Public Comment Sheet

North Dakota Pipeline Company LLC Sandpiper Pipeline Project

PUC Docket No. PL-6668/PPL-07-13-474

PLEASE PRINT CLEARLY

Name: Dave Cartwright

Representing: Heat & Frost Insulators

Email: Cartwrightdave43@yahoo.com

Address: 10949 East Shore Drive
Merrifield, MN 56465

Tel: 218-871-0236

COMMENTS

I approve & support this pipeline project.

Please submit comments at meeting to EERA staff or send to:

Larry B. Hartman
Energy Environmental Review and Analysis
Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Email: larry.hartman@state.mn.us
Toll Free: 800-657-3794
Voice: 651-538-1839
Fax: 651-539-0109

Electronic Submittal: http://mn.gov/commerce/energyfacilities/publicComments.html?projectId=33599

»»If mailing, fold along dotted line in sequence noted and tape closed ««

-----Original Message-----
From: Jan Chief [mailto:chiefly@unitelc.com]
Sent: Tuesday, April 01, 2014 3:27 PM
To: Hartman, Larry (COMM)
Subject: (No subject header)

We are very opposed to a pipeline running through this area. As members of Friends of the Headwaters we feel this project is being rushed through before our summer residents return and that would not work in your favor.
More time is needed.
Leroy and Jan Chief

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PUC Docket # 13-474

March 12, 2014

RECEIVED

MAR 24 2014

MAILROOM

TO: Larry Hartman, Environmental Review Manager
Energy Environmental Review and Analysis (EERA)
Minnesota Department of Commerce
85 7th Place East, Suite 500
Saint Paul, MN 55101

Dear Mr. Hartman,

I am contacting you regarding the proposed attempt by Enbridge Pipeline to add another pipeline along the existing Koch Pipeline corridor from the Clearbrook Station south past Lake LaSalle. I have been telling them for a year to not survey to the east of the existing pipelines for the following reasons, which were the same reasons Koch did a cross over and moved their recent third pipeline to the lake west.

1. Soil type is Snellman Sandy Loam and is highly erodible. Roads and hillsides will wash out. Work space is not feasible due to steep slopes and soil problems. Slopes are 45 degrees to 60 degrees. Please see attached slope stability documentation.
2. Enclosed is topographical map showing 100 feet drop from the top of the pipeline to bottom of the hill at Lake LaSalle. Also, enclosed are two letters from Clearwater County Soil and Water explaining what needs to be done to prevent erosion and damage to the watershed. One was sent in 1994, the other in 2012. This was just for existing access roads. Clear cutting the whole valley for work space would destroy <u>everything.</u>
3. Septic systems for our cabin and others have drain fields up the hill that would be compromised.
4. Springs abound around the entire lake emerging at random and run 24/7. Some properties have to build bridges over the springs coming out of the hillside or add drain tubing to run the water to the lake.
5. Erika Rowe of the DNR did a recent survey of the whole upper and lower LaSalle basin for the Legacy Act which detailed "pristine, pre-European" water quality and rare species of plants. I do a census of the Lady Slippers and have personally counted over 1500 on my property every year. These flowers take 20-30 years to bloom in a special pine, fungus bog habitat.
6. This is the first watershed that flows north into the Mississippi River. Any environmental damage done due to the pipeline contamination or sediment would impact the entire Mississippi River.
7. Enbridge and Koch will be competing for space as continued oil supply needs and expansions are deemed necessary in the future. There is no room for unlimited growth. Both companies will be impacting the roads and topography while doing inspections, pig line checks and surveys. They will blame each other for road damage erosion and habitat impacts. It took Koch two summers and 3 attempts at seeding and mesh coverings to get grasses to root in the sandy soil after their last installation.

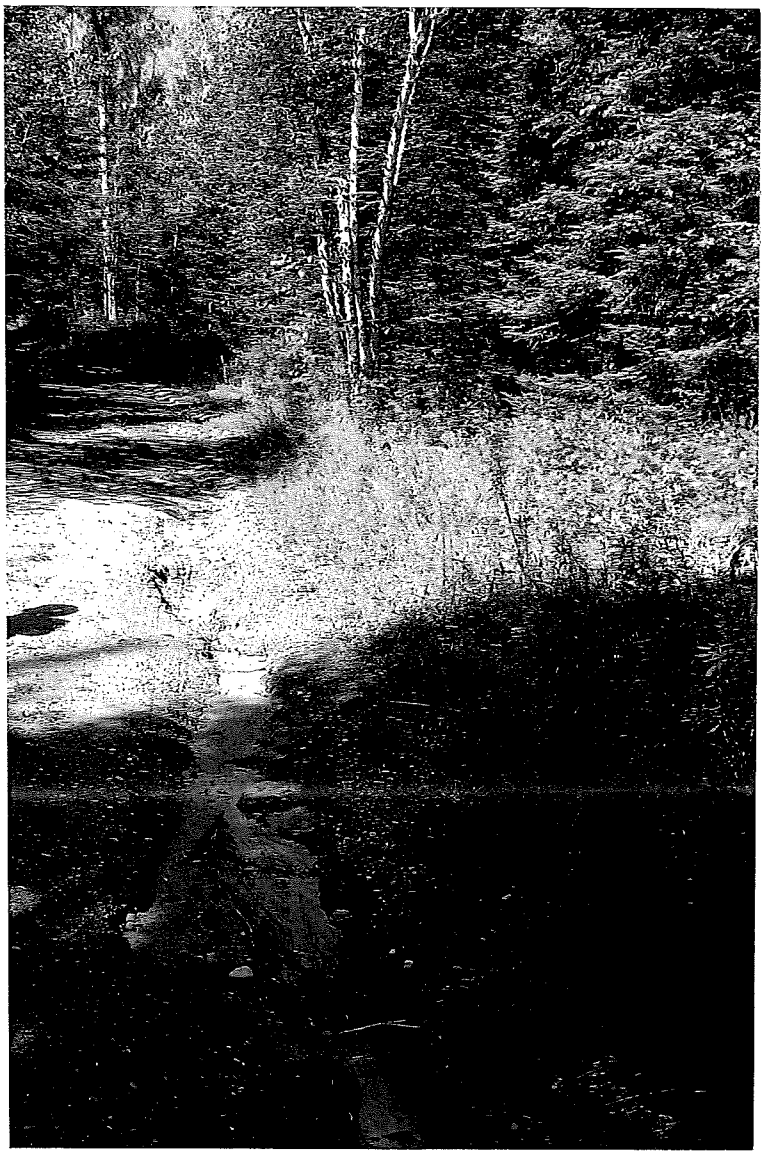
8. Enclosed is a letter received in 1990 from the Soil and Water Conservation District regarding an abandoned dump site that was brought to my attention by a retired state park employee. It lies at the Hubbard/Clearwater County, east of Highway 200 at the beginning of the LaSalle Watershed. The site is not visibly labeled and is capped with soil that is over grown. This site needs to be assessed as to size and risk. Any pipeline going around and near it could puncture it. It is pre PCA design. Contents could be lead paint, tires, creosote oils and other chemicals. It is not known what type of seals or cap it has. A non-invasive scan or sonar test should be done. I have alerted both pipeline companies.
9. An EAW (environmental assessment worksheet) was done by Clearwater County in 1992 regarding a permit for a PUD (planned unit development) proposed on Lake LaSalle by a planning commission member, Peter Fredrickson. The permit was declined due to concerns over soil erosion, traffic and springs in the hillside. He then sold the property to the current owner Ian Bullion. The PUC has a copy of the EAW in the Koch Pipeline files.

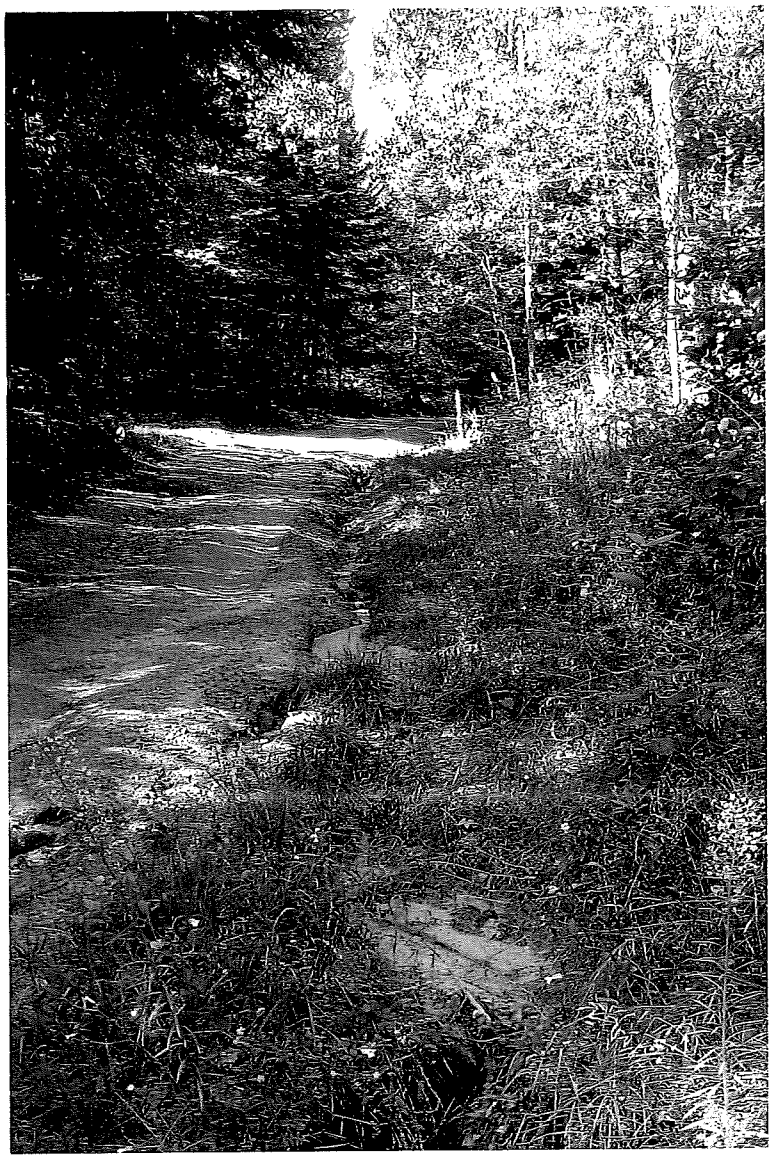
Enbridge Pipeline Company should maintain their existing route from the Clearbrook Station east to Superior. It makes sense logistically, financially and for future growth in a competitive market. If this is not deemed possible then Enbridge must move its route to the west of Koch's exiting lines, giving them enough room to expand in their pre-existing corridor. They must pledge to honor the land and be responsible stewards.

Please take these considerations into account when making your decision regarding the "Sandpiper" Project. We cannot "stick our heads in the sand" and assume the Enbridge Pipeline Company will exercise care, concern, caution and consideration for this unique environment.

Respectfully,

Jane Christensen
5709 Glen Avenue
Minnetonka, MN 55345
952-934-4918





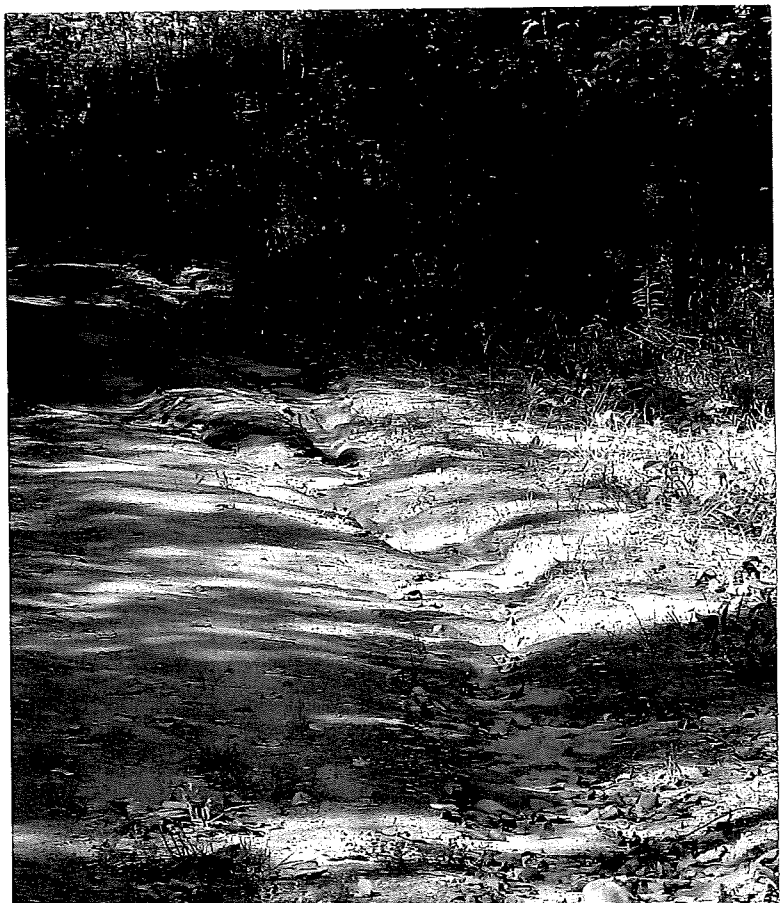


exhibit
#8

CLEARWATER SOIL AND WATER
CONSERVATION DISTRICT

P.O. Box 327
Bagley, Minnesota 56621
Telephone (218) 694-6845

MINNESOTA
SOIL AND WATER CONSERVATION DISTRICTS

Jane Christensen
5709 Glen Avenue
Minnetonka. MN 55345

Dear Jane,

Milayne Lundmark asked me to answer your inquiry about the outflow from the Itasca State Park sewage lagoon and its effect on LaSalle Lake. The enclosed map shows the watershed as I interpret it. As it ap-pears to me there should be no effect on LaSalle Lake since the ponds are probably in the Lake Itasca watershed.

Since the interpretation of these maps involves a number of judgement calls based on best guess, I also checked with a fellow that I knew was familiar with that area. He used to work at the park and said that several years ago there was a controversy about the overflow from these ponds. His work crew was sent out to check the situation and found that there had been no overflow. However, since there was an overflow pipe (even though water levels had never reached the point of overflow) they were directed to plug the pipe with concrete. The question then became, where is the water going if it is not overflowing? Therefore, several test wells were drilled around the pond to check the groundwater. As he recalled, the results showed no ill effects on the groundwater.

One thing he did mention was that there was an old dump site that was once used by the park (notice the red X on the map). He related this to two DNR Division of Waters officials last year at one of our Water Plan Task Force meetings. At that time they said the site would have to be cleaned up but to date nothing has been done as far he knew. You may want to check on this further with some of the other residents in the area.

That's the extent of what I was able to find out about this question. If you need more assistance let us know.

Sincerely,

Doug Thompson
District Technician

Exhibit #1

CLEARWATER SOIL AND WATER
CONSERVATION DISTRICT

P.O. Box 327
Bagley, Minnesota 56621
Telephone (218) 694-6845

MINNESOTA
SOIL AND WATER CONSERVATION DISTRICTS

Date: June 15, 1994

To: Jane Christensen

From: Doug Thompson
Clearwater SWCD

Subject: Erosion on access road to cabin site

Dear Jane,

As we discussed, I recommend abandoning the straight portion of your lower road by installing some water bars, raking it, seeding it and mulching. Enclosed is a seeding recommendation.

Also enclosed are the materials we discussed about road improvements for erosion control. Establishing a good crown to the road should be your first priority and maintenance is crucial to that goal.

As for dips and outslopes, your road slopes are probably in the range of 8-15%, a figure that determines the distances between dips. To determine the exact slope you simply divide the amount of rise over a particular horizontal distance by that horizontal distance and multiply the result by 100. For example, if you stood facing a hill at its base and held a carpenter's level up to your eye (held level) and found that it sighted into the ground 80' away, and your height at eye level was 5', then divide 5' by 80' and multiply by 100. The result is 6% which is the slope of that portion of the hill. You could determine the slope for your road and the location and spacing of broad-based dips and outlets.

If you have any questions concerning this material be sure to contact me.

Sincerely,

Doug

Doug Thompson

Clearwater Soil & Water Conservation District
312 Main Avenue North, Suite 3, Bagley, MN 56621 * Ph.: (218) 694-6845 * http://clearwaterswcd.org/

2012

Dear Jane,

I have put together some materials from the Natural Resource Conservation Service (NRCS) which lays out seeding recommendations for a variety of situations and conditions. There is probably more information here than you need, but there is much information concerning the establishment of vegetation on sites like the one you described to me on the phone. You will see that the last page of the handout is a seeding mixture guide. I believe the highlighted recommendation would be the best fit for your site. Kathy Rasch, our District Manager, suggested adding oats as a quick establishing component to the seed mixture. If there are bare sloping areas it would be best to get seeding established on these sites this fall to protect the soil from erosion this coming spring. If it's possible to at least establish oats on the site this fall that would be good.

I have also included a table of all the water quality data that has been collected through our office since 2002. I see that you had been involved with the SWAG monitoring in 2008-2009, so you probably got a bit of an introduction to water quality monitoring then. The three major parameters we use in assessing water quality are Total Phosphorous (TP), Chlorophyll-a (ChlA) and Secchi depth. These three values are compared to state standards that have been established by the MPCA. Standards have been established for each ecoregion, areas with similar climate, landform, soils, plant communities, etc, allowing similar lakes to be compared. Big LaSalle sits within the boundaries of the Northern Lakes and Forest Ecoregion. This ecoregion has a threshold of 40 ug/L of Total Phosphorous, 9 ug/L of Chlorophyll-a, and a minimum Secchi depth of 2 meters or 6.56 feet. When looking at the average amount of phosphorous and chlorophyll from past testing (highlighted top), we can see that the amounts of TP and ChlA fall well below the maximum allowable levels for these parameters. The Secchi disk readings have been much greater than the minimum threshold, showing that Big LaSalle has good water clarity. All indications point to good water quality within Big LaSalle.

If you have any other questions about the seeding or what is going on with the lake feel free to give us a call anytime. I hope what I have sent helps you out and gives you a good place to start. Enjoy your time on the lake.

Sincerely,

Nathan Nordlund

Nathan Nordlund

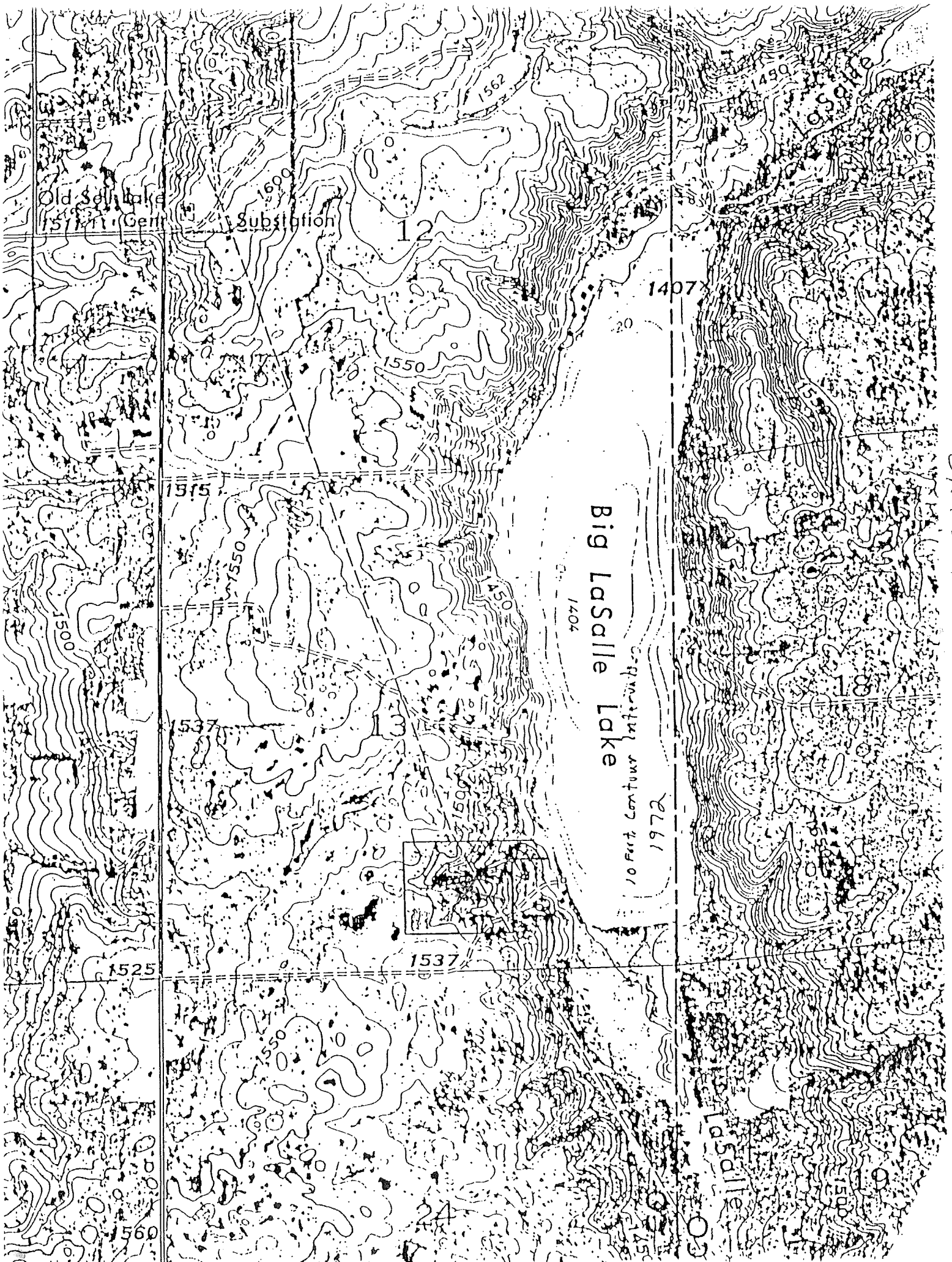
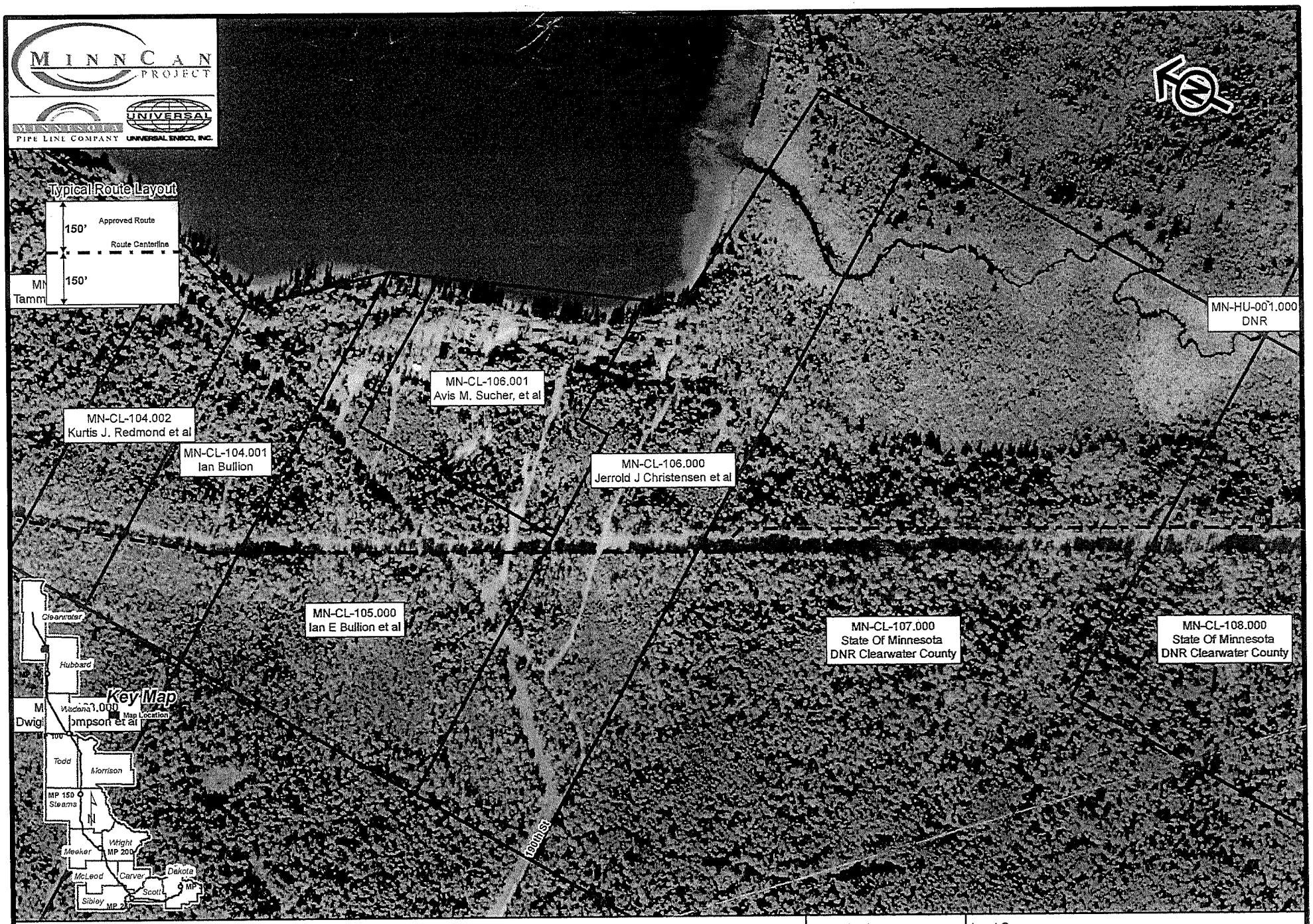

Old Salt Lake
Gen
Substation
12
13
18
19
24
1562
1600
1550
1407
1515
1500
1537
1525
1560
1450
1404
Big LaSalle Lake
10 Feet Contour Intervals
1972
LaSalle
LaSalle

Exhibit #2



Legend

⊙ Mile Posts — · — Route Centerline ▭ Parcel Boundaries Approved Route

Tract Number: **MN-CL-106.000**		Land Owner: Jerrold J Christensen et al	
Township: Itasca Township		Location: S13 T144N R36W SE1/4	
County: Clearwater	Scale: 1" = 400'	Date: 06/07/07	Dwg Num: 127 - 01106.000

Exhibit #1

Erosion and sedimentation

A normal part of a lake's life cycle is the gradual accumulation of silt, soil and other sediments in the lake basin.

Sedimentation creates turbidity which is measured by the lack of water transparency and lack of light penetration. Sedimentation also reduces the open water area. Among less obvious effects of sedimentation are:

- **Light limitation:**
  Sunlight penetration is reduced and primary biological production falls. This means impaired oxygen generation and less food for species that feed on algae.

- **Fish diseases:**
  Suspended particles can irritate fish gills causing abrasions that invite parasites and disease organisms to prosper. Desirable gamefish that rely on their sight to feed become less competitive with roughfish.

- **Hatching areas:**
  Many aquatic animals lay eggs on the lake bottom. Sediment filling the voids between stones smothers the eggs and can trap young fry which die on the bottom.

- **Safe territories:**
  Rough lake bottoms give some young fish species an ideal safe nursery area. As the bottom smooths over with sediment, fish can see farther which reduces the number of independent territories and nursery sites.

- **Food:**
  Aquatic insects and small organisms living on the bottom may be eliminated. The bottom itself can become sterile offering no food for the species that normally feed there.

- **Organic nutrients:**
  Many eroded soils include nitrogen and phosphorus. In addition, sediment particles may carry nutrients from manure, lawn fertilizer, and decayed organic material. This can lead to excessive plant growth.

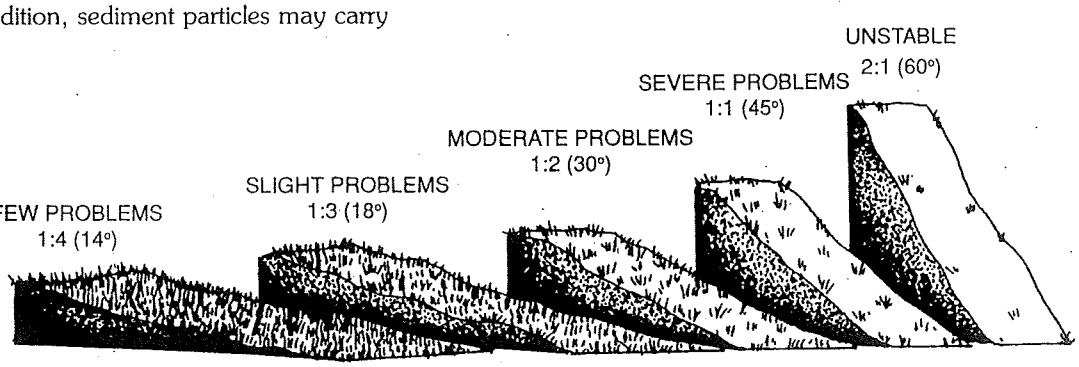
The most obvious impact of excessive sedimentation is shoaling. Shoaling is the loss of lake volume and surface area due to increased sedimentation. Natural lakes in undisturbed watersheds accumulate silt comparatively slowly. Excessive shoaling can greatly alter the shape and use of a lake, necessitate dredging to maintain channels, and restrict access to parts of waterbody.

Running water is the force carrying sediments, excess nutrients and debris into a lake. The carrying capacity and, hence, destructive force of running water, is determined by speed, volume and direction of flow. Runoff increases with:

- Intensity of a rain storm
- Impermeability of the soil type
- Compaction of the soil
- Extreme dryness (until the ground is wetted enough to begin soaking freely)
- Saturation from previous rainfall or snowmelt
- Degree of slope
- Absence of growing vegetation, mulch or leaf layer.

Methods of controlling runoff range from a healthy crop of grass to much more complex systems of dikes, holding ponds, and ditches. When possible, the best runoff control program involves slopes of 5 percent around a home to 2 percent on the remaining surface with permeable soils and vegetative cover.

Exposed land is the obvious worst situation for increasing sedimentation. Examples of exposed lands that can create sedimentation to surface areas are agricultural fields on slopes, unprotected paths on banks, construction sites, gravel roads, and freshly harvested timber sites.



COMPARISON OF SLOPE ANGLES AND STABILITY

WOODLAND STEWARDSHIP PLAN

LANDOWNER: Jane Christensen
5709 Glenn Ave.
Minnetonka, Mn. 55104

Home:

Work: (612) 292-8883

STEWARDSHIP ACRES: 24.75

TOTAL PROPERTY ACRES: 26.01

LEGAL DESCRIPTION: Portions of the S 1/2 of the SE 1/4 in Section 13, Township 144, Range 36, in Itasca Township, Clearwater County.

PREPARED BY: Jerry Stensing
Clearwater SWCD
P.O. Box 327, 312 North Main
Bagley Mn. 56621
(218) 694-6845

Nov. 24th 1993

This woodland stewardship plan was designed to help guide the management activities of the natural resources on your property. The plan is based on your goals in harmony with the environment around you. Project recommendations are for your consideration.

THE GOALS YOU IDENTIFIED FOR MANAGING THE PROPERTY ARE:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To use the property for enjoyment of outdoor recreation activities.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.
* To restore the forest to it's pre-settlement state.

FOR MORE COST-SHARE INFORMATION CONTACT:

DNR Forestry
Hwy. 92 N.
Rt. 1 Box 22
Bagley, Mn. 56621

DNR Nongame Wildlife
2115 Birchmont Beach Rd.
Bemidji, Mn. 56601
(218) 755-2976

WOODLAND STEWARDSHIP PLAN

Leech Lake Pine Moraine Region

This landscape region is located in north-central Minnesota. It consists of glacial deposits broken by large sandy plains of glacial outwash. It is also the largest coniferous landscape in Minnesota. The area has a wide range of vegetation types ranging from bogs and fens to dry sandy uplands. Historically, the dominant forests were aspen-birch conifer, and the white-red (Norway) pine types. Extensive jack pine barrens still grow on the dry, sandy uplands. Aspen-birch, conifer bog and swamp, mixed hardwood-pine, and Big Woods vegetation types occurred less abundantly in the area. The property is within the Mississippi River Headwaters Watershed, and the sub-unit of the Lake Bemidji Watershed.

GENERAL PROPERTY DESCRIPTION:

This property is located approximately 3 miles north east of the community of Lake Itasca. Access is fair with a three season gravel road bisecting the western portion of the property. Access within the property boundaries is gained through an access road, but is somewhat limited by the steep topography leading down to the lake.

Surrounding land ownership is Private on three sides, with County owned land to the south. Surrounding forest types are aspen, northern hardwoods, and along the creek basin; lowland hardwoods, swamp conifers, lowland brush and marsh.

The general soil types within the property boundaries are glacial deposits originating from glacial moraines and till.

In all, four general soil types are found on the property. Loamy sand, fine sandy loams, and organic soil, with drainage ranging from well drained to very poorly drained. The topography of the property is generally level along the western portion, then sloping (steep in places) down to the lake basin, and again level in the lake and creek basin. Included within the plan is a general soils map and complete soils descriptions.

see: insert in Soils Section

The general forest cover types within the property boundaries are reflective of the soils, drainage, past management, natural succession, and wildfire. The well drained soil supports predominantly natural climax species northern hardwoods. Areas that were harvested and/or burned support predominantly aspen, and balsam fir. The poorly drained organic soil of the lake basin supports black and green ash, swamp conifers, lowland brush and sedge marsh.

Major management factors related to the soils and drainage include equipment limitations, seedling mortality in wet areas, brush competition and, in areas with steep topography, the highly erodible nature of "Snellman" fine sandy loam.

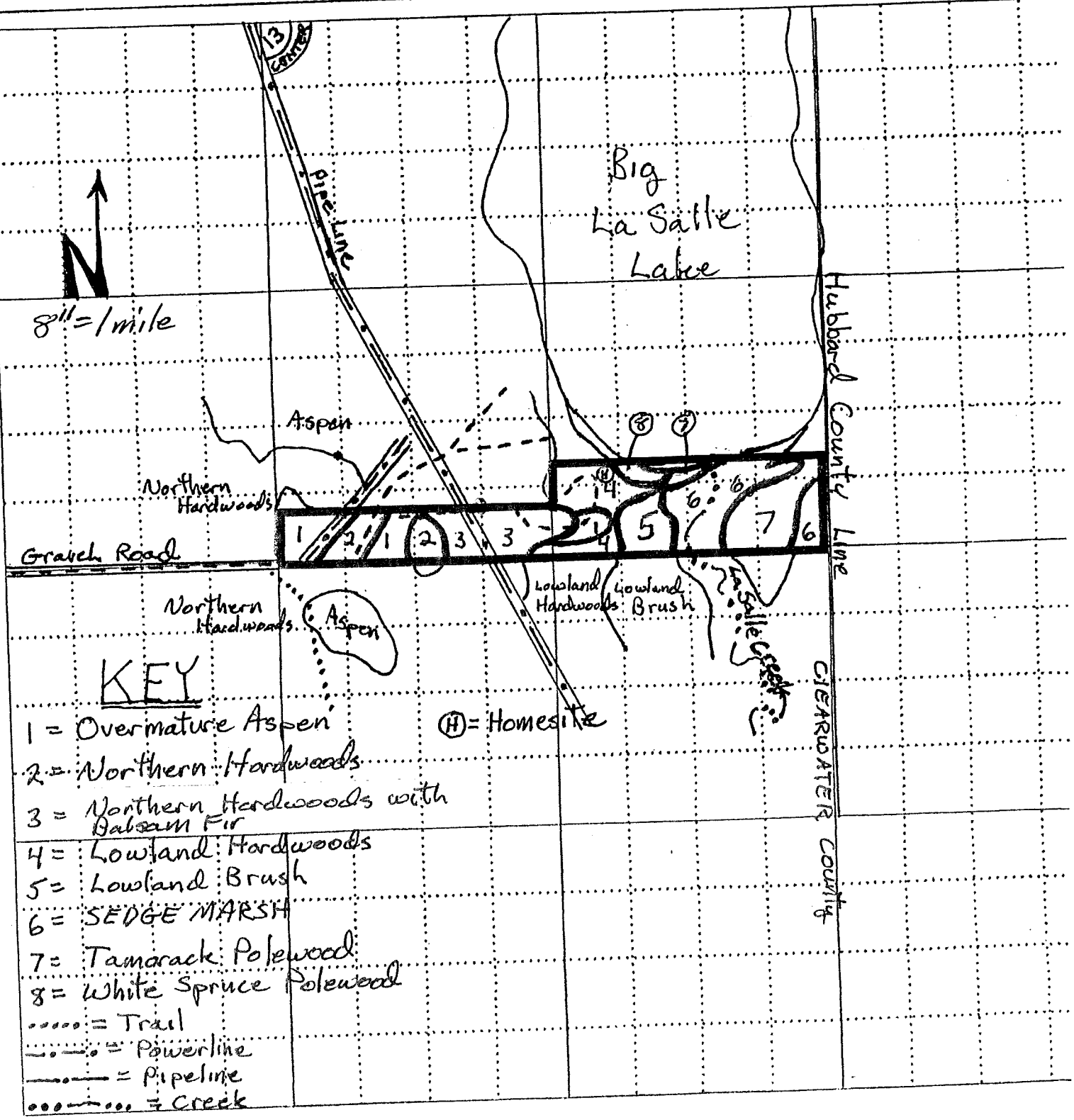
NA-02184-02

DEPARTMENT OF NATURAL RESOURCES

WOODLAND STEWARDSHIP PLAN MAP

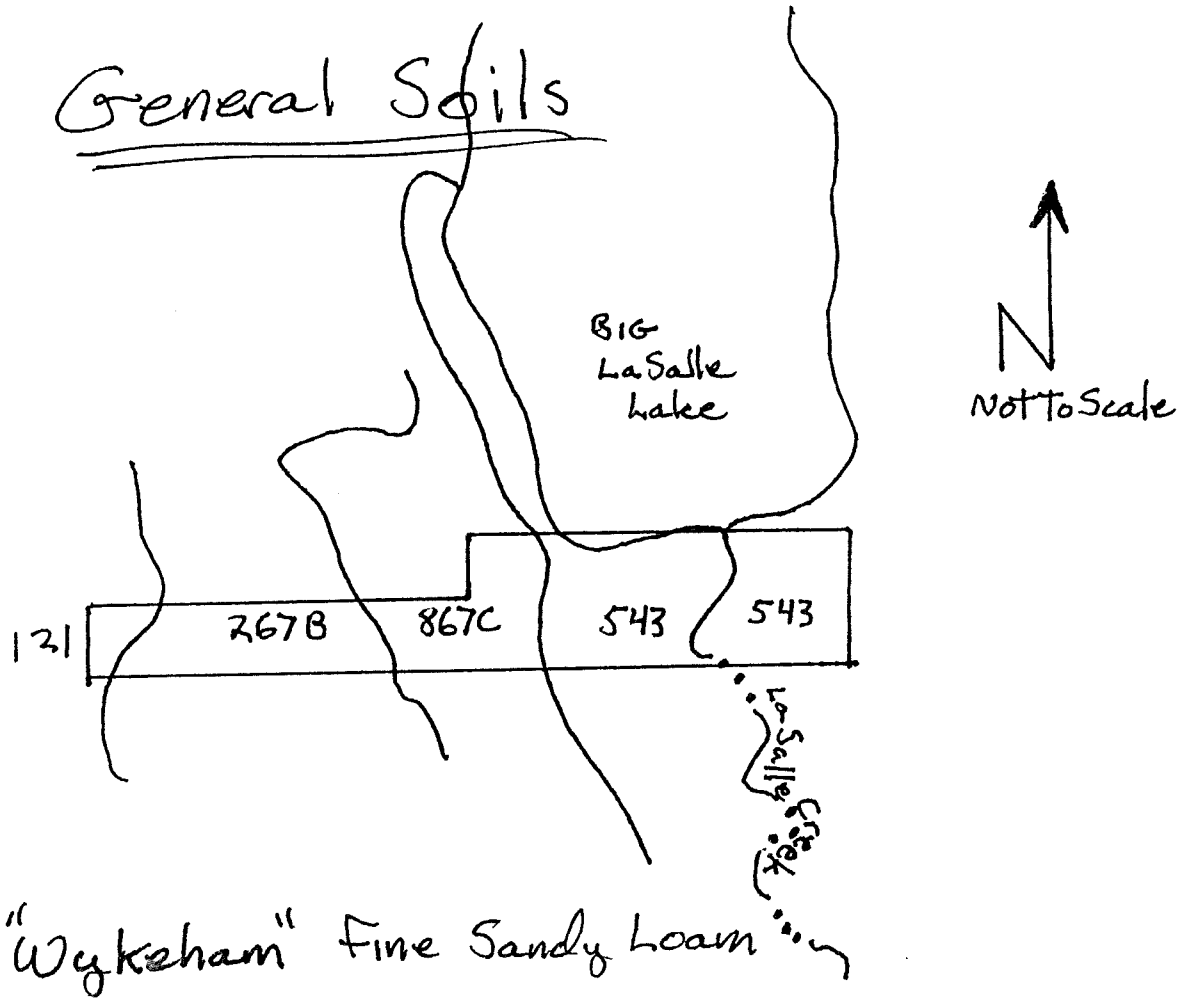
Landowner: Jane Christensen

LEGAL DESCRIPTION SUBDIVISION	SECTION	TOWNSHIP	RANGE	COUNTY
Portions of	13	144	36	Clearwater
S½ S½ SE¼				



13-144-36

General Soils



121 = "Wykeham" Fine Sandy Loam

267 = "Snellman" Fine Sandy Loam

543 = "Markey" muck

867 = "Graycalm - Menahga" Loamy Sand

121 Wykeham fine sandy loam

Composition
Wykeham soil and similar soils: 85 to 95 percent
Contrasting inclusions: 5 to 15 percent

Setting
Landform and position on the landform: Plane to slight convex rises on moraines and till plains
Slope range: 1 to 3 percent
Shape of areas: Irregular
Size of areas: 10 to 100 acres

Typical profile:
0 to 8 inches - very dark grayish brown fine sandy loam
8 to 16 inches - brown, mottled fine sandy loam
16 to 23 inches - dark yellowish brown, mottled loam interfingered by grayish brown fine sandy loam
23 to 32 inches - dark brown, mottled loam
32 to 60 inches - light olive brown, mottled, calcareous fine sandy loam

Soil Properties and Qualities
Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Moderate
Surface runoff: Slow
Depth to water table: 2.5 to 5 feet

Special Characteristics: A few stones may be present on the surface in some areas

Inclusions
Contrasting inclusions:
Moderately well drained Eckvoll soils have a sandy mantle greater than 20 inches thick and are in adjacent areas of the landscape
Poorly drained Shooker soils in swales and concave basins
Well drained Snellman soils on more sloping areas of the landscape

Similar soils:
Soils that do not have the subsurface layer interfingering into the subsoil
Soils that have more clay in their profile than is typical
Soils that have a lower sand content in their profile than is typical
Soils that have a sandy loam or loam surface layer

121

Use and Management

Cropland:

Major management factor: water erosion and organic matter

Major crops grown are small grains, corn, and forages

- Reduce the risk of erosion by using tillage practices that leave crop residue on the soil surface to help control water erosion and soil blowing.
- Maintain the content of organic matter, fertility and tilth by using a suitable rotation, including grass and legume forages, and returning crop residue to the soil.
- Reduce compaction of the soil by returning crop residue to the soil and avoiding field traffic when the soil is wet.
- Crop production is enhanced by providing a balanced soil fertility program based on soil test results.

Woodland:

Major management factors: equipment limitations and plant competition

The principle tree species is quaking aspen

The tree species of limited extent are sugar maple, American basswood, white spruce and northern red oak

- Use of equipment is restricted during spring thaw and other excessively wet periods. Ruts form easily if skidders are used when the soil is wet. Deep ruts tend to restrict lateral drainage, alter soil structure and result in damage to tree roots, affecting natural regeneration.
- The operation of heavy equipment when this soils is wet can result in excessive rutting and soil compaction, which can permanently damage the site.
- Limit the use of heavy equipment during spring thaw and after heavy rains when the soil is wet and is more subject to compaction.
- Conversion of these sites from northern hardwoods to conifers requires intensive management. If conifer species are planted, competition from hardwood seedlings and suckering is severe. Site preparation by mechanical or chemical means is needed to control competing vegetation.
- Filter strips should be established in areas adjacent to lakes, perennial streams and intermittent streams to minimize the runoff of sediment and other pollutants into these water bodies.

Pastureland:

Major management factors: forage quality

- Maintain the quality and quantity of forage by rotating grazing, and fertilizing based on recommendations from soil tests.

Windbreaks:

- A wide variety of trees and shrubs can be grown as windbreak and environmental plantings on this soil.

267B-Snellman sandy loam, 2 to 8 percent slopes

Composition
Snellman soil and similar soils: 85 to 95 percent
Contrasting inclusions: 5 to 15 percent

Setting
Landform and position on the landform: Sideslopes and hilltops on moraines
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Typical profile:
0 to 2 inches - very dark gray sandy loam
2 to 12 inches - brown loamy fine sand
12 to 16 inches - dark yellowish brown sandy clay loam interfingered by brown loamy fine sand
16 to 22 inches - dark yellowish brown sandy clay loam
22 to 30 inches - dark yellowish brown loam
30 to 60 inches - light olive brown, calcareous fine sandy loam

Soil Properties and Qualities
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Organic matter content: Moderately low
Surface runoff: Medium
Depth to water table: Greater than 6 feet

Special Characteristics: A few stones may be present on the surface in some areas

Inclusions
Contrasting inclusions:
- Poorly drained Egglake soils in swales and concave basins
- Moderately well drained Wykeham soils on more level, less sloping areas

Similar soils:
- Soils that have a thicker surface layer
- Soils that have a loam or fine sandy loam surface layer
- Soils that do not have subsurface layer interfingering into the subsoil
- Soils that have a higher clay content within their profile
- Soils that are underlain by stratified sandy, silty and loamy sediments
- Soils that have a lower sand content within their profile

Use and Management

Cropland:

Major management factor: water erosion and soil blowing

Major crops grown are forages, small grains and corn

- Reduce the risk of erosion by using tillage practices that leave crop residue on the soil surface to help control water erosion and soil blowing.
- Perform tillage and planting operations across slopes to slow runoff water, increase infiltration and control water erosion.
- Maintain the content of organic matter, fertility and tilth by using a suitable rotation, including grass and legume forages, and returning crop residue to the soil.
- Incorporate crop residue and manure to help replace organic matter lost to water erosion and soil blowing.
- Crop production is enhanced by providing a balanced soil fertility program based on soil test results.

Woodland:

Major management factors: equipment limitations and plant competition

The principle tree species is quaking aspen

The tree species of limited extent are sugar maple, American basswood, paper birch, white spruce, northern red oak and red pine

- Use of equipment is briefly restricted during spring thaw and other excessively wet periods. Ruts form easily if skidders are used when the soil is saturated. Deep ruts tend to restrict lateral drainage, alter soil structure and result in damage to tree roots, affecting natural regeneration.
- Limit the use of heavy equipment during spring thaw and after heavy rains when the soil is saturated and more subject to compaction.
- Conversion of these sites from northern hardwoods to conifers requires intensive management. If conifer species are planted, competition from hardwood seedlings and suckering is severe. Site preparation by mechanical or chemical means is needed to control competing vegetation.
- Seeding logging roads, skid trails and landings after the trees have been removed helps to prevent excessive soil loss.
- Filter strips should be established in areas adjacent to lakes and perennial or intermittent streams to minimize the runoff of sediment and other pollutants into these water bodies.

Pastureland:

Major management factors: forage quality

- Maintain the quality and quantity of forage by adjusting stocking rates, rotating grazing, and fertilizing based on recommendations from soil tests.

543-Markey muck

Composition
Markey soil and similar soils: 85 to 95 percent
Contrasting inclusions: 5 to 15 percent

Setting
Landform and position on the landform: Sedge covered peatlands on outwash plains and glacial lake plains
Slope range: 0 to 1 percent
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Typical profile
0 to 23 inches - black and very dark brown muck
23 to 27 inches - black loamy fine sand
27 to 60 inches - dark grayish brown and light brownish gray, mottled fine sand

Soil Properties and Qualities
Drainage class: Very poorly drained
Permeability:
upper part - Moderately rapid to moderately slow
lower part - Rapid
Available water capacity: Very high
Organic matter content: Very high
Surface runoff: Ponded
Depth to water table: 1 foot above to 1 foot below the surface

Special characteristics: These soils are natural wetlands and unless previously drained, these areas typically are ponded in the spring and after heavy rains. Other areas may be frequently flooded when they occur adjacent to streams and rivers.

Inclusions
Contrasting inclusions:
- Very poorly drained Berner and Cathro soils are underlain by loamy glacial till and are in similar landscape positions
- Very poorly drained Deerwood soils have a thinner organic surface layer and are in peatland margins adjacent to mineral uplands
- Very poorly drained Tawas soils in forested peatlands

Similar soils:
- Soils that have a higher gravel content in the underlying sands
- Soils that formed in less decomposed organic material
- Soils that have free carbonates in the underlying sands or in the organic material
- Soils that are underlain by coprogenous earth or limnic materials, or that have a thin layer of coprogenous earth between the organic material and the sands

- Soils that formed in organic material greater than 51 inches thick
- Soils that have a thicker dark mineral horizon at the contact of the organic material and the underlying sands
- Soils that have woody fragments in the organic soil material

Use and Management
Cropland:
Major management factor: wetness
Major crops grown are forages and wild rice
- Wetness limits the choice of plants, limits the period of grazing, and limits the production of deep-rooted crops.
- Providing drainage is difficult because most areas have poor outlets and are seasonally ponded.
- If these soils have been drained and cultivated, the organic soil material is highly susceptible to soil blowing when left exposed to the wind.
- Wild rice can be grown if sufficient quantity and quality of water is available for flooding paddies.

Pastureland:
Major management factors: wetness
- Maintain the quality and quantity of forage by rotating grazing and deferment of grazing during wet periods.
- The level of fertility generally is high enough for sustained production of high quality pasture.

Windbreaks:
- This group consists dominantly of soils or miscellaneous land types usually not recommended for windbreaks. Wetness limits planting, survival, or growth of trees or shrubs. On-site investigation may reveal that tree and shrub plantings can be made with special treatment.

Wetland Wildlife Land:
- Establishment or restoration of wetlands can be easily achieved on many of these sites.
- Construct open water areas to attract waterfowl and water based animals.
- The vegetation natural to these areas has good diversity that provides food, cover and nesting habitat for many species of waterfowl and water based animals.

Interpretive Groups
Land capability classification: 4w drained and 6w undrained
Windbreak suitability group: 2o drained and 10 undrained

867B-Graycalm-Menahga complex, 1 to 8 percent slopes

Composition
Graycalm soil and similar soils: 50 to 70 percent
Menahga soil and similar soils: 25 to 45 percent
Contrasting inclusions: 5 to 15 percent

Setting
Landform and position on the landform: Sideslopes and hilltops on outwash plains and moraines
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Typical profile:
Graycalm:
0 to 3 inches - very dark gray loamy sand
3 to 24 inches - yellowish brown sand
24 to 32 inches - pale brown sand
32 to 50 inches - pale brown sand, with thin bands of dark yellowish brown loamy sand
50 to 60 inches - pale brown sand

Menahga:
0 to 3 inches - very dark gray loamy sand
3 to 24 inches - yellowish brown sand
24 to 60 inches - pale brown and yellowish brown sand

Soil Properties and Qualities
Drainage class: Graycalm-somewhat excessively drained; Menahga-excessively drained
Permeability: Rapid
Available water capacity: Low
Organic matter content: Low
Surface runoff: Slow
Depth to water table: Greater than 6 feet

Inclusions
Contrasting inclusions:
- Well drained Andrusia soils have a clay enriched subsoil and are on similar landscape positions
- Moderately well drained Friendship soils in slightly concave basins
- Poorly drained Roscommon soils in swales and concave basins

Similar soils:
- Soils that have a thicker dark surface layer
- Soils that have a sandy loam surface layer
- Soils that have a higher gravel content within their profile
- Soils that formed entirely in fine sands
- Soils that have loamy bands that are thicker or that have a higher clay content
- Soils that are underlain by loamy glacial till or stratified loamy sediments at depths greater than 60 inches
- Soils that are greater than 60 inches to the thin loamy bands
- Soils that have free carbonates at depths greater than 40 inches

Use and Management
Cropland:
Major management factor: soil blowing, available water capacity and groundwater contamination
Major crops grown are forages
- Crops that are tolerant to drought are best suited. The moisture available is not adequate for good growth of other crops.
- Reduce the risk of soil blowing by using minimum tillage, maintaining crop residue on the surface, planting field windbreaks, and maintaining a plant cover.
- Maintain the content of organic matter, fertility and tilth by using a suitable rotation, including grass and legume forages, and returning crop residue to the soil.
- Conserve soil moisture by using tillage practices that leave part or all of the previous crop residue on the soil surface, returning crop residues to the soil and leave previous crop stubble standing to collect snow.
- These soils have rapid permeability and a high leaching potential. Carefully control the use and application of fertilizers, pesticides and herbicides to reduce the risk of groundwater contamination.

Woodland:
Major management factors: seedling mortality and plant competition
The principle tree species is Jack pine
The tree species of limited extent are red pine, eastern white pine and paper birch
- Seedling mortality may be high in the summer due to the lack of adequate soil moisture. Careful preparation and selection of planting sites, which will subject the seedling to as little moisture stress as possible, helps to insure establishment and survival of seedlings.
- Poor seedling survival rates can be improved by careful planting of vigorous nursery stock or containerized seedlings early to take advantage of spring moisture. Replanting may be needed in some areas.

- Plant competition around new seedlings should be controlled to reduce the demand for the minimal amounts of moisture and nutrients that are available.
- After the pine trees are harvested, plant competition can be expected to delay natural regeneration unless precautionary measures are applied.
- Planting seedlings that can withstand droughty conditions and mulching and shading the seedlings will help lower the seedling mortality rate.
- The loose, sandy surface of this soil may interfere with the traction of wheeled equipment.
- Filter strips should be established in areas adjacent to lakes and perennial or intermittent streams to minimize the runoff of sediment and other pollutants into these water bodies.
- These soils have rapid permeability and a high leaching potential. Carefully control the use and application of herbicides to reduce the risk of groundwater contamination.

Pastureland:
Major management factors: forage quality
- Maintain the quality and quantity of forage by adjusting stocking rates, rotating grazing, and fertilizing based on recommendations from soil tests.

Windbreaks:
- Trees and shrubs grown as windbreaks and environmental plantings on this soil should be those that are tolerant of droughty conditions. Seedling mortality is moderate because of the moisture stress caused by droughtiness. Leaving some vegetation on the surface during the early years of establishment helps to control soil blowing.

Wildlife Land:
- Specific management for wildlife on these sites should be directed towards forestry practices.
- One to five acre block plantings of conifers will enhance winter cover for upland game birds in agricultural landscapes.

Interpretive Groups
Land capability classification: 4s
Woodland ordination symbol: Graycalm-7A; Menahga-6S
Windbreak group: 7

WOODLAND STEWARDSHIP PLAN

OVERMATURE ASPEN

Stand Number: 1 **Stand Acres: 4**

Age: 64 years	Site Quality: Excellent	Site Index: 80
Tree Density: Well Stocked		Basal Area: 115
Total Volume: 30 to 40 cords per acre		
Present Condition and Quality: Up to 70% of the aspen within the stand is affected by Phellinus (heart rot), common in overmature aspen.		

Stand Description:

This stand is located in three areas within the property boundaries. The stands were created as a direct result of harvesting activities and/or wildfire that occurred around 1930.

The two portions of the stand that are located on the high-ground are better quality, better stocked, and have significantly lower volumes of brush in the understory than the small aspen stand located near the lake basin. The stands are dominated by 10" to 16" diameter aspen, with a secondary component of 10" average diameter red oak. Other tree species within the stand are bur oak, scattered maples, and balsam fir.

Regeneration beneath the forest canopy is a low volume mix of seedling and sapling size northern hardwoods. Seedling and sapling species are sugar maple, red maple, American basswood, American elm, bur oak, and red oak.

The brush understory is light density hazel, with mountain maple, Juneberry, and chokecherry.

Stewardship Objectives:

* To restore the forest to its pre-settlement state.
* To use the property for enjoyment of outdoor recreation activities.

Recommended Management Activities:

* The stand likely supported white pine prior to settlement. Underlpanting white pine will fulfill your objective of restoration. As the overmature aspen dies off, the planted pines will eventually replace the aspen as the dominant tree species and change the forest cover type back from hardwoods to conifers. Site preparation including mechanical scarification and herbicide application will be necessary. Underplanting white pine will also result in significant amounts of downed aspen, which may restrict recreational activities within the stand. Deer depredation of planted seedlings will also be a problem, and control measures will need to be implemented to assure survival of the white pine. Cost-share may be available for this practice, consult Clearwater Soil and Water Conservation District or DNR Forestry.

see: Tree Species, and Regeneration Sections (Project: Underplanting White Pine)

continued on the next page

WOODLAND STEWARDSHIP PLAN

NORTHERN HARDWOODS

Stand Number: 2 **Stand Acres: 2.5**

Age: 60-Basswood	Site Quality: Good	Site Index: 70
Tree Density: Well Stocked		Basal Area: 110
Total Volume: 25 to 35 cords per acre		
Present Condition and Quality: The aspen component within the stand is in a state of decline due to its advanced age.		

Stand Description:

This is a mixed stand containing 6" to 10" diameter basswood in clusters, 6" to 8" diameter red oak, and 16" diameter aspen.

Regeneration beneath the forest canopy averages 600 stems per acre in seedling and sapling sizes, and is a mix of sugar maple, red maple, basswood, red oak, bur oak, and American elm. Around 1970 some selective harvesting of aspen was performed, resulting in stimulated growth of the hardwood understory, evidenced by reduced volumes of aspen, and larger sapling size hardwoods in cut areas.

The choke cherry, mountain maple, and hazel brush understory is evenly distributed, moderate density, and provides high amounts of wildlife food and cover.

Stewardship Objectives:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.
* To restore the forest to its pre-settlement state.

Recommended Management Activities:

Note: The following recommended management activities are focused towards all your objectives, except the restoration of the forest to its pre-settlement state. The present state of natural succession within this stand is such that, in this area, the cost and benefits of conversion to white pine, would be far outweighed by the benefits of enhancing, encouraging, and allowing succession to occur.

* Create snag and den trees by girdling several selected aspen trees per acre. This practice will provide enhanced wildlife habitat, and open the forest canopy slightly, resulting in stimulated growth of tree seedlings, saplings, brush, and ground cover.

see: Wildlife Section Cost-sharing may be available for this practice.
(Project: Snag Management)

Continued on the next page

WOODLAND STEWARDSHIP STANDS

NORTHERN HARDWOODS WITH BALSAM FIR

Stand Number: 3 **Stand Acres: 4**

Age: 54-balsam fir Site Quality: Good Site Index: 60
Tree Density: Well Stocked Basal Area: 90
Total Volume: 10 to 20 cords per acre
Present Condition and Quality: The birch within the stand is 30% affected by a general decline in vigor. This decline is a result of drought conditions prevalent several years ago.

Stand Description:

This stand was created as a direct result of harvest activities performed between 1930 and 1939. In addition to the harvesting, wildfire has also further shaped the composition of the stand. The stand is currently dominated by a mix of 8" diameter paper birch, 6" diameter bur oak, 10" diameter red oak, and 10" diameter aspen. Scattered throughout the stand are 12" diameter Norway pine. The understory is predominantly 5" diameter balsam fir. Regeneration beneath the forest canopy is high density balsam fir, with scattered maples, oaks, elm, and an occasional aspen. The dense forest canopy is closed, with very little sunlight reaching the forest floor, resulting in an almost nonexistent brush understory. This stand is located in an area with steep topography and highly erodible soil.

Stewardship Objectives:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To use the property for enjoyment of outdoor recreation activities.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.

Recommended Management Activities:

* Allow succession to continue, any management activities that open the forest canopy within the stand may increase the potential for soil erosion, and nonpoint source pollution entering Big LaSalle Lake. The dense forest canopy of the stand intercepts precipitation (regulating the volume of rainfall that reaches the forest floor), and allows percolation (the absorption of water into the soil) thus preventing runoff and soil erosion. Blowdown of overmature balsam fir can be expected see: Soils, Water, Water Quality Book, and Tree Species Sections

Management Alternative:

** Selective harvest overmature balsam during the winter when the ground is frozen. Underplant high wildlife value brush species along the lake-side edges of the stand to disperse any surface runoff that may occur. This practice could also be applied anywhere within the stand that the forest canopy is somewhat open.

see: Wildlife Section Cost-share may be available for planting brush.

WOODLAND STEWARDSHIP STANDS

LOWLAND HARDWOODS

Stand Number: 4 **Stand Acres: 4**

Age: 32-American elm	Site Quality: Good	Site Index: 63
Tree Density: Understocked		Basal Area: 20
Total Volume: 1 to 5 cords per acre		
Present Condition and Quality: Poor, The stand is 95% affected by dutch elm disease, which has resulted in significant mortality.		

Stand Description:

This stand supports a very low volume of 6" to 8" diameter American elm, with scattered 5" diameter black and green ash, and 8" diameter balm of gilead. Regeneration is in very low volumes of seedling and sapling size ash, elm, red maple, and balsam fir.

The brush component is moderate density, high wildlife value red osier dogwood, and highbush cranberry, with heavy density clusters of hazel and alder, with willow in the very wet areas.

Stewardship Objectives:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To use the property for enjoyment of outdoor recreation activities.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.
* To restore the forest to its pre-settlement state.

Recommended Management Activities:

* Plant black ash and/or green ash to speed up succession and aid in restoration of the forest type. American elm is highly susceptible to dutch elm disease and therefore not considered as a viable species. This practice will require site preparation. Effective site preparation may include spot applications of herbicides. Proper application of recommended herbicides will not affect water quality. see: Water Quality Book, and Tree Species, and Regeneration Sections

* Portions of the stand that have heavy brush in competition with tree seedlings could use a "release" (removal of brush competition) within the next several years. Release of the natural ash seedlings that are experiencing competition from brush will stimulate growth and help assure a healthy, vigorous stand. see: Timber Stand Improvement Section (Project: Lowland Hardwood Seedling Release)

* Consult Clearwater Soil and Water Conservation District or DNR Forestry to make specific plans. Cost-sharing may be available for these practices.

WOODLAND STEWARDSHIP STANDS

LOWLAND BRUSH

Stand Number: 5 **Stand Acres: 2.5**

Stand Description:
This stand is located along the edge of the creek basin. It currently supports scattered clusters of overmature "rank" willow, with heavy density sedge grasses, and forbes.

Stewardship Objectives:
* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To use the property for enjoyment of outdoor recreation activities.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.

Recommended Management Activities:
* Reserve as wetland wildlife habitat. This stand supports high primary plant productivity and species richness. Many animal species are associated with this system because of the diverse vegetation of the transitional areas and its high food value. The complex interaction of water, plants, animals, and saturated soil makes this stand extremely vulnerable to disturbance by land management activities. see: Soils, Water, Ecology, and Wildlife Sections

* Create snag and den trees along the transitional areas by girdling several selected aspen or balm of gilead trees per acre. This practice will provide enhanced wildlife habitat for many wildlife species. Dead or dying trees (snags) provide many non-game species of wildlife with a source of food, nesting, perching, and territory establishment. In Minnesota 40 bird species, 29 mammals, and several species of reptiles and amphibians utilize snags.
see: Landscaping Woodlands For Wildlife insert in Wildlife Section.
(Project: Snag Management)

Management Alternatives:
** Winter shear small patches or strips to promote a young, dense, fast-growing brush type with a high browse value for white-tailed deer. Shear areas should be limited in size to reduce the impact on the delicate hydrology of the area. An alternative to shearing may be the mechanical cutting of brush clusters.
(Project: Brushland Development and Maintenance)

* Consult Clearwater Soil and Water Conservation District or DNR Wildlife to make specific plans. Cost-sharing may be available for these practices.

WOODLAND STEWARDSHIP STANDS

SEDGE MARSH

Stand Number: 6 **Stand Acres: 4**

Stand Description:

This stand is located in the creek basin. It supports a dense cover of sedge grasses, and is seasonally flooded.

Stewardship Objectives:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.

* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.

Recommended Management Activities:

* Reserve the entire stand as wildlife habitat. Animal use includes seven species of reptiles and amphibians, such as garter snake, tiger salamander, American toad, spring peeper, and leopard frog; ten species of mammals, such as water shrew, short-tailed shrew, star-nosed mole, meadow vole, coyote, raccoon, and bobcat; and forty-seven species of birds including red-shouldered hawk, yellow rail, sandhill crane, lesser yellowlegs, common snipe, sedge wren, and Lapland longspur. This is also an important water and nutrient holding area.
see: Wildlife Section

WOODLAND STEWARDSHIP STANDS

TAMARACK POLEWOOD

Stand Number: 7 **Stand Acres: 3.5**

Age: 90	Site Quality: Good	Site Index: 50
Tree Density: Adequately Stocked		Basal Area: 80
Total Volume: 15 to 20 cords per acre		
Present Condition and Quality: Slight amounts of porcupine damage were noted in the largest stand.		

Stand Description:

This stand is located on both sides of Big LaSalle Creek, with the largest portion on the east side of the creek. The stand is dominated by 6" to 10" diameter tamarack, with a few scattered balsam fir and black spruce mixed in.

Regeneration beneath the forest canopy is very low volume scattered balsam fir. There is little to no brush understory.

Stewardship Objectives:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To use the property for enjoyment of outdoor recreation activities.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.
* To restore the forest to its pre-settlement state.

Recommended Management Activities:

* Reserve the entire stand as wildlife habitat and allow natural succession to continue. The tamarack will remain vigorous, continue to grow, and dominate the stand. After tamarack reaches 100 years of age it loses its vigor, but may survive to age 200.

Note: Tamarack habitats are of critical importance to the Great Gray owl, and its small mammal prey species. The location of these stands is also favorable to use by osprey and eagles as perching areas while they are fishing, or hunting. It may also be of interest to note that the porcupine is the fisher's main diet. See: Tree Species Section.

* Wooduck houses could be installed along edges of the stand that face the creek and/or the lake. This practice will enhance wildlife habitat, and increase the numbers of wildlife for your viewing. (Project: Nest Box Installation)

Management Alternatives:

** Clear-cut small portions of the stand to provide a source of firewood. This will result in natural seeding, and regeneration of the tamarack, and provide age class diversity. Tamarack is very intolerant of shade. For effective natural regeneration, clear-cutting portions of the stand would be required. see: Tree Species Section (Project: Firewood Harvesting)

WOODLAND STEWARDSHIP STANDS
WHITE SPRUCE POLEWOOD

Stand Number: 8 **Stand Acres: . 25**

Age: 63 years	Site Quality: Excellent	Site Index: 70
Tree Density: Well Stocked		Basal Area: 100
Total Volume: 15 to 20 cords per acre		
Present Condition and Quality: Good		

Stand Description:

This stand is located along the lakeshore, it is part of a larger stand that follows a narrow strip running north along the western shoreline for approximately 1/4 mile. The stand is dominated by 6" to 14" diameter white spruce. Regeneration is a low volume of white spruce seedlings, and a significant volume of white spruce saplings. There is little to no brush understory. Some pruning and thinning activities have been performed within the stand.

Stewardship Objectives:

* To manage the property in a way that will protect the water quality in Big LaSalle Lake.
* To use the property for enjoyment of outdoor recreation activities.
* To manage the forest on the property in a way that provides maximum wildlife benefits and general forest health.
* To restore the forest to its pre-settlement state.

Recommended Management Activities:

* Allow natural succession to continue. The close proximity of the stand to the lake serves as a final filter strip that catches sediments in runoff, and prevents nonpoint source pollution from entering the lake. The somewhat open nature of the area beneath the forest canopy also serves as an ideal location for a picnic area, and walking along the lakeshore.

Note: Prune lower limbs during the dormant season to reduce the possibility of the introduction of disease causing bacteria entering the tree through wounds caused by pruning.

* Monitor the stand for insect and disease problems. Common insect pests in white spruce stands to watch for are defoliating insects. see: Protection Section

Management Alternatives:

** Blockplant high wildlife value shrubs in select areas to further enhance the filter action and provide additional food sources for wildlife.

(Project: Wildlife Habitat Enhancement)

* Consult Clearwater Soil and Water Conservation District or DNR Wildlife to make specific plans. Cost-sharing may be available for some of these practices.

STEWARDSHIP PLAN SUMMARY

BRUSHLAND MANAGEMENT

Wildlife species such as moose, deer, bear, and many songbirds utilize brushland habitats. Existing brush areas are usually maintained by shearing, mowing, or burning to maintain them in a young, thick, vigorous stage.

Like forests, brush areas become old, (rank), die, and are often replaced over very long periods of time by tree species. For high wildlife diversity, a good portion of the brushlands on your property should be maintained.

Cost-sharing may be available for this practice. Consult Beltrami Soil and Water Conservation District and/or DNR Wildlife manager to design specific plans.

see: Assistance Directory, and Wildlife Section

(Project: Brushland Development and Maintenance)

TIMBER HARVESTING

Harvesting can enhance wildlife habitat, provide visual diversity, and yield wood fiber for your own use or for sale. The aspen stand within the property boundaries is overmature and needs to be harvested to assure continuation of the forest type. By following the harvest recommendation in this plan you may help assure the regeneration of the forest type. Harvesting within stand number four is not recommended due to the highly erodible nature of the soil and the steep slopes, however if harvesting activities are used as a management practice "Best Management Practices" should be adhered to protect water quality.

Because of the long term affects of harvesting on the environment, a well designed sale (and possibly cutting contract) should be prepared specifically for the site.

(Project: Timber Harvest)

FOREST STAND IMPROVEMENT

Forest stands, natural and planted, can often be improved or protected to better meet your objectives. Practices such as thinning, pruning, or reduction of competing vegetation may be utilized to enhance the stands' ability to control erosion, provide wildlife habitat, improve esthetics, or produce wood fiber. Thinning, and release projects will improve your hardwood stands, and help assure maximum forest health.

(Project: Tree Stand Improvement)

STEWARDSHIP PLAN SUMMARY

WATERSHED PROTECTION

Clean water is one of Minnesota's greatest resources and much of this water originates in forested areas. Many of the activities related to forest management have the potential to contribute some level of nonpoint source pollution to surface or groundwater. Nonpoint source is diffuse pollution that comes from almost everywhere; it even occurs naturally to a certain extent. The amount from any particular spot is small and insignificant, but when combined from over the landscape, can create water quality problems. Areas of concern are stands four, five, six, seven, and eight.

By following the recommendations outlined within this plan and in the water quality book, you will reduce or eliminate the potential for nonpoint source pollution to occur as a result of your forest management activities.

TREE AND SHRUB PLANTING

Planting can be used to protect soil and water quality, provide food and shelter for wildlife, enhance beauty and recreational values, and provide future wood fiber. The preparation of the site for planting, the recommended species, and the method and layout of the planting will all depend on the site capabilities and your objectives. Planting projects may include; underplanting white pine in stands one and three, interplanting hardwoods in stand number two, planting lowland hardwoods in stand number four, and wildlife habitat plantings in stands four and eight. Specific project plans should be prepared for each planting area. Consult Beltrami Soil and Water Conservation District, or DNR Forestry to make specific plans.

Cost-sharing may be available for this practice.

(Project: Tree and Shrub Planting)

SNAG MANAGEMENT

The creation of snag trees can play an important role in managing your forest. Dead or dying trees (snags) provide many non-game species of wildlife with a source of food, nesting, perching, and territory establishment. In Minnesota, 40 bird species, 29 mammals, and several species of reptiles and amphibians utilize snags. Along with snags, consideration of dead and down material is important. This material provides downed logs for ruffed grouse drumming, insects for bear to feed on, and important material for many non-game species. Areas in which snag management activities could be performed are located throughout your forest. Consult Beltrami Soil and Water Conservation District or DNR Wildlife to make specific plans. Cost-sharing may be available for this practice.

(Project: Snag Management)

STEWARDSHIP PLAN SUMMARY

RECREATION

The high level of timber stand cover type diversity within your property boundaries, provide many opportunities for the enjoyment of a wide range of plant and animal interaction. Forest management activities will certainly have impacts. By following recommendations outlined in this plan you will not only be enhancing the environment, but also be providing a additional sources of enjoyment and satisfaction as you watch the effects of your management activities occur.

ROADS

The access road down to the lake may be contributing to nonpoint source pollution. Seeding the road to grasses, and installation of grade rolls or dips, will reduce the amount of down-road flow of surface water, reduce the amount of soil erosion, and nonpoint source pollution. see: Water Quality Book in the back pocket of the plan.

Cost-share may be available for this practice, consult Clearwater Soil and Water Conservation District.

(Project: Road Improvement)

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Once again, thank you for the opportunity to assist you in your endeavors to protect and conserve the environment. Please feel free to contact me at any time.

Jerry Stensing
Stewardship Forester
Beltrami and Clearwater Counties
Soil and Water Conservation Districts 751-3036

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Larry Hartman
Environmental Review Mgr.
Minnesota Dept. of Commerce
85 7th Place East Suite 500
Saint Paul, Mn. 55101

Jane Christensen
5709 Glen Ave
Mtka. Mn 55345

From: Richard Collman [mailto:collmanrichard@gmail.com]
Sent: Tuesday, February 25, 2014 4:28 PM
To: Hartman, Larry (COMM)
Subject: Sandpiper Pipeline - ND Pipeline Col Docket No. PPL-13-474

Public Comment -

1.) Pipe lines are often put through beautiful and more remote wilderness. When they break (not IF), lots of oil is leaked out. Can this one be rerouted more closely to major towns and cities so problems can be noticed more quickly?

2.) Has an environmental impact study been done, or will it be done, compared to the history of other such projects?

3.) Are there specific methods to address impacts on the environment compared to other such projects?

This pipeline will run 5 miles from where I grew up west of Duluth (Floodwood area). I would not like to see such an area become a wasteland from some leakage if that should happen. "Not in my backyard" can be everyone's cry, but if pipelines were closer to more people problems would surely be noticed more quickly like major leakages.

Rev. Richard F. Collman
15 Fareway Drive
Northfield, MN 55057
507-645-1357

Dr. Maureen Connolly
200 Home Avenue
Oak Park, IL 60302

April 2, 2014

To

Larry Hartman, Environmental Review Manager
Energy Environmental Review and Analysis (EERA)
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

Re: Enbridge and North Dakota Pipeline Company, LLC Sandpiper Pipeline Route, Docket Number PL-668/PPL/PPL-13-474

Honorable Commissioners:

I am opposed to Enbridge Pipeline's (North Dakota Pipeline Company, LLC) proposed southern route for the Sandpiper Pipeline.

As a physician, it is clear to me that the dangers to people and environment outweigh any economic/energy rationale.

I am opposed to the pipeline. However, if the Sandpiper Pipeline is deemed necessary, Enbridge (NDPC) should be required to route the pipeline through an area that will not jeopardize the Mississippi Headwaters and the lakes, streams, and rivers of Hubbard County and northern Minnesota.

Sincerely,

Maureen Connolly, M.D.

Maureen Connolly, M.D.

From: Dana Cossette [mailto:dana@cossettes.com]
Sent: Thursday, March 27, 2014 3:43 PM
To: Hartman, Larry (COMM)
Subject: Proposed Sandpiper pipeline - PPL-13-474

Dear Mr. Hartman:

I am writing to you regarding the Sandpiper pipeline proposed to go through Northern MN. I have just learned that the proposed Sandpiper pipeline will be going through the Central Lakes area. I had recently read an article in the Star Tribune about the proposed pipeline, but did not realize how far south it would be going to get to Lake Superior. The maps were not clear, and we have never received any detailed notification. We own property on Eagle Lake in Crow Wing County, where the pipeline will come into our area – just three miles north I believe of our lake, through the watershed area of the many many beautiful lakes and wilderness of Central Lakes. I am astounded to learn a week before the voting deadline that such a major construction project, with potentially tremendous environmental risk is being proposed without property owners of the central lakes area being made aware!

I am writing to protest the seemingly quick review and approval process set forth. I believe that an alternative route should be reviewed to avoid the potential threat to the Lakes Region. Wherever the pipeline lands, all property owners, including those connected via the lakes, watershed and

streams, should have an opportunity to learn about the proposal and the safety precautions. It seems this proposal happened after many summer-only residents had left and they don't even know about the Sandpiper pipeline. Many of us do not have mailboxes to receive legal notifications. We all deserve a say on the route before regulators act. Endbridge announced the proposed route in November, after many seasonal residents had left. Yet the deadline for objections is April 3, 2014, before many seasonal residents return. Furthermore, all Minnesota residents should be concerned about the potential impact to our beloved lakes area and fully informed of the risks and precautions needed. What would happen if we had an event like the 2010 rupture in Marchall, Michigan, in which the release of 840,000 gallons of crude oil into waterways is projected to cost $1.1 billion to clean up. Most importantly, what would happen to our lakes that we are trying so desperately to protect for the generations to come.

Please work to slow down this process. Please work to delay the vote or deny approval of the proposed pipeline path. I would like to see the path follow a similar path that the current pipeline follows. This is more direct and why put at risk more areas of MN. I believe approval and the route is based on human settlement, natural environment and economy, amongst other factors. The southern route being taken has more human settlement as it crosses more miles, additional natural and pristine environment of the Central Lakes Area, and the strong economy from these resources. We have all been working so hard to maintain the lakes area for generations to come. Please consider an alternate route that is more direct and risks less of the state of Minnesota's beautiful and important lakes area. This is too important to Minnesota, both environmentally and to the Central Lakes economy.

Thank you for your time. We hope that you will help preserve our lakes and the north woods.

Sincerely,

Dana and Andy Cossette
17052 Hidden Lake Road
Fifty Lakes, MN 56448

Mailing Address:
4340 Fountain Ln N
Plymouth MN 55446

Phone: 763-551-9850

March 26, 2014

Human settlement

}Natural environment – air, water,

plants, animals, recreation

- Archaeological and historic resources
- Economy- agriculture, forestry, tourism, mining

MINNESOTA DEPARTMENT OF COMMERCE

Public Comment Sheet

North Dakota Pipeline Company LLC Sandpiper Pipeline Project

PUC Docket No. PL-6668/PPL-07-13-474

PLEASE PRINT CLEARLY

Name: Fern Crocker

Representing: Self

Email:

Address: 30558 hwy 71
Park Rapids, MN
56470

Tel: 218-237-6104

COMMENTS

I am a property owner in which the Enbridge proposed pipeline may become a reality.
I cannot express how deeply This action may/will have an effect on not only property/Lakeside/and the whole general way of quaity of life for the Park Rapids area as we now know and Take for granted. I live only 5 miles N. of Itasca State Park, how I revere this beautiful area
The proposed pipeline as surveyed will go Through our backyard with a 40'x80', large Business building (in floor heating, 2 lg x large garagedoor To accomadate heavy equipment plus air lines along walls, 1 reg garage door, 2 walk out door, office etc.) which Enbidge proposed path will have To go according To Them & if we dont like To get a lawyer! period. Oil does not compensate for our land, water & wild life. I pray we have a choice!
Please! No pipeline!

cont. back →

Please submit comments at meeting to EERA staff or send to:

Larry B. Hartman
Energy Environmental Review and Analysis
Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Email: larry.hartman@state.mn.us
Toll Free: 800-657-3794
Voice: 651-538-1839
Fax: 651-539-0109

Electronic Submittal: http://mn.gov/commerce/energyfacilities/publicComments.html?projectId=33599

»»If mailing, fold along dotted line in sequence noted and tape closed ««

Comments Continued:

Many views/opinons/facts have been made available to us, many of the articles misleading. Example: Enbridge being a big contributor to MN through taxes - over a 10 yr. study - no comparison to taxes gererated by prop owner, Tourist Trade, State Park revenue. As good stewards of our land as God has blessed us, which means we are obligated to prevent further pollution - please - do not sign a petition allowing no return of choice or a fix for lost land & waters etc. as we know it.

(First-Fold here)

Tape here

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Larry B. Hartman
Energy Environmental Review and Analysis
MN Dept of Commerce
85 7th Place E, Ste 500
St. Paul MN 55101-2198

(Second-Fold here)

MINNESOTA DEPARTMENT OF COMMERCE

Public Comment Sheet

North Dakota Pipeline Company LLC Sandpiper Pipeline Project

PUC Docket No. PL-6668/PPL-07-13-474

PLEASE PRINT CLEARLY

Name: Maria Stalur Wyant Cuzzo

Representing: Self

Email: maria.cuzzo@charter.net

Address: 102 E. Calvary Road
Duluth MN 55803

Tel: 218-591-8488

COMMENTS

The proposed Sandpiper line cuts through the middle of my 70 acre parcel located on (527) marker. This is a coherent parcel used as a whole & not in 2 separate parcels (a 30 acre & a 40 acre). The line cuts through woodland forest & high ground. A move of line to the East across wetland (former rice paddy areas) would preserve all highland for future building plans. See preferred route A (—) & acceptable alternative route B (- - -).

RECEIVED
APR 03 2014
MAILROOM

Please submit comments at meeting to EERA staff or send to:

Larry B. Hartman
Energy Environmental Review and Analysis
Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Email: larry.hartman@state.mn.us
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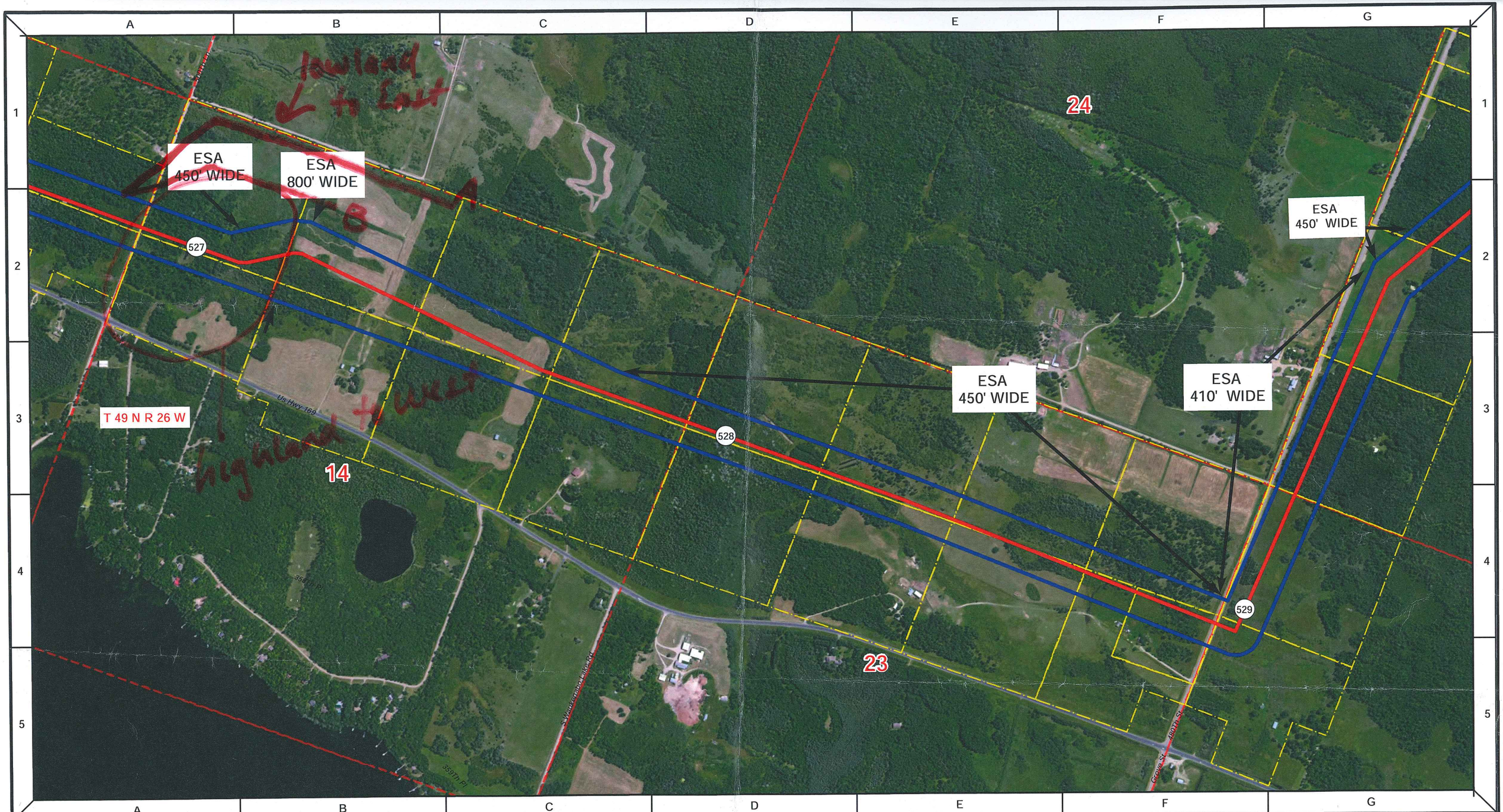

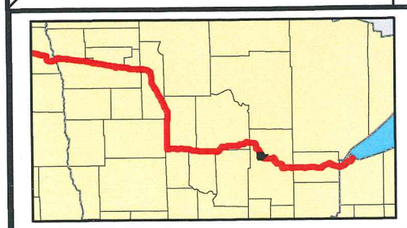

Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			1/29/14	2	PUC Update - Revision D-2 Alignment
MLB			12/19/13	1	PUC Update - Revision D Alignment
MLB			10/10/13	0	PUC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Aitkin County, MN

DRAWN: MLB
CHECKED: --
DATE: Jan 30, 2014
SCALE: AS SHOWN

Spread:7
Map: 95 of 123