



May 21, 1999 (1226/4.1)

Ms. Liesa Nesta Water Management Specialist Wisconsin Department of Natural Resources 8770 Hwy J Woodruff, WI 54568

RE: Request for Grading Permit

C.M. Christiansen Company, Former Wood Treatment Site, Phelps, Wisconsin

Ref: WID998639035, BRR Case # 02-64-000068

Dear Ms. Nesta:

Natural Resource Technology Inc. is requesting a grading permit on behalf of C.M. Christiansen Co., Inc. for proposed work near a waterway involving disturbing an area greater than 10,000 square feet. The proposed work is remediation of pentachlorophenol-contaminated soil at the above referenced former wood pole treatment facility in Phelps, Wisconsin. We initially contacted Mr. Tim O'Neill of the Rhinelander office regarding this issue and he indicated we should submit the application to you. Remediation activities will consist of excavation of five areas and on-site treatment in a constructed biological treatment cell. Areas 1, 2, and 3, with a total volume of approximately 2,200 cubic yards, are interpreted to be within the unbroken slope of a navigable waterway, Military Creek, as shown on the attached maps and plans.

Materials for erosion control will include silt fence and/or straw bales. Activities described in the attached Erosion Control Plan will be performed in accordance with *Wisconsin Best Management Practices for Construction Site Erosion Control*. The equipment to be used for construction include any or all of the following: a hydraulic excavator, a skid-loader; end-loader; and/or bulldozer, for the purpose of clearing, excavating and restoring the excavated areas. The excavated soil will be processed and deposited in the treatment cell. Components of the treatment cell include a sloped base and drainage swale to divert and collect run-on. Excavated areas outside the wetlands will be backfilled and graded with a loader and/or bulldozer, and immediately mulched and seeded.

Capping for the purpose of direct contact protection from pentachlorophenol will be accomplished in the areas shown. Capping materials will consist of a 6-inch thickness of clean fill. Erosion control materials will remain in areas where capping is accomplished, until vegetation has been reestablished.

We contacted Mr. Mike O'Keefe of the U.S. Army Corps of Engineers (USACOE) to discuss excavation and restoration of excavated wetland areas. Mr. O'Keefe visited the site recently, and had the following suggestions with regard to excavation of the wetlands:

- If the southern tip of excavation 2B is within 10 to 15 feet of the current bank of military creek, he suggested construction of a berm to prevent the creek from further extending into the property. Suggested berm materials include organic soil backfilled to existing grade of the wetlands capped with material suitable to prevent erosion, for example, 2 inches of 2- to 3-inch diameter stone (riprap).
- If excavation of area 2B extends to Military Creek, a sediment boom, in addition to silt fence and/or straw bales, is suggested.
- Capping using a 6-inch thickness of organic soil is acceptable for wetland areas shown on the site plan.

Ms. Liesa Nesta May 21, 1999 Page 2

- If the base of the excavation area meets our site-specific residual contaminant level for pentachlorophenol, and sunlight can penetrate to the final depth of excavation, no backfilling will be required, except for area 2B where within 10 15 feet of the creek.
- If either of the above conditions is not met, a wetlands contingency plan would include a discussion with the USACOE of a plan for restoration by backfilling with similar organic material.

The WDNR Form 3500-53 is attached. Details of the proposed remedial actions as requested in the "Grading in Excess of 10,000 Square Feet Information Requirements" checklist are attached. Further details regarding the remediation are presented in design documents recently submitted to Mr. Chris Saari, the WDNR project manager we are working with on this case.

Please do not hesitate to call should you have any questions or require additional information as you review this application.

Sincerely,

NATURAL RESOURCE TECHNOLOGY, INC.

Spiros L. Fafalios, P.E. Environmental Engineer

Senior Environmental Engineer

Laurie J. Parsons, P.E.

Encl: WDNR Form 3500-53

"Grading in Excess of 10,000 Square Feet Information Requirements" Checklist

Property Deed Warranty

Figure 1 - Site Location Map (USGS Phelps Quadrangle, 1981)

Wisconsin Wetland Inventory Map

Soil Survey Atlas Sheets

Floodplain Map

Zoning Map

Table 1 - Excavation Soil Volume Estimate

Proposed Project Schedule

Plate 1 - Remedial Construction Plan

Cross-Sections A-A' and B-B'

Erosion Control Plan

WDNR Review Fee (\$300)

cc: Mr. Chris Saari, Wisconsin Department of Natural Resources, Brule Office

Ms. Elizabeth Gamsky Rich, Whyte Hirschboeck Dudek, S.C.

Mr. Eric Christiansen, C. M. Christiansen Company, Inc.

Mr. Mike O'Keefe, U.S. Army Corps of Engineers

w:\1226\permits\1226 Grading Permit Cov.ltr



U.S. Army Corps of Engineers Regulatory Functions 190 Fifth Street East St. Paul, MN 55101-1638

State of Wisconsin
Department of Natural Resources
(Return to appropriate
DNR District/Area Office)

STATE/FEDERAL APPLICATION FOR WATER REGULATORY PERMITS AND APPROVALS Form 3500-53 Rev. 2-94

PLEASE COMPLETE BOTH PAGES 1 & 2 OF THIS APPLICATION. PRINT OR TYPE. Use of this form is required by the Department for any application filed pursuant to Chapter 30, Wis. Stats. The Department will not consider your application unless you complete and submit this application form. Personally identifiable information on this form will be used for no other purpose.

application form. Personally identifiable information on this form will be	be used for no other purpose.
Applicant (Individual or corporate name)	2. Agent/Contractor (firm name)
C.M. Christiansen Co., Inc.	Natural Resource Technology, Inc
Address	23713 West Paul Road
City, State, Zip Code	City, State, Zip Code
Phelos WI 54554	Pewarkee WI 53072
Telephone No. (Include area code)	Telephone No. (Include area code)
(715) 545-2333	414-523-9000
3. If applicant is not owner of the property where the proposed activity	will be conducted, provide name and address of owner and include
letter of authorization from owner. Owner must be the applicant or o	
A purchaser under a land contract is not considered a riparian owner Owner's Name Address	City, State, Zip Code
Owners Name . Auditos	Cary, Diana, Zap Code
4. Is the applicant a business? Yes No	5. Project Location County E
If YES, is the permit or approval you are applying for	Auditas
necessary for you to conduct this business in the State	Village/City/Town Phelps
of Wisconsin?	Waterway Military Creek
necessary):	County Vilas
	Govt. Lot $\frac{3}{9}$ $\frac{2N^2}{NE} = 1/4 = \frac{5W}{1/4}$, of section $\frac{35}{5}$.
	Township 42 North, Range 1 (Esst) (West)
6. Adjoining Riparian (Neighboring Waterfront Property Owner) Inform	nation none adjacent upstream or downstream
Name of Riparian #1 Address	City, State, Zip Code
Name of Riparian #2 Address	
Name of Riparian #2 Address	City, State, Zip Code
Name of Riparian #2 Address 7. Project Information (Attach additional sheets if necessary)	
•	City, State, Zip Code
7. Project Information (Attach additional sheets if necessary) (a) Describe proposed activity (include how this project will be const	City, State, Zip Code ructed) erosion control: silt fences and
7. Project Information (Attach additional sheets if necessary)	City, State, Zip Code ructed) erosion control: silt fences and
7. Project Information (Attach additional sheets if necessary) (a) Describe proposed activity (include how this project will be const clearing of shrubs, excavation and restoration where	City, State, Zip Code ructed) erosion control: silt fences and necessary. hay bales - see cover letter
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Grading in Excess of 10.000 Square Feet Information Requirements

All applications to grade more than 10,000 square feet on the unbroken slope of a navigable waterway require the following information. Grading is the manipulation of earth and includes both cut and fill. This information must be provided on the application form supplied, or on additional sheets if necessary. Clearly label each of the items in the application package and check off each item on this list as you prepare your application. Please note that your application will be considered INCOMPLETE if you fail to supply the requested information. Failure to supply the information or provide adequate information will result in the delay of your permit decision.

DEED WARRANTY Please include a copy of the deed, lease, land contract or other documents showing riparian status. Supply the name and address of the secretary of property owners association on the waterway, or the names and addresses of at least five persons living on the waterway if there is no association.

NO FLOCDPLAIN ZONED COMMERCIAL

Provide copies of the USGS topographic map, Wisconsin Wetland Inventory Map, Soils Mapping(SCS), floodplain maps, and local zoning maps. The IN VICINITY project location must be clearly identified on these maps.

Figure 1

In the "location sketch" box, sketch or trace a map which clearly indicates the location of your project. Recommended scale is 1"=2000'. This map enables the Water Management Specialist to easily locate the project site.

In the "proposed" materials box, indicate what erosion materials and vegetation supplies you intend to use for the proposed project. If any additional riprap or bank protection is to be used, describe it.

LE THER

The application must contain a narrative identifying the method of construction describing the materials and equipment to be used for the grading and the installation of stormwater and erosion control measures.

Provide accurate computations of volumes and areas of grading, detailing the SEE TABLE amount to be cut and the amount to be filled. You should also identify the volume and areas of stockpiled or dewatered materials.

Proposed Preject Schedule

Provide a proposed schedule of construction. The schedule should outline the project from start to finish including the implementation and maintenance of erosion control measures, vegetation plans and any other necessary project maintenance, beyond the completion of the actual grading work. Please provide this information on the supplementary Construction Schedule Worksheet.

Your project plans must supply a top view and as many cross-sections as necessary. Cross-sectional views depict the ground surface as though it were sliced and are usually placed perpendicular to the waterway. You should provide many cross-sectional views as necessary to reflect variation in topography and/or paream gradient. All elevations should be referenced to the same benchmark. A benchmark is a permanent vertical reference mark.

The top (plan) view should include the following information:

Plate L

The existing waterway and the area to be graded. A topographic plan should be included to demonstrate the existing and proposed conditions. A topographic map identifies the elevations of the site. The floodplain and wetland boundaries must be clearly marked on the plan. Eshmaked wetland boundaries.

_/

The location, elevation and description of the benchmark.

A north arrow.

__/

The scale of the top view. The scale should be adequate to provide the Water Management Specialist with a clear idea of the existing conditions and your proposed project.

The cross-sectional views should include the following:

Cross Lections
A-Ai
B-Bi
N/A

The water level of the existing waterway as well as the existing and proposed slope conditions. The cross-section should include the waterway as well the overbank areas.

NIA

The limits of the 100-year floodplain and the floodway width. Net APPLICABLE

The scale of the cross-sectional views must be clearly labelled. Both horizontal and vertical scale shall be provided. Reference all elevations to the benchmark.

Your project scope requires that you provide an erosion control plan. A proper erosion control plan protects your site from losing soil and minimizes the amount of soil and other nutrients from entering waterways. The erosion control plan must provide for erosion control both during construction and after construction is complete. You may need to incorporate several different practices to suit your site. This plan must also include a vegetation plan.

See altached

If your project involves the grading of <u>one</u> lot only, please refer to the supplementary handout <u>Erosion Control for Home Builders</u>.

For all other grading projects, please provide all information materials as ident in Master at 1.

334048

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WARRANTY DEED

THE GRANTOR, including all successors and assigns,

4149639213

C.M. CHRISTIANSEN CO., a Wisconsin corporation, 1 Lake Street, P.O. Box 100, Phelps, WI 54554, for \$1.00 and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged,

CONVEYS, GRANTS AND WARRANTS TO:

C.M. CHRISTIANSEN CO., INC., a Michigan corporation, c/o Michigan Runner Service, P.O. Box 266, Eaton Rapids, MI 48827-02766, and to its successors and assigns

TRANSFER \$ 15.00 FEE \$3/1000 RECORDED

JAN 2 3 1998

HEREFTER OF DEEDS, VILAS CO., WI

Tax Parcel No. 9-5 and parts of 9-1 and GL3-4

The real property located in the NE ¼ SW ¼ and Govt. Lot 3 of Section 35, Township 42 North, Range 11 East, Town of Phelps, Vilas County, State of Wisconsin, more completely described in the attached Exhibit A, made a part heref.

TOGETHER WITH AND SUBJECT TO all easements, covenants, restrictions and reservations of record;

RESERVING TO GRANTOR all mineral and timber rights to the extent not previously reserved of record;

TOGETHER WITH all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise pertaining, to have and to hold forever; AND

GRANTOR hereby warrants that at the time of delivery of these presents GRANTOR is seized of the above granted premises in fee simple, that they are free from all encumbrances whatsoever and that GRANTOR shall Warrant and Defend the same against all lawful claims.

This is not homestead property.

DATED THIS 22 DAY OF JANUARY, 1998.

C.M. CHRISTIANSEN CO.

By:

Enic R. Christiansen, Vice President

Attest:

Miriam Saucke, Secretary

STATE OF WISCONSIN

) S.S.

COUNTY OF VILAS

Personally acknowledged before me this day of January, 1998 by Eric R. Christiansen, Vice President and Miriam

Saucke, Secretary, of C.M. CHRISTIANSEN CO.

Kathleen Schofield

(print name)

Notary Public, State of Wisconsin

My commission expires: / 07/108/

Drafted by and returnable to:

Eric R. Christiansen C.M. Christiansen Co.

P.O. Box 100

Phelps, WI 54554

0//08/01

LVOL 801 PAGE 411

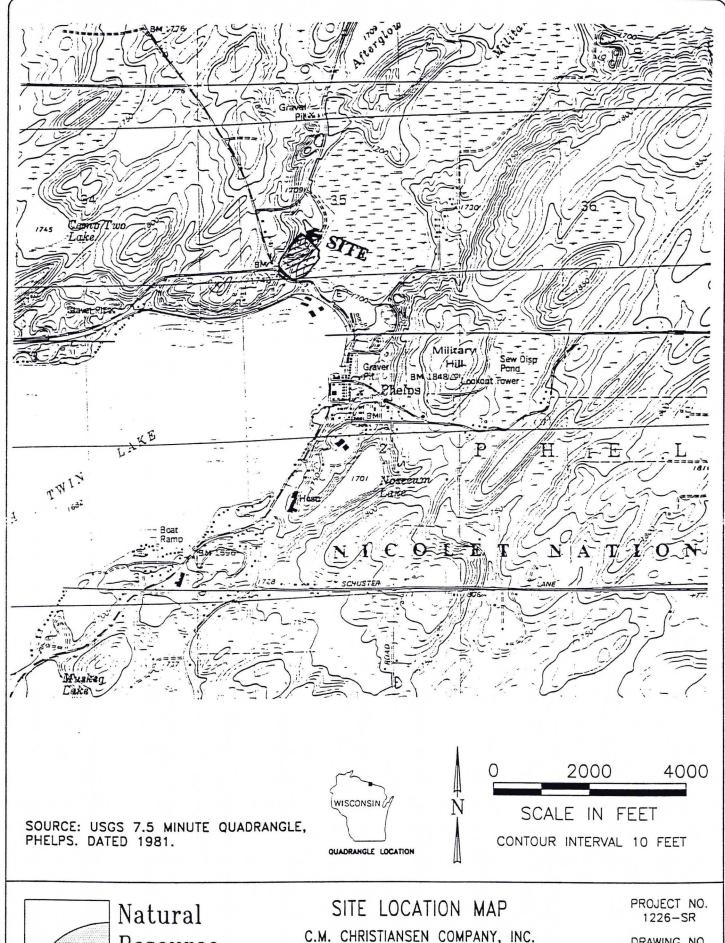
EXHIBIT A TO WARRANTY DEED

Legal Description

A parcel of land being a part of Gov't. Lot 3 and the NE¼-SW¼, Section 35, T 42 N, R 11 E, Town of Phelps, Vilas County, Wisconsin, and being more particularly described as follows:

Commencing at the South 1/4 comer of said Section 35 being marked by a U.S. Forest Service monument, thence N 0°-04'-39" E 2414.99 feet along the North-South 1/2 line of said Section 35 to an iron pipe and the Place of Beginning, thence returning S 0°-04'-39" W 884.28 feet along the East line of said NE¼-SW¼ to an iron pipe on the Right Bank of Military Creek, thence meandering along said Creek Bank S 45°-02'-00" W 73.60 feet, S 73°-08'-00" W 102.50 feet, S 51°-33'-00" W 82.61 feet, N 61°-31'-13" W 179.00 feet, S 55°-07'-00" W 166.00 feet, S 3°-32'-00" E 90.00 feet, S 34°-44'-00" E 77.44 feet and S 2°-29'-00" E 58.17 feet to the Northerly R/W line of County Trunk Hwy. E, thence along the Northerly R/W line of said Hwy. E Easterly 36 feet more or less along the arc of a 336.51 foot radius curve to the Right to the middle thread of said Military Creek, thence returning Westerly 36 feet more or less along the arc of said 336.51 foot radius curve to the Left to the aforementioned point, thence along the Northerly and Northeasterly R/W line of said Hwy. E as follows: Westerly 91.70 feet along the arc of said 336.51 foot radius curve to the Left (chord bearing S 89°-37'-40" W 91.42 feet) to the point of tangency of said curve, S 81°-49'-18" W 5.39 feet to the point of tangency of a 672.00 foot radius curve to the Right, Westerly 177.34 feet along the arc of said 672.00 foot radius curve to the Right (chord bearing S 89°-22'-54" W 176.82 feet) to the point of tangency of a 183.42 foot radius curve to the Right, Northwesterly 121.07 feet along the arc of said 183.42 foot radius curve to the Right (chord bearing N 64°-08'-56" W 118.88 feet) to the point of tangency of a 2952.00 foot radius curve to the Right, Northwesterly 310.80 feet along the arc of said 2952.00 foot radius curve to the Right (chord bearing N 42°-13'-23" W 310.66 feet) to the point of tangency of a 518.61 foot radius curve to the Right, Northwesterly 152.27 feet along the arc of said 518.61 foot radius curve to the Right (chord bearing N 30°-47'-44" W 151.72 feet) to the point of tangency of said curve and N 22°-23'-04" W 285.74 feet to an iron pipe which lies 800.00 feet South of the North line of said NW4-SW4, thence leaving said R/W line S 89°-33'-15" E 568.19 feet parallel with and 800.00 feet South of the North line of said NE¼-SW¼ to an iron pipe, thence N 0°-01'-30" E 575.00 feet parallel with the West line of said NE%-SW% to an iron pipe, thence S 89°-33'-15" E 664.78 feet parallel with the North line of said NE4-SW4 and back to the Place of Beginning, including all lands lying between the meander line and the lateral lot lines extended to the middle thread of said Military Creek, and including all riparian rights; the same being approximately 22.50 acres, more or less.

Subject to any easements, restrictions or reservations of record. Reserving and excepting all mineral and timber rights to the extent not previously reserved of record.





Natural Resource Technology

C.M. CHRISTIANSEN COMPANY, INC. FORMER POLE TREATMENT FACILITY PHELPS, WISCONSIN

DRAWN BY: TAS

APPROVED BY: LJP

DATE: 5/15/98

DRAWING NO. 1226-A01

FIGURE NO.

11/13/19

Missing Page # 9

Wisconsin Wetland Inventory Map

(map D)

LAND CONSERVATION VILAS COUNTY

639 W. Kemp Street Rhinelander, Wisconsin 54501-3879 Telephone (715) 362-5941 Fax (715) 362-9370

May 6, 1999

MAY 1 0 1999

Natural Resource Technology Attn: Dan Plovnick 23713 W. Paul Road Pewaukee, WI 53072

Dear Mr. Plovnick:

Enclosed please find the Soil Survey Atlas Sheets, the corresponding soil single sheet interpretation records and a soil description report for the soils mapped in Section 35, Township 42 North, Range 11 East, Vilas County, as per your telephone request.

Also included is a billing statement to cover the administrative costs of the Land Conservation Department in providing this information. Please remit your payment to:

Vilas County Land Conservation Dept. 639 W. Kemp Street Rhinelander, WI 54501-3879

If you have any questions or need any further help, please contact this office.

Sincerely,

Nancy Hollands

County Conservationist

nancy Hollands

NH/lch

enc.

Nearly level and gently sloping, somewhat poorly drained soil formed in silty and loamy deposits and in the underlying loamy or sandy glacial till. This map unit is not highly erodible. The land capability classification is 2W. This map unit is prime farmland where drained.

Component Name: MONICO

Classification: ENTIC HAPLAQUODS, COARSE-LOAMY, MIXED, FRIGID

					ES	STIMATED SO	IL PROPE	RTIES						
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7-21	SL GR-L	FSL	SM	SC ML CI		A-2 A-4 1	A-1	-	0-25	65-	100 60-	-100 35-	95 20- 75	3-18
21-60	SL GR-SL	LS	SM	SM-SC GM	GP-GM	A-1 A-2		-	0-25	60-	100 60-	-100 30-	85 10- 35	2-8
1	Liquid	Plas-	Moi	.st	Perme-			e Soil		EC	CaCO3	Organi	c Shrink	Erosio
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(In)		Index	g/	'cc	In/hr	(In.,	/in)	(pH)		00g)	Pct	Pct	Potenti	
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7-21		NP-10			0.6-2.		-0.19	4.5-6.		_	_	-	LOW	0.24
21-60		NP-4				0.06-		5.1-7.		-	_	_	LOW	0.17
											Wind	Risk of	Corrosion	Potentia
	Floo	ding		Wa	ter Table	-(feet)	- Bedroo	ck-(in)	HYD	T	Erod.	Uncoate	d	Frost
Freque	ency Dura	tion	Months	-	Kind	Months			1			Steel	Concrete	Action
OCCASI	ONA -					NOV-MAY			c	<u>-</u> 5		MODERAT	E HIGH	HIGH
Shallo Owelli Owelli Small	BUILDI W Excava ngs With ngs With Commerci Streets Landsca	NG SITE tions out Base Basemer al Build and Road	DEVELOPM ements ats dings		SEVE SEVE SEVE SEVE	ATING RE RE RE RE	Cutbank Floodir Floodir Floodir Small S	R Rs Cave ng ng	ESTRIC Wet Wet Wet Wet	ll St TIVE ness ness ness st Ac	FEATURE(Wetness Wetness		
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		MANAGEME	ENT			ATING			ESTRIC	TIVE	FEATURE(S)		
	eservoir					RATE	Seepage							
	ments, D	ikes and	Levees		SEVE		Seepage		Pip					
Oraina Orriga	-				1	TATION	Floodin		:	st Ac ughty			1	
	es and D	iversion	ne.			TATION TATION	Large S				asily	Wetness	. 1	
	d Waterw					TATION	Large S		1 000	ness	ا لاحتدی	Erodes		

RECKEATIONAL DEVELOPMENT	RATING	RESTRICTIVE FEATURE(S)
Camp Areas	SEVERE	Flooding Wetness
Picnic Areas	MODERATE	Wetness Small Stones
Playgrounds	SEVERE	Small Stones Wetness
Paths and Trails	MODERATE	Wetness
1		

CROPS AND PASTURE YIELDS

| Crop yields in this table are averages for high level management where the crop is commonly grown on the map unit.

Corn Grain bu/a	Corn Silage tons/a	Soybeans bu/a	Wheat bu/a	0ats bu/a	Alfalfa Hay tons/acre	Red Clover Hay tons/acre	Improved Pasture	Permanemt Pasture
				70	4.	3.5	5.	3.3

WOODLAND INTERPRETATIONS

1										
WOODLAND ORD. SYB.	EROSION HAZARD	EQUIPMENT LIMITATION	SEEDLING MORTALITY	WIND TH. HAZARD	PLANT COMPETITION	INTERP	COMMONLY EXISTING TREES and/or	(E)	SITE	WOODLAND PRODUCT-
							TREES RECOMENDED TO PLANT	(P)	INDEX	IVITY
3W	SLIGHT	MODERATE	SLIGHT	MODERATE	MODERATE					
1							sugar maple	E	63	3
1							yellow birch	E	0	0
1							American basswood	E	0	0
1							red maple	EP	0	0
1							white ash	EP	0	0
1							white spruce	P	0	0
1							black spruce	P	0	0
1							eastern white pine	P	0	0

RECOMMENDED WINDBREAK SPECIES AND EXPECTED HEIGHT AT 20 YEARS

Plant Name	Height	Plant Name	Height	Plant Name	Height	Plant Name	Height
American cranberrybush	10	common ninebark	8	eastern white pine	30	lilac	10
nannyberry viburnum	8	northern whitecedar	15	red maple	30	redosier dogwood	8
silky dogwood	10	silver maple	30	white ash	30	white spruce	20

For more information contact: Area Resource Soil Scientist, Soil Conservation Service
Route 2, Box 2355, Spooner, WI 54801, Phone: 715-635-3505

Nearly level and gently sloping, well drained soil formed in loamy deposits and the underlying stratified sand and gravel glacial outwash. This map unit is potentially highly erodible. The land capability classification is 2E. This map unit is prime farmland.

Component Name: PADUS

Classification: ALFIC HAPLORTHODS, COARSE-LOAMY, MIXED, FRIGID

					E.S	TIMATED SO.	TT LKOLE	(1117)								
					Classif	ication		>10	3-10	Per	cent	< 3 in.	pass	sing	sieve	Clay %
)epth	USDA Te	exture		Unifi	.ed	AASH	ro	In. 1	Inches	No	4 N	0.10	No.40) }	No.200	<.002 m
0- 4	FSL		SM			A-2 A-4	A-1-B	-	0-7	80-	100	75-100	45-	85	20- 50	3-10
	FSL SL L		SM	SC ML CL		A-2 A-4	A-1-B	-	0-7	2		75-100			20- 90	5-18
31-35	GR-LS S	GR-SL	SM	SP GP GM	I	A-2 A-4	A-1 A-3	-	0-7	50-	100	45-100	25-	7 5	2- 40	2-10
35-60	SR- S G		SP	SP-SM GP	GP-GM	A-1 A-2 A	A-3	_	0-7	30-	100	25-100	10-	70	1- 12	0-3
	Liquid	Plas-	Moi	ist	Perme-	Avail	lable	Soil	1 (CEC	CaC	03 Or	ganic	:	Shrink	Erosio
Depth	Limit	ticity	Bulk D	Density	ability	Water Ca	apacity	Reacti	ion	(me/		Ma	tter		Swell	Factor
(In)		Index	g/	/cc	In/hr	(In.,	/in)	(pH)) :	100g)	Pc	t	Pct	F	Potentia	ı K
0- 4	<25	NP-4	1.4-	-1.7	0.6-2.	0.1	-0.15	4.5-6.	.5	-		 1	2.	 I	OW	0.24
4-31	<30	NP-10	1.4-		0.6-2.	0.09-	-0.22	4.5-6.	.5	-	-		-		OW	0.24
31-35		NP-4		-1.6			-0.14	4.5-6.		-	-		-		.OW	0.1
35-60		NP	1.5-		620.		-0.06	5.1-6.		-	_		-		OW	0.1
											Wind	Ris	k of	Corr	cosion	Potentia
	Floo	ding		Wa	ter Table	-(feet)	- Bedroo	k-(in)	HYD	T	Erod	. Unc	coated	l	İ	Frost
Freque	ncy Dura	tion	Months	•	Kind	Months	Depth	Hard.	GRP	Fact.	Inde	x Ste	el	Con	crete	Action
NONE			-	>6.0	-	-	>60		B	4	86	LOW	 !	HIG	H	MODERATE
							· 		·			· 				
	Tank Ab	-	Fields		SEVE		Poor Fi	lter	RESTRIC	Sand		į	11 St	ones	:	
	BUILDI	NG SITE	DEVELOPM	ENT	R	ATING		F	ESTRI	CTIVE	FEATU	RE(S)				
Shallo	w Excava	tions			SEVE	RE	Cutbank	s Cave	1			1			1	
Dwelli	ngs With	out Base	ments		SLIG	HT	İ		1			1			1	
	ngs With				SLIG	HT			!			!			1	
	Commerci		_		SLIG				1			1			1	
	Streets				MODE		Frost A								1	
Lawns,	Landsca	ping, an	d Golf F	airways	MODE	RATE	Large S	tones	Dro	oughty					1	
		UCTION M	ATERIAL		R	ATING		F	RESTRIC	CTIVE	FEATURE(S)				į	
Roadfi	11				GOOD				ļ			ļ			!	
Sand						ABLE			1							
Gravel						ABLE	0 33 5		1	_						
Topsoi.					POOR		Small S	tones	Are	ea Rec	laım					
	WATER I	MANAGEME	NT		R	ATING		, P	ESTRI	TIVE	FEATUR	RE(S)			i	
	eservoir				SEVE		Seepage		1			!			1	
		ikes and	T		SEVE	RE	Seepage		Pip	oing]			1	
Embankı	ments, D	Lico dud	Levees		•											
Embankı Oraina	ge	inco una	Levees		LIMI	TATION	Deep To	Water				!			ļ	
Embankı Drainad Irriga	ge tion				LIMI	TATION	Slope			oughty		Soi	l Blo	wing	. !	
Embankı Drainaç Irriga Terrace	ge	iversion			LIMI		-	dy	Soi	oughty il Blo	wing	j	l Blo	wing	1	

RECREATIONAL DEVELOPMENT	RATING	1	RESTRICTIVE FEATURE(S)	j
Camp Areas	SLIGHT	1	1	1
Picnic Areas	SLIGHT	1	1	1
Playgrounds	MODERATE	Slope	Small Stones	1
Paths and Trails	SLIGHT	1	1	1

CROPS AND PASTURE YIELDS

| Crop yields in this table are averages for high level management where the crop is commonly grown on the map unit.

Corn Grain Co bu/a	rn Silage Soyber tons/a bu/a		Alfalfa Hay tons/acre	Red Clover Hay tons/acre	Improved Pasture AUM	Permanent Pasture	1
 		 75	4.	3.5	l 6.	2.6	1

WOODLAND INTERPRETATIONS

WOODLAND ORD. SYB.	EROSION HAZARD	EQUIPMENT LIMITATION	SEEDLING MORTALITY	WIND TH.	PLANT COMPETITION	INTERP	COMMONLY EXISTING TREES and/or	(E)	SITE	WOODLAND PRODUCT-
							TREES RECOMENDED TO PLANT	(P)	INDEX	IVITY
3A	SLIGHT	SLIGHT	SLIGHT	SLIGHT	MODERATE	-				
							sugar maple	E	67	3
							white ash	E	0	0
							bigtooth aspen	E	78	6
							northern red oak	E	70	4
							American basswood	E	0	0 -
							red pine	EP	0	0
							white spruce	P	0	0
							eastern white pine	P	0	0

RECOMMENDED WINDBREAK SPECIES AND EXPECTED HEIGHT AT 20 YEARS

 Height	Plant Name	Height	Plant Name	Height	Plant Name 1	Height
10	Amur maple	10	eastern redcedar	15	eastern white pine	30
8	jack pine	30	lilac	10	manyflower cotoneaster	6
20	red pine	30	Siberian peashrub	8	silky dogwood	8
	10 8	8 jack pine	10 Amur maple 10 8 jack pine 30	10 Amur maple 10 eastern redcedar 8 jack pine 30 lilac	10 Amur maple 10 eastern redcedar 15 8 jack pine 30 lilac 10	10 Amur maple 10 eastern redcedar 15 eastern white pine 8 jack pine 30 lilac 10 manyflower cotoneaster

For more information contact: Area Resource Soil Scientist, Soil Conservation Service
Route 2, Box 2355, Spooner, WI 54801, Phone: 715-635-3505

Sloping and moderately steep, well drained soil formed in loamy deposits and the underlying stratified sand and gravel glacial outwash. This map unit is potentially highly erodible. The land capability classification is 3E.

Component Name: PADUS

Classification: ALFIC HAPLORTHODS, COARSE-LOAMY, MIXED, FRIGID

					ES'	TIMATED SO	L PROPER	RTIES								
Depth	USDA Te	exture		Unifi	Classif: ed	ication AASHT	.0		3-10 nches	Per			_	-	sieve No.200	Clay % <.002 m
0- 4	FSI.		SM			A-2 A-4 A	1-1-B		0-7	80-	100 75	5-100	45-	85	20- 50	3-10
	FSL SL I			SC ML CL		A-2 A-4 A		_	0-7			5-100			20- 90	5-18
	GR-LS S			SP GP GM		A-2 A-4 A		_	0-7			5-100			2- 40	2-10
	SR- S G			SP-SM GP		A-1 A-2 A		-	0-7		100 25			100.00	1- 12	0-3
	Liquid	Plas-	Moi	.st	Perme-	Avail	able	Soil		EC	CaCO3	3 Or	ganic	:	Shrink	Erosio
Depth	Limit	ticity	Bulk D	ensity	ability	Water Ca	pacity	Reacti	on (me/			tter		Swell	Factor
(In)		Index		cc -	In/hr	(In./	'in)	(pH)	1	.00g)	Pct		Pct		Potential	
0- 4	<25	NP-4	1.4-	1.7	0.6-2.	0.1-	0.15	4.5-6.	 5	-		 1	2.	•	LOW	0.24
4-31	<30	NP-10	1.4-	1.6	0.6-2.			4.5-6.	5	-	-		_		LOW	0.24
31-35	<25	NP-4	1.4-		0.6-6.	0.05-	0.14	4.5-6.	5	-	-		-		LOW	0.1
35-60	-	NP	1.5-		620.	0.02-		5.1-6.	5	-	-		-		LOW	0.1
											Wind	Ris	k of	Cor	rosion	Potentia
	Floo	ding		Wa	ter Table	-(feet)	Bedroo	k-(in)	HYD	T	Erod.	Unc	oated	L	·	Frost
reque	ncy Dura	ation 1	Months	Depth	Kind	Months	Depth	Hard.	GRP	Fact.	Index	Ste	el	Co	ncrete	Action
NONE			-	>6.0	-	-	>60] B	4	86	LOW		HI	GH	MODERATE
	Cover fo	osorption or Landfi	11		POOR		Poor Fi) 		Sand			11 St	one	s 	
Shallo	BUILDI w Excava	ING SITE	DEVELOPM	ENT	R	ATING	Cutbank		ESTRIC I	TIVE	FEATURE	E(S)			1	
		out Base	ments		MODE		Slope	w care	1			1			i	
		Basemen			MODE		Slope		i			i			ì	
		al Build			SEVE		Slope		j			i			i	
Local	Streets	and Road	s		MODE	RATE	Slope		Fro	Frost Action		İ			i	
Lawns,	Landsca	ping, and	d Golf E	airways	MODE				arge Stones Droughty			Slo	pe		į	
	CONSTR	RUCTION M	ATERIAL		l R	ATING		R	ESTRIC	TIVE	FEATURE	E(S)				
Roadfi	11				GOOD				1			1			1	
Sand					PROB	**********]			!			1	
Gravel					PROB	ABLE				_		1			ļ	
Topsoi	1 				POOR		Small S	tones	Are	ea Rec	laim 				1	
		MANAGEME	NT			ATING			1.5		FEATURE	E(S)			Í	
	eservoir				SEVE		Seepage		Slo	-		1			!	
		likes and	Levees		SEVE	RE	Seepage	3	Pip	oing		1				
Embank	ments, D	Tres and	201002		i				1			1			1	
Embankı Drainaç	ge	ines and	201002			TATION	Deep To	Water		1. 1			1			
Embankı Orainaç Irrigat	ge tion	oixes and			LIMI	TATION TATION TATION	Deep To Slope Slope	Water		oughty Sand			l Blo		- 1	

RECREATIONAL DEVELOPMENT	RATING	}	RESTRICTIVE FEATURE(S)					
Camp Areas	MODERATE	Slope	1	1				
Picnic Areas	MODERATE	Slope	1	1				
Playgrounds	SEVERE	Slope	1	1				
Paths and Trails	SLIGHT	1	Î	ĺ				

CROPS AND PASTURE YIELDS

| Crop yields in this table are averages for high level management where the crop is commonly grown on the map unit.

Corn Grain bu/a	Corn Silage tons/a	Soybeans bu/a	Wheat bu/a	Oats bu/a	Alfalfa Hay tons/acre	Red Clover Hay tons/acre	Improved Pasture AUM	Permanemt Pasture AUM
				70	3.5	3.	5.8	2.2

WOODLAND INTERPRETATIONS

WOODLAND ORD. SYB.	EROSION HAZARD	EQUIPMENT LIMITATION	SEEDLING MORTALITY	WIND TH.	PLANT COMPETITION	INTERP	COMMONLY EXISTING TREES and/or	(E)	SITE	WOODLAND PRODUCT-
							TREES RECOMENDED TO PLANT	(P)	INDEX	IVITY
3A	SLIGHT	SLIGHT	SLIGHT	SLIGHT	MODERATE					
							sugar maple	E	67	3
							white ash	E	0	0
							bigtooth aspen	E	78	6
							northern red oak	E	70	4
							American basswood	E	0	0
							red pine	EP	0	0
							white spruce	P	0	0
							eastern white pine	P	0	0

RECOMMENDED WINDBREAK SPECIES AND EXPECTED HEIGHT AT 20 YEARS

 Plant Name	Height	Plant Name	Height	Plant Name	Height	Plant Name H	 eight
American cranberrybush	10	Amur maple	10	eastern redcedar	15	eastern white pine	30
gray dogwood	8	jack pine	30	lilac	10	manyflower cotoneaster	6
Norway spruce	20	red pine	30	Siberian peashrub	8	silky dogwood	8]

For more information contact: Area Resource Soil Scientist, Soil Conservation Service
Route 2, Box 2355, Spooner, WI 54801, Phone: 715-635-3505

Sloping and moderately steep, well drained soil formed in loamy deposits and the underlying stratified sand and gravel glacial outwash. This map unit is potentially highly erodible. The land capability classification is 4E.

Component Name: PENCE

Classification: ENTIC HAPLORTHODS, SANDY, MIXED, FRIGID

						ESTIMATED SO	OIL PROPE	RTIES							
Depth	USDA Te	exture		Unifi		sification AAS	rto	>10 In. 1	3-10 Inches			3 in. pas 10 No.4	_	sieve No.200	Clay %
j										· j					j
0-3			SM	ML		A-4 A-2	A-1	-	0-7	85-	100 75	-100 45-	85	20- 55	3-11
	SL L GR-		SM	ML CL-MI	SM-SC	A-4 A-2	A-1	-	0-7					15- 75	2-12
	GR-COS I		SM	SP-SM GM	GP-GM			-	8-0		100 50		75	2- 30	2-10
23 -6 0	GR-COS S	S SG	SP	SP-SM GP	GP-GM	A-1 A-3	A-2	-	0-15	30-	100 25	-100 10-	70	1- 12	0-4
1	Liquid	Plas-	Moi	ist	Perme	- Avai	ilable	Soil		CEC	CaCO3	0rgani	.c	Shrink	Erosio
Depth	Limit	ticity	Bulk D	Density	abili	ty Water (Capacity	Reacti	on	(me/		Matter		Swell	Factor
(In)		Index	g/	/cc	In/hr	-		(pH)		100g)	Pct	Pct		Potentia	al K
0- 3	<21	NP-4	1.2-	1 6	26	0.1	1-0.18	4.5-6.	5			1 3	-	LOW	0.24
3-16	<25	NP-7	1.4-		26		1-0.15	4.5- 6		_	_	-		LOW	0.24
16-23	-	NP	1.6-		26		5-0.08	4.5- 6		_	_	_		LOW	0.1
23-60	_	NP	1.4-		62		2-0.05	5.1-6.		_	_	-		LOW	0.1
											Wind	Risk of			Potentia
	Flooding Wa		ter Tal	ble-(feet)	Bedroo	ck-(in)	HYD	T	Erod.	Uncoate			Frost		
	ncy Dura		Months		Kin			Hard.			Index	Steel		ncrete	Action
			j				· j		j			j		Ì	
IONE	-		- 1	>6.0	-	-	>60		B	3	86	LOW	MO	DERATE	LOW
		sorption r Landfi				EVERE OOR	Poor F:) To	o Sand	У	 Small S	tone.	s	
	BUILDI	NG SITE	DEVELOPM	ENT	 	RATING	1	R	ESTRI	CTIVE	FEATURE	(S)) 	
Shallo	Excava	tions			S	EVERE	Cutbank	cs Cave	1			Ì		ĺ	
wellin	ngs With	out Base	ments		M	ODERATE	Slope		1					ĺ	
wellin	ngs With	Basemen	ts		M	ODERATE	Slope		1			1		j	
Small (Commerci	al Build	ings		S	EVERE	Slope		1			1		Ì	
Local S	Streets	and Road	s		M	ODERATE	Slope		1]		1	
awns,	Landsca	ping, an	d Golf F	airways	M	ODERATE	Large S	Stones	Dr	oughty		Slope		1	
	CONSTR	UCTION M	ATERIAL]	RATING]	R	ESTRI	CTIVE	FEATURE	(S)			
oadfi]	11				j G	OOD	Ì		1					j	
Sand					PI	ROBABLE	j		1					i	
ravel					PI	ROBABLE	1		1					1	
[opsoi]	l				PG	OOR	Small S	tones	Ar	ea Rec	laim]	
	WATER	MANAGEME	 NT			RATING		 R	ESTRI	CTIVE I	FEATURE	(S)			
ond Re	eservoir	Area			SI	EVERE	Seepage			ope				i	
mbankn	ments, D	ikes and	Levees			EVERE	Seepage		1					j	
rainag	je				L	IMITATION	Deep To	Water	1					İ	
rrigat	ion				L	IMITATION	Drought	У	So	il Blo	wing	Slope		1	
errace	es and D	iversion	s		L	IMITATION	Slope		To	o Sandy	7	Soil Blo	owing	g	
racco	Waterw	PVS			1 [.	IMITATION	Slope							1	

RECREATIONAL DEVELOPMENT	RATING	RESTRICTIVE FEATURE(S)
Camp Areas	MODERATE	Slope
Picnic Areas	MODERATE	Slope
Playgrounds	SEVERE	Slope
Paths and Trails	SLIGHT	1

CROPS AND PASTURE YIELDS

| Crop yields in this table are averages for high level management where the crop is commonly grown on the map unit.

Corn Grain bu/a	Corn Silage tons/a	Soybeans bu/a	Wheat bu/a	Oats bu/a		Red Clover Hay tons/acre	Improved Pasture	Permanent Pasture
				50	3.	2.5	4.8	1.3

WOODLAND INTERPRETATIONS

WOODLAND	EROSION	EQUIPMENT	SEEDLING	WIND TH.	PLANT	INTERP	COMMONLY EXISTING TREES	(E)		WOODLAND
ORD. SYB.	HAZARD	LIMITATION	MORTALITY	HAZARD	COMPETITION	ASPECT	and/or		SITE	PRODUCT-
							TREES RECOMENDED TO PLANT	(P)	INDEX	IVITY
35	SLIGHT	SLIGHT	MODERATE	SLIGHT	MODERATE	NORTH				
1							balsam fir	E	0	0
1							sugar maple	E	59	3
1							yellow birch	E	0	0
1							paper birch	E	0	0
1							quaking aspen	E	0	0
1							American basswood	Ε	0	0
1							red pine	EP	59	7
1							eastern white pine	EP	57	8
1							jack pine	P	0	0

RECOMMENDED WINDBREAK SPECIES AND EXPECTED HEIGHT AT 20 YEARS

Plant Name	Height	Plant Name	Height	Plant Name	Height	Plant Name i	Height
American cranberrybush	10	Amur maple	10	eastern redcedar	15	eastern white pine	30
gray dogwood	8	jack pine	30	lilac	10	manyflower cotoneaster	6
Norway spruce	20	red pine	30	Siberian peashrub	8	silky dogwood	8

For more information contact: Area Resource Soil Scientist, Soil Conservation Service
Route 2, Box 2355, Spooner, WI 54801, Phone: 715-635-3505

Nearly level, very poorly drianed soils formed in organic material more than 51 inches thick or underlain by sandy glacial outwash at dept of 16 to 50 inches. This map unit is not highly erodible unless drained. The land capability classification is 6W. This map unit is hydric.

Component Name: SEELYEVILLE
Classification: TYPIC BOROSAPRISTS, EUIC

This map unit has 2 components, and 2 interpretation sheet.

Depth]	USDA Tex	ture		Unifi		fication AASHT	0		3-10 Inches	2		3 in. pas 10 No.4	sing sieve 0 No.200	Clay % <.002 mm
0-60	SP		PT			A-8			0					
Depth (In)	Liquid			ensity Cc	Perme- ability In/hr	Avail Water Ca	pacity		on	CEC (me/ 100g)	CaCO3	Organi Matter Pct	Swell	Factor
0-60		-	0.1-	-0.3	0.2-6.	0.35-	0.45	4.5-8.		-	- Wind	2599	Corrosion	0.1
	Flood	ion	Months	Depth	Kind		Depth		HYD GRP	T Fact.	Erod. Index	Uncoate Steel	đ	Frost
NONE	-		-			T YEAR-ROUND	!		A/D		134	HIGH	MODERATE	
SANITARY FACILITIES Septic Tank Absorption Fields Daily Cover for Landfill BUILDING SITE DEVELOPMENT Shallow Excavations Dwellings Without Basements Dwellings With Basements Small Commercial Buildings Local Streets and Roads Lawns, Landscaping, and Golf Fairways					SE' SE' SE' SE' SE'	RATING VERE	Ponding Ponding Excess Ponding Ponding Ponding Ponding	Humus	EXCESTRIC	nding bsides bsides bsides bsides cess H	umus FEATURE	 		
Roadfi Sand Gravel Topsoi		CTION M	ATERIAL			PROBABLE	Wetness Excess Excess Excess	Humus Humus	Lon	w Stre	FEATURE ngth	(S) 	 	
Embank Oraina Irriga	WATER MANAGEMENT ond Reservoir Area mbankments, Dikes and Levees rainage rrigation				SE'	RATING VERE VERE VITATION VITATION	Seepage Excess Ponding	Humus J	Por	CTIVE nding bsides	FEATURE	(s)]]]	
		erraces and Diversions Cassed Waterways					LIMITATION Ponding					1		

RATING	RESTRICTIVE	FEATURE(S)	
SEVERE	Ponding Excess H	lumus	
SEVERE	Ponding Excess H	Humus	
SEVERE	Excess Humus Ponding		
SEVERE		lumus	
			emt Pasture AUM
			WOODLANT
LITY HAZARD COME	ETITION ASPECT	and/or SITE	PRODUCT-
C CEVEDE CEVE	5	COMENDED TO PLANT (P) INDE	X IVITY
SEVERE SEVE		E 55	2
	balsam fir	EP 45	6
	tamarack	EP 56	4
	black spru	ice EP 34	3
	northern w	hitecedar EP 30	3
Name Ha	ight Plant Name	Height Plant Name	Heigh
			-
	•	-	
I	SEVERE SEVERE SEVERE SEVERE SEVERE CRO Ses for high level maximum with the service of the service	SEVERE	SEVERE

For more information contact: Area Resource Soil Scientist, Soil Conservation Service, Hwy 70 E. and Timberland Road, Route 2, Box 2355, Spooner, WI 54801-1403, Phone: 715-635-3505

Nearly level, very poorly drianed soils formed in organic material more than 51 inches thick or underlain by sandy glacial outwash at dept of 16 to 50 inches. This map unit is not highly erodible unless drained. The land capability classification is 6W. This map unit is hydric.

Component Name: MARKEY This map unit has 2 components, and 2 interpretation sheet.

Classification: TERRIC BOROSAPRISTS, SANDY OR SANDY-SKELETAL, MIXED, EUIC

						ESTIMATED SOI	L PROPE	RTIES									
Depth	USDA Te	xture		Unifi	Class ied	ification AASHT	ď		3-10 Inches		cent < 4 No.			-	Clay % <.002 mg		
0-40	SP		PT			A-8			-						0-		
	S LS FS			SP SM SP-SM		A-2 A-3		-	0	95-	-100 75	-100 3	5- 75	0- 30			
Depth (In)		Plas- ticity Index		ist Density /cc	Perme- abilit In/hr	y Water Ca	pacity	Soil Reacti (pH)	on (EC me/	CaCO3	Matt Pc	er	Shrink Swell Potentia	Erosion Factor		
0-40 40-60	-	- NP	0.2-	-0.4 -1.6	0.2-6. 620		-0.45 5.6-7.8 -0.08 5.6-8.4		-	- - -	-	55	85.	LOW	0.1		
	Floo	-	Months			le-(feet) Months			HYD	T		Uncoa	ted	rrosion oncrete	Potential Frost Action		
NONE	,					 NT YEAR-ROUND			 A/D	4		HIGH) OW	HIGH		
) PO		Seepage										
Daily	eptic Tank Absorption Fields aily Cover for Landfill) PO	OR	Seepage	: 	Too	Sand	ly 	Pondi	лд 	\ \				
a) 33			DEVELOP	ENT	1	RATING	, .	RI Cutbanks Cave			FEATURE			1			
	w Excava					VERE VERE	Subside		:	Excess Hu				Ponding Low Strength		+	
	ngs With ngs With					VERE	Subside			ding		1 DOW 2	creng	ch j			
	Commerci					VERE I	Subside		Por	_		Low S	tranc	th 1			
	Streets		-			VERE	Ponding			-	tion	Subsi	-	1			
			nd Golf E	airways		VERE	Ponding	•	:		lumus	1		į			
	CONSTR	UCTION 1	MATERIAL		1	RATING		P	ESTRIC	TIVE	FEATURE	(S)					
Roadfi	11				PO	OR	Wetness	5	1			1		ĺ			
Sand					PR	OBABLE			1			1		1			
Gravel) IM	PROBABLE	Too Sar	ndy	1			1		1			
Topsoi	1 				PO	OR	Excess	Humus	Wet	ness				1			
	WATER MANAGEMENT					RATING		F	RESTRIC	TIVE	FEATURE	(S)		Í			
	eservoir				SE	SEVERE		9						}			
	ments, D	ikes and	l Levees			SEVERE		2		ing		Pondi	-	1			
	Orainage				1			J		sides		Frost	Acti	on			
-	Irrigation					LIMITATION Pond					owing	1	n1 :				
Terraces and Diversions Grassed Waterways					1 LI	MITATION	Ponding	7	1 1.00	Sand	10	Soil	KLOWI	na l			

R	ECREATIONA	L DEVELOPMEN	TT	RATING	G	RE	STRICTIVE FEATU	RE(S)	j	
Camp Area	s			SEVERE	P	onding	Excess Humus	1	Ì	
Picnic Ar	eas			SEVERE	Pe	onding	Excess Humus	1	Ì	
Playgroun	ds			SEVERE) E:	cess Humus	Ponding	1	1	
Paths and	Trails)	SEVERE	Pe	onding	Excess Humus	1	ļ	
					CROPS	ND PASTURE YI	ELDS			
Crop yie	lds in thi	s table are	-	-	-		e crop is commo			
Corn Gra	in Corn S	Silage Soyb					lover Hay Imp			
bu/a	ton	ns/a bu	ı/a bu/a	bu/a	tons/a	cre ton	s/acre	MUA	P	MUM
					1		1			
					WOODLANI	INTERPRETATI	ons			
OODLAND	EROSION	EOUIPMENT	SEEDLING	WIND TH.	PLANT	INTERP	COMMONLY EXIST	ING TREES (F	:)	WOODLAN
RD. SYB.		LIMITATION		HAZARD		ION ASPECT	and/o	•	SITE	PRODUCT
						j	TREES RECOMEND			IVITY
2W	SLIGHT	SEVERE	SEVERE	SEVERE	SEVERE	NORTH -				
							balsam fir		E	
							red maple		E	
							paper birch		E	
							black ash		E	
							tamarack		E	
							Callatack		L	

For more information contact: Area Resource Soil Scientist, Soil Conservation Service, Hwy 70 E. and Timberland Road, Route 2, Box 2355, Spooner, WI 54801-1403, Phone: 715-635-3505

black spruce quaking aspen

northern whitecedar

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SOIL DESCRIPTION REPORT

SURVEY AREA - VILAS COUNTY, WISCONSIN

Map Unit
Symbol Description

- CHAMPION SILT LOAM, 1 TO 6 PERCENT SLOPES

 Nearly level and gently sloping, moderately well drained soil formed in a thin mantle of loess and in the underlying sandy and loamy glacial till. This map unit is potentially highly erodible. The land capability classification is 2E. This map unit is prime farmland.
- ChC CHAMPION SILT LOAM, 6 TO 20 PERCENT SLOPES Sloping and moderately steep, moderately well drained soil formed in a thin mantle of loess and in the underlying sandy and loamy glacial till. This map unit is potentially highly erodible. The land capability classification is 3E.
- LOXLEY AND DAWSON PEATS, 0 TO 1 PERCENT SLOPES
 Nearly level, very poorly drained soil formed in acid organic material more than 51 inches thick or underlain by sandy glacial outwash at depths of 16 to 50 inches. This map unit is not highly erodible unless drained. The land capability classification is 6W. This map unit is hydric.
- MONICO SILT LOAM, 0 TO 3 PERCENT SLOPES

 Nearly level and gently sloping, somewhat poorly drained soil formed in silty and loamy deposits and in the underlying loamy or sandy glacial till. This map unit is not highly erodible. The land capability classification is 2W. This map unit is prime farmland where drained. This map unit may have hydric inclusions.
- PAB PADUS FINE SANDY LOAM, 0 TO 6 PERCENT SLOPES
 Nearly level and gently sloping, well drained soil formed in
 loamy deposits and the underlying stratified sand and gravel
 glacial outwash. This map unit is potentially highly
 erodible. The land capability classification is 2E. This map
 unit is prime farmland.
- PAC PADUS FINE SANDY LOAM, 6 TO 15 PERCENT SLOPES
 Sloping and moderately steep, well drained soil formed in
 loamy deposits and the underlying stratified sand and gravel
 glacial outwash. This map unit is potentially highly
 erodible. The land capability classification is 3E.
- Pnc Pence Sandy Loam, 6 to 15 percent slopes

SOIL DESCRIPTION REPORT

SURVEY AREA - VILAS COUNTY, WISCONSIN

Map Unit

Symbol Description

Sloping and moderately steep, well drained soil formed in loamy deposits and the underlying stratified sand and gravel glacial outwash. This map unit is potentially highly erodible. The land capability classification is 4E.

Se

SEELYEVILLE AND MARKEY MUCKS, 0 TO 1 PERCENT SLOPES Nearly level, very poorly drianed soils formed in organic material more than 51 inches thick or underlain by sandy glacial outwash at dept of 16 to 50 inches. This map unit is not highly erodible unless drained. The land capability classification is 6W. This map unit is hydric.

Category Codes: AGR

Nearly level and gently sloping, moderately well drained soil formed in a thin mantle of loess and in the underlying sandy and loamy glacial till. This map unit is potentially highly erodible. The land capability classification is 2E. This map unit is prime farmland.

Component Name: CHAMPION

Classification: TYPIC FRAGIORTHODS, COARSE-LOAMY, MIXED, FRIGID

						EST	TIMATED SOI	T PROPE	KTIES							
Depth	USDA Te	exture		Unif		assifi	cation AASHT	0	>10 In.	3-10 Inche			_		ng sieve No.200	Clay %
0-18	STI.		мт	CL-ML			A-4			0-2	 xn 95-	100 85	-100 8	5-10	0 50- 90	10-15
	VFSL FSI			CL-ML S	M SM-	SC	A-2-4 A-4		_	0-2				5-10		2-15
	GR-FSL S			SM-SC S			A-2-4 A-1		-	0-2				25- 8		:
	GR-FSL S			SM-SC S			A-2-4 A-1 A-4		-	0-2		100 50				
<u> </u>	Liquid	Plas-	Moi	.st	Per	 me-	Avail	able	Soi	1	CEC	CaC03	Orga	nic	Shrink	Erosio
Depth	Limit	ticity	Bulk D	ensity	ability Wa		Water Ca	pacity	React	ion	(me/		Matt	er	Swell	Factor
(In)		Index	g/	'cc	In/	hr	(In./	in)	(pH	()	100g)	Pct	Po	t	Potentia	
0-18	<25	NP-7	1.4-	1.6	0.6	-2.	0.16-	0.2	3.6-	6.	-	-	1	3.	LOW	0.37
18-39	<25	NP-7	1.1-	1.6	0.6	-2.	0.09-	0.2	3.6-	6.	-	_	-		LOW	0.37
39-60	<25	NP-6	1.8-		0.06			0.04			-	-	-		LOW	0.2
53-60	<25	NP-6	1.3-	1.6	0.6	0.6-6. E-2-		0.04	3.6-	6.	-				LOW	0.2
												Wind		of C	orrosion	Potentia
						ter Table-(feet)						Erod.	Uncoa			Frost
reque	ncy Dura	tion	Months	Depth	_ K	ind	Months	Depth	Hard.	- 6	P Fact.		Steel		Concrete	Action
NONE	-		- j	1.0-2.	O PER	CHED	NOV-MAY	>60		В	4	56	MODER	ATE	нідн	MODERATI
											~				I	
	SANITA	RY FACII	LITIES		1	R.F	TING			RESTE	RICTIVE	FEATURE	(S)		i	
Septic	Tank Ab	sorption	Fields		ĺ	SEVER	E	Wetness	3	E	ercs Sl	owly	1		j	
Daily	Cover fo	r Landfi	111		1	POOR	1	Seepage	9	1 5	Small St	ones	1		ļ	
	BUILDI	NG SITE	DEVELOPM	ENT		R <i>I</i>	TING			REST	RICTIVE	FEATURE	(S)			
Shallo	w Excava	tions			1	SEVER	E	Cutbank	ks Cave	1 6	etness		1		1	
Dwelli	ngs With	out Base	ements		1	SEVER	RE	Wetness	5	1			1		1	
Owelli	ngs With	Basemer	nts		1	SEVER	RE	Wetness	5	1			1		1	
Small	Commerci	al Build	lings		1	SEVER	RE	Wetness	5	1					1	
Local	Streets	and Road	is		1	MODER	RATE	Wetness	3) E	rost Ac	tion	1		1	
Lawns,	Landsca	ping, ar	nd Golf F	airways	1	MODER	RATE	Large S	Stones	۱ ا	etness		 			
	CONSTR	UCTION N	MATERIAL		1	RI	TING			REST	RICTIVE	FEATURE	(S)		ĺ	
Roadfi	11				1	FAIR	1	Wetness	5	ļ					ļ	
Sand					!	PROB!	:			1			1		!	
Gravel Topsoi					1	IMPRO POOR	BABLE	Too Sar Small S	_		lrea Rec	laim			1	
	(J) MED	WAND CEN			 I		mraic I			DECU	TCTTUE	FEXITION OF				
Dond D	WATER MANAGEMENT			TING	Seepage		KEDII	RICTIVE	LENIUKE	(5)		1				
	nd Reservoir Area SEVI Dankments, Dikes and Levees SEVI		SEVER		Seepage		l l t	Piping		1		1				
Draina		TV62 gll(Levees		1		TATION	Percs S			Slope		I Cutba	nka	Cave 1	
Irriga					1		ATION	Slope	TOMIN		etness		Droug		Lave	
		iversion	ns		1		TATION	Large S	Stones		Erodes E	asilv	l	I	i	
							TATION	Large S			etness		1		i	

RECREATIONAL DEVELOPMENT	RATING	RESTRICTIVE FEATURE(S)	i
Camp Areas	SEVERE	Wetness	ĺ
Picnic Areas	MODERATE	Wetness Percs Slowly	1
Playgrounds	SEVERE	Wetness	- 1
Paths and Trails	SEVERE	Erodes Easily	1

CROPS AND PASTURE YIELDS

| Crop yields in this table are averages for high level management where the crop is commonly grown on the map unit.

Corn Grain bu/a	Corn Silage tons/a	Soybeans bu/a	Wheat bu/a			Alfalfa Hay tons/acre	Red Clover Hay tons/acre	Improved Pasture	Permanemt Pasture AUM
				70		3.	2.8	5.3	3.5

WOODLAND INTERPRETATIONS

OODLAND	EROSION HAZARD	EQUIPMENT LIMITATION	SEEDLING MORTALITY	WIND TH. HAZARD	PLANT COMPETITION	INTERP ASPECT	COMMONLY EXISTING TREES and/or	(E)	SITE	WOODLAN PRODUCT
							TREES RECOMENDED TO PLANT	(P)	INDEX	IVITY
3W	SLIGHT	MODERATE	SLIGHT	MODERATE	MODERATE					
							balsam fir	E	0	0
							red maple	E	0	0
							sugar maple	E	60	3
							yellow birch	E	60	3
							eastern hophornbeam	E	0	0
							bigtooth aspen	E	0	0
							quaking aspen	E	0	0
							black cherry	E	0	0
							American basswood	E	0	0
							eastern hemlock	E	0	0
							jack pine	P	0	0
							white spruce	P	0	0
							eastern white pine	P	0	0

RECOMMENDED WINDBREAK SPECIES AND EXPECTED HEIGHT AT 20 YEARS

Plant Name	Height	Plant Name	Height	Plant Name	Height	Plant Name	Height
American cranberrybush	10	Amur maple	12	common ninebark	8	eastern white pine	28
green ash	26	nannyberry viburnum	13	northern whitecedar	14	Norway spruce	24
redosier dogwood	8	silky dogwood	8	white ash	26	white spruce	24

For more information contact: Area Resource Soil Scientist, Soil Conservation Service Route 2, Box 2355, Spooner, WI 54801, Phone: 715-635-3505 ChC

Sloping and moderately steep, moderately well drained soil formed in a thin mantle of loess and in the underlying sandy and loamy glacial till. This map unit is potentially highly erodible. The land capability classification is 3E.

Component Name: CHAMPION

Classification: TYPIC FRAGIORTHODS, COARSE-LOAMY, MIXED, FRIGID

						ESTIMATED SOIL PROPERTIES								
Depth	USDA Te	xture		Unif	Class	ification AASHI	ro		3-10 nches	No ·	4 No.1	in. pass	No.200	Clay %
39-60	SIL VFSL FSL GR-FSL S	L GR-LS	ML SM	CL-ML S CL-ML S SM-SC S		A-4 A-2-4 A-4 A-2-4 A-1 A-2-4 A-1 A-4	L-B A-4	-		95- 95- 75-	100 85- 100 85- 100 55-	100 85-1	00 50- 90 00 30- 85 80 10- 50	2-15 2-12
	Liquid Limit	Plas- ticity Index	Bulk I	st ensity cc	Perme- abilit In/hr		pacity Reaction		on (Organic Matter Pct	Shrink Swell Potenti	Factor
0-18 0-18 18-39 39-60	<25 <25 <25	NP-7 NP-7 NP-6	1.4- 1.1- 1.8-	1.6	0.6-2. 0.6-2. 0.06-0.	0.09-		3.6- 6 3.6- 6 3.6- 6		 - -	- - -	1 3.	LOW LOW	0.37 0.37 0.2
	<25 Floo ncy Dura	_	1.3-	W	0.6-6. Water Tab Kind	le-(feet)			HYD	T	Wind Erod. Index	Uncoated	LOW Corrosion Concrete	0.2 Potential Frost Action
NONE			-		0 PERCHE		•		B	4	56 J	MODERATE	HIGH	MODERATE
			n Fields			RATING VERE OR	Wetnes: Seepage	3	Per			s)	 	
Dwelli Dwelli Small Local	w Excava ngs With ngs With Commerci Streets	tions out Base Basemer al Build and Road	nts dings ds		SE SE MO	RATING EVERE EVERE EVERE EVERE EVERE EVERE EVERE EVERE	Cutban Wetnes: Wetnes: Wetnes: Large	cs Cave	Wet	ness pe	FEATURE (S) Frost Ac	tion	
	avel		 FA PF IN	RATING AIR OBABLE IPROBABLE OOR	Wetness Too Sa	Ri s ndy	ESTRIC		FEATURE(
	eservoir ments, D ge		ENT d Levees		SE	RATING EVERE EVERE MITATION MITATION	Seepage Seepage Percs	e	ESTRICTIVE FEATU Slope Piping Slope		FEATURE (S) Cutbanks Droughty		
Terrac	es and D d Waterw		ns		L	MITATION MITATION	Slope Large	Stones	Lar	ness ge Sto ness	ones	Erodes E		

RECREATIONAL DEVELOPMENT	RATING	RI	ESTRICTIVE FEAT	URE(S)
Camp Areas	SEVERE	Wetness]	1
Picnic Areas	MODERATE	Slope	Wetness	Percs Slowly
Playgrounds	SEVERE	Slope	Wetness	
Paths and Trails	SEVERE	Erodes Easily		1

CROPS AND PASTURE YIELDS

| Crop yields in this table are averages for high level management where the crop is commonly grown on the map unit.

Corn Grain	Corn Silage	Soybeans	Wheat	0ats	Alfalfa Hay	Red Clover Hay	Improved Pasture	Permanent Pasture
bu/a	tons/a	bu/a	bu/a	bu/a	tons/acre	tons/acre		AUM
				60	2.5	2.3	5.1	3.

WOODLAND INTERPRETATIONS

ORD. SYB.	EROSION HAZARD	EQUIPMENT LIMITATION	SEEDLING MORTALITY	WIND TH.	PLANT COMPETITION	INTERP ASPECT	COMMONLY EXISTING TREES and/or TREES RECOMENDED TO PLANT	(E)	SITE INDEX	WOODLAN PRODUCT IVITY
3W	SLIGHT	MODERATE	SLIGHT	MODERATE	MODERATE					
							balsam fir	E	0	0
							red maple	Ε	0	0
							sugar maple	E	60	3
							yellow birch	Ε	60	3
							eastern hophornbeam	E	0	0
							bigtooth aspen	E	0	0
							quaking aspen	Ε	0	0
							black cherry	E	0	0
							American basswood	E	0	0
							eastern hemlock	Ε	0	0
							jack pine	P	0	0
							white spruce.	P	0	0
							eastern white pine	P	0	0

RECOMMENDED WINDBREAK SPECIES AND EXPECTED HEIGHT AT 20 YEARS

 Plant Name	Height	Plant Name	Height	Plant Name	Height	Plant Name	Height
American cranberrybush	10	Amur maple	12	common ninebark	8	eastern white pine	28
green ash	26	nannyberry viburnum	13	northern whitecedar	14	Norway spruce	24
redosier dogwood	8	silky dogwood	8	white ash	26	white spruce	24

For more information contact: Area Resource Soil Scientist, Soil Conservation Service
Route 2, Box 2355, Spooner, WI 54801, Phone: 715-635-3505

Nearly level, very poorly drained soil formed in acid organic material more than 51 inches thick or underlain by sandy glacial outwash at depths of 16 to 50 inches. This map unit is not highly erodible unless drained. The land capability classification is 6W. This map unit is hydric.

Component Name: LOXLEY

This map unit has 2 components, and 2 interpretation sheet.

Classification: TYPIC BOROSAPRISTS, DYSIC

Depth	USDA Te	xture		Unif	Classif. ied	ication AASHT	0		3-10 nches		cent < 3	_	sing sieve	
 0-12	 FB		PT			A-8			0	 -		· · -	 -	-
12-60	SP		PT			A-8		-	0	۱ -		-	-	1 -
	Liquid		Moi		Perme-	Availa		Soil		EC	CaCO3	Organio		
Depth) (In)	Limit	ticity Index		ensity cc	ability In/hr	Water Cap (In./		Reaction (pH)		me/ 00g)	Pct	Matter Pct	Swel Potent	
				·				2 6 4 1	 -			70 00		
0-12 12-60	-	-	0.3- 0.1-		620. 0.2-6.	0.35-0		3.6-4.5 3.6-4.5		-	-	7090. -		0.1
	Plac		ا		m-bl-		l Padwarl						Corrosion	
	ncy Dura		Months	Depth	Kind	-(feet) Months	Depth				Erod.	Uncoated Steel	Concrete	
NONE		_	-			YEAR-ROUND	!		A/D	5	38	HIGH	HIGH	HIGH
Dwelli	w Excava ngs With	tions out Base		IEN I	SEVE		Excess i	Humus	Pon	ding ding	FEATURE(Low Stre	ength	
Owelli	ngs With	Basemen	nts		SEVE		Subsides			ding	j	Low Stre		
	Commercia Streets a		_		SEVE		Subsides Subsides			Ponding		Low Stre	- :	
	Landsca			airways	SEVE		Too Acid		1	Ponding Ponding		Excess H		
	CONSTRI	JCTION M	MATERIAL		l R	ATING		R	 ESTRIC	TIVE	FEATURE (S)		
Roadfi	11				POOR		Wetness		Low	Stre	ngth)	
Sand						OBABLE	Excess I	~	1)	
Gravel Topsoi	1				POOR	OBABLE	Excess l		 ₩et	ness	}	Too Acid		
	WATER 1	ANAGEME	NT		R	ATING		R	 ESTRIC	TIVE	 FEATURE ((S)		
Pond R	eservoir	Area			SEVE	RE	Seepage		1		1		}	
Embank	ments, D	ikes and	Levees		SEVE	:	Excess 1	Humus		ding)		!	
	nage		LIMI	TATION	Ponding		Sub	sides	1	Frost Ac	tion			
Draina					i				i		i			
Draina Irriga					:	NOITATION	Ponding Ponding		Ī™	Acid	į			

RECREATIONAL DEVELOPMENT	RATING)	RESTRICTIVE FEATURE(S)								
Camp Areas	SEVERE	Ponding		Humus	Too Acid	j					
Picnic Areas	SEVERE	Ponding				1					
Playgrounds	SEVERE	Excess	Humus Pondir	g	Too Acid	1					
Paths and Trails	SEVERE	Ponding	Excess	Humus		. 					
Crop yields in this table are average			STURE YIELDS where the crop i	s commonly	grown on th	e map uni	it.				
Corn Grain Corn Silage Soybeans bu/a tons/a bu/a			Red Clover Ha	- : -		Permanem AU					
	w	OODLAND INTE	RPRETATIONS								
OODLAND EROSION EQUIPMENT SEEDLI	NG WIND TH. P	LANT	INTERP COMMONL	Y EXISTING	TREES (E)		WOODLAND				
ORD. SYB. HAZARD LIMITATION MORTAL		OMPETITION	ASPECT TREES R	,	ro prant (p)	SITE	PRODUCT-				
2W SLIGHT SEVERE SEVERE	SEVERE S	EVERE									
			balsam f	ir	E						
			tamarack		E						
			black sp	ruce	E	15	2				
	RECOMMENDED WIN		ES AND EXPECTED	HEIGHT AT 2	20 YEARS						
Plant Name Height Plant N		Height Pla		Height	Plant Name		Heigh				
on a simple of				28	nannyberry	viburnum	1				
common ninebark 8 eastern	will co pine	Do gro	on abn	20	nonniporri		Ti 5.				

For more information contact: Area Resource Soil Scientist, Soil Conservation Service, Hwy 70 E. and Timberland Road, Route 2, Box 2355, Spooner, WI 54801-1403, Phone: 715-635-3505

Nearly level, very poorly drained soil formed in acid organic material more than 51 inches thick or underlain by sandy glacial outwash at depths of 16 to 50 inches. This map unit is not highly erodible unless drained. The land capability classification is 6W. This map unit is hydric.

Component Name: DAWSON This map unit has 2 components, and 2 interpretation sheet.

Classification: TERRIC BOROSAPRISTS, SANDY OR SANDY-SKELETAL, MIXED, DYSIC

1	Classification	>1	.0 3-10	Percent <	3 in. passing	g sieve	Clay %	
Depth USDA Texture Unific	ed AAS	HTO In	. Inches	No 4 No.	10 No.40	No.200	<.002 m	
0-11 FB PT	A-8		. 0	-		_	0-	
11-35 SP PT	A-8	-	. 0) -		-	0-	
35-60 S LFS GR-S SM-SC SM SC	SP-SM A-2 A-3	A-1	. 0	45-100 35	-100 15- 90	0- 30	0-10	
Liquid Plas- Moist	Perme- Ava	ilable	Soil	CEC CaCO3	Organic	Shrink	Erosio	
Depth Limit ticity Bulk Density	ability Water	Capacity Re	eaction	(me/	Matter	Swell	Factor	
(In) Index g/cc	In/hr (In	./in)	(pH)	100g) Pct	Pct	Potentia	I K	
0-11 0.2-0.3	6,-20. 0.5	5-0.65 3.	6-4.4		6585.		0.1	
11-35 0.2-0.4			6-4.4		-		0.1	
35-60 <20 NP-10 1.5-1.8			5-6.5		_	LOW		
				Wind	Risk of Con	rosion	Potentia	
Flooding Wat	ter Table-(feet) -	Bedrock-(in) HYD	T Erod.	Uncoated)	Frost	
Frequency Duration Months Depth	Kind Months	Depth Ha	ard. GRP	Fact. Index	Steel Co	oncrete	Action	
		-				!		
NONE - +1-1.0	APPARENT YEAR-ROU	ND >60	A/D	4 38	HIGH HI	[GH]	HIGH	
SANITARY FACILITIES Septic Tank Absorption Fields Daily Cover for Landfill	RATING SEVERE POOR	Subsides Ponding	Poi	cess Humus	Percs Slow	ly 		
BUILDING SITE DEVELOPMENT Shallow Excavations	RATING SEVERE	Cutbanks C		CTIVE FEATURE cess Humus	: 1	1		
Dwellings Without Basements	SEVERE	Subsides		nding	Ponding Low Strengt	th I		
Dwellings With Basements	SEVERE	Subsides		nding	LOW SCIENCE	1		
Small Commercial Buildings	SEVERE	Subsides		ndina	Low Strengt	th Í		
Local Streets and Roads	SEVERE	Subsides	Po	nding		Frost Action		
Lawns, Landscaping, and Golf Fairways	SEVERE	Ponding	Ex	cess Humus	1	Ì		
CONSTRUCTION MATERIAL	RATING		RESTRI	CTIVE FEATURE	(S)			
Roadfill	POOR	Wetness	1		}	1		
Sand	PROBABLE		1			1		
Gravel	IMPROBABLE	T∞ Sandy						
Topsoil) POOR	Excess Hum	mus We	tness	!			
WATER MANAGEMENT	RATING	1	RESTRI	CTIVE FEATURE	(S)			
Pond Reservoir Area	SEVERE	Seepage	1]	1		
Embankments, Dikes and Levees	SEVERE	Excess Hum		nding				
Drainage	LIMITATION	Ponding	Su	bsides	Frost Actio	on		
Irrigation	LIMITATION	Ponding	J					
Terraces and Diversions	LIMITATION	Ponding	1		1			
Grassed Waterways	LIMITATION	Wetness	1	1				

RECREATIONAL	DEVELOPMENT	1	RATING	. 1	RE	STRICTIVE	FEATURE (S)		j	
Camp Areas		1	SEVERE	Po	onding	Excess H	umus			1	
Picnic Areas		1	SEVERE	Po	onding	Excess H	umus			1	
Playgrounds		1	SEVERE	Ex	cess Humus	Ponding	- 1			1	
Paths and Trails		SEVERE	Po	onding	Excess Humus				}		
					ND PASTURE YI)	
Crop yields in this	table are a	verages for	r high lev	el manage	ment where the	e crop is	commonly	grown or	n the	map un	it.
Corn Grain Corn Sil					a Hay Red C	lover Hay	Improve	ed Pastur AUM	re P		t Pasture UM
							j				
				1			1				
				WOODLAND	INTERPRETATIO	ONS					
				Dr. Nam	l aanmar	COMOUNT	EVICUTAL	um rrc	(E)		WOODLANI
OODLAND EROSION E	QUIPMENT	SEEDLING	WIND TH.	PLANT	INTERP	COMMONLY	CYTOITUG	IKEES	()		
	~	SEEDLING MORTALITY	WIND TH. HAZARD	COMPETIT			and/or	TKLLS	(6)	SITE	
RD. SYB. HAZARD L	MOITATIMI	MORTALITY	HAZARD	COMPETIT			and/or		, ,	SITE INDEX	PRODUCT-
RD. SYB. HAZARD L	MOITATIMI				TON ASPECT	TREES REC	and/or		, ,		PRODUCT
ORD. SYB. HAZARD L	MOITATIMI	MORTALITY	HAZARD	COMPETIT	TON ASPECT		and/or OMENDED		, ,		PRODUCT-

For more information contact: Area Resource Soil Scientist, Soil Conservation Service, Hwy 70 E. and Timberland Road, Route 2, Box 2355, Spooner, WI 54801-1403, Phone: 715-635-3505

11/13/19

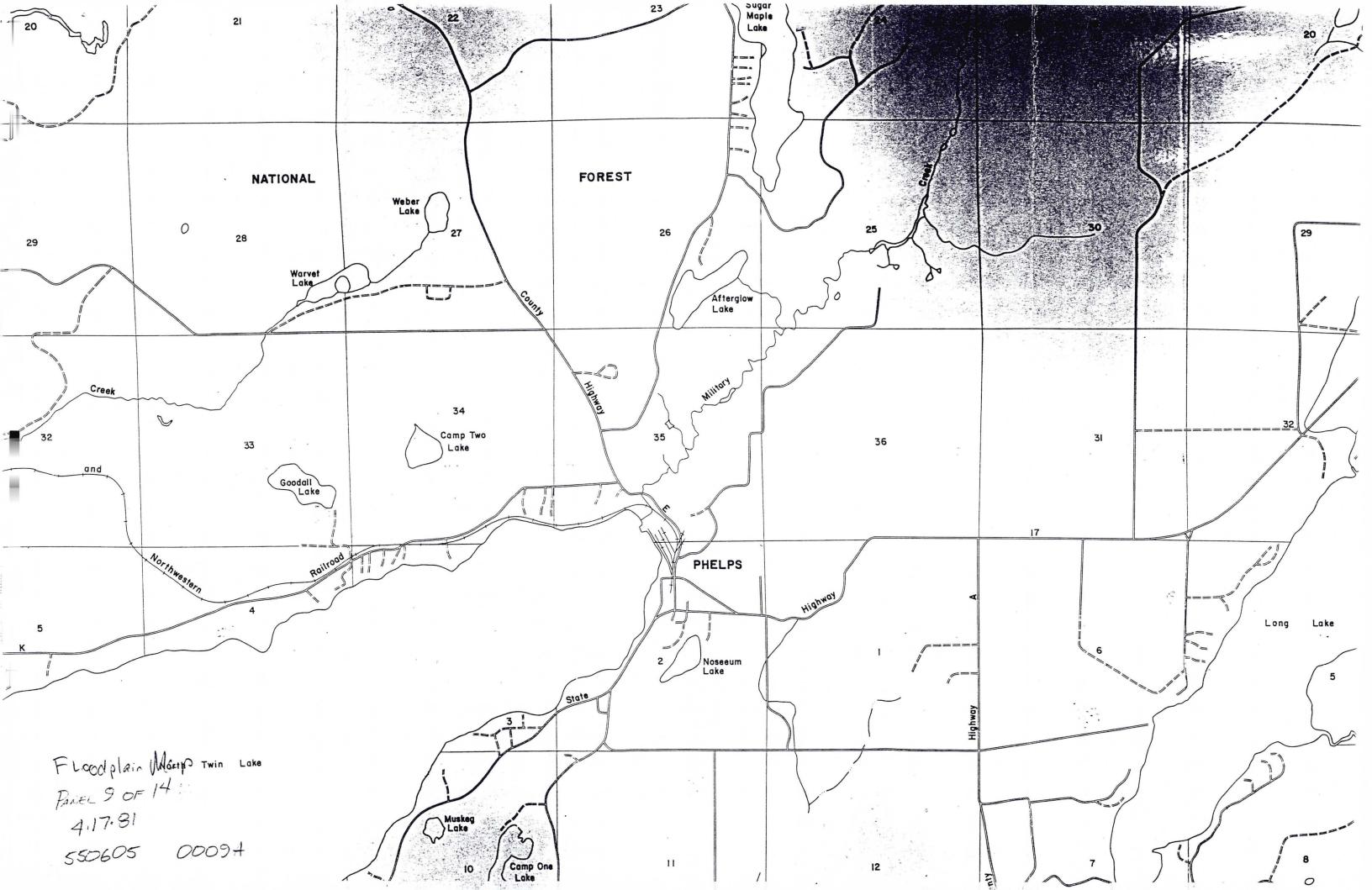
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Floodplain Map

(map E)

inguing on 1913 actual photography by the U. S. Depatiment of Agriculture, Soil Curstivation Service and cooperating agencies.
Conducingly gruld ticks and band division connect, if Shown, are approximately postulating.

VILAS COUNTY, WISCONSIN NO. 36



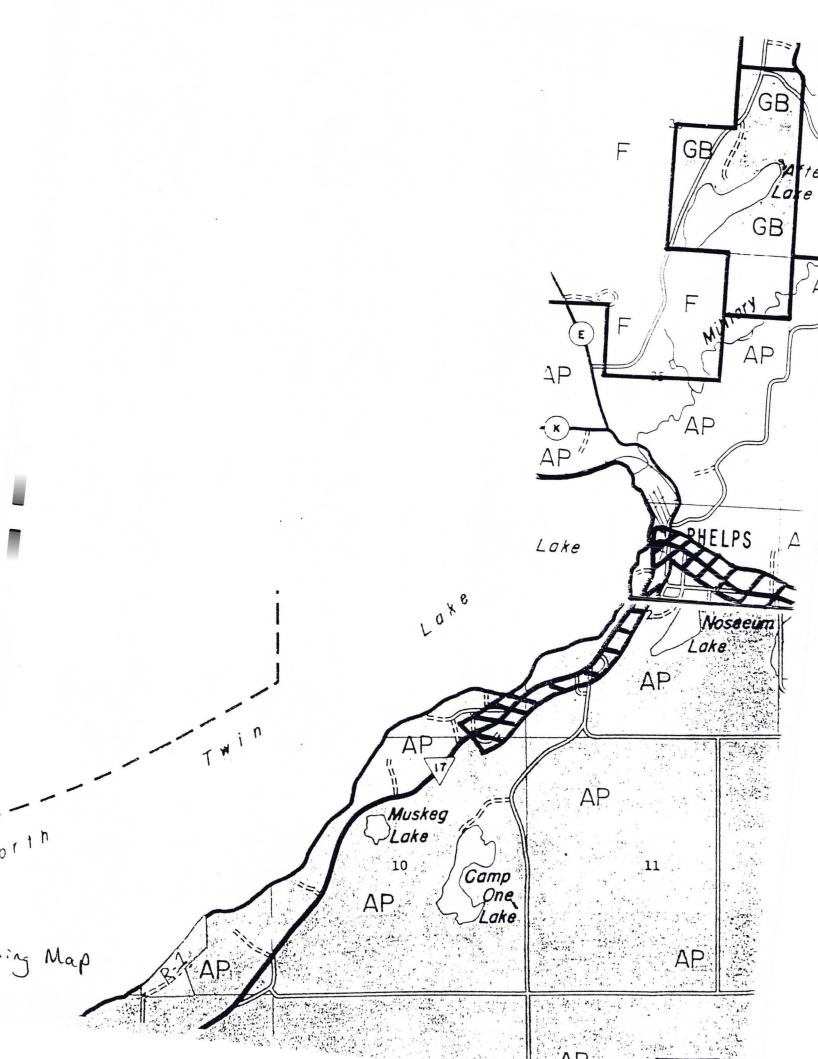


Table 1 - Excavation Soil Volume Estimate (revised)

Design Report and Plan of Operation

C.M. Christiansen Co., Inc. Former Pole Treatment Facility

Phelps, Wisconsin

NRT PROJ. NO.: 1226

BY: JAZ

CHKD BY: LJP

DATE: 10/21/98

FILE: Table 1 ExcSoilVol

Area	Location	Soil Sample	Max PCP Concentration	Estimated Surface Area	Max. Depth	Min. Depth	Average Depth	Estimated Volume ¹	Comments
1	Former AST Area	B-4	1,300 ppm	3,183 ft2	14 ft	6 ft	10 ft	1179 cy	Higher volume corresponds to removal of MW-7 below water table.
2A	Former Boiler Area	HA-2/S-1	1,700 ppm	1450 ft2	5 ft	5 ft	5 ft	269 cy	Max. depth of 5 ft confirmed during sampling at test pit TP-4.
2B	Creek Area	HA-27/28	470 ppm	4296 ft2	1 ft	1 ft	1 ft	159 cy	Excavation of this area depends on approval from WDNR due to wetland
3	Lower Wetland Area	HA-17/19	82,000 ppm	5,093 ft2	5 ft	2 ft	3 ft	566 cy	Max. depth of 5 ft confirmed during sampling at test pit TP-1.
4	Upper Wetland Area	HA-7/MW-13	44,000 ppm	1,793 ft2	6 ft	4 ft	5 ft	332 cy	
5	Western Tree-line	B-12/MW-8	340 ppm	707 ft2	3 ft	1 ft	2 ft	52 cy	

Total Estimated Volume¹ 2,560 cy Total Estimated Tonnage² 3840 tons

¹Estimated soil volume, based on performance-based standard of 200 mg/kg for pentachlorophenol (PCP).

²Tonnage estimated at 1.5 tons per cubic yard of soil

				N	lay				June			July	,			Aı	ugust			
ID	Task Name	4/25	5/2	5/2 5/9				30 6/6		 6/27	7/4	7/11	7/18	7/25	8/1			8/22	8/29	9 9/5
1	WDNR Permit Review and Public Notice					179		15												
2	Site Preparation and Erosion Control	4 -	***************************************							Ę,	-			•				***************************************);
3	Soil Excavation and Processing									 						•				
4	Biopile Construction																•			
5	Excavation Dewatering and Treatment															•				
6	Documentation Report																			

Project: 1226 CM Christiansen

Date: 5/20/99

Task

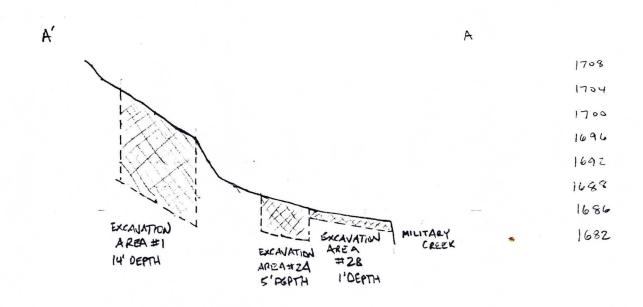
Progress Progress

Milestone

DATE: 5/6/99 CLIENT CMCHRISTIANSEN **Natural** Resource CHKD. BY: 5LF DATE: 5/20/99 PROJECT/TASK 1226/4.1 Technology SUBJECT: GRADING PERMIT: LOCATION SKETCH & CROSS-SECTION A-A' PAGE: 1 OF: 2 PROPOSED MATERIALS: LOCATION SKETCH: Erosion control with sitt fever bales. PROJECT SITE Excavated areas will be backfilled with clean material, graded, topsoiled, mulched, and seeded with a grass CTH "K" mixture. Soil staging and SCALE 1:2000 treatment areas will be graded, SET AND SWT, SEC 35 NOTE: EXCAVATION GRADING TO BE topsoiled (following project), THZN, RIIE CONDUCTED IN SEVERAL NORTH SEPARATE LOCATIONS TWIN mulched, and grass-seeded. WITHIN PROJECT SITE

SITE PLAN AND SECTIONS

SEE ATTACHED SITE PLAN FOR SECTION LO CATIONS 1:80

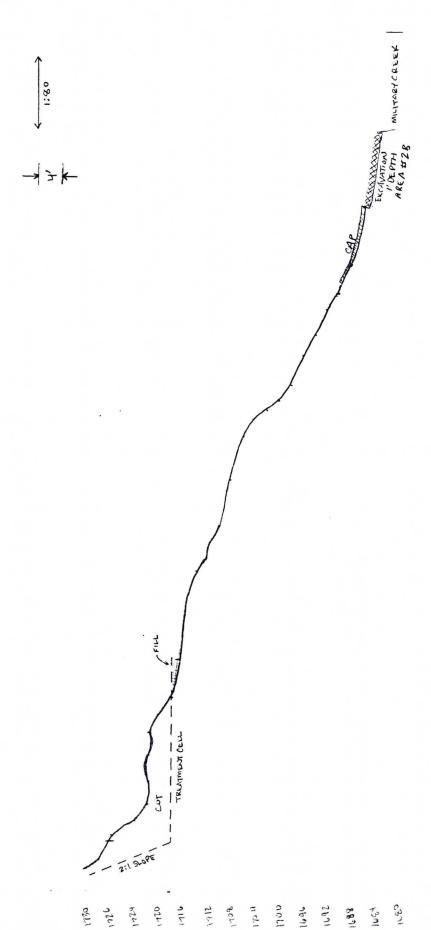


BY: DNP DATE: 5/6/99 CLIENT CMCHRISTIANSEN

CHKD. BY: SLF DATE: 5/20/99 PROJECT/TASK 1226/4./

SUBJECT: GRADING PERMIT: CROSS SECTION 1-13'

PAGE: 2 OF: 2



EROSION CONTROL PLAN C.M. CHRISTIANSEN FORMER POLE TREATMENT FACILITY

Overview

This document is a supplement to the *Grading in Excess of 10,000 Square Feet Information Requirements* for construction activities at the C.M. Christiansen Former Pole Treatment Facility in Phelps, Wisconsin. The site location is shown on attached Figure 1. The purpose of this supplemental plan is to address erosion control measures for excavation, grading, and backfilling to occur during remedial construction at the site. Contaminated soil will be excavated from five areas of the site, as shown on Plate 1. Three of these areas, including Area 1, 2 and 3 are located on the unbroken slope of a navigable waterway, Military Creek. Excavated soil is planned for stockpiling and on-site treatment in a constructed biological treatment pile. Activities described herein will be performed in accordance with *Wisconsin Best Management Practices for Construction Site Erosion Control*.

Temporary Erosion Control Practices

The proposed schedule for this project is to begin grading activities, depending upon timely permit approval, in July 1999. Prior to the commencement of soil excavation, the following site preparation activities will be conducted:

- Silt fence will be placed on the down slope side of each excavation area for erosion control purposes as shown on Plan Plate 1. In addition, silt fence will be placed on the down slope side of the soil staging/material processing area and the above-ground treatment cell.
- A run-on control system will be constructed on three sides of the treatment cell. A diversion swale will be constructed along the northern, western and southern sides of the treatment cell which is capable of preventing flow onto the cell from a 24-hour, 25-year storm. The swale will divert run-on water around the cell in an easterly direction toward the creek. Calculations for determining the dimensions of the swale are contained in Appendix D and a typical cross section is shown on Figure 8. The swale will have 1:1 side slopes, with a width of 1 foot at the base, 3 feet at the top and 1 foot in depth with an average slope of 2 percent (1% minimum).
- A soil staging/material processing area will be constructed in accordance with NR 718.05
 (3).

Installation methods and maintenance procedures for erosion control silt fences and straw bale fences will follow best management practices. Trucks, grading equipment, and other construction vehicles will use the gravel access roads as much as possible to minimize tracking. Temporary mulching may be used to reduce erosion and promote establishment of vegetative cover. Bare soils shall be temporarily mulched if additional grading or final cover placement will be delayed for over four weeks. Suitable mulching material includes straw, wood chips, or wood fiber. Erosion control nets and mats may also be used.

Maintenance Activities

Over the duration of construction activities the primary construction manager will be responsible for implementing the erosion control plan. The construction manager or other designated contractor will conduct site inspections to: 1) document the conditions of silt fences; 2) document sediment accumulation amounts adjacent to fences; 3) evaluate eroded or potentially unstable soils; and 4) determine whether additional mulching/seeding is needed. Inspections will be made on a weekly basis and within 24-hours after significant rainfall events in accordance with the Wisconsin Construction Site Best Management Practice Handbook. Maintenance activities may include removal of sediment from fences, fence repair as needed, and mulching/seeding, if needed.

Permanent Erosion Control Practices

Excavation areas disturbed by filling and grading will ultimately be covered by a compacted cap, topsoiled, and vegetated with grass. Routine inspection of the biological treatment cell and other areas will be conducted following construction, including checking that the run-on swale is properly diverting water away from the cell, monitoring the growth of seeded areas, and identification of potential erosion pathways.