ASL based on the Generalized Water-Table Elevation Map of Chippewa County, Wisconsin (Lippelt, I.D., 1998), and that the mine floor will be at least 10 feet above the water table. The proposed monitoring plan in the draft Reclamation Plan includes the following:

- Collection of baseline groundwater levels from wells (10 total) to be installed at the processing plant and mine. (Approximate well locations are shown on Figure 11 of the draft Reclamation Plan.)
- Installation of four Life-of-Mine (LOM) wells prior to Phase 1 mining commencement. Two LOM wells will be located in Phase 1, one LOM well will be located in Phase 2, and one LOM well will be located in Phase 3. The LOM will remain throughout the mining and reclamation activities.
- Installation of two additional wells in each phase prior to commencing mining in that phase.
- Collection of groundwater elevations from the wells quarterly.
- Collection of groundwater samples annually (for 2 years) and analysis for metals and other constituents of concern. After collection of the two annual rounds of water quality data, reevaluation of the parameter list relative to constituents detected, and the detected concentrations.
- Abandonment of the wells in each phase following the completion of mining in that phase.

Comments

To meet the provisions for groundwater management and protection in NR 135.08, site-specific data are needed to determine the depth to groundwater and the directions of groundwater flow. The depth to groundwater information provided in the draft Reclamation Plan is inadequate relative to the County's requirements for groundwater elevations and range of seasonal and historic groundwater fluctuations when the proposed final floor of the mine is within 20 feet of

the water table. The generalized water table map referenced in the draft Reclamation Plan shows dashed contour lines and question marks, which indicates a lack of groundwater elevation data for the area of Chippewa County in which the mine site is located.

The draft Reclamation Plan notes that the mine is located on a surface water divide. Groundwater elevations are needed to determine the position of the groundwater divides and establish groundwater flow directions so that groundwater can be monitored to evaluate impacts to quality associated with mining activities.

Recommendations

SCS recommends that instead of the groundwater monitoring plan presented in the draft Reclamation Plan, a hydrogeologic evaluation be conducted that, at a minimum, determines the depth to groundwater, and seasonal variations in groundwater levels, determines the directions of groundwater flow including the vertical components of flow, evaluates variability in groundwater quality at depth in the aquifer that is being used locally for water supply, and provides adequate information to allow placement of monitoring wells for evaluation of groundwater impacts from the mining activities. The evaluation needs to be planned, designed, and conducted under the supervision of a Wisconsin registered hydrogeologist. SCS recommends the following minimal components of the evaluation:

- Determine the pre-mining disturbance water table elevation in each mine phase by installing a minimum of three water table wells, screened such that water table intersects the well screen, in each area where sandstone is to be excavated.
- Install deeper wells (piezometers) next to the water table wells to evaluate the vertical flow pattern of the groundwater.
- Measure water levels in the wells monthly for 1 year and prepare groundwater flow maps for the months with highest and lowest groundwater elevations.
- Use the water table maps and groundwater flow data to select locations for the monitoring wells (water table wells and piezometers) to be sampled and analyzed for groundwater quality parameters. At a minimum each mine phase should have an upgradient water table well and three or more water wells and located down gradient of mining operations. Depending on vertical gradients at the site, piezometers may also be needed at the downgradient locations. These water table wells and piezometers will be used in the long-term groundwater quality monitoring program.
- Measure water levels and sample the water table wells and piezometers in the long-term groundwater quality monitoring program semi-annually for water quality parameters listed in the draft Reclamation Plan during mining operations in each phase, and for a minimum of 3 years following cessation of mining operations and reclamation of the mine phase.

- Provide a hydrogeologic evaluation report, a plan for groundwater quality monitoring, and a report of each semi-annual groundwater monitoring report to the WDNR, Chippewa County, and the Town of Howard, for review and comment within 90 days of completion of the field and laboratory analysis. (If a groundwater standard is exceeded, submit the report to the WDNR within 10 days of report receipt.)

Parameter List for Private Wells

Field pH, temperature, specific conductance, turbidity, color, and odor

Nitrates

Chloride

Acrylamide

Diesel range organics (DRO) and gasoline range organics (GRO)

Unfiltered metals (arsenic, manganese, copper, barium, cadmium, chromium (total), boron, lead)

Sulfate

Alkalinity

Hardness

Total dissolved solids (TDS)

All analysis to be performed by a Wisconsin-certified laboratory.

Storm Water and Erosion Control

Comments and Recommendations

As discussed in the draft Reclamation Plan and within the text of the Storm Water Management Plan (SWMP) in Appendix IV, the storm water management approach is general. A more detailed design and storm water routing analysis will need to be completed as part of final design. The storm water modeling approach generally appears to follow the state and local requirements, with references to WDNR general storm water permit, NR 216 and NR 151, WisDOT Facilities Development Manual (FDM) for channel and slope erosion control, and Chippewa County for the 100-year, 24-hour discharge requirements. The SWMP states that off-site flow will be diverted around the project area. During detailed design, it should be verified that water is not being diverted into a different watershed, or that it will adversely affect a wetland or water body.

In review, SCS had a few observations that may affect the outcome of the final design. The infiltration rate used in the design (1.63 in/hr.) was based on loamy sand. This is inconsistent with the soil description in the draft Reclamation Plan Narrative, which describes the soil as silty or sandy loam having infiltration rates of 0.13 in/hr and 0.50 in/hr, respectively. Additionally, surface water sheet flow lengths of up to 300 feet were used for time of concentration calculations. NRCS now recommends that sheet flow lengths be limited to 100 feet. SCS recommends that flow paths be reviewed and revised as needed during final design. The reduction in runoff quantity to the downstream watershed should be evaluated to ensure minimal impacts to aquatic habitat and species.

The draft Reclamation Plan has listed erosion control measures Best Management Practices (BMPs) and have included specifications for the BMPs in Appendix 5. However, there are no specifics as to when, under what conditions, each of these measures will be used. SCS recommends that a detailed plan be developed prior to construction.

Mining Process

Comments and Recommendations

The mining process is discussed in a very general way with sequence of events as they relate to stormwater and erosion controls measures. A detailed mining plan (description and process layout) has not been provided to discuss/show the limit of extraction activities, means of extraction, processing activities/methods and process flow from start to finish for all material types, overburden stockpile areas, and handling of tailings, etc. Wet processing is mentioned; however, there is no discussion of the high capacity well or the treatment of the process water after use. SCS recommends that a more detailed description of the mining activities be included in the Reclamation Plan to facilitate the evaluation of the final reclamation of the site.

Other Items of Note:

- Utilities in the vicinity are not addressed beyond location of private wells.
- The locations and names of intermittent streams/lakes are unclear.
- Several plan figures are not clear and do not meet the minimum scale required by Chippewa County.
- Although restoration seeding, fertilizing, and mulching are discussed, seeding dates for the intended seed mixes are not identified. We recommend that alternative seeding be addressed if restoration is needed during the off-planting time period.
- Costs for restoration in Appendix 7 appear low; however, no notes were available documenting sources of unit rates.

BJS/lmh/LAB/TK

I wasn't able to make it to the hearing because I had to work. Some of these things may have already been addressed. I live adjacent to phase 3 of the mine and have some concerns.

1. Water quality and contamination of groundwater and surface water.

Once it is contaminated there is no going back. The woods here are filled with springs many of which are probably not mapped. We found some of them by accident while logging 20 years ago. There is an intermittent stream on our land. There are several draws in the woods that seem to drain toward that intermittent stream. I am concerned that contaminants may make their way into the stream and on to other bodies of water.

2. Wildlife habitat. In the 28 years that I have lived here the variety of wildlife has increased greatly. I believe that this is due in part to the large tract of woodland here that has been left mostly wild. At least 80 acres of that will be gone with the mine. I am also concerned about the value of my woodland. I am taxed as recreational land but with the removal of adjacent woodlands the value of my land will likely go down. I don't plan to try to sell it in the foreseeable future but it will likely be impacted long term.

3. Air Quality. The mine will be to the west of me and most times the wind is from the west. I am concerned about fine particulate matter making its way to my home.

Sue Haake

Chippewa County Land Conservation and Forest
Management
Chippewa County Court House # 011
Chippewa falls, WI 54729

LCD@co.chippewa.wi.us

Remarks Regarding the Reclamation Plan for the proposed
**Northern Sands Frack Sand Mine In Howard
Township, Chippewa County, Wisconsin** conducted by
the Chippewa County Land Conservation Office and the
Chippewa County DNR Officer on 29 July 2015

The undersigned has reviewed the Reclamation plan but
was unable to attend the oral presentation of the
Reclamation Plan on 29 July.

1. This plan differs little from previous plans submitted for previous Open Pit Frack Sand mines in Western Wisconsin. This mine that consumes land of more than two square miles adding extensively to the burden of the Frack sand mining industry in Chippewa and Barron Counties replacing more than 100 years of productive agriculture and forest management. It invades the habitat that all creatures great and small depend upon for life from micro organisms to large mammals, insects, bees, butterflies and birds.

2. The one hundred year plan is more myth than reality despite the well-documented description of the methods of reclamation and the scrutiny necessary by the site manager plus the local and state land and forest management officials currently employed to control persistent safe management and prevent accidents including storm water flooding. State personnel and DNR scientists have been seriously reduced and replacements for them are not part of the state's plan. Their numbers are less than adequate to monitor the various and important aspects of this mine and others now and well into the future projected life of this mine and adjacent mines.
3. The overburden may be salvaged and/or composted for replanting but there is no scientific evidence presented that disturbed topsoil will retain the life necessary to restore flora or fauna to its present appearance and provide food necessary to the creatures large and small that will be and have been disappearing as habitat declines in Chippewa County, across Wisconsin, the United States and across Mother Earth.
4. The proposed depth of mining to within ten feet of the aqueduct is unsafe and may invade, injure and deplete the water all life depends upon adding to the

danger of “the Sixth Extinction” as the earth continues to warm due to the expanding world population and the fossil fuels that Frack sand mining is vital to extracting (Elizabeth Kolbert, 2014, “The Sixth Extinction” and the studies of James Hanson).

5. The current levels of CO₂ and methane in the atmosphere far exceeds safe levels and continues to rise. Nothing is mentioned in this plan related to the total environmental disaster is mentioned.

Signed:

Thomas Chisholm, MD FACS
Col. MC USA retired
316 W. Spruce St.
Chippewa Falls, WI 54729
715 726 0365
leclam@charter.net

My name is Toni Moody; I live at 9600 30th St, Colfax, WI 54730. I have 120 ACRES, FULLY WOODED: The trees I have are Poplar, Birch, Oak, Maple, and Pine.

When I moved to the residence I now live in it, was 28 years ago. We had two maple trees in our front yard that were about three inches across. Today those same trees are about 12 inches across. That is 28 years of growth. Removing the wooded areas that this mine will impact, will not see mature growth for about 100 years. By that time our children and grandchildren will have to deal with the loss of habitat for oxygen, wild animals, wild birds, and wild flowers.

I have made a list of Wild Animals, Birds, and Wild Flowers that I have on my property. That list is as follows:

WILD ANIMALS

Bear - Cinnamon & Black . On June 1st several years ago I had 6 bears in my yard in one night. Two juveniles come in first, and then I saw a large mama bear with one cub in my driveway. Later a Cinnamon bear came in. I had never seen or heard of a cinnamon bear. This isn't generally their habitat; they are more likely in Canada. Then after dark I had one more juvenile come in. This summer in the early part of July, I had a Mother w/4 cubs on my porch, which is very unusual.

Deer - Doe and Buck - I have mothers with twins/triplets/single. Many mornings I wake up and look out my bedroom window and watch the deer eat the apples on my trees.

Following is a list of the habitats that I am concerned for.

ANIMAL HABITAT - (animals that I have seen in the 28 years of residence).

1. Fischer
2. Ground Hog
3. Opossum
4. Raccoons
5. Snakes
6. Frogs
7. Wolf
8. Bats
9. Chipmunks
10. Voles
11. Moles
12. Cottontail rabbits
13. Pine Martin
14. Red Fox
15. Coyotes
16. Skunks – 1 stripe; 2 stripe
17. Skinks
18. Turtles

19. Mink (Ermine)

20. Cougar – I have heard the cougar. It comes around twice a year, in the spring and fall. My granddaughter’s husband saw it as it walked under the tree he was hunting deer in one fall.

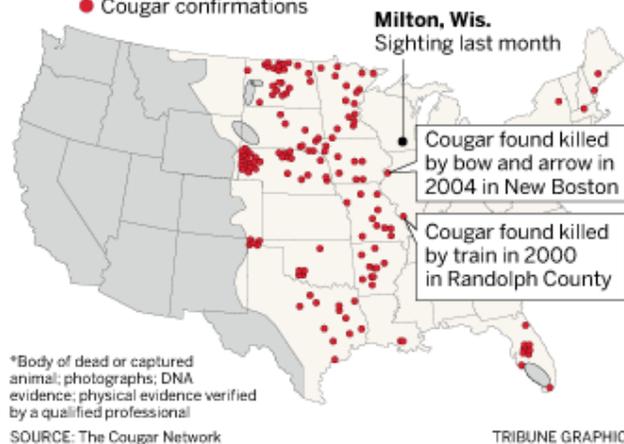
Cougar population stretches east

Over the last couple of decades, cougars have been moving east of their native population ranges, possibly because of crowding.

COUGAR CONFIRMATIONS* SINCE 1990

KEY  Regions of established cougar populations

 Cougar confirmations



21. Squirrel - Gray

22. Squirrel - Black

23. Squirrel - Flying

24. Squirrel – Red

BIRDS - (birds that I have seen in the 28 years of residence).

1. Bald Eagles

2. Blue Jays

3. Owls

4. Robins

5. Ruffed grouse

6. Wild Turkey – I passed a field approximately three miles from my home along the Elk Creek and I saw a flock of Turkeys. I stopped counting the turkeys at 68. There had to be a least 100 or more of these birds....and we want the habitat taken away?

7. Ladder-back woodpecker

8. Downy Woodpecker

9. Pileated Woodpecker

10. Wren

11. Starlings
12. Red Headed Woodpecker
13. Red Bellied Woodpecker
14. Flycatcher
15. Hummingbird
16. Baltimore Oriole
17. Thrasher
18. Cardinal
19. Vireo
20. Nuthatch
21. Red Wing Blackbird
22. Pheasant
23. Crow
24. Ravens
25. Woodcock
26. Goldfinch
27. Red Finch
28. Sparrows – Multiple species
29. Whipper Will
30. Swallows
31. Pigeons
32. Mourning Doves
33. Phoebe
34. Vulchers
35. Chickadee
36. Titmouse
37. Grosbeak
38. Blue Bunting
39. Cedar Wax Wing
40. Red Poll
41. Junco
42. Bluebird
43. Towhee
44. Flicker
45. Catbird
46. Ducks
47. Partridge
48. Tanager
49. Grackle

WILD FLOWERS (wild flowers that I have seen in the 28 years of residence).

1. Clintonia
2. Violets: Blue, yellow, white, bird's foot, arrowhead, pink
3. Trillium: Red, white, yellow, pink
4. Blood Root
5. May apple
6. Jack-in-the-Pulpit
7. Dutchman's Britches
8. Snake Plantain Orchid
9. Ladies Tresses Orchid
10. White daisy
11. Yellow Daisy
12. Purple Liatris
13. Wild Phlox
14. Indian pipe
15. Pussy Toes
16. Spring Beauties
17. White Anemone
18. Yellow Bell Wort
19. White Bell Wort
20. Purple Monarda
21. Columbine
22. Running Ground Cedar
23. Self-Heal
24. Solidago - (Goldenrod) Four - five different species
25. Jimson Weed
26. Ferns; Moss, Maidenhair, Lady Fern, Wood fern, Interrupted Fern, Bracken Fern
27. Solomon Seal
28. Night Shade
29. Pearly Everlasting
30. Loosestrife
31. Black Cohosh
32. Wild Ginger
33. Hepatica
34. Mushrooms -

THE LAND SURFACE

My land is a combination of hills, valley, swamp and springs. The Creek that flows into the Albertville Valley and empties into the Red Cedar begins on my land. My concern is this sand mine will change my wetlands which are used by both the animals and birds.

I did some research online and found: SCIENCE ADVISORY BOARD

The American Forests Science Advisory Board members represent a diversity of fields, geographic areas and work experience to help address issues facing America's rural and urban forests.

- Dr. Mark S. Ashton Yale School for Forestry & Environmental Studies, New Haven, Conn.
- Conducts research on the Biological and physical processes governing the regeneration of natural forest and on the creation of agroforestry analogs.
- Dr. Paul K. Barten Dept. of Environmental Conservation, U of Mass, Amherst, Mass.
- Dr. Paul Barten's research includes field and modeling projects focusing on forests, land use, stream flow, water quality and aquatic ecosystems.
- Dr. Cecilia Danks Rubenstein School of Environment and Natural Resources, U of Vermont, Burlington, Vt.
- Dr. Danks teaches an array of courses, including Community Forestry at Home and Abroad, Forest Carbon and Communities, Intermediate Environmental Studies and Integrating Analyses in Natural Resources Issues.
- Dr. Jerry F. Franklin College of Forest Resources, U of Washington, Seattle, Wash.
- Dr. Jerry Franklin's areas of specialization include: structure and function of natural forest ecosystems, especially old-growth forests; successional processes and ecosystem recovery following catastrophic disturbances; the effects of changing environmental conditions, such as global change, on forest processes; the application of ecological principles to management of natural resources ("New Forestry," ecosystem management); and the theory and practice of landscape ecology.
- Dr. Jennifer Jenkins Applied Geosolutions LLC, Washington, D.C.
- Dr. Jenkins develops partnerships with both political agencies and nongovernmental sectors who focus on sustainable development, greenhouse gas mitigation and adaption, food security and agricultural and forestry programs.
- Dr. Robert Keane US Forest Service, Rocky Mountain Research Station, Missoula, Mont.
- Dr. Robert Keane's areas of expertise are landscape and ecosystem modeling, white bark pine restoration, wildland fuel science, fuel mapping, fire hazard and risk analysis, fire ecology and fire regimes.
- Dr. James Kielbaso Retired: Dept of Forestry, Michigan State U, Lansing, Mich.
- Dr. James Kielbaso taught arboriculture and urban forestry courses among many others at Michigan State for 38 years. He also conducted research on topics such as improving compacted soils for planting, the status of street trees

nationally, management practices of U.S. urban foresters, and herbicide use by U.S. utilities and social attitudes toward neighborhood trees.

Dr. Jonathan Kusel

Sierra Institute for Community and Environment, Taylorsville, CA

Dr. Jonathan Kusel founded the Institute, which focuses on the human-natural resource interaction focusing on research, education and project implementation. Dr. Kusel participated on the Clinton administration's Forest Ecosystem Management Assessment Team; participated on the core team and led the community assessment team and public participation team for the Sierra Nevada Ecosystem Project (SNEP); and led a national assessment of the Secure Rural School and Community Self-Determination Act, which contributed to refinement and passage of new legislation.

Dr. Robert D. Mangold

US Forest Service, Pacific Northwest Research Station, Portland, Ore.

Dr. Robert Mangold is the Station Director of the U.S. Forest Service Pacific Northwest Research Station in Portland, Ore. Prior to that he served as the director of Forest Health Protection for the U.S. Forest Service in Washington, D.C., as the acting deputy director of the Forest Health Protection staff in State and Private Forestry and as the National Forest Health Monitoring program manager. He also worked on the Cooperative Forestry staff in Washington as the national nurseries and tree improvement manager. He worked as a geneticist at the Dorena Tree Improvement Center with the Forest Service in 1988 at Umpqua National Forest in Oregon.

Dr. Deborah G. McCullough Department of Entomology and Department of Forestry, Michigan State University, Lansing Mich.

Dr. Deborah McCullough has an active research, extension and teaching program in forest entomology. She works closely with natural resource agencies, Christmas tree growers and private landowners to identify impacts and contributing factors associated with damaging forest insect populations, and to develop long-term management strategies to conserve or enhance forest health. Her research interests include invasive forest insect ecology, impacts and management; dynamics of forest insect populations; silvicultural and biological control of forest insect pests; and effects of disturbance on forest insect communities.

Dr. Greg McPherson

US Forest Service, Pacific Southwest Research Station, Davis, CA

Dr. McPherson works with a team of three other scientists who measure and model the effects of trees on energy use, urban heat islands, air pollutant uptake, carbon sequestration and rainfall interception. Their research is helping justify investments in urban forest planning and management. In 2000, Dr.

McPherson received the International Society of Arboriculture's (ISA) L.C. Chadwick Award for Research.

Dr. David J. Nowak

US Forest Service, Northern Research Station, Syracuse, NY

His research investigates urban forest structure, health and change and its effect on air quality and greenhouse gases.

Dr. Diana F. Tomback

Department of Integrative Biology, U of Colorado, Denver CO.

Her expertise includes evolutionary ecology with application to forest ecology and conservation biology.

FINDINGS OF Science Advisory Board

- The forest cleans our air and drinking water.
- A single tree can absorb 10 pounds of air pollutants per year.
- Forest supply more than 50 percent of freshwater flow in the lower 48 states, and approximately 180 million people depend on forests for their drinking water.
- Forest provide habitat for wildlife.
- Studies suggest that if forest and habitat loss continue at current trends, one million species will become endangered in the next 50 years.
- Forests cool our planet by removing CO₂ and other harmful greenhouse gases, which helps fight climate change.
- An acre of forest can consume the amount of carbon dioxide created by driving a car 26,000 miles, about twice the annual mileage for an average drive.
- Forests in urban areas provide financial and well-being benefits to urbanites.
- Well-placed trees around your home can reduce annual air conditioning costs by 30 percent.
- 100 million mature trees growing around residences in the US can save about \$2 billion annually in reduced energy costs.
- Studies show that there is a correlation between trees in urban areas and improved cognitive function, reduced crime, more active lifestyles and, thus, improving health and an increases sense of accomplishment to the community.

Per <http://www.americanforests.org> (Please note that this information was taken from the article on line, some of it verbatim).

America has a choice: Clean air, clean water, and healthy wildlife populations, or a polluted future where the only winners are special interests. This nation's core of conservationists, hunters, and anglers has a proud legacy of working to protect wildlife and must continue to do so as our world warms. <http://www.nwf.org/> (Please note that this information was taken from the article on line, some of it verbatim).

THE CLEAN AIR ACT WORKS was passed by Congress 40 years ago. Modern threats of carbon pollution will change the game for American hunters and anglers. The Environmental Protection Agency (EPA) plans to update the nation's pollution standards to address the wildlife impacts caused by the carbon pollution that leads to climate change

In 2006, over 1,394,000 anglers and 697,000 hunters came to Wisconsin to hunt and fish on its lands and waters. These 2.1 million sportsmen and women generated over \$2.9 billion in Wisconsin in that year alone.

We already have two sand mines close by: one on County B and one off Hwy 40 near Bloomer, WI. The Albertville Valley mine is one small environmental destruction but cumulative it adds to an already fragile ecosystem. This is about a small interest group who, in my opinion, has little care of the environment or what the future holds for mankind; they are only interested in the money that will line their pockets. In my opinion, the issue has been already decided!

Respectfully Submitted,

Toni J Moody
9600 30th St
Colfax, WI 54730

Town of Howard

715-874-6237

Gentlemen

I am writing with my concerns about the reclamation plan for what is being called the Albert Valley Mine. The permit states the owner and permit applicant as Northern Sand LLC.

1. My experience with this company is troublesome. Northern Sand LLC is the Company we as concerned neighbors have dealt with. It has a history of unethical behavior. In the lease signing part of this project they were not straight forward with their information about what different land owners were thinking about, who had signed and who did not sign and all manner of other misrepresentations. Northern Sand LLC was present at our Town of Colfax board meeting last spring and was once again, misrepresenting information about the project. As the project moved forward to the bore hole drilling phase Northern sand did not meet the standards of the Town of Howard bore hole drilling ordinance. They also did not properly fill the bore holes leaving them as a hazard to people walking on the land and in one instance cow manure was spread in the area before the hole was filled. This activity shows disregard for the rules and their willingness to ignore them and lie about it. This I believe should make them unqualified as applicants for the reclamation permit. Past performance predicts future performance.
2. The geology of the site states that it contains shaly sandstone. Shale is clay in the form of small compressed flakes. The disc like clay particles have oriented themselves at right angles to the pressure. All shales will weather to clay over time if exposed. This process will be accelerated by crushing of the sandstone containing shale. The mining will change the structure of the sandstone and its composition making the composition of the non marketable sand deposit behave in ways that could cause the problem seen last August with the release at the SD mine. This would be a threat to the two watersheds on this site.
3. Private wells on or near the mine sight have not been correctly noted because the information is incomplete. This should be done before the permit is granted.
4. The reclamation plan states the water table is at 1,000 to 1,040 feet. My well about 1.5 miles from the mine site is 40 feet deep and there are numerous springs on our land that bubble up through the surface. The hydrology of the site has not been correctly surveyed.
5. The wetlands on or near the site are numerous and have not been properly delineated. As with so many items, too numerous to detail here, they are often based on inaccurate charts or outdated ones.
6. There are new EPA regulations pending that might present legal actions concerning this reclamation plan. The State of Wisconsin is being sued by the EPA over violations of the clean air act. The plan states that they will operate in compliance with Federal Agencies this also could leave Chippewa County and the town of Howard open to law suits by various groups and the federal government.
7. The Wisconsin Supreme Court has ruled that contrary to DNR regulations, the cumulative effect of high cap wells needs to be considered. On the county map one can see how many mines are either operating or permitted, a case could be made and will be made about the cumulative effect of industrial sand mines on our community and region. This could be another avenue for legal action against Chippewa County.

8. The plan is incomplete in regards to what is to happen with the buildings and processing site and the rail transfer site at the end of the life of the mine or if market conditions make the mine unprofitable for it's share holders. There are no details about the clean up of the site which will have to be done to meet OSHA standards in regard to silica dust. There is also inadequate bonding in regards to the dismantling of the buildings.
9. In general the bonding for the reclamation is inadequate and incomplete. It does not take into account economic changes or inflationary increases to costs in accomplishing the reclamation plan. The mine has a life of 30 to 40 years prices can increase dramatically in that period of time. Northern Sand is a LLC. , this form of business organization makes it easy for them to reorganize and dump their fiduciary obligations. This could leave the tax payers of Chippewa County on the hook for reclamation or allow the company to simply walk away. Wisconsin has many such sites left abandoned and not reclaimed. This situation would once again leave the county with legal challenges.
10. The reclamation plan is incomplete in its listing of both plant and animal life on the mine site. Wolves a federally protected species have been seen on or near the area as well as eagles and several owl species.
11. The testing of wells on the mine site and the surrounding area should be more complete and frequent. At a water quality meeting in Bloomer last year it was stated that water flows through the ground slowly and might take along time to reach an aquifer. With this in mind it seems foolish to do two annual tests and then require less than annual tests.
12. The plan should have a list of all the chemicals used on the mine site so they can be tested for in the soil and water samples.
13. The storm water management plan does not take into effect recent and predicted increased rain events for example in the past few weeks we have received 11 inches of rain.

My general comment on the plan is that it contains a lot of vague language and too many generalities. Also there are a lot of items about soil reclamation plans and planting plans that are in large part unproven science and largely an experiment. Too many of the plans details are based on outdated graphs and maps that are incomplete. This plan was completed by what is called armchair engineering and not enough hard facts based on the actual site.

In our constitution it states that the most important role of government is not to promote business but to protect the health and general welfare of the people, by this I think they also meant future generations and our moral responsibility to them. In this regard this plan is incomplete and not adequate to meet the standards required by the State of Wisconsin and its citizens.

Sincerely

Willem G. Gebben

N8751 County Road A, Colfax Wisconsin 54730

July 29, 2015

Mr. Dan Masterpole and Mr. Seth Ebel
Chippewa County Land Conservation and Forest Management
Room 011
711 N Bridge St.
Chippewa Falls, WI 54729

Dear Mr. Masterpole and Mr. Ebel,

Re: Howard Township Properties Nonmetallic Mine Reclamation Plan, Northern Sands, LLC,
Howard Township, Chippewa County, Wisconsin.

Please accept these comments on the aforementioned reclamation plan for the public record. I appreciate the opportunity to provide comments on this plan for your consideration. I am a Resource Ecologist and Environmental Toxicologist with experience in environmental impact assessment, aquatic ecology, and conservation biology. I reside in Madison, Wisconsin and have been active in conservation and resource management issues in Wisconsin and the upper Midwest for more than 20 years and I am familiar with the ecological systems in Chippewa County and surrounding areas. I have reviewed the Nonmetallic Mine Reclamation Plan and supporting documents and have prepared the following comments for your consideration.

Background

Nonmetallic mining has taken place in Wisconsin throughout its history. However, new methods of fossil fuel extraction that use fine sand for hydraulic fracturing has increased greatly the demand for sand mining in the state. Over the past several years, many new open pit sand mines have been constructed with additional mines proposed. These new mining operations are much larger than has been the case in the past and have the potential for much greater impacts to the environment. These impacts range from direct damage to wildlife habitat and populations to pollution and/or depletion of surface and groundwater sources to increases in dust and other air pollutants, among others. The growth in open pit sand mining in Wisconsin has created ecological, social, and legal issues revolving around adverse ecological and social impacts of the construction, operation, and future closures of these mines.

In large part, sand mines have been concentrated in the western and southwestern portions of the state. This area, much of which was not glaciated, contains high quality natural areas, productive farmlands, sensitive wetlands and surface waterways and numerous small and mid-sized communities. Groundwater is abundant throughout the region and is the source of many streams and wetlands including high quality springs and seeps. Conflicts over construction and operation of sand mines have increased in large part due to actual and potential impacts to groundwater and groundwater-fed streams and wetlands, among other factors.

The proposed mine is located in the headwaters of two cold-water streams, Elk Creek and Eighteen Mile Creek, both of which are considered high-quality streams and thus, important natural resources. Construction and operation of the proposed mine will alter surface and sub-surface land cover characteristics in ways that are likely to adversely affect both surface and sub-surface hydrology. As a result, adverse impacts to both Elk and Eighteen Mile creeks are likely over the life of the mine.

The proposed open pit sand mine covers over two square miles of land with 466 acres proposed for excavation in three distinct phases. The remainder of the property would be used for processing, waste storage, runoff retention and other associated activities. Some portions of the site, e.g. buffer zones, will be retained. The plan estimates that 39 million tons of sand will be removed from the site

over the life of the mine. Reclamation activities will be sequential throughout the life of the mine. The reclamation plan describes activities related to stormwater management, groundwater monitoring on site, and revegetation prescriptions for reclamation of previously mined areas.

Unfortunately, the Reclamation Plan does not address adequately the potential impacts to aquatic ecosystems including freshwater seeps, springs, and cold-water streams likely to be affected by mining activities.

1. Wetlands and Surface Waters

The reclamation plan does not provide adequate environmental and/or monitoring data for water quality in both surface and groundwater resources within and outside of site boundaries. Throughout the proposed reclamation plan, statements are made indicating that groundwater monitoring will be conducted prior to and during operation of the mine yet no baseline data are provided. A similar lack of data for wildlife impacts, subsurface hydrology, wetlands, and other natural features characterizes much of the Reclamation Plan. Site-specific ecological data is essential for understanding present conditions and for determining the suitability of any reclamation plan for a project this large operating over a prolonged timeframe. Without these data and the information they provide, the public must base their evaluation of the proposed plan on generalizations and flimsy assumptions that are inadequate for informed decision-making.

Site visits indicate the presence of numerous wet areas, wetland areas, groundwater seeps and at lower elevations, freshwater springs with significant flow (see Figures 1 & 2). These springs are the source of water for both Elk creek and Eighteen Mile creek, both classified as cold-water streams by Wisconsin Department of Natural Resources (WDNR). Elk Creek drainage has been the focus of significant restoration efforts over the years and supports both brown and brook trout. The Elk Creek State Fishery Area is a prized publically owned recreation and natural area located downstream from the proposed mine.

Given the fact that the proposed mine site comprises a significant portion of the upper watersheds of both waterways, construction and operation of the mine will result in significant adverse impacts to their structure, composition and ecological functions. These include but are not limited to, detrimental changes in flow regimes, damage to aquatic and riparian habitat quality, greater fluctuations in stream temperatures and increased inputs of suspended and dissolved solids in runoff. Moreover, no information on the many freshwater seeps and springs surrounding the proposed mine is made in the plan. This is particularly problematic given the groundwater recharge function of the mine site and surrounding areas. Perched wetlands and small high elevation seeps are also found in the area and are highly likely to be affected as subsurface features serving as aquifers are damaged or destroyed. These aquatic features are critical parts of the overall watersheds for both Elk and Eighteen Mile Creeks yet no assessment of, or reclamation plans for these features is provided.

The reclamation plan fails to address and analyze adequately the potential for wetlands and surface waters to be degraded by proposed activities. This is particularly problematic with regards to impacts to surface and subsurface hydrological connectivity within the headwaters of two cold-water trout streams draining the area. For example, shallow seeps can be found along ridges throughout the area with larger springs located at lower elevations. Diversion of groundwater, alteration of recharge zones, increased groundwater pumping and other mine-related activities have a high likelihood of affecting off-site groundwater movement and discharge patterns. Changes in groundwater conduit flow paths from mining and associated activities will occur resulting in a high risk of impacts to aquatic resources off-site. Mine activities also have the potential to alter turbidity levels in springs and surface waters. However, no information on recharge zones for seeps and springs or “springsheds” are provided in the reclamation plan. In the absence of an adequate baseline assessment of wetland and surface water quality and characteristics both within site and in potentially affected

surrounding areas, determinations of degradation during and after mine operations will be impeded. Without a basic understanding of the recharge zones and subsurface hydrological connectivity of these critical environmental resources, decision-makers and the public are left without essential information. This is particularly important for large-scale projects with long-term impacts such as the proposed mine.

At a minimum, baseline information sufficient for decision-making should be collected before any reclamation plan is accepted. This information should include a hydrological evaluation sufficient to assess potential impacts to Eighteen Mile and Elk Creeks and their tributaries, including springs, seeps, wetlands and other hydrological features. The hydrological evaluation should include the following items:

- Stream temperature and chemistry for cold-water and other surface streams draining the proposed mine site. Similar actions for springs and seeps (where flow is sufficient) should be undertaken.
- Stream and spring base flow. The proposed mine has a high potential for causing a reduction in groundwater base flow to springs and receiving waters. Because sand and gravel deposits allow comparatively high infiltration rates and relatively rapid rates of water transfer within an aquifer, activities and land uses within and above granular aggregate can have negative effects on ground- water quantity and quality within aquifers. Changes in subsurface hydrological connectivity and dewatering can also depress local water tables with a resulting loss of base flow to critical spring and seep systems. Loss of base flow to these systems is a major impact with wide-ranging ramifications for stream and wetland ecological health.
- Existing surface water runoff conditions during precipitation events, including winter events during periods with frozen ground. Changing climate conditions are likely to alter precipitation patterns in Wisconsin with potential changes in intensity, form and seasonality.¹ Streams draining the proposed mine site are cold-water systems with relatively stable flow patterns and temperature profiles. Alterations in runoff timing, quality, and volume as a

¹ “Increases in winter and spring precipitation will likely cause increases in large runoff events, leading to soil erosion, channel erosion, sediment and nutrient trans- port, increased eutrophication, habitat degradation and mobilization of contaminated sediment, all reducing surface water quality. Increased runoff will lead to flooding of small rivers and streams. In some instances streams that respond quickly to incoming and outgoing flows have a drier period between high flow periods, resulting in a “first flush” effect containing higher concentrations of sediment.

Rising water temperatures, changes in groundwater recharge and stream baseflow, and an increase in large runoff events from heavy storms may all affect stream channels or other habitat characteristics that fish require for survival.

Climate change will affect groundwater resources across the state. Increases in total annual precipitation, changes in the seasonal distribution of precipitation, increased frequency of intense rainfall events and increased average temperature all will affect ground- water quality and quantity. Given Wisconsin’s diverse geology and hydrogeology, impacts will vary depending on site-specific conditions including soil and surface material characteristics, topography, depth to bedrock, depth to groundwater and land use practices. Climate change will have the most significant impacts on shallow groundwater systems, such as sand and gravel aquifers, whereas deep sandstone aquifers, such as those used by public water systems in Dane County and in southeast Wisconsin, will be less affected.

Groundwater recharge in the spring depends largely on the interplay between the amount of winter snowpack, the timing of spring thaw and the timing of the opening of leaf buds, all of which are temperature-dependent. Climate change projections call for increased winter precipitation, but because of the predicted warmer winter temperatures, there is also greater likelihood that an increased amount of the precipitation will fall as rain rather than snow. If significant rain events occur during the winter and the surface of the ground is frozen, much of the rain will run off and will not contribute significantly to groundwater recharge. Warmer temperatures could also result in shorter periods of frozen ground conditions, leading to longer periods of time when the melting snowpack or rain could infiltrate and ultimately increase groundwater recharge. Soil type, soil moisture, vegetation and frost are critical factors that help determine the amount of recharge versus runoff.”

Source: <http://www.wicci.wisc.edu/report/WICCI-Chapter-3.pdf>

result of climate change, combined with mine-related impacts pose significant threats to these critical and cherished aquatic ecosystems. The proposed operation has a high likelihood of altering surface water runoff throughout the year. Impacts to surface waters from surface runoff impacts must take into account changing seasonal conditions. Additionally, surface runoff changes from ground compaction and other impacts from associated mine operations (e.g. processing, staging, travel zones, etc.), must be accounted for in the reclamation plan.

- Ground and surface water monitoring proposed in the Reclamation Plan should be expanded to include life-of-mine monitoring for petroleum hydrocarbons (e.g. diesel range organics, etc.) and other industrial and/or waste compounds that may contaminate both surface and groundwater sources. Spills, leaks, and other sources of these materials can contaminate soils and aquatic systems, particularly where mining activities are in close proximity to groundwater sources.
- Stormwater management as proposed in the Reclamation Plan reflects the changes in infiltration and surface runoff that will take place as mine operations begin. Stormwater and polluted runoff from the site will be collected in large retention/infiltration basins at low points in the landscape with the intent of infiltrating significant quantities of runoff over time. Unfortunately, retention/infiltration basins can alter the temperature of runoff because of increased solar radiation and loss of vegetative cover. At the same time, conventional retention basins often perform poorly when high levels of fine sediments and clays are discharged. Because receiving waters are cold-water streams supporting trout and other thermally sensitive species, any increase in water temperatures over the relatively stable temperature regimes in these streams at the current time can have significant detrimental impacts to these systems. No consideration is given to thermal changes in runoff in the plan thus ignoring a critical aspect of impact and reclamation.

2. Wildlife Habitat

At the current time, the proposed mine site and surrounding area contains a mixture of agricultural lands, woodlands, homesteads, and other landcovers characteristic of rural Wisconsin. The diverse mixture of woodlands, grasslands, and agriculture provide a rich diversity of habitats for wildlife. Riparian areas and other aquatic systems are key components of the regional biological and landscape diversity and are often particularly sensitive to environmental changes.

The proposed mine will have significant and long-term impacts to wildlife within the mine site as well as in surrounding areas. In addition to the potential impacts to aquatic systems described above, damage to wildlife and wildlife habitat in areas surrounding the proposed mine site are likely. However, the Reclamation Plan only provides a cursory administrative look at potential wildlife impacts from the proposed operation. Although a query of the WDNR Natural Heritage Inventory provides some information on known occurrences of important natural features, most areas of the state have not been surveyed sufficiently to characterize their specific wildlife values. Without a more intensive assessment of wildlife and wildlife habitat characteristics in and around the proposed mine site, decision-makers and the public are once again left without sufficient information.

- The Reclamation Plan should include a more comprehensive assessment of wildlife and wildlife habitats in and around the proposed site. This would include designated areas surrounding the proposed mine with extended coverage of riparian zones along tributaries of Elk and Eighteen Mile Creeks. Documenting the current distribution of selected wildlife species and their habitats is essential to determining the suitability of mine reclamation plans for large projects such as that proposed by Northern Sands, LLC.

Summary:

The Reclamation Plan for the proposed Northern Sands, LLC project should be amended to include more comprehensive assessments of hydrogeological and wildlife impacts. The proposed mine site's geographic and topographic relationship to the drainages of both Eighteen Mile and Elk Creek requires a much more comprehensive assessment of subsurface hydrogeology and its relationship to source waters for both streams. In addition, impacts to wildlife as well as the future suitability of "reclaimed lands" for wildlife are not addressed sufficiently for reasonable decision-making. Queries to state natural feature databases is not sufficient for making site-specific decisions on large, long-term projects like the Northern Sands, LLC mine proposal.

Thank you for the opportunity to provide these comments for the public record. Please contact me if you have any questions.

Sincerely,
David J. Zaber, M.S., Ph.D.



Figure 1. Flowing spring in Upper Eighteen Mile Cr. Chippewa County, Wisconsin 2015



Figure 2. Perched wetland near proposed Northern Sands, LLC sand mine.