Wisconsin Conservation Planning Technical Note 1

Nutrient Management

INTRODUCTION

Definition of Nutrient Management

Managing the amount, source, placement, form, and timing of the application of nutrients and soil amendments.

PURPOSE

Nutrient management planning is an important and yet oftentimes cumbersome process. This Technical Note has been developed in order to provide guidance for nutrient management planning in addition to NRCS Field Office Technical Guide (FOTG) Standard 590.

NRCS, Field Office Technical Guide (FOTG), Section IV, Conservation Practice Technical Standard 590, Nutrient Management, provides specific criteria for nutrient management planners (section V). It identifies the necessary components of a nutrient management plan (section VII), and lists criteria for operation and maintenance of the practice (section VIII). Federal, state, and local laws may provide additional requirements and guidance. Please be aware that the Wisconsin Conservation Planning Technical Note WI-1 is the companion document to NRCS FOTG Standard 590 and includes criteria that are required where specified.

Periodic updates to material contained in this technical note may occur. To find the most current information for developing nutrient management plans, use Snap Plus nutrient management software from http://www.snapplus.net/ developed by the UW Madison, Soil Science Department and available free of charge. This nutrient management planning tool will allow nutrient management planners to use the most current application rate guidelines found in UWEX publication A2809 and the most current manure book values for estimating manure production and nutrient availablility. Snap Plus will also stay current and highlight soil map units that are susceptible to leaching N. These soils are found in Appendix 1 of this technical note and will be changing to numerical map units as county soil surveys are updated.

This technical note provides detailed guidance on the following:

Part I: Minimum Requirements for a Nutrient Management Plan

Part II: Items of Benefit for Nutrient Management Planning

Part III: Determining Manure Nutrient Credits

Part IV: DNR Regional Offices and Contacts

Appendix 1: Soils List with High Potential for Nitrate Leaching to Groundwater

Appendix 2: Certified Laboratories

Appendix 3: Nutrient Management for Wisconsin Cranberry Production

PART I

MINIMUM REQUIREMENTS FOR A NUTRIENT MANAGEMENT PLAN

The landowner/producer (person required to have the plan developed, or receiving the cost share monies) is responsible for keeping records of all the components of the nutrient management plan for a minimum of four years, as well as having the plan updated annually. A nutrient management plan shall be developed according to the following criteria and steps as defined in the NRCS FOTG Standard 590, Nutrient Management. If the goal of the client is to develop a Comprehensive Nutrient Management Plan (CNMP), the additional documentation requirements found in the NRCS National Planning Procedures Handbook, Subpart F, Part 600.75, must also be met. Records shall be assembled to meet the following requirements:

A. Plan Narrative describing a summary of the implementation and operation of the nutrient management plan as it pertains to the entire farm unit. Details should include an overview of the operation including typical crops grown and a summary of the sources of nutrients other than fertilizer applied to the land. A summary of Phosphorus reduction strategies should be included as appropriate.

B. Aerial photographs and/or maps of the farm containing:

1. Boundaries, identification numbers, and acreage for all crop fields, pastures, and nutrient management units. An attempt should be made to provide consistent field identification in the nutrient management plan, soil test record, and conservation plan. A cross reference summarizing field identification numbers shall be provided when field identification numbers are not consistent.

2. A map or photograph identifying soil series and soil series boundaries.

3. Location and identification of the following features that require protection. Delineate boundaries for nutrient application restriction areas based on the following criteria. Include a legend of map symbols used.

   a. Nutrient Application Prohibitions

      (1) Identify the following features:

         (a) Surface water, established concentrated flow channels, or non-harvested permanent vegetative buffers.

         (b) Non-farmed wetland, sinkhole, nonmetallic mine, or well.

         (c) The area within 50 feet of a potable drinking water well when manure application is a part of the plan.

         (d) Areas contributing runoff within 200 feet upslope of direct conduits to groundwater such as a well, sinkhole, fractured bedrock at the surface, tile inlet, or nonmetallic mine (unless the nutrients are effectively incorporated within 72 hours).

         (e) Land where vegetation is not removed mechanically or by grazing, except to provide nutrients for establishment and maintenance, unless necessary in an emergency situation.

         (f) Fields exceeding tolerable soil loss (T).

      (2) When frozen or snow-covered soils prevent effective incorporation at the time of application and the nutrient application is allowed, identify the following:

         (a) Surface Water Quality Management Area (SWQMA) (within 300 feet of the ordinary high water mark of a perennial stream, 1000 feet of the ordinary high water mark of a lake, pond, or flowage).

         (b) Locally identified areas delineated in a conservation plan as contributing nutrients to direct conduits to groundwater or surface water as a result of runoff.

         (c) Slopes greater than 9%, except for manure on slopes up to 12% where cropland is contoured or contour strip cropped.

   b. Nutrient Application Restirction Areas

      (1) Soils with nitrogen application restrictions due to rapid permeability, soils with less than 20 inches to bedrock, or soils with less than 12 inches to apparent water table (see Appendix 1).

      (2) Areas within 1000 feet of a municipal well.

C. Minimum field-specific (or nutrient management unit specific) documentation of:

1. Current or planned crop rotation or sequence including the previous crop and crop to be grown this year.

2. Projected yield goals for each crop.

3. Dominant soils series for the field or nutrient management unit.

4. Previous year's actual and current year's proposed nutrient and soil amendment application rates including the form, rate, and timing for:

   a. Commercial fertilizers

   b. Manure (If you are collecting and applying livestock manure, complete part 3, section 1.)

c. Other organic byproducts

d. Legume Nitrogen and Phosphorus (see #5) credits

e. Soil Amendments (e.g., lime)

5. Soil test information (including pH, organic matter, soil P, and soil K), as developed following standard sampling guidelines and as analyzed by an approved Wisconsin laboratory (refer to Appendix 2 for contact information). University of Wisconsin - Extension (UWEX) Publication A2100, "Sampling Soils for Testing" (2002), is your guide for soil sampling. A soil test is the only practical way of telling whether lime and fertilizer are needed. However, if a soil sample does not represent the general soil conditions of the field, the recommendations based on this sample will be useless. An acre of soil to a 6-inch depth weighs about 1,000 tons, yet less than 1 ounce of soil is used for each test. Therefore, it is very important that the soil sample is characteristic of the entire field. The following directions will help you collect good soil samples.

   a. Do not sample any area of a field that varies widely from the rest of the field in color, fertility, slope, soil texture, drainage, or productivity unless the area is large enough to be treated separately.

   b. Push aside organic materials and avoid areas near dead furrows, roads, and fences; areas where fertilizer has been banded; and eroded knolls and low spots.

   c. Sample contour strips separately if it is approximately 5 acres or more. Cores from 2-3 strips that have identical cropping and management histories may be combined.

   d. A composite sample consists of at least 10 cores using a probe or auger to plow depth or at least 6 inches. Mix these cores well and place 2 cups of this soil in a sample bag. When at least three composite samples per field are submitted to the lab, the significantly higher testing sample is removed from the recommendation to ensure that no part of the field is under-fertilized. Identify the sample bag with your name, field identification, and sample number. Record the field and sample location on a map. And finally, fill out the soil information sheet carefully. Include the soil series, field number, field acres, and sample number(s) for each field so test summaries and soil test recommendations reflect this information.

   e. *Sampling fields for a single recommendation:* If the field was tested more than four years ago or has P and K levels in <u>the responsive range</u> (H or lower), then every 5 acres needs 1 sample. Soil sampling size for fields testing in the <u>non-responsive range</u> (VH or EH) for P and K levels can be increased as follows:

Acres	Samples
5-10	2
11-25	3
26-40	4
41-60	5
61-80	6
81-100	7

   f. *Grid sampling fields and variable rate applications:* If fertilizer and lime applications vary across a field, soil sampling for fields in the <u>responsive range</u> (H or lower) for P and K levels may need samples every 200 feet. While fields in the <u>non-responsive range</u> (VH or EH) for P and K levels can have samples every 300 feet.

6. Where P (all sources) is applied in one year to meet current and future crop needs in a rotation, the credits for surplus P must be tracked and subsequent nutrient applications shall be adjusted using criteria C. of NRCS FOTG Standard 590.

7. The NRCS soil loss equation form, WI-CPA-15, or equivalent should be included.

8. Document current year's actual crop yield and nutrient application rates including form, timing, and application method. Changes to nutrient applications that are not consistent with the plan should be documented in the plan. Include the reasons why the changes were made and revise the P budget in #6 above as necessary.

9. For cranberry crops, see Appendix 2 for certified soil testing laboratories and Appendix 3 for Nutrient Management for Wisconsin Cranberry Production.

PART II

ITEMS OF BENEFIT FOR NUTRIENT MANAGEMENT PLANNING

The items listed in Part II of the technical note are recommendations that should be considered in nutrient management planning. These items may provide additional water quality benefit over and above the criteria in NRCS FOTG Standard 590, Nutrient Management.

The rate, timing, and placement of nutrients are important considerations that may affect water quality.

A. General

1. Nutrients should be applied as near to the time of crop use as possible.

2. Minimize nutrient applications on frozen or snow-covered ground. The P Index can provide crop management assessments for reducing potential P loads.

3. Use the Wisconsin P Index or soil test P management strategies in criteria C. of NRCS FOTG Standard 590 to prioritize nutrient application sites. Apply nutrients to the least environmentally sensitive areas first at rates needed to supply the crop N requirements or the anticipated crop removal of P and/or K. Criteria to consider include: hydraulic loading rate of the soil profile, soil permeability, infiltration capacity, slope, distance to surface water features, erodibility, accessibility, present crop, potential fate of runoff, infiltration, and presence of conservation practices.

4. Apply manure to crops which can use all of its nutrients, including nitrogen, whenever possible. Grasses such as corn are best. Manure applied to forages stimulates grass production and weed growth, results in lower forage protein, and tends to reduce the alfalfa stand. If it is unavoidable to spread manure on alfalfa, the following recommendations are suggested in "Applying Manure to Alfalfa," North Central Regional Research Report 346.

    a. Preplant manure applications generally can have a positive effect on seedling-year alfalfa dry matter production where weeds are adequately controlled. This response may also be carried over into the full production years. Although manure may increase certain seedling-year weed problems, these usually do not persist past first cutting. Repeated manure applications at high rates may increase forage potassium to unacceptably high levels.

    b. Topdressing manure to established alfalfa is somewhat more risky. While benefits can be obtained, especially on low-testing soils or on legume-grass mixtures, problems from compaction, salt burn and stand suffocation can occur. Alfalfa can be a major sink for recycling nitrogen and other nutrients; however, topdress applications, especially to frozen soils, may result in large nutrient runoff losses. Various management practices, including using low rates on the poorest stands immediately after cutting, will help reduce the agronomic and environmental risks associated with following this strategy.

    c. Applying at the end of the alfalfa rotation may leave more nitrogen than the following crop can use. This can lead to large, unacceptable environmental risks from nitrate leaching. A producer who takes this approach must consider the nitrogen contributed from both the legume and the manure. Removing all of the alfalfa top growth before application and limiting manure rates by taking into account the alfalfa nitrogen credit is essential.

5. When implementing rotational grazing, estimate pasture productivity and length of grazing period, and determine stocking rates and acreage needed by following the recommendations in UWEX Publication A3529, "Pastures for Profit: A Guide to Rotational Grazing," revised 2002.

B. Nitrogen

1. Nitrogen management practices to improve nitrogen use efficiency are summarized in UWEX publication A3340, "Corn Fertilization" (1998).

    a. Use the appropriate nitrogen rate for the production conditions.

b. Make proper adjustments for high corn residue cover.

c. Fully credit nitrogen that may be available from organic sources such as manure legumes and soil organic matter.

d. Use soil nitrate tests when appropriate to help identify the optimum N rate.

e. Avoid fall applications of N fertilizers.

f. Use sidedress N applications or delay N applications to coincide with the crop N demand, especially on coarse-textured soils where nitrate leaching is likely.

g. Use a nitrification inhibitor with ammonium forms of nitrogen where the risk of N loss through leaching or denitrification is high.

h. Control ammonia losses from urea containing fertilizers by incorporating or injecting these materials within 72 hours, by using urease inhibitor, or by selecting a non-urea material for surface applications.

i. Control ammonia losses from dairy farms by removing excess protein from the cow's diet. Incorporate manure in the field being aware of the potential for increased erosion and P losses. Cover manure storage structures or use organic matter in bedding to form a crust cover. When possible, divert urine away from feces.

2. The first 20 pounds per acre of N in starter fertilizers is not credited towards the total nutrient need of the crop to be grown (UWEX Publication A3340, "Corn Fertilization," 1998). Phosphorus and potassium from starter fertilizers are fully credited.

3. When concerned with the rate and placement of nitrogen, consider these points in addition to those found in Section VI of NRCS FOTG, Standard 590, Nutrient Management:

   a. Unused or residual nitrate may be leached from the soil and pollute groundwater. In years of normal fertilizer application and unexpected low yields, excess nutrients, including nitrate, may accumulate in the soil. Pre-plant soil nitrate tests can be used to measure carryover nitrogen and adjust nitrogen applications (see UWEX Publication A3624, "Soil Nitrate Tests for Wisconsin Cropping Systems," 1994). Additional options for reducing the amount of nitrogen subject to leaching include:

      (1) Growing a winter cover crop to use carryover nitrogen.

      (2) Growing legume crops (when managed without supplemental N inputs) to "scavenge" N remaining in the profile.

      (3) Growing high N demanding crops such as corn and forage grasses.

   b. Nitrification inhibitors used with ammonium or ammonium-forming N fertilizers can improve N efficiency and limit loss of fertilizer N on soils where the potential for nitrate loss through leaching or denitrification is high.

4. First year annual N removal by legumes and companion crops

Crops	Yields (per acre)[1]	N removal (lb/a)[2]
Legume forages with inter-seeded companion forages[3]		
Spring-seeded forages (Yields are for total annual dry matter harvests of both legumes and the inter-seeded forages)[4]	0.5-1.5 T	110
	1.6-2.5 T	170
	2.6-3.5 T*	220
	3.6-4.5 T	280
Small grains inter-seeded with legume forages		
Barley (Yields shown are for grain. Add N removal from above for appropriate first year forage yield to this N removal for grain to get totalannual N removal)	25-50 bu	40
	51-75 bu*	70
	76-100 bu	100
Oats (Yields shown are for grain. Add N removal from above for appropriate first year forage yield to this N removal for grain to get totalannual N removal)	30-60 bu	40
	61-90 bu*	60
	91-120 bu	80
Soybean for beans	15-25 bu	80
	26-35 bu	120
	36-45 bu	160
	46-55 bu	200
	56-65 bu*	240
	66-75 bu	280
	76-85 bu	320
Soybean for forage	0.5-2 T	70
	2.1-4 T*	170
	4.1-6 T	280
Dry beans	6 - 12 cwt	40
	13-18 cwt	60
	19-24 cwt*	80
	24-30 cwt	110

* These yield ranges represent good yields with excellent management for most Wisconsin cropping conditions. Higher yields are rare and should be verifiable if used for planning purposes.

[1] Yields for forages are on a dry matter basis. Yields for grains and beans are at the moisture content used for measuring yields.

[2] First year available N credits for manure applications prior to legume crop establishment cannot exceed this N rate. This represents N removed in harvested crops. For perennial legumes it also includes N held in the roots over winter (60 lb N/a). If a legume forage is grown for only one year, subtract 60 lb N from the removal value. If the crop is not harvested, N removal is 0 lb/a.

[3] Companion forages include oats, barley, and oats-pea forage.

[4] For late-summer seeded legume forages, use the total N removal for the first year of harvest. However, both the first and second year available N credits for the manure applications prior to establishment cannot exceed this N rate.

C. Phosphorus

1. Phosphorus losses are usually greatest on sites with high erosion.

2. When applying manure on non-frozen ground, consider the following:

   a. Use runoff and erosion control practices such as spring tillage, maintaining high levels of crop residue on the soil surface, contour farming, and utilization of vegetated riparian buffers.

   b. Rotate to P-demanding crops.

   c. Limit starter P applications on row crops to 20 pound P_2O_5 per acre, to the extent possible, eliminate all non-starter P applications.

   d. Whenever possible, apply manure on fields with lower P soil tests.

   e. Where possible, develop a means to move nutrients off the farm to areas with less environmental hazard.

3. Consider following National Research Council dietary P recommendations to lower P levels in rations and avoid high levels of P in manure.

4. To limit high-risk manure applications to frozen or snow-covered soil, the following additional management practices should be implemented:

   a. Temporary stacking of manure, manure storage, manure trading, and additional rental land for manure spreading.

   b. Where supplemental feeding of P in current rations is above National Research Council recommended levels, a feed management strategy will be discussed with the producer and their animal health and feed supply professionals with the goal of reducing supplemental feeding of P and reducing manure P losses.

D. Other Considerations

1. Use appropriate pH management to keep the soil pH in the proper range for optimum crop production. Soil pH affects the availability of almost all of the essential elements (see UWEX Publication A2809, "Soil Test Recommendations for Field, Vegetable, and Fruit Crops," 1998).

2. Good soil tilth should be maintained because it encourages infiltration, reduces runoff, and enhances crop vigor. This is especially important when the objective is to protect surface water.

   a. Organic matter additions promote good soil tilth.

   b. Equipment travel on saturated soils should be avoided to reduce soil compaction and rutting.

3. The hydraulic loading rate of the upper horizons should be considered. If the loading rate is low, or if there is a horizon that prohibits downward movement of liquid (i.e., hard pan or a clay horizon), it is important not to apply more liquid manure than the soil can absorb.

PART III

DETERMINING MANURE NUTRIENT CREDITS

Proper crediting of manure nutrients can lower commercial fertilizer needs and reduce the potential for surface and groundwater pollution. Manures contain significant amounts of the major plant nutrients (N, P and K) and many other essential nutrients. Only a portion of the nutrients from field-spread manure is available in the first year. The rest becomes available over time as the nutrients are released from the organic fraction. Calculating the fertilizer value of manure involves three steps.

STEP 1: Estimate Quantity of On-Farm Manure Production

STEP 2: Estimate Available - Nutrients

STEP 3: Estimate the Manure Nutrient Credit and Application Rates

For more information, reference the UWEX "Nutrient Management Fast Facts," Nutrient and Pest Management Program. Call (608) 265-2660 for a copy.

STEP 1: Estimate Quantity of On-Farm Manure Production

Manure production can be estimated by utilizing the information provided in Table 1. Manure production can vary considerably between production systems. Other manure production estimates are acceptable. Estimates of the percent of the total manure production that is actually collected may also aid in the planning process. The planner may wish to explain the manure production/collection system in the narrative section as described in Part 1.

Manure storage size may provide a better quantity estimate:

- What is the manure storage facility size?
- Multiply pit size by the number of times emptied/year. This equals the total annual manure collection.

Table 1. Manure Quantity Estimation For Crop Production

Version January 16, 2003

Animal	Size Lbs.	Daily Manure Production To Apply						Annual Manure Production To Apply								
		Solid		Liquid				Number of Head	x	Daily Total Tons or Gal.	x	365 Day Total	x	% Collected	=	Total Collected Tons or Gal.
		Lbs/day	ft^3/day	MWPS ft^3/day x WI dairy & beef dilution factor	ft^3/day & WI dilution	MWPS gal./day x WI dairy & beef dilution factor	gal./day & WI dilution									
Dairy																
Calf	150	13	0.200	.21*1.8=	.37	1.53*1.8=	2.80									
Calf	250	21	0.320	.33*1.8=	.60	2.47*1.8=	4.50									
Heifer	750	65	1.000	1.03*1.8=	1.85	7.70*1.8=	13.8									
Lact. Cows	1000	106	1.700	1.71*1.8=	3.07	12.7*1.8=	23.0									
	1400	148	2.400	2.38*1.8=	4.28	17.7*1.8=	32.0									
Dry Cows	1000	82	1.300	1.30*1.8=	2.35	9.7*1.8=	18.0									
	1400	115	1.820	1.82*1.8=	3.33	13.6*1.8=	25.0									
Beef																
Calf	450	26	0.420	.415*3.2=	1.3	3.1*3.2=	9.9									
High Forage	750	62	1.000	1.00*3.2=	3.2	7.5*3.2=	24.0									
High Forage	1100	92	1.400	1.48*3.2=	4.8	11*3.2=	35.0									
High Energy	750	54	0.870	.87*3.2=	2.7	6.5*3.2=	20.8									
High Energy	1100	80	1.260	1.27*3.2=	4.1	9.5*3.2=	30.5									
Beef Cow	1000	63	1.000	1.00*3.2=	3.2	7.5*3.2=	24.0									
Swine																
Nursery Pig	25	2.7	0.040	.04		.30										
Grow-Finish Pig	150	9.5	0.150	.17		1.20										
Gestating Sow	275	7.5	0.120	.14		1.00										
Sow & Litter	375	22.5	0.360	.42		3.00										
Boar	350	7.2	0.120	.14		1.00										
Poultry / Other																
Layers	4	0.26	0.004	.004		.03										
Broilers	2	0.18	0.003	.003		.02										
Turkeys	20	0.9	0.014	.015		.11										
Duck	6	0.33	0.005	.006		.04										
Sheep	100	4	0.060	.055		.40										
Horse	1000	50	0.800	.827		5.98										

Source: Midwest Plan Service publication number MWPS-18 ''Manure Characteristics'' Section 1, copyright 2000. Solid volumes are as excreted. The liquid dairy and beef values are computed from the MWPS daily production and have approximately equal nutrient values annually as solid manure. MWPS liquid dairy and beef factors are multiplied by 1.8 and 3.2 respectively. Dilution on your operation may be substantially different. **Use manure analysis and manure storage volumes** to determine manure production whenever possible.

Manure quantities are likely to be more accurate estimated from storage size:

What is the manure storage pit size? _____ gallons or tons?

Multiply pit size x Number of times emptied/year _____ = Total annual manure collection

STEP 2: Estimate Available - Nutrients

When manure is analyzed

Because the nutrient content of manure can vary significantly from the values provided in Table 2, it is strongly recommended that a process of manure sampling and analysis be developed to quantify the nutrient content of the major manure source(s) of the livestock operations. The process should establish a representative manure nutrient content range that improves the planning and application process. Consider additions of bedding, mixing and agitation of manure, dilution or concentration in storage, and other factors pertinent to the operation during the sampling and analysis process. An approved laboratory (Appendix 2) should be used for manure analysis.

Total pounds of Nutrient Concentration per ton or 1,000 gallons	x	% Manure Nutrient Availability expressed as a decimal	=	Available pounds of Nutrient per ton or 1,000 gallons
Use Table 2		*Use Table 3*		*Use manure analysis or Table 4 when manure is not tested.*
Dairy solid 10-5-9 pounds of N- P_2O_5-K_2O per ton	x	Dairy, surface applied 1st year .3-.6-.8% available of N- P_2O_5-K_2O	=	Dairy, surface applied 1st year 3-3-7 pounds of N- P_2O_5-K_2O per ton

Manure Sampling Instructions

Proper sampling is critical for obtaining results that accurately reflect the true nutrient content of manure. Regardless of the type of manure storage system, following proper sampling procedures is necessary to obtain the right information so that fertilizer recommendations can be adjusted appropriately. **Keep all manure samples frozen until shipped or delivered to the laboratory. Mail samples early in the week (Monday, Tuesday, or Wednesday). Avoid mailing over holidays or weekends.** Remember to always use screw-top plastic containers for safety. Plastic sample bottles can be obtained at the certified laboratories listed in Appendix 2.

Liquid Manure Systems

Agitate the contents of the storage facility thoroughly. If the material is to be hauled immediately, a composite sample taken from several loads (5-10) is recommended. These samples can then be mixed together and one composite sample submitted. A container on the end of a long pole works well to sub-sample as the manure is being pumped into the top of the spreader tank. A representative sample can also be taken directly from the storage facility soon after thorough agitation if hauling is to be delayed. Again, several sub-samples should be taken and mixed together to ensure a representative sample. Place the sample in a quart-sized screw top plastic container filled to no more than three-fourths capacity, and freeze immediately.

Solid Manure Systems

Use a push-probe, auger, or spade to obtain a representative sample from several places in the manure pile or pack. If the material is being loaded for spreading, a sample can be obtained by sub-sampling several spreader loads. Place the 1-2 pound sample in a 0.5 to 1 quart screw-top plastic bottle and freeze immediately.

STEP 3: Estimate the Manure Nutrient Credit and Application Rates

Identify the fields that have received or will receive manure.

Then, determine how much manure per acre has been applied or will be applied to each field. UWEX Publication A3381, "Determining Manure Application Rates," contains more information.

Available pounds of Nutrient per ton or 1,000 gallons	x	Manure Application Rate per acre	=	Manure Nutrient Credit per acre

Use manure analysis or Table 4 when manure is not tested.

Dairy, surface applied 1st year 3-3-7 pounds of N- P_2O_5-K_2O per ton	x	20 tons per acre surface application rate	=	60-60-140 pounds of N- P_2O_5-K_2O per acre

MANURE CREDITING EXAMPLES

Example 1:

Producer Smith incorporates 40 tons per acre of fresh solid dairy manure to corn ground last fall without testing the manure. Estimate the amount of N, P_2O_5, and K_2O available to the next corn crop from manure.

1. Use Table 4 to estimate first year available nutrients from incorporated solid dairy manure as 4-3-7 per ton.
2. Use the equation in Step 3 to calculate the manure nutrient credit from a 40-ton per acre application rate.

Available pounds of Nutrient per ton or 1,000 gallons	x	Manure Application Rate per acre	=	Manure Nutrient Credit per acre

Use manure analysis or Table 4 when manure is not tested.

Dairy, incorporated 1st year 4-3-7 pounds of N- P_2O_5-K_2O per ton	x	40 tons per acre surface application rate	=	160-120-280 pounds of N- P_2O_5-K_2O per acre

Example 2:

Producer Jones surface spread 7,000 gallons per acre of fall-applied stored liquid dairy manure on a 20-acre cornfield for two consecutive years. A manure analysis from a private lab showed a total nutrient value of 32-15-36 per 1,000 gallons. Next spring he will plant corn and apply 100 pounds per acre of 9-23-30 starter fertilizer. A UWEX soil test recommended 160 pounds N per acre, 60 pounds P_2O_5 per acre, and 120 pounds K_2O per acre. Calculate the amount of nutrients in the manure and starter fertilizer, and how much additional nutrients must be supplied from other sources.

1. Table 3 shows the percent available nutrients in dairy manure as 30% N, 60% P_2O_5, and 80% K_2O for first-year nutrient availability. However, since similar manure rates have been applied for two consecutive years, increase these values an additional ten percentage points for each nutrient to 40% for N, 70% for P_2O_5, and 90% for K_2O. See the first footnote in Table 3.
2. Use Step 2 to calculate the available nutrient content.

Total pounds of Nutrient Concentration per ton or 1,000 gallons	x	% Manure Nutrient Availability expressed as a decimal	=	Available pounds of Nutrient per ton or 1,000 gallons
Use Table 2		*Use Table 3*		*Use manure analysis or Table 4 when manure is not tested.*
Dairy liquid 32-15-36 pounds of N- P_2O_5-K_2O per 1,000 gallons	x	Dairy, surface applied 2nd year .4-.7-.9% available of N- P_2O_5-K_2O	=	Dairy, liquid surface applied 2nd year 13-11-32 pounds of N- P_2O_5-K_2O per ton

3. Use Step 3 to calculate the manure nutrient credit from a 7,000-gallon rate per acre.

Available pounds of Nutrient per ton or 1,000 gallons	x	Manure Application Rate per acre	=	Manure Nutrient Credit per acre
Use manure analysis from 2: above.				
Dairy, liquid surface applied 2nd year 13-11-32 pounds of N- P_2O_5-K_2O per ton	x	7,000 gallons per acre surface application rate	=	91-77-224 pounds of N- P_2O_5-K_2O per acre

4. Subtract the manure and starter P_2O_5 and K_2O credits from the soil test recommendations to determine if additional nutrients are required. Round the resulting positive numbers to the nearest 10 pounds per acre.

Soil test recommended pounds of Nutrient per acre	–	Manure Nutrient Credit per acre plus starter fertilizer	=	Additional Fertilizer Need per acre
Use soil test recommendation for the field		*Use 3: above*		
Soil test recommended crop need of 160-60-120 of N- P_2O_5-K_2O per acre	–	91-77-224 pounds of manure N- P_2O_5-K_2O per acre plus 9 pounds of starter N (*where the first 20 pounds is not counted)* -23 P_2O_5-30 K_2O starter fertilizer	=	69-(40 extra)-(134 extra) pounds of N- P_2O_5-K_2O per acre Rounded to 70-0-0 additional fertilizer need.

Table 2. Average Nutrient and Dry Matter Content from Various Solid and Liquid Manure

Species/Management	% Dry Matter	N	P_20_5	K_20
	Pounds per ton			
Dairy, solid	24	10	5	9
Beef, solid	35	14	9	11
Swine, solid	20	14	10	9
Duck, solid	35	17	21	30
Chicken, solid	60	40	50	30
Turkey, solid	60	40	40	30
Sheep, solid	45	26	18	40
Horse, solid	45	10	6	10
	Pounds per 1000 gallons			
Dairy, liquid	6	24	9	20
Veal calf, liquid	2	15	10	25
Beef, liquid	5	20	9	20
Swine, liquid indoor pit	7	50	42	30
Swine, liquid outdoor pit	4	34	16	20
Swine, liquid, farrow-nursery indoor pit	3	25	23	22
Poultry, liquid	3	16	10	12

These data are taken from a combination of Midwest Plan Service (2000), manure analysis from Wisconsin certified soil testing laboratories (2002), and University of Wisconsin - Extension publications.

Table 3. Estimated First-Year Nutrient Availability (%) from Various Manures

Species	N	P_20_5	K_20
Dairy, surface applied	30%	60%	80%
Dairy, incorporated	40%	60%	80%
Veal calf, surface applied	40%	60%	80%
Veal calf, incorporated	50%	60%	80%
Beef, surface applied	25%	60%	80%
Beef, incorporated	35%	60%	80%
Swine, solid surface applied	50%	60%	80%
Swine, solid incorporated	65%	60%	80%
Swine, liquid indoor pit, surface	50%	60%	80%
Swine, liquid indoor pit, incorporated	65%	60%	80%
Swine, liquid outdoor pit, surface	50%	60%	80%
Swine, liquid outdoor pit, incorporated	65%	60%	80%
Swine, liquid, farrow-nursery indoor pit, surface	50%	60%	80%
Swine, liquid, farrow-nursery indoor pit, incorporated*	65%	60%	80%
Duck, surface applied	50%	60%	80%
Duck, incorporated	60%	60%	80%
Chicken, surface applied	50%	60%	80%
Chicken, incorporated	60%	60%	80%
Turkey, surface applied	50%	60%	80%
Turkey, incorporated	60%	60%	80%
Poultry, liquid, surface	50%	60%	80%
Poultry, liquid, incorporated	60%	60%	80%
Sheep, solid surface applied	25%	60%	80%
Sheep, solid incorporated	35%	60%	80%
Horse, solid surface applied	25%	60%	80%
Horse, solid incorporated	35%	60%	80%

If manure has been applied to the same field at similar rates for 2 consecutive years, increase the nutrient values in the table an additional 10 percentage points. If manure has been applied to the same field at similar rates for three or more consecutive years, increase the nutrient values in the table an additional 15 percentage points. In other words 10% of the total is available to plant in the 2nd year and an additional 5% is available in the 3rd year. (See example 2)

Table 4. Manure Book Values - Estimates of Available Nutrients from Manure by Species and Management Systems for up to Three or More Consecutive Years of Application

Species/ Manage-ment	Total Available Nutrients from Solid Manure lbs./ton				Species/ Management	Total Available Nutrients from Liquid Manure lbs./ 1,000 gallons			
	N	N	P_20_5	K_20		N	N	P_20_5	K_20
	Surface applied	Incorporated by 3rd day				Surface applied	Incorporated by 3rd day		
One Year of Application									
Dairy	3	4	3	7	Dairy	7	10	5	16
Beef	4	5	5	9	Veal calf	6	8	6	20
Swine	7	9	6	7	Beef	5	7	5	16
Duck	9	10	13	24	Swine indoor pit	25	33	25	24
Chicken	20	24	30	24	Swine outdoor pit	17	22	10	16
Turkey	20	24	24	24	Swine farrow nursery indoor pit	13	16	14	18
Sheep	7	9	11	32	Poultry	8	10	6	10
Horse	3	4	4	8					
Two Consecutive Years of Application									
Dairy	4	5	4	8	Dairy	10	12	6	18
Beef	5	6	6	10	Veal calf	8	9	7	23
Swine	8	11	7	8	Beef	7	9	6	18
Duck	10	12	15	27	Swine indoor pit	30	38	29	27
Chicken	24	28	35	27	Swine outdoor pit	20	26	11	18
Turkey	24	28	28	27	Swine farrow nursery indoor pit	15	19	16	20
Sheep	9	12	13	36	Poultry	10	11	7	11
Horse	4	5	4	9					
Three or More Consecutive Years of Application									
Dairy	5	6	4	9	Dairy	11	13	7	19
Beef	6	7	7	10	Veal calf	8	10	8	24
Swine	9	11	8	9	Beef	8	10	7	19
Duck	11	13	16	29	Swine indoor pit	33	40	32	29
Chicken	26	30	38	29	Swine outdoor pit	22	27	12	19
Turkey	26	30	30	29	Swine farrow nursery indoor pit	16	20	17	21
Sheep	10	13	14	38	Poultry	10	12	8	11
Horse	4	5	5	10					

Note: Table 4 replaces Tables 23 and 24 in UWEX Publication A-2809 (1998). Figures are rounded to the nearest whole pound.

These figures are calculated using STEP 2 and the values given in Tables 2 and 3.

PART IV

DNR REGIONAL OFFICES AND CONTACTS

DNR Service Center Locations by Region - The State of Wisconsin is divided into five regional areas. They include Northern Region, Northeast Region, West Central Region, South Central Region, and Southeast Region. The DNR Central Office is located in Madison.

NORTHERN REGION (NO)

Spooner, Department of Natural Resources, 810 W. Maple Street, Spooner, WI 54801

715-635-2101-phone 715-635-4105-fax 715-635-4001-TDD

Counties served: Ashland, Barron, Bayfield, Burnett, Douglas, Iron, Polk, Price, Rusk, Sawyer, Taylor, Washburn.

NORTHERN REGION (NO)

Rhinelander, 107 Sutliff Ave, RHINDLANDER WI 54501,

715-365-8900-phone, 715-365-8932-fax

Counties served: Florence, Forest, Langlade, Lincoln, Oneida, Vilas.

NORTHEAST REGION (NE)

Department of Natural Resources, 1125 N Military Ave, PO Box 10448, Green Bay WI 54307-0449 920-492-5800-phone, 920-492-5913fax, 920-492-5812-tdd

Counties served: Brown Door, Kewaunee, Marinette, Menominee, Oconto, Outagamie, Shawano

NORTHEAST REGION (NE)

Department of Natural Resources, 427 E Tower Dr, Suite 100, WAUTOMA WI 54982 920-787-4686-phone

Counties served: Calumet, Fond du Lac, Green Lake, Manitowoc, Marwuette, Waupaca, Waushara, Winnebago

WEST CENTRAL REGION (WC)

Department of Natural Resources, 1300 W Clairmont, PO Box 4001, EAU CLAIRE, WI 54702-4001 715-839-3700-phone, 715-839-6076-fax

Counties served: Chippewa, Dunn, Eau Claire, La Crosse, Monroe, Pepin, Pierce, St. Croix, Vernon

WEST CENTRAL REGION (WC)

Department of Natural Resources, 910 Hwy 54E, BLACK RIVER FALLS, WI 54615 715-284-1429-phone, 715-284-1737-fax

Counties served: Adams, Buffalo, Clark, Crawford, Jackson, Juneau, Marathon, Portage, Trempealeau, Wood

SOUTH CENTRAL REGION (SC)

Department of Natural Resources, 3911 Fish Hatchery Rd, FITCHBURG, WI 52711 608-275-3266-phone, 608-275-3338-fax, 608-275-3231-tdd

Counties served: *Columbia, *Dane, Dodge, Jefferson, Rock

SOUTH CENTRAL REGION (SC)

Department Of Natural Resources, 1500 N Johns St, DODGEVILLE, WI 53533

608-935-1940-phone, 608-935-9652-fax

Counties served: Richland, Sauk, Grant, Iowa, Lafayette, Green, *Dane, *Columbia

SOUTHEAST REGION (SE)

Department of Natural Resources, 2300 N Dr Martin Luther King Jr Dr, PO Box 12436, MILWAUKEE WI 53212, 414-263-8500

Counties served: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha

**Indicates counties served by two offices along basin lines*

APPENDIX 1

LIST OF SOILS WITH HIGH POTENTIAL FOR NITRATE LEACHING TO GROUNDWATER

The following table lists Wisconsin soils that are more susceptible to groundwater contamination from leaching of nitrogen based on NRCS soil survey data. The soils list covers all counties. The 72 counties listed are arranged alphabetically beginning with Adams County. The soils within each county are arranged alphabetically or numerically by soil map unit symbol. The most current list of soils is posted on the Standards Oversight Council (SOC) website: www.socwisconsin.org (look for the SOC work teams page). County soil surveys are revised periodically so check the web site for the most current version.

Use the following information to interpret components of the table:

- **Symbol:** The soil map unit symbol found in county soil surveys.
- **Restriction**: Soil characteristics that create a high potential for nitrate leaching to groundwater.

  p ------ indicates high permeability (because the soil is classified as **hydrologic group A**).

  r ------ indicates any type of bedrock less than 20 inches from the surface.

  w ----- indicates an **apparent water table** less than 12 inches from the surface (very poorly and poorly drained).

  + ------ indicates the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present.

  Soils with no entry in the restrictions column are less likely to have NRCS 590 restrictions for wetness, bedrock, or permeability (leaching). Other soil properties affecting NRCS 590 suitability, such as % slope and surface texture were not evaluated.

- **Map Unit Name:** Name of the soil series associated with each soil symbol.
- **Hydrologic Group A:** Soil hydrologic groups organize similar soils according to their runoff characteristics without vegetation and are used to estimate runoff from precipitation. Group A soils have a high infiltration rate when thoroughly wet and have a low runoff potential. They are mainly deep, well drained sands and/or gravels or drained organic soils. They have a high rate of water transmission.
- **Apparent Water Table:** Continuous saturated zone in the soil to a depth of 6 feet or more.

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Adams	Ad	wp	Adrian muck
Adams	AlA	w	Algansee loamy sand, 0 to 3 percent slopes
Adams	An	w+	Aquents, sandy
Adams	Au	w	Au Gres loamy sand
Adams	BnB	p	Boone sand, 2 to 6 percent slopes
Adams	BnC	p	Boone sand, 6 to 12 percent slopes
Adams	BnD	p	Boone sand, 12 to 25 percent slopes
Adams	BpF	rp	Boone-Rock outcrop complex, 25 to 45 percent slopes
Adams	BrA	p	Brems loamy sand, 0 to 3 percent slopes
Adams	BsA	wp	Brems-Newson loamy sands, 0 to 3 percent slopes
Adams	CoB	p	Coloma sand, 2 to 6 percent slopes
Adams	CoC	p	Coloma sand, 6 to 12 percent slopes
Adams	CoD	p	Coloma sand, 12 to 25 percent slopes
Adams	EvB	r	Elkmound loamy sand, 2 to 6 percent slopes
Adams	Hm	wp	Houghton muck
Adams	LDF	+	Landfill
Adams	Le	w	Leola loamy sand
Adams	M-W	+	Miscellaneous water
Adams	MoA	w	Meehan loamy sand, 0 to 3 percent slopes
Adams	Ne	wp	Newson loamy sand
Adams	Pa	wp	Palms muck
Adams	Pd	+	Pits
Adams	PfA	p	Plainfield sand, 0 to 2 percent slopes
Adams	PfB	p	Plainfield sand, 2 to 6 percent slopes
Adams	PfC	p	Plainfield sand, 6 to 12 percent slopes
Adams	PfD	p	Plainfield sand, 12 to 35 percent slopes
Adams	Pw	wp	Psammaquents, nearly level
Adams	QUA	r +	Quarry
Adams	RfA	p	Richford loamy sand, 0 to 2 percent slopes
Adams	RfB	p	Richford loamy sand, 2 to 6 percent slopes
Adams	RfC	p	Richford loamy sand, 6 to 12 percent slopes
Adams	SpA	p	Sparta loamy sand, 0 to 3 percent slopes
Adams	UoE	+	Udorthents, earthen dam
Adams	W	+	Water
Adams	WeA	w	Wyeville loamy sand, 0 to 3 percent slopes
Ashland	5A	w	Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded
Ashland	7C	+	Beaches, 2 to 12 percent slopes
Ashland	69B	p	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
Ashland	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Ashland	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Ashland	74B	p	Vilas loamy sand, 0 to 6 percent slopes
Ashland	74C	p	Vilas loamy sand, 6 to 15 percent slopes
Ashland	92F	+	Udorthents, ravines and escarpments, 25 to 60 percent slopes
Ashland	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Ashland	193A	w	Minocqua muck, 0 to 2 percent slopes
Ashland	217B	p	Karlin loamy fine sand, 0 to 6 percent slopes
Ashland	217C	p	Karlin loamy fine sand, 6 to 15 percent slopes
Ashland	339B	p	Rousseau loamy fine sand, 0 to 6 percent slopes
Ashland	339C	p	Rousseau loamy fine sand, 6 to 15 percent slopes
Ashland	339D	p	Rousseau loamy fine sand, 15 to 30 percent slopes

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Ashland	375A	w	Robago fine sandy loam, lake terrace, 0 to 3 percent slopes
Ashland	388B	wp	Pelkie, occasionally flooded-Dechamps, frequently flooded complex, 0 to 4 percent slopes
Ashland	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Ashland	408A	wp	Lupton and Cathro soils, 0 to 1 percent slopes
Ashland	414A	wp	Loxley and Beseman soils, 0 to 1 percent slopes
Ashland	445A	w	Kinross muck, 0 to 2 percent slopes
Ashland	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Ashland	475C	p	Rubicon-Sayner complex, 6 to 15 percent slopes
Ashland	514B	w	Iosco loamy sand, 0 to 4 percent slopes
Ashland	520A	w	Annriver silt loam, 0 to 2 percent slopes
Ashland	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Ashland	571C	p	Pelissier gravelly sandy loam, 6 to 15 percent slopes
Ashland	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Ashland	582D	p	Padus-Pence-Keweenaw complex, 15 to 30 percent slopes, stony
Ashland	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Ashland	594B	p	Vilas-Lindquist complex, 0 to 6 percent slopes
Ashland	594C	p	Vilas-Lindquist complex, 6 to 15 percent slopes
Ashland	594D	p	Vilas-Lindquist complex, 15 to 30 percent slopes
Ashland	597A	w	Meehan sand, beaches, 0 to 2 percent slopes
Ashland	598A	p	Wurtsmith sand, beaches, 0 to 3 percent slopes
Ashland	599C	p	Grayling sand, beaches, 2 to 12 percent slopes
Ashland	603B	r	Redrim very cobbly sand, 0 to 6 percent slopes, very stony
Ashland	610B	w	Zeba sandy loam, 0 to 6 percent slopes, very stony
Ashland	614B	w	Abbaye-Zeba complex, 0 to 6 percent slopes, very stony
Ashland	639A	p	Neconish loamy fine sand, 0 to 3 percent slopes
Ashland	670B	p	Keweenaw-Pence complex, 0 to 6 percent slopes, stony
Ashland	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Ashland	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Ashland	674B	p	Sultz sand, 0 to 6 percent slopes
Ashland	674C	p	Sultz sand, 6 to 15 percent slopes
Ashland	674E	p	Sultz sand, 15 to 45 percent slopes
Ashland	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Ashland	701A	w	Whisklake silt loam, 0 to 3 percent slopes
Ashland	705B	p	Cublake-Croswell-Ashwabay complex, 0 to 6 percent slopes
Ashland	705C	p	Cublake-Croswell-Ashwabay complex, 6 to 15 percent slopes
Ashland	755A	w	Moppet, occasionally flooded-Fordum, frequently flooded complex, 0 to 3 percent slopes
Ashland	805E	p	Sultz-Ashwabay-Rubicon complex, 15 to 45 percent slopes
Ashland	809C	r	Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony
Ashland	809D	r	Gogebic-Metonga-Rock outcrop complex, 10 to 35 percent slopes, very stony
Ashland	813E	p	Manistee-Kellogg-Ashwabay complex, 15 to 45 percent slopes
Ashland	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Ashland	874B	p	Keweenaw, stony-Rubicon complex, 0 to 6 percent slopes
Ashland	874C	p	Keweenaw, stony-Rubicon complex, 6 to 15 percent slopes
Ashland	925C	rp+	Rock outcrop-Ishpeming complex, 0 to 15 percent slopes
Ashland	974B	p	Sayner-Pence-Vilas complex, 0 to 6 percent slopes
Ashland	974C	p	Sayner-Pence-Vilas complex, 6 to 15 percent slopes
Ashland	974D	p	Sayner-Pence-Vilas complex, 15 to 30 percent slopes
Ashland	1385B	p	Cublake-Keweenaw, stony complex, 0 to 6 percent slopes

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Ashland	2015	+	Pits
Ashland	2030	+	Udorthents and Udipsamments, cut or fill
Ashland	2050	+	Landfill
Ashland	3114A	w	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded and flooded
Ashland	3243A	w	Spear silt loam, lake terrace, 0 to 3 percent slopes
Ashland	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Ashland	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Ashland	3423A	wp	Rifle peat, 0 to 1 percent slopes
Ashland	3512D	p	Menominee loamy sand, 15 to 30 percent slopes
Ashland	3608B	p	Deerton-Brownstone complex, 0 to 6 percent slopes, very stony
Ashland	3608C	p	Deerton-Brownstone complex, 6 to 15 percent slopes, very stony
Ashland	3826B	p	Allendale-Wakeley-Kinross complex, 0 to 6 percent slopes
Ashland	5140A	wp	Dawson, Greenwood, and Loxley soils, 0 to 1 percent slopes
Ashland	5141A	w	Lupton-Pleine-Cathro complex, 0 to 1 percent slopes
Ashland	5146C	p	Amasa-Karlin complex, esker, 2 to 18 percent slopes
Ashland	5170A	wp	Minocqua-Pleine-Cathro complex, 0 to 2 percent slopes
Ashland	5172B	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes
Ashland	5172C	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes
Ashland	5172D	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 35 percent slopes
Ashland	5369D	r	Dishno-Gogebic-Peshekee-Rock outcrop complex, 18 to 35 percent slopes, very stony
Ashland	5369E	r	Michigamme-Schweitzer-Peshekee-Rock outcrop complex, 35 to 55 percent slopes, very stony
Ashland	5369F	r	Michigamme-Schweitzer-Peshekee-Rock outcrop complex, 55 to 75 percent slopes, very stony
Ashland	5373A	w	Cathro muck, drainageway, 0 to 1 percent slopes
Ashland	5374A	w	Bowstring-Arnheim complex, 0 to 1 percent slopes, frequently flooded
Ashland	5425A	w	Foxpaw-Gay, stony complex, 0 to 2 percent slopes
Ashland	5504A	w	Moquah-Arnheim complex, 0 to 3 percent slopes, frequently flooded
Ashland	5689B	w	Chabeneau-Channing-Gogebic complex, 0 to 6 percent slopes, stony
Ashland	9012B	p	Sayner-Lindquist complex, 0 to 6 percent slopes
Ashland	9012C	p	Sayner-Lindquist complex, 6 to 15 percent slopes
Ashland	9012D	p	Sayner-Lindquist complex, 15 to 30 percent slopes
Ashland	9050A	wp	Fordum, Totagatic, and Bowstring soils, 0 to 1 percent slopes, frequently flooded
Ashland	9113B	p	Padus-Karlin complex, 0 to 6 percent slopes
Ashland	9113C	p	Padus-Karlin complex, 6 to 15 percent slopes
Ashland	9113D	p	Padus-Karlin complex, 15 to 30 percent slopes
Ashland	9155A	wp	Haplosaprists, Peats and Mucks, 0 to 1 percent slopes
Ashland	M-W	+	Miscellaneous water
Ashland	W	+	Water
Barron	AmD	wp	Amery-Greenwood complex, 0 to 35 percent slopes
Barron	Be	wp	Beseman peat, 0 to 1 percent slopes
Barron	Cm	w	Comstock silt loam, 0 to 2 percent slopes
Barron	CsC	p	Cress-Mahtomedi complex, 6 to 15 percent slopes
Barron	CsD	p	Cress-Mahtomedi complex, 15 to 25 percent slopes
Barron	Fm	w	Fordum silt loam, 0 to 2 percent slopes
Barron	FrA	p	Friendship loamy sand, 0 to 3 percent slopes
Barron	Gr	wp	Greenwood peat, 0 to 1 percent slopes
Barron	HgC	wp	Haugen-Greenwood complex, 0 to 15 percent slopes
Barron	HzF	p	Hayriver-Twinmound complex, 20 to 50 percent slopes
Barron	M-W	+	MISCELLANEOUS WATER

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Barron	Me	wp	Markey muck, 0 to 1 percent slopes
Barron	Mh	w	Meehan loamy sand, 0 to 2 percent slopes
Barron	MnA	p	Menahga loamy sand, 0 to 2 percent slopes
Barron	MnB	p	Menahga loamy sand, 2 to 6 percent slopes
Barron	MnC	p	Menahga loamy sand, 6 to 12 percent slopes
Barron	MnD	p	Menahga loamy sand, 12 to 25 percent slopes
Barron	Ns	wp	Newson loamy sand, 0 to 2 percent slopes
Barron	Oe	w	Oesterle sandy loam, 0 to 2 percent slopes
Barron	Pc	p+	Pits, gravel
Barron	PdB	p	Plainbo loamy sand, 2 to 6 percent slopes
Barron	PdC	p	Plainbo loamy sand, 6 to 12 percent slopes
Barron	PdD	p	Plainbo loamy sand, 12 to 20 percent slopes
Barron	Px	w	Poskin silt loam, 0 to 2 percent slopes
Barron	Rb	w	Rib silt loam, 0 to 2 percent slopes
Barron	Ru	p+	Rubble land
Barron	Sm	wp	Seelyeville and Cathro mucks, 0 to 1 percent slopes
Barron	Ud	+	Udorthents, nearly level
Barron	Va	w	Vancecreek silt loam, 0 to 2 percent slopes
Barron	W	+	Water
Bayfield	3A	wp	Totagatic-Bowstring-Ausable complex, 0 to 2 percent slopes, frequently flooded
Bayfield	5A	w	Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded
Bayfield	7C	+	Beaches, 2 to 12 percent slopes
Bayfield	69B	p	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
Bayfield	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Bayfield	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Bayfield	74B	p	Vilas loamy sand, 0 to 6 percent slopes
Bayfield	74C	p	Vilas loamy sand, 6 to 15 percent slopes
Bayfield	74D	p	Vilas loamy sand, 15 to 30 percent slopes
Bayfield	74E	p	Vilas loamy sand, 20 to 45 percent slopes
Bayfield	92F	+	Udorthents, ravines and escarpments, 25 to 60 percent slopes
Bayfield	174B	p	Rubicon sand, 0 to 6 percent slopes
Bayfield	174C	p	Rubicon sand, 6 to 15 percent slopes
Bayfield	174D	p	Rubicon sand, 15 to 30 percent slopes
Bayfield	174F	p	Rubicon sand, 30 to 60 percent slopes
Bayfield	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Bayfield	193A	w	Minocqua muck, 0 to 2 percent slopes
Bayfield	217B	p	Karlin loamy fine sand, 0 to 6 percent slopes
Bayfield	217C	p	Karlin loamy fine sand, 6 to 15 percent slopes
Bayfield	292B	+	Udifluvents, loamy to clayey, 0 to 6 percent slopes, occasionally flooded
Bayfield	309C	r	Metonga-Rock outcrop complex, 6 to 20 percent slopes
Bayfield	309E	r	Metonga-Rock outcrop complex, 20 to 45 percent slopes
Bayfield	339B	p	Rousseau loamy fine sand, 0 to 6 percent slopes
Bayfield	339C	p	Rousseau loamy fine sand, 6 to 15 percent slopes
Bayfield	339D	p	Rousseau loamy fine sand, 15 to 30 percent slopes
Bayfield	371A	p	Croswell loamy sand, 0 to 3 percent slopes
Bayfield	375A	w	Robago fine sandy loam, lake terrace, 0 to 3 percent slopes
Bayfield	388B	wp	Pelkie, occasionally flooded-Dechamps, frequently flooded, complex, 0 to 4 percent slopes
Bayfield	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Bayfield	406A	wp	Loxley mucky peat, 0 to 1 percent slopes

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County	Symbol	Restiction	Map Unit Name
Bayfield	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Bayfield	425B	p	Karlin sandy loam, 0 to 6 percent slopes
Bayfield	425C	p	Karlin sandy loam, 6 to 15 percent slopes
Bayfield	425D	p	Karlin sandy loam, 15 to 30 percent slopes
Bayfield	445A	w	Kinross muck, 0 to 2 percent slopes
Bayfield	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Bayfield	475B	p	Rubicon-Sayner complex, 0 to 6 percent slopes
Bayfield	475C	p	Rubicon-Sayner complex, 6 to 15 percent slopes
Bayfield	475D	p	Rubicon-Sayner complex, 15 to 30 percent slopes
Bayfield	485C	w	Lupton and Tawas soils, seeped, 2 to 15 percent slopes
Bayfield	514B	w	Iosco loamy sand, 0 to 4 percent slopes
Bayfield	524E	r+	Rock outcrop-Frogcreek-Metonga complex, 2 to 45 percent slopes, very stony
Bayfield	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Bayfield	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Bayfield	574B	p	Sayner loamy sand, 0 to 6 percent slopes
Bayfield	574C	p	Sayner loamy sand, 6 to 15 percent slopes
Bayfield	574E	p	Sayner loamy sand, 15 to 45 percent slopes
Bayfield	582B	p	Padus-Pence-Keweenaw complex, 0 to 6 percent slopes, stony
Bayfield	582C	p	Padus-Pence-Keweenaw complex, 6 to 15 percent slopes, stony
Bayfield	582D	p	Padus-Pence-Keweenaw complex, 15 to 30 percent slopes, stony
Bayfield	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Bayfield	594C	p	Vilas-Lindquist complex, 6 to 15 percent slopes
Bayfield	594D	p	Vilas-Lindquist complex, 15 to 30 percent slopes
Bayfield	597A	w	Meehan sand, beaches, 0 to 2 percent slopes
Bayfield	603B	r	Redrim very cobbly sand, 0 to 6 percent slopes, very stony
Bayfield	610B	w	Zeba sandy loam, 0 to 6 percent slopes, very stony
Bayfield	614B	w	Abbaye-Zeba complex, 0 to 6 percent slopes, very stony
Bayfield	639A	p	Neconish loamy fine sand, 0 to 3 percent slopes
Bayfield	670B	p	Keweenaw-Pence complex, 0 to 6 percent slopes, stony
Bayfield	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Bayfield	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Bayfield	674B	p	Sultz sand, 0 to 6 percent slopes
Bayfield	674C	p	Sultz sand, 6 to 15 percent slopes
Bayfield	674D	p	Sultz sand, 10 to 30 percent slopes
Bayfield	674E	p	Sultz sand, 15 to 45 percent slopes
Bayfield	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Bayfield	705B	p	Cublake-Croswell-Ashwabay complex, 0 to 6 percent slopes
Bayfield	705C	p	Cublake-Croswell-Ashwabay complex, 6 to 15 percent slopes
Bayfield	724A	wr	Rib-Rock outcrop complex, 0 to 2 percent slopes
Bayfield	805E	p	Sultz-Ashwabay-Rubicon complex, 15 to 45 percent slopes
Bayfield	809C	r	Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony
Bayfield	809D	r	Gogebic-Metonga-Rock outcrop complex, 10 to 35 percent slopes, very stony
Bayfield	813E	p	Manistee-Kellogg-Ashwabay complex, 15 to 45 percent slopes
Bayfield	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Bayfield	874B	p	Keweenaw, stony-Rubicon complex, 0 to 6 percent slopes
Bayfield	874C	p	Keweenaw, stony-Rubicon complex, 6 to 15 percent slopes
Bayfield	874D	p	Keweenaw, stony-Rubicon complex, 15 to 30 percent slopes
Bayfield	874E	p	Keweenaw, stony-Rubicon complex, 20 to 45 percent slopes
Bayfield	884C	wp	Keweenaw, stony-Vilas-Cathro complex, 0 to 15 percent slopes
Bayfield	884E	wp	Keweenaw, stony-Vilas-Cathro complex, 0 to 55 percent slopes

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County	Symbol	Restiction	Map Unit Name
Bayfield	885B	wp	Springstead, stony-Annalake-Cathro complex, 0 to 6 percent slopes
Bayfield	974B	p	Sayner-Pence-Vilas complex, 0 to 6 percent slopes
Bayfield	974C	p	Sayner-Pence-Vilas complex, 6 to 15 percent slopes
Bayfield	974D	p	Sayner-Pence-Vilas complex, 15 to 30 percent slopes
Bayfield	1385B	p	Cublake-Keweenaw, stony, complex, 0 to 6 percent slopes
Bayfield	1760C	wp	Keweenaw, stony-Pence, stony-Cathro complex, 0 to 15 percent slopes
Bayfield	1760E	wp	Keweenaw, stony-Pence, stony-Cathro complex, 0 to 45 percent slopes
Bayfield	2015	+	Pits
Bayfield	2030	+	Udorthents and Udipsamments, cut or fill
Bayfield	2050	+	Landfill
Bayfield	3114A	w	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded, flooded
Bayfield	3243A	w	Spear silt loam, lake terrace, 0 to 3 percent slopes
Bayfield	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Bayfield	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Bayfield	3423A	wp	Rifle peat, 0 to 1 percent slopes
Bayfield	3512D	p	Menominee loamy sand, 15 to 30 percent slopes
Bayfield	3608B	p	Deerton-Brownstone complex, 0 to 6 percent slopes, very stony
Bayfield	3608C	p	Deerton-Brownstone complex, 6 to 15 percent slopes, very stony
Bayfield	3826B	p	Allendale-Wakeley-Kinross complex, 0 to 6 percent slopes
Bayfield	5172B	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes
Bayfield	5172C	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes
Bayfield	5172D	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 35 percent slopes
Bayfield	9012B	p	Sayner-Lindquist complex, 0 to 6 percent slopes
Bayfield	9012C	p	Sayner-Lindquist complex, 6 to 15 percent slopes
Bayfield	9012D	p	Sayner-Lindquist complex, 15 to 30 percent slopes
Bayfield	9020C	wp	Wakefield, stony-Annalake-Cathro complex, 0 to 18 percent slopes
Bayfield	9020D	wp	Wakefield, stony-Annalake-Cathro complex, 0 to 35 percent slopes
Bayfield	9050A	wp	Fordum, Totagatic, and Bowstring soils, 0 to 1 percent slopes, frequently flooded
Bayfield	9064E	p	Rubicon sand, eskers, 20 to 45 percent slopes
Bayfield	9113B	p	Padus-Karlin complex, 0 to 6 percent slopes
Bayfield	9113C	p	Padus-Karlin complex, 6 to 15 percent slopes
Bayfield	9113D	p	Padus-Karlin complex, 15 to 30 percent slopes
Bayfield	9155A	wp	Haplosaprists, Peats and Mucks, 0 to 1 percent slopes
Bayfield	M-W	+	Miscellaneous water
Bayfield	W	+	Water
Brown	AdA	w	Allendale loamy fine sand, 0 to 3 percent slopes
Brown	AeA	w	Allendale fine sandy loam, 0 to 3 percent slopes
Brown	Au	+	Alluvial land
Brown	Aw	w	Alluvial land, wet
Brown	Ax	w	Angelica silt loam
Brown	Bd	w	Bellevue silty clay loam, mottled subsoil variant
Brown	BnA	w	Bonduel loam, 0 to 3 percent slopes
Brown	Bp	+	Borrow pits
Brown	Ca	wp	Carbondale muck
Brown	CdE2	p	Casco-Rodman complex, 12 to 35 percent slopes, eroded
Brown	Cm	wp	Cathro muck
Brown	DeA	w	Dresden sandy loam, mottled subsoil variant, 0 to 2 percent slopes
Brown	DsA	w	Dresden silt loam, mottled subsoil variant, 1 to 3 percent slopes
Brown	Du	+	Dumps
Brown	Fa	w	Fabius silt loam

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County	Symbol	Restiction	Map Unit Name
Brown	Fd	+	Fill land
Brown	Gp	p+	Gravel pits
Brown	Ke	w	Keowns silt loam
Brown	KnA	w	Kibbie silt loam, 1 to 3 percent slopes
Brown	LaA	w	Lamartine silt loam, 0 to 3 percent slopes
Brown	M-W	+	Miscellaneous water
Brown	MeB	p	Manistee loamy fine sand, 2 to 6 percent slopes
Brown	MeC2	p	Manistee loamy fine sand, 6 to 14 percent slopes, eroded
Brown	MfB	p	Manistee fine sandy loam, 2 to 6 percent slopes
Brown	Mk	wp	Markey muck
Brown	Mr	wp	Marsh
Brown	MsB	p	Menominee loamy fine sand, 2 to 6 percent slopes
Brown	NaB	r	Namur silt loam, 1 to 6 percent slopes
Brown	NaD	r	Namur silt loam, 6 to 20 percent slopes
Brown	Ne	wr	Namur silt loam, wet variant
Brown	Od	wp	Ogden muck
Brown	OlB	w	Onaway-Solona complex, 2 to 6 percent slopes
Brown	Pe	w	Pella silt loam
Brown	Po	w	Poygan silty clay loam
Brown	Qu	r +	Quarries
Brown	Ro	+	Rough broken land
Brown	Rs	wp	Roscommon muck
Brown	Ru	wr	Ruse silt loam
Brown	Sb	w	Sebewa silt loam
Brown	SeC	p	Shawano fine sand, rolling
Brown	SeD	p	Shawano fine sand, hilly
Brown	SfB	p	Shawano loamy fine sand, 2 to 6 percent slopes
Brown	SfC	p	Shawano loamy fine sand, 6 to 12 percent slopes
Brown	SgB	w	Shullsburg silt loam, wet variant, 2 to 6 percent slopes
Brown	SoA	w	Solona sandy loam, 1 to 3 percent slopes
Brown	SpA	w	Solona loam, 1 to 3 percent slopes
Brown	Sr	+	Stony and rocky land
Brown	SuB	r	Summerville loam, 1 to 6 percent slopes
Brown	SuD2	r	Summerville loam, 6 to 20 percent slopes, eroded
Brown	SvB	r	Summerville silt loam, clayey subsoil variant, 1 to 6 percent slopes
Brown	TeA	w	Tedrow loamy fine sand, 0 to 3 percent slopes
Brown	W	+	Water
Brown	YaA	w	Yahara fine sandy loam, 0 to 3 percent slopes
Brown	YhA	w	Yahara silt loam, 0 to 3 percent slopes
Buffalo	BoB2	p	Boone fine sand, 2 to 6 percent slopes, eroded
Buffalo	BoC2	p	Boone fine sand, 6 to 12 percent slopes, eroded
Buffalo	BoD2	p	Boone fine sand, 12 to 40 percent slopes, eroded
Buffalo	CP	p+	Coal pile
Buffalo	Dv	p	Duelm fine sandy loam
Buffalo	Dw	w	Duelm fine sandy loam, high water table
Buffalo	Es	w	Ettrick silt loam
Buffalo	Et	w	Ettrick silt loam, sandy substratum
Buffalo	GoA	p	Gotham loamy fine sand, 0 to 2 percent slopes
Buffalo	GoB	p	Gotham loamy fine sand, 2 to 6 percent slopes
Buffalo	GoB2	p	Gotham loamy fine sand, 2 to 6 percent slopes, eroded

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County	Symbol	Restiction	Map Unit Name
Buffalo	GP	p+	Gravel pit
Buffalo	Gr	w	Granby sandy loam
Buffalo	Gu	+	Gullied land
Buffalo	HuA	p	Hubbard soils, 0 to 2 percent slopes
Buffalo	HuB	p	Hubbard soils, 2 to 6 percent slopes
Buffalo	Lv	w	Loamy alluvial land, poorly drained
Buffalo	Lw	+	Loamy alluvial land
Buffalo	M-W	+	Miscellaneous water
Buffalo	Ma	wp	Marsh
Buffalo	Pa	wp	Peat and muck, shallow
Buffalo	Pd	wp	Peat and muck, deep
Buffalo	PfA	p	Plainfield loamy fine sand, 0 to 2 percent slopes
Buffalo	PfB	p	Plainfield loamy fine sand, 2 to 6 percent slopes
Buffalo	PfB2	p	Plainfield loamy fine sand, 2 to 6 percent slopes, eroded
Buffalo	PfC2	p	Plainfield loamy fine sand, 6 to 12 percent slopes, eroded
Buffalo	Ps	p	Plainfield loamy fine sand, loamy substrata variant
Buffalo	QUA	r +	Quarry
Buffalo	Re	p+	Riverwash
Buffalo	Sa	wp	Sandy alluvial land, poorly drained
Buffalo	Sd	+	Sandy alluvial land
Buffalo	SpA	p	Sparta loamy fine sand, 0 to 2 percent slopes
Buffalo	SpB	p	Sparta loamy fine sand, 2 to 6 percent slopes
Buffalo	SpB2	p	Sparta loamy fine sand, 2 to 6 percent slopes, eroded
Buffalo	SpC	p	Sparta loamy fine sand, 6 to 12 percent slopes
Buffalo	SpC2	p	Sparta loamy fine sand, 6 to 12 percent slopes, eroded
Buffalo	Sr	p	Sparta loamy fine sand, loamy substrata variant
Buffalo	Ss	p	Sparta and Plainfield fine sands and dune land
Buffalo	St	+	Steep stony and rocky land
Buffalo	Tm	+	Terrace escarpments, loamy
Buffalo	Tn	p+	Terrace escarpments, sandy
Buffalo	TrA	p	Trempe loamy fine sand, 0 to 2 percent slopes
Buffalo	TrB	p	Trempe loamy fine sand, 2 to 6 percent slopes
Buffalo	TrB2	p	Trempe loamy fine sand, 2 to 6 percent slopes, eroded
Buffalo	TrC2	p	Trempe loamy fine sand, 6 to 12 percent slopes, eroded
Buffalo	Ud	+	Udorthents
Buffalo	W	+	Water
Buffalo	Wa	w	Wallkill silt loam
Burnett	3A	wp	Totagatic-Bowstring-Ausable complex, 0 to 2 percent slopes, frequently flooded
Burnett	12A	w	Makwa stony muck, 0 to 1 percent slopes, extremely stony, frequently flooded
Burnett	22A	w	Comstock silt loam, 0 to 3 percent slopes
Burnett	64A	wp	Totagatic-Winterfield complex, 0 to 2 percent slopes, frequently flooded
Burnett	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Burnett	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Burnett	83A	w	Smestad loamy fine sand, 0 to 3 percent slopes
Burnett	89A	w	Wildwood muck, 0 to 1 percent slopes
Burnett	100B	p	Menahga sand, 0 to 6 percent slopes
Burnett	100C	p	Menahga sand, 6 to 12 percent slopes
Burnett	100D	p	Menahga sand, 12 to 30 percent slopes
Burnett	120B	p	Kost fine sand, 0 to 6 percent slopes
Burnett	151A	w	Bluffton loam, 0 to 2 percent slopes

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County	Symbol	Restiction	Map Unit Name
Burnett	152A	w	Alstad loam, 0 to 3 percent slopes
Burnett	160A	w	Oesterle sandy loam, 0 to 2 percent slopes
Burnett	189A	w	Siren loam, 0 to 3 percent slopes
Burnett	193A	w	Minocqua muck, 0 to 2 percent slopes
Burnett	368B	p	Mahtomedi-Cress complex, 2 to 6 percent slopes
Burnett	368C	p	Mahtomedi-Cress complex, 6 to 12 percent slopes
Burnett	368D	p	Mahtomedi-Cress complex, 12 to 25 percent slopes
Burnett	368E	p	Mahtomedi-Cress complex, 25 to 35 percent slopes
Burnett	380B	p	Cress-Rosholt complex, 2 to 6 percent slopes
Burnett	380C	p	Cress-Rosholt complex, 6 to 12 percent slopes
Burnett	380D	p	Cress-Rosholt complex, 12 to 25 percent slopes
Burnett	383B	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Burnett	383C	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Burnett	383D	p	Mahtomedi loamy sand, 12 to 30 percent slopes
Burnett	392C	w	Rockmarsh-Dairyland-Makwa, seeped, complex, 2 to 20 percent slopes, very stony
Burnett	396B	p	Friendship-Wurtsmith-Grayling complex, 0 to 6 percent slopes
Burnett	397A	w	Perchlake loamy fine sand, 0 to 2 percent slopes
Burnett	399B	p	Grayling sand, 0 to 6 percent slopes
Burnett	399C	p	Grayling sand, 6 to 12 percent slopes
Burnett	399D	p	Grayling sand, 12 to 30 percent slopes
Burnett	406A	wp	Loxley mucky peat, 0 to 1 percent slopes
Burnett	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Burnett	410A	wp	Seelyeville and Cathro soils, 0 to 1 percent slopes
Burnett	419A	wp	Seelyeville, Cathro, and Markey soils, 0 to 1 percent slopes
Burnett	421A	p	Dora, Markey, and Seelyeville soils, 0 to 1 percent slopes
Burnett	422A	wp	Seelyeville, Cathro, and Rondeau soils, 0 to 1 percent slopes
Burnett	426B	p	Emmert-Mahtomedi-Menahga complex, 2 to 6 percent slopes
Burnett	426C	p	Emmert-Mahtomedi-Menahga complex, 6 to 12 percent slopes
Burnett	426D	p	Emmert-Mahtomedi-Menahga complex, 12 to 30 percent slopes
Burnett	439B	p	Graycalm-Menahga complex, 0 to 6 percent slopes
Burnett	439C	p	Graycalm-Menahga complex, 6 to 12 percent slopes
Burnett	439D	p	Graycalm-Menahga complex, 12 to 30 percent slopes
Burnett	442C	wp	Haugen, very stony-Greenwood complex, 0 to 15 percent slopes
Burnett	443D	wp	Amery, very stony-Greenwood complex, 0 to 35 percent slopes
Burnett	459A	wp	Loxley, Daisybay, and Dawson soils, 0 to 1 percent slopes
Burnett	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Burnett	465A	wp	Newson-Meehan complex, 0 to 3 percent slopes
Burnett	471B	p	Dairyland-Emmert complex, 0 to 6 percent slopes, very stony
Burnett	471C	p	Dairyland-Emmert complex, 6 to 15 percent slopes, very stony
Burnett	484A	wp	Greenwood and Beseman soils, 0 to 1 percent slopes
Burnett	485C	w	Lupton and Tawas soils, seeped, 2 to 15 percent slopes
Burnett	495B	p	Karlsborg-Grettum-Perida complex, 1 to 6 percent slopes
Burnett	495C	p	Karlsborg-Grettum-Perida complex, 6 to 12 percent slopes
Burnett	495D	p	Karlsborg-Grettum-Perida complex, 12 to 30 percent slopes
Burnett	544F	p	Menahga and Mahtomedi soils, 30 to 45 percent slopes
Burnett	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Burnett	557B	p	Shawano fine sand, 0 to 6 percent slopes
Burnett	557C	p	Shawano fine sand, 6 to 12 percent slopes
Burnett	557D	p	Shawano fine sand, 12 to 30 percent slopes
Burnett	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes

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Burnett	615B	p	Cress sandy loam, 0 to 6 percent slopes
Burnett	615C	p	Cress sandy loam, 6 to 12 percent slopes
Burnett	615D	p	Cress sandy loam, 12 to 30 percent slopes
Burnett	620C	r	Lundeen-Haustrup-Rock outcrop complex, 2 to 12 percent slopes, very stony
Burnett	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Burnett	634C	wr	Drylanding-Beartree complex, 0 to 12 percent slopes, rocky
Burnett	635C	wr	Drylanding-Beartree complex, 0 to 12 percent slopes, rocky, rarely flooded
Burnett	671B	p	Spoonerhill, stony-Spoonerhill complex, 2 to 6 percent slopes
Burnett	706A	wp	Winterfield-Totagatic complex, 0 to 2 percent slopes, frequently flooded
Burnett	720F	r	Haustrup-Lundeen-Rock outcrop complex, 12 to 65 percent slopes, very stony
Burnett	726B	p	Sissabagama loamy sand, 0 to 6 percent slopes
Burnett	755A	w	Moppet, occasionally flooded-Fordum, frequently flooded, complex, 0 to 3 percent slopes
Burnett	771A	p	Lenroot loamy sand, 0 to 3 percent slopes
Burnett	825A	w	Meehan sand, 0 to 2 percent slopes
Burnett	896A	p	Wurtsmith sand, 0 to 3 percent slopes
Burnett	1070C	p	Fremstadt, stony-Cress complex, 6 to 15 percent slopes
Burnett	1070D	p	Fremstadt, stony-Cress complex, 15 to 30 percent slopes
Burnett	1080B	p	Spoonerhill-Spoonerhill, stony-Cress complex, 1 to 6 percent slopes
Burnett	2002	+	Udorthents, earthen dams
Burnett	2015	+	Pits
Burnett	2050	+	Landfill
Burnett	3082E	p	Braham-Shawano complex, 12 to 35 percent slopes
Burnett	3114A	w	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded, flooded
Burnett	3125A	wp	Meehan loamy sand, 0 to 2 percent slopes
Burnett	3126A	p	Wurtsmith loamy sand, 0 to 3 percent slopes
Burnett	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Burnett	3446A	w	Newson muck, 0 to 2 percent slopes
Burnett	3625A	wp	Lino loamy fine sand, 0 to 2 percent slopes
Burnett	3629B	p	Perida loamy sand, 0 to 4 percent slopes
Burnett	M-W	+	Miscellaneous water
Burnett	W	+	Water
Calumet	Ac	wp	Adrian muck
Calumet	As	+	Aquents, sloping
Calumet	Bu	w	Brookston silt loam
Calumet	CnB	r	Channahon loam, 2 to 6 percent slopes
Calumet	CnC	r	Channahon loam, 6 to 12 percent slopes
Calumet	Du	p+	Dune land
Calumet	Fu	w+	Fluvaquents
Calumet	Gb	wp	Granby fine sandy loam
Calumet	Hu	wp	Houghton muck
Calumet	Ke	w	Keowns very fine sandy loam
Calumet	LmA	w	Lamartine silt loam, 0 to 3 percent slopes
Calumet	M-W	+	Miscellaneous water
Calumet	MuA	w	Mundelein silt loam, 0 to 3 percent slopes
Calumet	OaB	p	Oakville loamy fine sand, 2 to 6 percent slopes
Calumet	OaC	p	Oakville loamy fine sand, 6 to 12 percent slopes
Calumet	OgB	wp	Oakville-Granby complex, 0 to 4 percent slopes
Calumet	Pa	wp	Palms muck
Calumet	Pe	w	Pella silt loam

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County	Symbol	Restiction	Map Unit Name
Calumet	Pg	p+	Pits, gravel
Calumet	Ph	r +	Pits, quarries
Calumet	PlB	p	Plainfield loamy sand, 2 to 6 percent slopes
Calumet	PlC	p	Plainfield loamy sand, 6 to 12 percent slopes
Calumet	PlD	p	Plainfield loamy sand, 12 to 20 percent slopes
Calumet	ShA	w	Shiocton very fine sandy loam, 0 to 3 percent slopes
Calumet	SyA	w	Symco silt loam, 0 to 3 percent slopes
Calumet	TeA	w	Tedrow loamy fine sand, 0 to 3 percent slopes
Calumet	Ud	+	Udorthents
Calumet	W	+	Water
Calumet	WaA	w	Wasepi sandy loam, 0 to 3 percent slopes
Calumet	Wt	p	Willette muck
Chippewa	Au	w	Auburndale silt loam, 0 to 2 percent slopes
Chippewa	Be	wp	Beseman muck, 0 to 1 percent slopes
Chippewa	BoE	p	Boone fine sand, 20 to 45 percent slopes
Chippewa	Cb	w	Cable silt loam, 0 to 2 percent slopes
Chippewa	CkD2	p	Chetek-Mahtomedi complex, 12 to 25 percent slopes, eroded
Chippewa	CkE	p	Chetek-Mahtomedi complex, 25 to 40 percent slopes
Chippewa	Cm	w	Comstock silt loam, 0 to 2 percent slopes
Chippewa	DAM	+	Dam, concrete
Chippewa	EmB	r	Elkmound loam, 2 to 6 percent slopes
Chippewa	EmC2	r	Elkmound loam, 6 to 12 percent slopes, eroded
Chippewa	EmD2	r	Elkmound loam, 12 to 20 percent slopes, eroded
Chippewa	EmE	r	Elkmound loam, 20 to 45 percent slopes
Chippewa	Eo	wp	Elm Lake loamy sand, 0 to 2 percent slopes
Chippewa	FaB	w	Fallcreek sandy loam, 2 to 6 percent slopes
Chippewa	Fm	w	Fordum loam, 0 to 2 percent slopes
Chippewa	FrA	p	Friendship loamy sand, 0 to 3 percent slopes
Chippewa	Gr	wp	Greenwood peat, 0 to 1 percent slopes
Chippewa	Ha	w	Halder loam, 0 to 2 percent slopes
Chippewa	La	w	Lows loam, 0 to 2 percent slopes
Chippewa	Lp	wp	Lupton muck, 0 to 1 percent slopes
Chippewa	M-W	+	Miscellaneous water
Chippewa	MdB	p	Mahtomedi loamy sand, 2 to 6 percent slopes
Chippewa	MdC	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Chippewa	Me	wp	Markey muck, 0 to 1 percent slopes
Chippewa	Mh	w	Meehan loamy sand, 0 to 2 percent slopes
Chippewa	MkB	p	Menahga loamy sand, 0 to 6 percent slopes
Chippewa	MkC	p	Menahga loamy sand, 6 to 12 percent slopes
Chippewa	MrB	w	Merrillan sandy loam, 1 to 6 percent slopes
Chippewa	Mu	w	Minocqua loam, 0 to 2 percent slopes
Chippewa	MvA	p	Moundville loamy sand, 0 to 3 percent slopes
Chippewa	Na	wp	Newson loamy sand, 0 to 2 percent slopes
Chippewa	NtB	r	Northfield silt loam, 2 to 6 percent slopes
Chippewa	NtC2	r	Northfield silt loam, 6 to 12 percent slopes, eroded
Chippewa	NtD2	r	Northfield silt loam, 12 to 20 percent slopes, eroded
Chippewa	Oe	w	Oesterle sandy loam, 0 to 2 percent slopes
Chippewa	Pc	p+	Pits, gravel
Chippewa	PdB	p	Plainbo loamy sand, 2 to 6 percent slopes
Chippewa	PdC	p	Plainbo loamy sand, 6 to 12 percent slopes

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County	Symbol	Restiction	Map Unit Name
Chippewa	PdD	p	Plainbo loamy sand, 12 to 20 percent slopes
Chippewa	Pv	w	Plover silt loam, 0 to 2 percent slopes
Chippewa	Px	w	Poskin silt loam, 0 to 2 percent slopes
Chippewa	Rb	w	Rib silt loam, 0 to 2 percent slopes
Chippewa	Rc	w	Rib mucky silt loam, ponded, 0 to 2 percent slopes
Chippewa	RfA	p	Richford loamy sand, 0 to 3 percent slopes
Chippewa	Sm	wp	Seelyeville muck, 0 to 1 percent slopes
Chippewa	Ud	w	Udifluvents, loamy, nearly level
Chippewa	UoE	+	Udorthents (dam)
Chippewa	Ve	w	Vesper silt loam, 0 to 2 percent slopes
Chippewa	W	+	Water
Chippewa	Wb	w	Warman variant sandy loam, 0 to 2 percent slopes
Clark	AnA	wp	Au Gres-Newson complex, 0 to 3 percent slopes
Clark	BoC	p	Boone sand, 6 to 15 percent slopes
Clark	BoF	p	Boone sand, 15 to 50 percent slopes
Clark	BpF	p	Boone-Elevasil complex, 15 to 50 percent slopes
Clark	Cd	wp	Citypoint mucky peat, 0 to 1 percent slopes
Clark	CmA	w	Comstock silt loam, 0 to 3 percent slopes
Clark	Da	wp	Dawsil mucky peat, 0 to 1 percent slopes
Clark	EaB	p	Eauclaire loamy sand, 1 to 6 percent slopes
Clark	FeA	wp	Fairchild-Elm Lake complex, 0 to 3 percent slopes
Clark	FfA	w	Fallcreek loam, 0 to 3 percent slopes
Clark	FgA	w	Fallcreek-Merrillan complex, 0 to 3 percent slopes
Clark	Fm	w	Fordum silt loam, 0 to 2 percent slopes
Clark	HxB	w	Humbird-Merrillan fine sandy loams, 0 to 6 percent slopes
Clark	IxA	wp	Ironrun-Ponycreek complex, 0 to 3 percent slopes
Clark	IzB	wp	Ironrun-Ponycreek-Arbutus complex, 0 to 6 percent slopes
Clark	Lk	wp	Loxley peat, 0 to 1 percent slopes
Clark	Lm	wp	Loxley, Beseman, and Dawson peats 0 to 1 percent slopes
Clark	M-W	+	Miscellaneous water
Clark	MbB	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Clark	MbC	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Clark	McA	w	Maplehurst silt loam, 0 to 3 percent slopes
Clark	Me	wp	Markey-Newson mucks, 0 to 2 percent slopes
Clark	MgB	p	Menahga loamy sand, 0 to 6 percent slopes
Clark	MpA	w	Merrillan fine sandy loam, 0 to 3 percent slopes
Clark	MrA	w	Merrillan-Veedum complex, 0 to 3 percent slopes
Clark	MxA	w	Moppet-Fordum complex, 0 to 3 percent slopes
Clark	NmC	wp	Newood-Magnor-Cathro complex, 0 to 15 percent slopes, very stony
Clark	NrF	r	Northmound-Rock outcrop complex, 15 to 50 percent slopes, very stony
Clark	OeA	w	Oesterle loam, 0 to 3 percent slopes
Clark	PeA	wp	Pelkie-Winterfield loamy fine sands, 0 to 3 percent slopes
Clark	Pg	p+	Pits
Clark	PoA	w	Plover very fine sandy loam, 0 to 3 percent slopes
Clark	Pv	wp	Ponycreek-Dawsil complex, 0 to 2 percent slopes
Clark	PxA	w	Poskin silt loam, 0 to 3 percent slopes
Clark	Py	w	Psammaquents, nearly level
Clark	Rb	w	Rib silt loam, 0 to 2 percent slopes
Clark	RkA	p	Rockdam sand, 0 to 3 percent slopes
Clark	ScA	p	Simescreek sand, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Clark	TrB	p	Tarr sand, 0 to 6 percent slopes
Clark	Ve	w	Veedum silt loam, 0 to 2 percent slopes
Clark	Vs	wp	Veedum-Elm Lake mucks, 0 to 2 percent slopes
Clark	W	+	Water
Columbia	Ad	wp	Adrian muck
Columbia	Ae	+	Alluvial land, sandy
Columbia	Af	wp	Alluvial land, sandy, wet
Columbia	Ag	+	Alluvial land, loamy
Columbia	Ah	w	Alluvial land, loamy, wet
Columbia	BbA	w	Barry loam, 0 to 3 percent slopes
Columbia	BnC	p	Boone loamy fine sand, 6 to 12 percent slopes
Columbia	BnE	p	Boone loamy fine sand, 12 to 45 percent slopes
Columbia	Bo	wp	Boots muck
Columbia	ChB	p	Chelsea loamy fine sand, 1 to 6 percent slopes
Columbia	ChC	p	Chelsea loamy fine sand, 6 to 12 percent slopes
Columbia	CoA	w	Colwood fine sandy loam, 0 to 3 percent slopes
Columbia	CP	+	Coal pit
Columbia	DAM	+	Dam concrete
Columbia	GaA	w	Gilford fine sandy loam, stratified substratum, 0 to 3 percent slopes
Columbia	Gb	wp	Granby loamy sand
Columbia	GP	p+	Gravel pit
Columbia	Ho	wp	Houghton muck
Columbia	LDF	+	Landfill
Columbia	M-W	+	Miscellaneous water
Columbia	Mb	w	Marsh
Columbia	Mc	w	Marshan loam
Columbia	NoB	r	Northfield sandy loam, 2 to 6 percent slopes
Columbia	NoC	r	Northfield sandy loam, 6 to 12 percent slopes
Columbia	NoE	r	Northfield sandy loam, 12 to 30 percent slopes
Columbia	OsA	w	Ossian silt loam, 0 to 3 percent slopes
Columbia	Ot	w	Otter silt loam
Columbia	Pa	wp	Palms muck
Columbia	PeC2	p	Plainfield sand, 2 to 12 percent slopes, eroded
Columbia	PfA	p	Plainfield loamy fine sand, 0 to 2 percent slopes
Columbia	PfB	p	Plainfield loamy fine sand, 2 to 6 percent slopes
Columbia	PfC	p	Plainfield loamy fine sand, 6 to 12 percent slopes
Columbia	PfD	p	Plainfield loamy fine sand, 12 to 25 percent slopes
Columbia	PkB	p	Plainfield loamy fine sand, loamy substratum, 2 to 6 percent slopes
Columbia	PkC	p	Plainfield loamy fine sand, loamy substratum, 6 to 12 percent slopes
Columbia	PkD	p	Plainfield loamy fine sand, loamy substratum, 12 to 25 percent slopes
Columbia	PoA	w	Poygan silt loam, 0 to 3 percent slopes
Columbia	QUA	r +	Quarry
Columbia	Rk	r	Rock land
Columbia	RoC	p	Rodman gravelly loam, 2 to 12 percent slopes
Columbia	RoD	p	Rodman gravelly loam, 12 to 20 percent slopes
Columbia	RoE	p	Rodman gravelly loam, 20 to 45 percent slopes
Columbia	Sd	+	Sandy land
Columbia	SpB	p	Sparta loamy fine sand, 1 to 6 percent slopes
Columbia	W	+	Water
Columbia	Wa	w	Wacousta mucky silt loam

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County	Symbol	Restiction	Map Unit Name
Columbia	Wb	w	Wallkill silt loam
Crawford	Aa	w	Alluvial land, poorly drained, frequently flooded
Crawford	Ab	+	Alluvial land, frequently flooded
Crawford	BoD	p	Boone fine sand, 12 to 30 percent slopes
Crawford	ChC2	p	Chelsea fine sand, 6 to 12 percent slopes, moderatley eroded
Crawford	ChD2	p	Chelsea fine sand, 12 to 20 percent slopes, moderately eroded
Crawford	ChE2	p	Chelsea fine sand, 20 to 30 percent slopes, moderately eroded
Crawford	Ct	p	Cherty alluvial land, frequently flooded
Crawford	DtC2	r	Dubuque cherty silt loam, 6 to 12 percent slopes, moderately eroded
Crawford	DtD2	r	Dubuque cherty silt loam, 12 to 20 percent slopes, moderately eroded
Crawford	DtE2	r	Dubuque cherty silt loam, 20 to 30 percent slopes, moderately eroded
Crawford	Et	w	Ettrick silt loam, frequently flooded
Crawford	GoB	p	Gotham loamy fine sand, 2 to 6 percent slopes
Crawford	GoB2	p	Gotham loamy fine sand, 2 to 6 percent slopes, moderately eroded
Crawford	GoC2	p	Gotham loamy fine sand, 6 to 12 percent slopes, moderately eroded
Crawford	GP	p+	Gravel pit
Crawford	Gu	+	Gullied land
Crawford	M-W	+	Miscellaneous water
Crawford	Ow	w	Orion silt loam, poorly drained variant, frequently flooded
Crawford	QUA	r +	Quarry
Crawford	SP	p	Sand pit
Crawford	SsA	p	Sparta loamy fine sand, 0 to 2 percent slopes
Crawford	SsB	p	Sparta loamy fine sand, 2 to 6 percent slopes
Crawford	SsB2	p	Sparta loamy fine sand, 2 to 6 percent slopes, moderately eroded
Crawford	SsC2	p	Sparta loamy fine sand, 6 to 12 percent slopes, moderately eroded
Crawford	St	+	Steep stony and rocky land
Crawford	Su	+	Stony colluvial land, frequently flooded
Crawford	Tr	+	Terrace escarpments, loamy
Crawford	Ts	+	Terrace escarpments, sandy
Crawford	W	+	Water
Dane	Ad	wp	Adrian muck
Dane	Af	w	Alluvial land, wet
Dane	BrA	p	Brems loamy sand
Dane	Co	w	Colwood silt loam
Dane	Cu	+	Cut and fill land
Dane	DmA	p	Dickinson loamy fine sand, sandy variant, 1 to 4 percent slopes
Dane	DuB2	r	Dunbarton silt loam, 2 to 6 percent slopes, eroded
Dane	DuC2	r	Dunbarton silt loam, 6 to 12 percent slopes, eroded
Dane	DuD2	r	Dunbarton silt loam, 12 to 20 percent slopes, eroded
Dane	DuE2	r	Dunbarton silt loam, 20 to 30 percent slopes, eroded
Dane	EdB2	r	Edmund silt loam, 2 to 6 percent slopes, eroded
Dane	EdC2	r	Edmund silt loam, 6 to 12 percent slopes, eroded
Dane	EdD2	r	Edmund silt loam, 12 to 20 percent slopes, eroded
Dane	EmC2	r	Elkmound sandy loam, 6 to 12 percent slopes, eroded
Dane	EmD2	r	Elkmound sandy loam, 12 to 20 percent slopes, eroded
Dane	EmE2	r	Elkmound sandy loam, 20 to 30 percent slopes, eroded
Dane	EmF	r	Elkmound sandy loam, 30 to 60 percent slopes
Dane	Ev	w	Elvers silt loam
Dane	Gn	wp	Granby loamy sand
Dane	GP	p+	Gravel pit

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County	Symbol	Restiction	Map Unit Name
Dane	Ho	wp	Houghton muck
Dane	LDF	+	Landfill
Dane	M-W	+	Miscellaneous water
Dane	Ma	+	Made land
Dane	Mb	w	Marsh
Dane	Mc	w	Marshan silt loam
Dane	MoA	w	Montgomery silty clay loam, 0 to 3 percent slopes
Dane	Os	w	Orion silt loam, wet
Dane	Ot	w	Otter silt loam
Dane	Pa	wp	Palms muck
Dane	PfB	p	Plainfield sand, 1 to 6 percent slopes
Dane	QUA	r +	Quarry
Dane	RpE	p	Rodman sandy loam, 12 to 35 percent slopes
Dane	SaA	w	Sable silty clay loam, 0 to 3 percent slopes
Dane	SoD	r	Sogn silt loam, 2 to 20 percent slopes
Dane	SoE	r	Sogn silt loam, 20 to 35 percent slopes
Dane	SpB	p	Spinks and Plainfield loamy sands, 2 to 6 percent slopes
Dane	SpC	p	Spinks and Plainfield loamy sands, 6 to 12 percent slopes
Dane	SpD	p	Spinks and Plainfield loamy sands, 12 to 25 percent slopes
Dane	St	+	Stony and rocky land
Dane	W	+	Water
Dane	Wa	w	Wacousta silty clay loam
Dodge	Ar	wp	Adrian variant muck
Dodge	BsA	w	Brookston silt loam, 0 to 3 percent slopes
Dodge	CdB	r	Channahon silt loam, 1 to 6 percent slopes
Dodge	ChB	p	Chelsea loamy fine sand, 2 to 6 percent slopes
Dodge	ChC	p	Chelsea loamy fine sand, 6 to 18 percent slopes
Dodge	Co	w	Colwood silty clay loam
Dodge	Ev	w	Elvers silt loam
Dodge	Fu	w+	Fluvaquents
Dodge	Gb	wp	Granby variant fine sandy loam
Dodge	Hu	wp	Houghton muck
Dodge	Hw	w	Houghton muck, ponded
Dodge	Ke	w	Keowns silt loam
Dodge	LDF	+	Landfill
Dodge	M-W	+	Miscellaneous water
Dodge	Ot	w	Otter silt loam
Dodge	Pa	wp	Palms muck
Dodge	Ph	w	Pella silty clay loam
Dodge	Pn	+	Pits
Dodge	RcE	r	Rock outcrop-Channahon complex, 5 to 30 percent slopes
Dodge	RxC2	p	Rodman-Casco complex, 6 to 12 percent slopes, eroded
Dodge	RxD2	p	Rodman-Casco complex, 12 to 30 percent slopes, eroded
Dodge	Sk	wp	Saprists and Aquents
Dodge	Sm	w	Sebewa silt loam
Dodge	Ud	+	Udorthents, loamy
Dodge	Uf	+	Udifluvents
Dodge	W	+	Water
Door	AdA	w	Allendale loamy sand, 0 to 3 percent slopes
Door	ApC	p	Alpena gravelly sandy loam, 0 to 12 percent slopes

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County	Symbol	Restiction	Map Unit Name
Door	Ax	w	Angelica loam
Door	Bn	w	Bonduel loam
Door	Bo	wr	Bonduel variant fine sandy loam, shallow
Door	Bp	w	Bonduel variant loam, wet
Door	Ca	wp	Carbondale muck
Door	Cm	wp	Cathro muck
Door	Cp	w	Chippeny muck
Door	De	wp	Deford loamy fine sand
Door	DuB	p	Duel loamy sand, 1 to 6 percent slopes
Door	Dv	w	Duel variant sandy loam
Door	Fa	w	Fabius silt loam
Door	Fu	w+	Fluvaquents
Door	Gp	p+	Gravel pits
Door	KmB	p	Kiva sandy loam, 2 to 6 percent slopes
Door	KmC	p	Kiva sandy loam, 6 to 12 percent slopes
Door	KvB	r	Kolberg variant loam, 1 to 6 percent slopes
Door	KvC2	r	Kolberg variant loam, 6 to 12 percent slopes, eroded
Door	LDF	+	Landfill
Door	M-W	+	Miscellaneous water
Door	MeB	p	Manistee loamy sand, 2 to 6 percent slopes
Door	Mk	wp	Markey muck
Door	NaB	r	Namur loam, 0 to 6 percent slopes
Door	NaC	r	Namur loam, 6 to 12 percent slopes
Door	Nv	wr	Namur variant loam
Door	OvB	w	Omena variant sandy loam, 2 to 6 percent slopes
Door	Pn	w	Pinconning loamy fine sand
Door	Po	w	Poygan silty clay loam
Door	QUA	r +	Quarry
Door	Ra	r +	Rock outcrop
Door	Rb	r	Rock outcrop-Namur complex, 6 to 20 percent slopes
Door	Rn	wp	Rondeau muck
Door	RoB	p	Rousseau fine sand, 2 to 6 percent slopes
Door	RoC	p	Rousseau fine sand, 6 to 12 percent slopes
Door	RpC	p	Rousseau-Shawano fine sands, 2 to 12 percent slopes
Door	RpD	p	Rousseau-Shawano fine sands, 12 to 35 percent slopes
Door	RrB	wp	Rousseau-Deford fine sands, 2 to 6 percent slopes
Door	Sa	w	Saprists
Door	SoA	w	Solona loam, 0 to 3 percent slopes
Door	Su	wp	Suamico muck
Door	SvA	r	Summerville loam, 0 to 2 percent slopes
Door	SvB	r	Summerville loam, 2 to 6 percent slopes
Door	SvC	r	Summerville loam, 6 to 12 percent slopes
Door	SvD	r	Summerville loam, 12 to 20 percent slopes
Door	Ud	p	Udipsamments
Door	Uo	p	Udorthents, cobbly
Door	W	+	Water
Door	Wa	w	Wainola loamy fine sand
Door	YaA	w	Yahara fine sandy loam, 0 to 3 percent slopes
Door	Yv	w	Yahara variant silt loam
Douglas	3A	wp	Totagatic-Bowstring-Ausable complex, 0 to 2 percent slopes, frequently flooded

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County	Symbol	Restiction	Map Unit Name
Douglas	5A	w	Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded
Douglas	7C	+	Beaches, 2 to 12 percent slopes
Douglas	12A	w	Makwa stony muck, 0 to 1 percent slopes, extremely stony, frequently flooded
Douglas	64A	wp	Totagatic-Winterfield complex, 0 to 2 percent slopes, frequently flooded
Douglas	69B	p	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
Douglas	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Douglas	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Douglas	74B	p	Vilas loamy sand, 0 to 6 percent slopes
Douglas	74C	p	Vilas loamy sand, 6 to 15 percent slopes
Douglas	74D	p	Vilas loamy sand, 15 to 30 percent slopes
Douglas	92F	+	Udorthents, ravines and escarpments, 25 to 60 percent slopes
Douglas	100B	p	Menahga sand, 0 to 6 percent slopes
Douglas	100C	p	Menahga sand, 6 to 12 percent slopes
Douglas	100D	p	Menahga sand, 12 to 30 percent slopes
Douglas	160A	w	Oesterle sandy loam, 0 to 2 percent slopes
Douglas	174B	p	Rubicon sand, 0 to 6 percent slopes
Douglas	174C	p	Rubicon sand, 6 to 15 percent slopes
Douglas	174D	p	Rubicon sand, 15 to 30 percent slopes
Douglas	174F	p	Rubicon sand, 30 to 60 percent slopes
Douglas	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Douglas	193A	w	Minocqua muck, 0 to 2 percent slopes
Douglas	217B	p	Karlin loamy fine sand, 0 to 6 percent slopes
Douglas	292B	+	Udifluvents, loamy to clayey, 0 to 6 percent slopes, occasionally flooded
Douglas	309C	r	Metonga-Rock outcrop complex, 6 to 20 percent slopes
Douglas	309E	r	Metonga-Rock outcrop complex, 20 to 45 percent slopes
Douglas	339B	p	Rousseau loamy fine sand, 0 to 6 percent slopes
Douglas	339C	p	Rousseau loamy fine sand, 6 to 15 percent slopes
Douglas	339D	p	Rousseau loamy fine sand, 15 to 30 percent slopes
Douglas	371A	p	Croswell loamy sand, 0 to 3 percent slopes
Douglas	375A	w	Robago fine sandy loam, lake terrace, 0 to 3 percent slopes
Douglas	383B	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Douglas	383C	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Douglas	383D	p	Mahtomedi loamy sand, 12 to 30 percent slopes
Douglas	388B	wp	Pelkie, occasionally flooded-Dechamps, frequently flooded complex, 0 to 4 percent slopes
Douglas	392C	w	Rockmarsh-Dairyland-Makwa, seeped, complex, 2 to 20 percent slopes, very stony
Douglas	396B	p	Friendship-Wurtsmith-Grayling complex, 0 to 6 percent slopes
Douglas	399B	p	Grayling sand, 0 to 6 percent slopes
Douglas	399C	p	Grayling sand, 6 to 12 percent slopes
Douglas	399D	p	Grayling sand, 12 to 30 percent slopes
Douglas	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Douglas	406A	wp	Loxley mucky peat, 0 to 1 percent slopes
Douglas	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Douglas	419A	wp	Seelyeville, Cathro, and Markey soils, 0 to 1 percent slopes
Douglas	426B	p	Emmert-Mahtomedi-Menahga complex, 2 to 6 percent slopes
Douglas	426C	p	Emmert-Mahtomedi-Menahga complex, 6 to 12 percent slopes
Douglas	426D	p	Emmert-Mahtomedi-Menahga complex, 12 to 30 percent slopes
Douglas	439B	p	Graycalm-Menahga complex, 0 to 6 percent slopes
Douglas	439C	p	Graycalm-Menahga complex, 6 to 12 percent slopes
Douglas	439D	p	Graycalm-Menahga complex, 12 to 30 percent slopes

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County	Symbol	Restiction	Map Unit Name
Douglas	445A	w	Kinross muck, 0 to 2 percent slopes
Douglas	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Douglas	471B	p	Dairyland-Emmert complex, 0 to 6 percent slopes, very stony
Douglas	471C	p	Dairyland-Emmert complex, 6 to 15 percent slopes, very stony
Douglas	475B	p	Rubicon-Sayner complex, 0 to 6 percent slopes
Douglas	475C	p	Rubicon-Sayner complex, 6 to 15 percent slopes
Douglas	475D	p	Rubicon-Sayner complex, 15 to 30 percent slopes
Douglas	485C	w	Lupton and Tawas soils, seeped, 2 to 15 percent slopes
Douglas	495B	p	Karlsborg-Grettum-Perida complex, 1 to 6 percent slopes
Douglas	495C	p	Karlsborg-Grettum-Perida complex, 6 to 12 percent slopes
Douglas	514B	w	Iosco loamy sand, 0 to 4 percent slopes
Douglas	524E	r+	Rock outcrop-Frogcreek-Metonga complex, 2 to 45 percent slopes, very stony
Douglas	544F	p	Menahga and Mahtomedi soils, 30 to 45 percent slopes
Douglas	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Douglas	574B	p	Sayner loamy sand, 0 to 6 percent slopes
Douglas	574C	p	Sayner loamy sand, 6 to 15 percent slopes
Douglas	574E	p	Sayner loamy sand, 15 to 45 percent slopes
Douglas	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Douglas	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes
Douglas	615B	p	Cress sandy loam, 0 to 6 percent slopes
Douglas	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Douglas	634C	wr	Drylanding-Beartree complex, 0 to 12 percent slopes, rocky
Douglas	635C	wr	Drylanding-Beartree complex, 0 to 12 percent slopes, rocky, rarely flooded
Douglas	639A	p	Neconish loamy fine sand, 0 to 3 percent slopes
Douglas	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Douglas	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Douglas	674B	p	Sultz sand, 0 to 6 percent slopes
Douglas	674C	p	Sultz sand, 6 to 15 percent slopes
Douglas	674E	p	Sultz sand, 15 to 45 percent slopes
Douglas	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Douglas	705B	p	Cublake-Croswell-Ashwabay complex, 0 to 6 percent slopes
Douglas	706A	wp	Winterfield-Totagatic complex, 0 to 2 percent slopes, frequently flooded
Douglas	724A	wr	Rib-Rock outcrop complex, 0 to 2 percent slopes
Douglas	771A	p	Lenroot loamy sand, 0 to 3 percent slopes
Douglas	805E	p	Sultz-Ashwabay-Rubicon complex, 15 to 45 percent slopes
Douglas	813E	p	Manistee-Kellogg-Ashwabay complex, 15 to 45 percent slopes
Douglas	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Douglas	825A	w	Meehan sand, 0 to 2 percent slopes
Douglas	874B	p	Keweenaw, stony-Rubicon complex, 0 to 6 percent slopes
Douglas	874C	p	Keweenaw, stony-Rubicon complex, 6 to 15 percent slopes
Douglas	874D	p	Keweenaw, stony-Rubicon complex, 15 to 30 percent slopes
Douglas	884C	wp	Keweenaw, stony-Vilas-Cathro complex, 0 to 15 percent slopes
Douglas	884E	wp	Keweenaw, stony-Vilas-Cathro complex, 0 to 55 percent slopes
Douglas	885B	wp	Springstead, stony-Annalake-Cathro complex, 0 to 6 percent slopes
Douglas	896A	p	Wurtsmith sand, 0 to 3 percent slopes
Douglas	928C	r	Milaca-Mora-Haustrup complex, 0 to 15 percent slopes, very stony, rocky
Douglas	1670C	wp	Keweenaw, stony-Newood, stony-Cathro complex, 0 to 15 percent slopes
Douglas	1884B	wp	Springstead, stony-Markey complex, 0 to 6 percent slopes
Douglas	1885B	wp	Springstead, stony-Cathro complex, 0 to 6 percent slopes
Douglas	2002	+	Udorthents, earthen dams

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County	Symbol	Restiction	Map Unit Name
Douglas	2014	+	Pits, quarry, hard bedrock
Douglas	2015	+	Pits
Douglas	2030	+	Udorthents and Udipsamments, cut or fill
Douglas	2050	+	Landfill
Douglas	3114A	w	Saprists, aquents, and aquepts, 0 to 1 percent slopes, ponded, flooded
Douglas	3125A	wp	Meehan loamy sand, 0 to 2 percent slopes
Douglas	3126A	p	Wurtsmith loamy sand, 0 to 3 percent slopes
Douglas	3244A	w	Brimley fine sandy loam, 0 to 3 percent slopes
Douglas	3247A	w	Bruce silt loam, 0 to 2 percent slopes
Douglas	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Douglas	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Douglas	3423A	wp	Rifle peat, 0 to 1 percent slopes
Douglas	3446A	w	Newson muck, 0 to 2 percent slopes
Douglas	3512D	p	Menominee loamy sand, 15 to 30 percent slopes
Douglas	3676A	w	Au Gres sand, 0 to 3 percent slopes
Douglas	M-W	+	Miscellaneous water
Douglas	W	+	Water
Dunn	11A	w	Markey muck, floodplain, 0 to 1 percent slopes
Dunn	20A	wp	Palms and Houghton mucks, 0 to 1 percent slopes
Dunn	40A	wp	Markey and Seelyeville mucks, 0 to 1 percent slopes
Dunn	45A	wp	Seelyeville and Cathro mucks, valley train, 0 to 1 percent slopes
Dunn	101B	p	Menahga sand, valley train, 0 to 6 percent slopes
Dunn	101C	p	Menahga sand, valley train, 6 to 12 percent slopes
Dunn	101E	p	Menahga sand, valley train, 12 to 30 percent slopes
Dunn	233C	p	Boone sand, 6 to 15 percent slopes
Dunn	244B	r	Elkmound loam, 1 to 6 percent slopes
Dunn	244C2	r	Elkmound loam, 6 to 12 percent slopes, eroded
Dunn	244D2	r	Elkmound loam, 12 to 20 percent slopes, eroded
Dunn	265B	p	Garne loamy sand, 2 to 6 percent slopes
Dunn	265C	p	Garne loamy sand, 6 to 12 percent slopes
Dunn	269A	w	Veedum muck, 0 to 2 percent slopes
Dunn	282C	p	Twinmound fine sand, 6 to 15 percent slopes
Dunn	282F	p	Twinmound fine sand, 15 to 50 percent slopes
Dunn	349A	w	Rib silt loam, valley train, 0 to 2 percent slopes
Dunn	429A	w	Lows loam, 0 to 2 percent slopes
Dunn	501A	p	Finchford loamy sand, 0 to 3 percent slopes
Dunn	501B	p	Finchford loamy sand, 2 to 6 percent slopes
Dunn	502B2	p	Chelsea fine sand, 2 to 6 percent slopes, eroded
Dunn	502C2	p	Chelsea fine sand, 6 to 15 percent slopes, eroded
Dunn	506A	p	Komro loamy sand, 0 to 3 percent slopes
Dunn	510B	p	Boplain sand, 0 to 6 percent slopes
Dunn	510C	p	Boplain sand, 6 to 15 percent slopes
Dunn	511A	p	Plainfield sand, 0 to 3 percent slopes
Dunn	511B	p	Plainfield sand, 2 to 6 percent slopes
Dunn	511C	p	Plainfield sand, 6 to 15 percent slopes
Dunn	511F	p	Plainfield sand, 15 to 60 percent slopes
Dunn	512B	p	Drammen loamy sand, 1 to 6 percent slopes
Dunn	512C	p	Drammen loamy sand, 6 to 12 percent slopes
Dunn	512D	p	Drammen loamy sand, 12 to 20 percent slopes
Dunn	516A	p	Aldo sand, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Dunn	546A	p	Prissel loamy sand, 0 to 3 percent slopes
Dunn	546B	p	Prissel loamy sand, 2 to 6 percent slopes
Dunn	546C	p	Prissel loamy sand, 6 to 15 percent slopes
Dunn	546F	p	Prissel loamy sand, 15 to 60 percent slopes
Dunn	555A	w	Fordum silt loam, 0 to 2 percent slopes
Dunn	561B	p	Tarr sand, 1 to 6 percent slopes
Dunn	566A	p	Tint sand, 0 to 3 percent slopes
Dunn	573B	p	Plainbo sand, sand sheet, 0 to 6 percent slopes
Dunn	573C	p	Plainbo sand, sand sheet, 6 to 15 percent slopes
Dunn	589A	wp	Newson mucky loamy sand, 0 to 2 percent slopes
Dunn	619A	w	Vancecreek silt loam, 0 to 2 percent slopes
Dunn	629A	w	Ettrick silt loam, 0 to 2 percent slopes
Dunn	656A	p	Scotah loamy fine sand, 0 to 3 percent slopes
Dunn	1145F	p	Gaphill-Rockbluff complex, 30 to 60 percent slopes
Dunn	1224F	p	Boone-Elevasil complex, 15 to 50 percent slopes
Dunn	1233F	p	Boone-Tarr sands, 15 to 50 percent slopes
Dunn	1275F	p	Hayriver-Twinmound complex, 15 to 50 percent slopes
Dunn	1648A	w	Northbend-Ettrick silt loams, 0 to 3 percent slopes
Dunn	1658A	w	Algansee-Kalmarville complex, 0 to 3 percent slopes
Dunn	2002	+	Udorthents, earthen dams
Dunn	2003A	+	Riverwash
Dunn	2013	+	Pits, gravel
Dunn	2014	+	Pits, quarry, hard bedrock
Dunn	2016	+	Pits, quarry, soft bedrock
Dunn	2030	+	Udorthents and Udipsamments, cut or fill
Dunn	2050	+	Landfill
Dunn	M-W	+	Miscellaneous water
Dunn	W	+	Water
Eau Claire	Ad	wp	Adrian muck
Eau Claire	Ae	p	Alluvial land, sandy
Eau Claire	Af	w	Alluvial land, wet
Eau Claire	Au	w	Au Gres loamy sand
Eau Claire	BoB	p	Boone-Plainbo complex, 2 to 6 percent slopes
Eau Claire	BoC	p	Boone-Plainbo complex, 6 to 12 percent slopes
Eau Claire	BoE	p	Boone-Plainbo complex, 12 to 45 percent slopes
Eau Claire	BP	+	Borrow pit
Eau Claire	EmB	r	Elkmound loam, 2 to 6 percent slopes
Eau Claire	EmC2	r	Elkmound loam, 6 to 12 percent slopes, eroded
Eau Claire	EmD2	r	Elkmound loam, 12 to 20 percent slopes, eroded
Eau Claire	EmE	r	Elkmound loam, 20 to 45 percent slopes
Eau Claire	Eo	wp	Elm Lake loamy sand
Eau Claire	Er	w	Ettrick silt loam
Eau Claire	FrA	p	Friendship loamy sand, 0 to 3 percent slopes
Eau Claire	GoB	p	Gotham loamy sand, 1 to 6 percent slopes
Eau Claire	GoC2	p	Gotham loamy sand, 6 to 12 percent slopes, eroded
Eau Claire	GP	p+	Gravel pit
Eau Claire	GsB	p	Gotham loamy sand, sandstone substratum, 2 to 6 percent slopes
Eau Claire	GsC2	p	Gotham loamy sand, sandstone substratum, 6 to 12 percent slopes, eroded
Eau Claire	Ho	wp	Houghton muck
Eau Claire	La	w	Lows loam

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County	Symbol	Restiction	Map Unit Name
Eau Claire	LDF	+	Landfill
Eau Claire	M-W	+	Miscellaneous water
Eau Claire	Ma	wp	Markey muck
Eau Claire	Mc	w	Marshan loam
Eau Claire	MdB	p	Menahga sand, 1 to 6 percent slopes
Eau Claire	MdC	p	Menahga sand, 6 to 12 percent slopes
Eau Claire	Na	wp	Newson loamy sand
Eau Claire	NtB	r	Northfield silt loam, 2 to 6 percent slopes
Eau Claire	NtC2	r	Northfield silt loam, 6 to 12 percent slopes, eroded
Eau Claire	NtD2	r	Northfield silt loam, 12 to 20 percent slopes, eroded
Eau Claire	NtE2	r	Northfield silt loam, 20 to 30 percent slopes, eroded
Eau Claire	NtF	r	Northfield silt loam, 30 to 45 percent slopes
Eau Claire	Or	w	Otter silt loam, overwash
Eau Claire	PdB	p	Plainbo loamy sand, 2 to 6 percent slopes
Eau Claire	PdC2	p	Plainbo loamy sand, 6 to 12 percent slopes, eroded
Eau Claire	PfB	p	Plainfield loamy sand, 1 to 6 percent slopes
Eau Claire	PfC2	p	Plainfield loamy sand, 6 to 12 percent slopes, eroded
Eau Claire	PlB	p	Plainfield loamy sand, loamy substratum, 1 to 6 percent slopes
Eau Claire	PlC2	p	Plainfield loamy sand, loamy substratum, 6 to 12 percent slopes, eroded
Eau Claire	Pw	wp	Psammaquents
Eau Claire	QUA	r +	Quarry
Eau Claire	Re	w+	Riverwash
Eau Claire	SpB	p	Sparta loamy sand, 1 to 6 percent slopes
Eau Claire	SPO	+	Spoil area
Eau Claire	Tn	p+	Terrace escarpments, sandy
Eau Claire	TrB	p	Trempe loamy sand, 1 to 6 percent slopes
Eau Claire	Vd	w	Veedum silt loam
Eau Claire	Ve	w	Vesper loam
Eau Claire	VlB	p	Vilas sand, 1 to 6 percent slopes
Eau Claire	W	+	Water
Florence	Au	w	Au Gres loamy sand, 0 to 2 percent slopes
Florence	CrA	p	Croswell loamy sand, 0 to 3 percent slopes
Florence	CuA	p	Cublake loamy sand, 0 to 3 percent slopes
Florence	EmB	w	Ellwood-Iosco-Morganlake complex, 0 to 6 percent slopes
Florence	EnC	wp	Ellwood-Iosco-Vilas complex, 0 to 15 percent slopes
Florence	EoD	p	Ellwood-Vilas-Padus complex, 10 to 30 percent slopes
Florence	Fm	w	Fordum loam, 0 to 2 percent slopes
Florence	GaA	w	Gastrow silt loam, 0 to 3 percent slopes
Florence	IsA	w	Iosco loamy fine sand, 0 to 3 percent slopes
Florence	Kr	wp	Kinross muck, 0 to 2 percent slopes
Florence	Lo	wp	Loxley, Beseman, and Dawson peats, 0 to 1 percent slopes
Florence	Lu	wp	Lupton, Cathro, and Markey mucks, 0 to 1 percent slopes
Florence	M-W	+	Miscellaneous water
Florence	Mn	w	Minocqua muck, 0 to 2 percent slopes
Florence	PsB	p	Pence-Vilas complex, 0 to 6 percent slopes
Florence	PsC	p	Pence-Vilas complex, 6 to 15 percent slopes
Florence	PsD	p	Pence-Vilas complex, 15 to 35 percent slopes
Florence	Pt	p+	Pits, gravel
Florence	Px	+	Pits, mine
Florence	Rb	w	Robago fine sandy loam, 0 to 2 percent slopes

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County	Symbol	Restiction	Map Unit Name
Florence	RkC	rp	Rock outcrop-Ishpeming-Vilas complex, 1 to 15 percent slopes
Florence	RkD	rp	Rock outcrop-Ishpeming-Vilas complex, 15 to 35 percent slopes
Florence	RmC	r	Rock outcrop-Metonga-Sarona complex, 1 to 15 percent slopes
Florence	RmD	r	Rock outcrop-Metonga-Sarona complex, 15 to 35 percent slopes
Florence	RsB	p	Rousseau loamy fine sand, 0 to 6 percent slopes
Florence	RsC	p	Rousseau loamy fine sand, 6 to 15 percent slopes
Florence	SlB	p	Sarona-Vilas complex, 0 to 6 percent slopes, very stony
Florence	SlC	p	Sarona-Vilas complex, 6 to 15 percent slopes, very stony
Florence	SlD	p	Sarona-Vilas complex, 15 to 30 percent slopes, very stony
Florence	SnB	p	Sayner loamy sand, 0 to 6 percent slopes
Florence	SnC	p	Sayner loamy sand, 6 to 15 percent slopes
Florence	SnD	p	Sayner loamy sand, 15 to 30 percent slopes
Florence	VsB	p	Vilas loamy sand, 0 to 6 percent slopes
Florence	VsC	p	Vilas loamy sand, 6 to 15 percent slopes
Florence	VsD	p	Vilas loamy sand, 15 to 30 percent slopes
Florence	W	+	Water
Florence	WrA	w	Worcester sandy loam, 0 to 3 percent slopes
Fond Du Lac	Ak	wp	Adrian mucky peat
Fond Du Lac	Am	+	Alluvial land
Fond Du Lac	An	w	Alluvial land, wet
Fond Du Lac	AtA	w	Ashkum silty clay loam, 0 to 3 percent slopes
Fond Du Lac	BP	+	Borrow area
Fond Du Lac	BsA	w	Brookston silt loam, 0 to 3 percent slopes
Fond Du Lac	BtA	w	Brookston stony silt loam, 0 to 3 percent slopes
Fond Du Lac	BuA	w	Brookston silty clay loam, 0 to 3 percent slopes
Fond Du Lac	Ca	wp	Carbondale mucky peat
Fond Du Lac	CpC2	p	Casco-Rodman loams, 6 to 12 percent slopes, eroded
Fond Du Lac	CpE	p	Casco-Rodman loams, 12 to 30 percent slopes
Fond Du Lac	CpE3	p	Casco-Rodman loams, 12 to 30 percent slopes, severely eroded
Fond Du Lac	CpF	p	Casco-Rodman loams, 30 to 45 percent slopes
Fond Du Lac	EbA	w	Elburn silt loam, 0 to 3 percent slopes
Fond Du Lac	EsA	w	Elliott silt loam, 0 to 2 percent slopes
Fond Du Lac	EsB	w	Elliott silt loam, 2 to 6 percent slopes
Fond Du Lac	GP	p+	Gravel pit
Fond Du Lac	Hu	wp	Houghton mucky peat
Fond Du Lac	Km	w	Keowns silt loam
Fond Du Lac	KuA	w	Kibbie silt loam, 0 to 2 percent slopes
Fond Du Lac	LDF	+	Landfill
Fond Du Lac	LmA	w	Lamartine silt loam, 0 to 2 percent slopes
Fond Du Lac	LmB	w	Lamartine silt loam, 2 to 6 percent slopes
Fond Du Lac	M-W	+	Miscellaneous water
Fond Du Lac	MaA	w	Manawa silt loam, 0 to 2 percent slopes
Fond Du Lac	MaB	w	Manawa silt loam, 2 to 6 percent slopes
Fond Du Lac	McA	w	Manawa silty clay loam, 0 to 2 percent slopes
Fond Du Lac	McB	w	Manawa silty clay loam, 2 to 6 percent slopes
Fond Du Lac	Mf	w	Marsh
Fond Du Lac	ML	+	Made land
Fond Du Lac	MmA	w	Martinton silt loam, 0 to 2 percent slopes
Fond Du Lac	MmB	w	Martinton silt loam, 2 to 6 percent slopes
Fond Du Lac	Od	p	Ogden mucky peat

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County	Symbol	Restiction	Map Unit Name
Fond Du Lac	Oe	p+	Old beaches
Fond Du Lac	Pa	wp	Palms muck
Fond Du Lac	Pc	wp	Palms mucky peat
Fond Du Lac	PhA	w	Pella silt loam, 0 to 3 percent slopes
Fond Du Lac	PnA	w	Pella silty clay loam, 0 to 2 percent slopes
Fond Du Lac	Py	w	Poygan silty clay loam
Fond Du Lac	QUA	r +	Quarry
Fond Du Lac	ReB	w	Rimer loam, 2 to 6 percent slopes
Fond Du Lac	Rm	r	Rock land
Fond Du Lac	RnD2	p	Rodman gravelly sand, 6 to 20 percent slopes, eroded
Fond Du Lac	RnE2	p	Rodman gravelly sand, 20 to 30 percent slopes, eroded
Fond Du Lac	RoD2	p	Rodman gravelly loam, 12 to 20 percent slopes, eroded
Fond Du Lac	RoF2	p	Rodman gravelly loam, 20 to 45 percent slopes, eroded
Fond Du Lac	Rw	w	Rollin mucky peat
Fond Du Lac	SmA	w	Sebewa silt loam, 0 to 2 percent slopes
Fond Du Lac	SmB	w	Sebewa silt loam, 2 to 6 percent slopes
Fond Du Lac	SnA	w	Sebewa silt loam, deep, 0 to 2 percent slopes
Fond Du Lac	SpA	w	Sebewa silt loam, loamy subsoil variant, 0 to 3 percent slopes
Fond Du Lac	SwB	r	Sogn stony silt loam, 0 to 6 percent slopes
Fond Du Lac	VgA	w	Virgil silt loam, 0 to 2 percent slopes
Fond Du Lac	VgB	w	Virgil silt loam, 2 to 6 percent slopes
Fond Du Lac	VsA	w	Virgil silt loam, gravelly substratum 0 to 2 percent slopes
Fond Du Lac	VsB	w	Virgil silt loam, gravelly substratum, 2 to 6 percent slopes
Fond Du Lac	W	+	Water
Fond Du Lac	Wa	w	Wallkill silt loam
Fond Du Lac	WsA	w	Washtenaw silt loam, 0 to 2 percent slopes
Fond Du Lac	WsB	w	Washtenaw silt loam, 2 to 6 percent slopes
Fond Du Lac	Wt	w	Wauseon loam
Fond Du Lac	Wu	w	Wauseon silt loam
Forest	Au	w	Au Gres loamy sand, 0 to 2 percent slopes
Forest	CrA	p	Croswell loamy sand, 0 to 3 percent slopes
Forest	CuA	p	Cublake loamy sand, 0 to 3 percent slopes
Forest	Fm	w	Fordum loam, 0 to 2 percent slopes
Forest	GaA	w	Gastrow silt loam, 0 to 3 percent slopes
Forest	Kr	wp	Kinross muck, 0 to 2 percent slopes
Forest	Lo	wp	Loxley, Beseman, and Dawson peats, 0 to 1 percent slopes
Forest	Lu	wp	Lupton, Cathro, and Markey mucks, 0 to 1 percent slopes
Forest	M-W	+	Miscellaneous water
Forest	MeD	r	Metonga-Rock outcrop complex, 4 to 60 percent slopes, very stony
Forest	Mn	w	Minocqua muck, 0 to 2 percent slopes
Forest	PkE	p	Pelissier gravelly sandy loam, 20 to 45 percent slopes, stony
Forest	PsB	p	Pence-Vilas complex, 0 to 6 percent slopes
Forest	PsC	p	Pence-Vilas complex, 6 to 15 percent slopes
Forest	PsD	p	Pence-Vilas complex, 15 to 35 percent slopes
Forest	Pt	p+	Pits, gravel
Forest	RuD	p	Rubicon loamy sand, 15 to 35 percent slopes
Forest	VsB	p	Vilas loamy sand, 0 to 6 percent slopes
Forest	VsC	p	Vilas loamy sand, 6 to 15 percent slopes
Forest	W	+	Water
Forest	WhA	w	Whisklake silt loam, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Forest	WrA	w	Worcester sandy loam, 0 to 3 percent slopes
Forest	WtA	w	Wormet sandy loam, 0 to 3 percent slopes
Grant	An	w+	Alluvial land
Grant	CP	+	Coal pit
Grant	CsB2	p	Chelsea fine sand, 0 to 6 percent slopes, moderatley eroded
Grant	CsC2	p	Chelsea fine sand, 6 to 10 percent slopes, moderately eroded
Grant	CsD2	p	Chelsea fine sand, 10 to 15 percent slopes, moderately eroded
Grant	DyD2	r	Dubuque stony silt loam, 10 to 15 percent slopes, moderately eroded
Grant	DyE2	r	Dubuque stony silt loam, 15 to 20 percent slopes, moderately eroded
Grant	DyF2	r	Dubuque stony silt loam, 20 to 30 percent slopes, moderately eroded
Grant	DyG	r	Dubuque stony silt loam, 30 to 45 percent slopes
Grant	GP	p+	Gravel pit
Grant	Gw	w	Garwin silty clay loam
Grant	M-W	+	Miscellaneous water
Grant	Ma	w	Marsh
Grant	QUA	r +	Quarry
Grant	SnD2	r	Sogn loam, 10 to 15 percent slopes, moderately eroded
Grant	SnE2	r	Sogn loam, 15 to 20 percent slopes, moderately eroded
Grant	SoB2	r	Sogn silt loam, 2 to 10 percent slopes, moderately eroded
Grant	SoD2	r	Sogn silt loam, 10 to 15 percent slopes, moderately eroded
Grant	SoE2	r	Sogn silt loam, 15 to 20 percent slopes, moderately eroded
Grant	SP	p	Sand pit
Grant	SpC	p	Sparta fine sand and Blown-out land, 6 to 15 percent slopes
Grant	SrC	p	Sparta fine sand and Dune land, 6 to 15 percent slopes
Grant	SsA	p	Sparta loamy fine sand, 0 to 2 percent slopes
Grant	SsA2	p	Sparta loamy fine sand, 0 to 2 percent slopes, moderately eroded
Grant	SsB	p	Sparta loamy fine sand, 2 to 6 percent slopes
Grant	SsB2	p	Sparta loamy fine sand, 2 to 6 percent slopes, moderately eroded
Grant	SsC	p	Sparta loamy fine sand, 6 to 15 percent slopes
Grant	StA	p	Sparta loamy fine sand and Blown-out land, 0 to 2 percent slopes
Grant	Su	+	Stony colluvial land
Grant	Sv	+	Stony rock land, steep
Grant	Sw	+	Stony rock land, very steep
Grant	Tc	+	Terrace escarpments, medium textured
Grant	Te	p	Terrace escarpments, coarse textured
Grant	UA	+	Unmapped area
Grant	UoE	+	Udorthents, loamy, steep (earthen dam)
Grant	W	+	Water
Green	Ac	wp	Adrian muck
Green	Ad	+	Alluvial land, frequently flooded
Green	Ae	w	Alluvial land, wet, frequently flooded
Green	BoD	p	Boone fine sand, 2 to 20 percent slopes
Green	Br	w	Brookston silt loam
Green	Co	w	Colwood silt loam
Green	DuB2	r	Dunbarton silt loam, 2 to 6 percent slopes, moderately eroded
Green	DuC2	r	Dunbarton silt loam, 6 to 12 percent slopes, moderately eroded
Green	DuD2	r	Dunbarton silt loam, 12 to 20 percent slopes, moderately eroded
Green	DuE2	r	Dunbarton silt loam, 20 to 30 percent slopes, moderately eroded
Green	DvD2	r	Dunbarton silty clay loam, 10 to 20 percent slopes, moderately eroded
Green	EdB2	r	Edmund silt loam, 2 to 6 percent slopes, eroded

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County	Symbol	Restiction	Map Unit Name
Green	EdC2	r	Edmund silt loam, 6 to 12 percent slopes, moderately eroded
Green	EdD2	r	Edmund silt loam, 12 to 20 percent slopes, moderately eroded
Green	ElB2	r	Elkmound sandy loam, 2 to 6 percent slopes, moderately eroded
Green	ElC2	r	Elkmound sandy loam, 6 to 12 percent slopes, moderately eroded
Green	ElD2	r	Elkmound sandy loam, 12 to 20 percent slopes, moderately eroded
Green	ElE2	r	Elkmound sandy loam, 20 to 30 percent slopes, moderately eroded
Green	ElF	r	Elkmound sandy loam, 30 to 45 percent slopes
Green	Et	w	Ettrick silt loam, frequently flooded
Green	GoA	p	Gotham loamy sand, 0 to 2 percent slopes
Green	GoB2	p	Gotham loamy sand, 2 to 6 percent slopes, moderately eroded
Green	GoC2	p	Gotham loamy sand, 6 to 12 percent slopes, eroded
Green	GP	p+	Gravel pit
Green	Hu	wp	Houghton mucky peat
Green	LDF	+	Landfill
Green	M-W	+	Miscellaneous water
Green	Mb	w	Marshan loam, rarely flooded
Green	Mc	w	Marshan silt loam, rarely flooded
Green	Me	wp	Maumee sandy loam
Green	MoC2	r	Mifflin loam, shallow solum variant, 6 to 12 percent slopes, moderately eroded
Green	MoD2	r	Mifflin loam, shallow solum variant, 12 to 20 percent slopes, moderately eroded
Green	Na	w	Navan silt loam, rarely flooded
Green	NoB2	r	Northfield loam, 2 to 6 percent slopes, moderately eroded
Green	NoC2	r	Northfield loam, 6 to 12 percent slopes, moderately eroded
Green	NoD2	r	Northfield loam, 12 to 20 percent slopes, moderately eroded
Green	NoE2	r	Northfield loam, 20 to 30 percent slopes, moderately eroded
Green	Or	w	Orion silt loam, wet variant, frequently flooded
Green	Ot	w	Ossian silt loam, occasionally flooded
Green	Ou	w	Otter silt loam, frequently flooded
Green	Pa	wp	Palms muck
Green	PrB2	p	Plainfield loamy sand, 0 to 6 percent slopes, moderately eroded
Green	QUA	r +	Quarry
Green	Rh	wp	Riverwash
Green	RoC2	p	Rodman gravelly loam, 2 to 12 percent slopes, moderately eroded
Green	RoE2	p	Rodman gravelly loam, 12 to 30 percent slopes, moderately eroded
Green	Se	w	Sebewa silt loam
Green	SoC2	r	Sogn silt loam, 2 to 12 percent slopes, moderately eroded
Green	SoE2	r	Sogn silt loam, 12 to 30 percent slopes, moderately eroded
Green	Sp	+	Steep stony and rocky land
Green	Te	+	Terrace escarpments
Green	W	+	Water
Green	Wa	w	Wallkill silt loam, frequently flooded
Green Lake	Ad	wp	Adrian muck
Green Lake	An	w	Alluvial land, wet
Green Lake	Bb	w	Barry loam
Green Lake	BrB	p	Brems loamy fine sand, 0 to 6 percent slopes
Green Lake	Co	w	Colwood silt loam
Green Lake	Ed	w	Edwards muck
Green Lake	GaB	p	Gotham loamy fine sand, 1 to 6 percent slopes
Green Lake	GaC	p	Gotham loamy fine sand, 6 to 12 percent slopes
Green Lake	GbC	p	Gotham loamy fine sand, sandstone substratum, 6 to 12 percent slopes

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

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County	Symbol	Restiction	Map Unit Name
Green Lake	GbD	p	Gotham loamy fine sand, sandstone substratum, 12 to 20 percent slopes
Green Lake	Gf	wp	Granby loamy fine sand
Green Lake	GhA	w	Granby loamy fine sand, loamy subsoil variant, 0 to 3 percent slopes
Green Lake	GkA	w	Granby loamy fine sand, clayey subsoil variant, 0 to 3 percent slopes
Green Lake	GP	p+	Gravel pit
Green Lake	Ho	wp	Houghton muck
Green Lake	KbA	w	Kibbie loam, 0 to 3 percent slopes
Green Lake	LDF	+	Landfill
Green Lake	M-W	+	Miscellaneous water
Green Lake	MaA	w	Manawa silt loam, 0 to 3 percent slopes
Green Lake	McA	w	Marcellon loam, 0 to 3 percent slopes
Green Lake	Mf	wp	Marsh
Green Lake	Mh	w	Marshan silt loam
Green Lake	OaB	p	Oakville fine sand, 1 to 6 percent slopes
Green Lake	OaC	p	Oakville fine sand, 6 to 12 percent slopes
Green Lake	OaD	p	Oakville fine sand, 12 to 35 percent slopes
Green Lake	Os	w	Ossian silt loam
Green Lake	Pa	wp	Palms muck
Green Lake	Pr	w	Poy silty clay loam
Green Lake	Py	w	Poygan silty clay loam
Green Lake	QUA	r +	Quarry
Green Lake	RaB	p	Richford loamy sand, 1 to 6 percent slopes
Green Lake	RaC	p	Richford loamy sand, 6 to 15 percent slopes
Green Lake	RhB2	r	Ritchey silt loam, 2 to 6 percent slopes, eroded
Green Lake	RhC2	r	Ritchey silt loam, 6 to 12 percent slopes, eroded
Green Lake	RhD2	r	Ritchey silt loam, 12 to 20 percent slopes, eroded
Green Lake	RkE	r	Rock land and Ritchey soils, 6 to 45 percent slopes
Green Lake	Ro	r	Rock outcrop
Green Lake	RsD	p	Rodman gravelly sandy loam, 6 to 20 percent slopes
Green Lake	RsE	p	Rodman gravelly sandy loam, 20 to 35 percent slopes
Green Lake	W	+	Water
Green Lake	We	wp	Willette muck
Green Lake	ZtA	w	Zittau silty clay loam, 0 to 3 percent slopes
Iowa	BoC2	p	Boone fine sand, 6 to 12 percent slopes, moderately eroded
Iowa	BoD2	p	Boone fine sand, 12 to 30 percent slopes,moderately eroded
Iowa	Df	wp	Dillon loamy fine sand
Iowa	DlB2	r	Dodgeville silt loam, shallow, 2 to 6 percent slopes, moderately eroded
Iowa	DlC2	r	Dodgeville silt loam, shallow, 6 to 12 percent slopes, moderately eroded
Iowa	DlD2	r	Dodgeville silt loam, shallow, 12 to 20 percent slopes, moderately eroded
Iowa	DyB2	r	Dubuque stony silt loam, 2 to 6 percent slopes, moderately eroded
Iowa	DyC2	r	Dubuque stony silt loam, 6 to 12 percent slopes moderately eroded
Iowa	DyD2	r	Dubuque stony silt loam, 12 to 20 percent slopes, moderately eroded
Iowa	DyE2	r	Dubuque stony silt loam, 20 to 30 percent slopes, moderately eroded
Iowa	Et	w	Ettrick silt loam
Iowa	GoA	p	Gotham loamy fine sand, 0 to 2 percent slopes
Iowa	GoB	p	Gotham loamy fine sand, 2 to 6 percent slopes
Iowa	GoB2	p	Gotham loamy fine sand, 2 to 8 percent slopes, moderately eroded
Iowa	LDF	+	Landfill
Iowa	Lo	+	Loamy alluvial land
Iowa	Lp	w	Loamy alluvial land, poorly drained

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County	Symbol	Restiction	Map Unit Name
Iowa	M-W	+	Miscellaneous water
Iowa	Ma	w	Marsh
Iowa	Mm	w	Millsdale silty clay loam, shale variant
Iowa	Mp	+	Mine pits and dumps
Iowa	NfB2	r	Northfield loam, 2 to 6 percent slopes, moderately eroded
Iowa	NfC2	r	Northfield loam, 6 to 12 percent slopes, moderately eroded
Iowa	NfD2	r	Northfield loam, 12 to 20 percent slopes, moderately eroded
Iowa	NfE2	r	Northfield loam, 20 to 30 percent slopes, moderately eroded
Iowa	NoC2	r	Northfield sandy loam, 6 to 12 percent slopes, moderately eroded
Iowa	NoD2	r	Northfield sandy loam, 12 to 20 percent slopes, moderately eroded
Iowa	NoE2	r	Northfield sandy loam, 20 to 30 percent slopes, moderately eroded
Iowa	NsD2	r	Northfield stony loam, 12 to 20 percent slopes, moderately eroded
Iowa	NsE2	r	Northfield stony loam, 20 to 30 percent slopes, moderately eroded
Iowa	Pd	wp	Peat and muck, deep
Iowa	Pe	wp	Peat and muck, shallow
Iowa	PfB2	p	Plainfield fine sand, 0 to 6 percent slopes, moderately eroded
Iowa	PgA	p	Plainfield loamy fine sand, 0 to 2 percent slopes
Iowa	PgB	p	Plainfield loamy fine sand, 2 to 6 percent slopes
Iowa	Pm	p	Plainfield loamy fine sand, mottled substratum variant
Iowa	Ps	p	Plainfield and Sparta fine sands and dune land
Iowa	QUA	r +	Quarry
Iowa	Re	p+	Riverwash
Iowa	SoB2	r	Sogn and Dodgeville silt loams, shallow, 2 to 6 percent slopes, moderately eroded
Iowa	SoC2	r	Sogn and Dodgeville silt loams, shallow, 6 to 12 percent slopes, moderately eroded
Iowa	SoD2	r	Sogn and Dodgeville silt loams, shallow, 12 to 20 percent slopes, moderately eroded
Iowa	SoE2	r	Sogn and Dodgeville silt loams, shallow, 20 to 30 percent slopes, moderately eroded
Iowa	SP	p	Sand pit
Iowa	SpA	p	Sparta loamy fine sand, 0 to 2 percent slopes
Iowa	SpA2	p	Sparta loamy fine sand, 0 to 2 percent slopes, moderately eroded
Iowa	SpB	p	Sparta loamy fine sand, 2 to 6 percent slopes
Iowa	SpB2	p	Sparta loamy fine sand, 2 to 6 percent slopes, moderately eroded
Iowa	Sr	p	Sparta loamy fine sand, moderately well drained variant
Iowa	Ss	+	Steep stony and rocky land
Iowa	St	+	Stony alluvial land
Iowa	Tr	+	Terrace escarpments, loamy
Iowa	Ts	p+	Terrace escarpments, sandy
Iowa	UoE	+	Udorthents, loamy, steep (earthen dam)
Iowa	W	+	Water
Iowa	Wa	w	Wallkill silt loam
Iron	3A	wp	Totagatic-Bowstring-Ausable complex, 0 to 2 percent slopes, frequently flooded
Iron	5A	w	Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded
Iron	7C	+	Beaches, 2 to 12 percent slopes
Iron	69B	p	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
Iron	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Iron	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Iron	74B	p	Vilas loamy sand, 0 to 6 percent slopes
Iron	74C	p	Vilas loamy sand, 6 to 15 percent slopes
Iron	74D	p	Vilas loamy sand, 15 to 30 percent slopes
Iron	174B	p	Rubicon sand, 0 to 6 percent slopes
Iron	174C	p	Rubicon sand, 6 to 15 percent slopes

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County	Symbol	Restiction	Map Unit Name
Iron	174D	p	Rubicon sand, 15 to 30 percent slopes
Iron	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Iron	193A	w	Minocqua muck, 0 to 2 percent slopes
Iron	217B	p	Karlin loamy fine sand, 0 to 6 percent slopes
Iron	217C	p	Karlin loamy fine sand, 6 to 15 percent slopes
Iron	339B	p	Rousseau loamy fine sand, 0 to 6 percent slopes
Iron	339C	p	Rousseau loamy fine sand, 6 to 15 percent slopes
Iron	339D	p	Rousseau loamy fine sand, 15 to 30 percent slopes
Iron	375A	w	Robago fine sandy loam, lake terrace, 0 to 3 percent slopes
Iron	388B	wp	Pelkie, occasionally flooded-Dechamps, frequently flooded complex, 0 to 4 percent slopes
Iron	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Iron	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Iron	408A	wp	Lupton and Cathro soils, 0 to 1 percent slopes
Iron	414A	wp	Loxley and Beseman soils, 0 to 1 percent slopes
Iron	418A	wp	Loxley and Dawson soils, 0 to 1 percent slopes
Iron	445A	w	Kinross muck, 0 to 2 percent slopes
Iron	455A	wp	Kinross-Au Gres-Markey complex, 0 to 3 percent slopes
Iron	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Iron	475B	p	Rubicon-Sayner complex, 0 to 6 percent slopes
Iron	475C	p	Rubicon-Sayner complex, 6 to 15 percent slopes
Iron	475D	p	Rubicon-Sayner complex, 15 to 30 percent slopes
Iron	514B	w	Iosco loamy sand, 0 to 4 percent slopes
Iron	520A	w	Annriver silt loam, 0 to 2 percent slopes
Iron	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Iron	571B	p	Pelissier gravelly sandy loam, 2 to 6 percent slopes
Iron	571C	p	Pelissier gravelly sandy loam, 6 to 15 percent slopes
Iron	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Iron	574B	p	Sayner loamy sand, 0 to 6 percent slopes
Iron	574C	p	Sayner loamy sand, 6 to 15 percent slopes
Iron	574E	p	Sayner loamy sand, 15 to 45 percent slopes
Iron	582C	p	Padus-Pence-Keweenaw complex, 6 to 15 percent slopes, stony
Iron	582D	p	Padus-Pence-Keweenaw complex, 15 to 30 percent slopes, stony
Iron	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Iron	594B	p	Vilas-Lindquist complex, 0 to 6 percent slopes
Iron	594C	p	Vilas-Lindquist complex, 6 to 15 percent slopes
Iron	594D	p	Vilas-Lindquist complex, 15 to 30 percent slopes
Iron	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes
Iron	639A	p	Neconish loamy fine sand, 0 to 3 percent slopes
Iron	670B	p	Keweenaw-Pence complex, 0 to 6 percent slopes, stony
Iron	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Iron	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Iron	674B	p	Sultz sand, 0 to 6 percent slopes
Iron	674C	p	Sultz sand, 6 to 15 percent slopes
Iron	674E	p	Sultz sand, 15 to 45 percent slopes
Iron	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Iron	701A	w	Whisklake silt loam, 0 to 3 percent slopes
Iron	705B	p	Cublake-Croswell-Ashwabay complex, 0 to 6 percent slopes
Iron	705C	p	Cublake-Croswell-Ashwabay complex, 6 to 15 percent slopes
Iron	755A	w	Moppet, occasionally flooded-Fordum, frequently flooded complex, 0 to 3 percent

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County	Symbol	Restiction	Map Unit Name
			slopes
Iron	805E	p	Sultz-Ashwabay-Rubicon complex, 15 to 45 percent slopes
Iron	813E	p	Manistee-Kellogg-Ashwabay complex, 15 to 45 percent slopes
Iron	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Iron	884C	wp	Keweenaw, stony-Vilas-Cathro complex, 0 to 15 percent slopes
Iron	885B	wp	Springstead, stony-Annalake-Cathro complex, 0 to 6 percent slopes
Iron	974B	p	Sayner-Pence-Vilas complex, 0 to 6 percent slopes
Iron	974C	p	Sayner-Pence-Vilas complex, 6 to 15 percent slopes
Iron	974D	p	Sayner-Pence-Vilas complex, 15 to 30 percent slopes
Iron	1385B	p	Cublake-Keweenaw, stony complex, 0 to 6 percent slopes
Iron	1884B	wp	Springstead, stony-Markey complex, 0 to 6 percent slopes
Iron	2002	+	Udorthents, earthen dams
Iron	2015	+	Pits
Iron	2025	+	Pits and dumps, mine
Iron	2030	+	Udorthents and Udipsamments, cut or fill
Iron	3114A	w	Saprists, aquents, and aquepts, 0 to 1 percent slopes, ponded and flooded
Iron	3243A	w	Spear silt loam, lake terrace, 0 to 3 percent slopes
Iron	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Iron	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Iron	3512D	p	Menominee loamy sand, 15 to 30 percent slopes
Iron	3826B	p	Allendale-Wakeley-Kinross complex, 0 to 6 percent slopes
Iron	5140A	wp	Dawson, Greenwood, and Loxley soils, 0 to 1 percent slopes
Iron	5141A	w	Lupton-Pleine-Cathro complex, 0 to 1 percent slopes
Iron	5146C	p	Amasa-Karlin complex, esker, 2 to 18 percent slopes
Iron	5146D	p	Amasa-Karlin complex, esker, 18 to 35 percent slopes
Iron	5146E	p	Amasa-Karlin complex, esker, 35 to 55 percent slopes
Iron	5170A	wp	Minocqua-Pleine-Cathro complex, 0 to 2 percent slopes
Iron	5172B	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes
Iron	5172C	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes
Iron	5172D	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 35 percent slopes
Iron	5175C	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes, rocky
Iron	5175D	wp	Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 35 percent slopes, rocky
Iron	5285F	w	Rockland-Arnheim, frequently flooded complex, 0 to 70 percent slopes
Iron	5369D	r	Dishno-Gogebic-Peshekee-Rock outcrop complex, 18 to 35 percent slopes, very stony
Iron	5369E	r	Michigamme-Schweitzer-Peshekee-Rock outcrop complex, 35 to 55 percent slopes, very stony
Iron	5369F	r	Michigamme-Schweitzer-Peshekee-Rock outcrop complex, 55 to 75 percent slopes, very stony
Iron	5373A	w	Cathro muck, drainageway, 0 to 1 percent slopes
Iron	5374A	w	Bowstring-Arnheim complex, 0 to 1 percent slopes, frequently flooded
Iron	5425A	w	Foxpaw-Gay, stony complex, 0 to 2 percent slopes
Iron	5429B	r	Gogebic-Peshekee complex, 2 to 6 percent slopes, very stony, very rocky
Iron	5429C	r	Gogebic-Peshekee complex, 6 to 18 percent slopes, very stony, very rocky
Iron	5429D	r	Gogebic-Peshekee complex, 18 to 35 percent slopes, very stony, very rocky
Iron	5432C	r	Gogebic-Michigamme-Rock outcrop complex, 6 to 18 percent slopes, very stony
Iron	5432D	r	Gogebic-Michigamme-Rock outcrop complex, 6 to 35 percent slopes, very stony
Iron	5432E	r	Schweitzer-Michigamme-Rock outcrop complex, very stony, 18 to 55 percent slopes
Iron	5504A	w	Moquah-Arnheim complex, 0 to 3 percent slopes, frequently flooded

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County	Symbol	Restiction	Map Unit Name
Iron	5509A	w	Cathro-Minocqua complex, drainageway, 0 to 1 percent slopes
Iron	5689B	w	Chabeneau-Channing-Gogebic complex, 0 to 6 percent slopes, stony
Iron	9050A	wp	Fordum, Totagatic, and Bowstring soils, 0 to 1 percent slopes, frequently flooded
Iron	9155A	wp	Haplosaprists, Peats, and Mucks, 0 to 1 percent slopes
Iron	M-W	+	Miscellaneous water
Iron	W	+	Water
Jackson	AbA	p	Absco loamy sand, 0 to 3 percent slopes
Jackson	AcA	p	Absco-Northbend complex, 0 to 3 percent slopes
Jackson	Ad	wp	Adder muck, 0 to 1 percent slopes
Jackson	BoB	p	Boone sand, 2 to 6 percent slopes
Jackson	BoC	p	Boone sand, 6 to 15 percent slopes
Jackson	BoF	p	Boone sand, 15 to 50 percent slopes
Jackson	BpF	p	Boone-Elevasil complex, 15 to 50 percent slopes
Jackson	Cd	wp	Citypoint mucky peat, 0 to 1 percent slopes
Jackson	Da	wp	Dawsil mucky peat, 0 to 1 percent slopes
Jackson	Eo	wp	Elm Lake mucky sand, 0 to 2 percent slopes
Jackson	Et	w	Ettrick silt loam, 0 to 2 percent slopes
Jackson	FeA	wp	Fairchild-Elm Lake complex, 0 to 3 percent slopes
Jackson	GoB	p	Gosil loamy sand, 0 to 6 percent slopes
Jackson	GoC	p	Gosil loamy sand, 6 to 12 percent slopes
Jackson	Ht	wp	Houghton muck, 0 to 1 percent slopes
Jackson	ImA	p	Impact sand, 0 to 3 percent slopes
Jackson	IxA	wp	Ironrun-Ponycreek complex, 0 to 3 percent slopes
Jackson	IzB	wp	Ironrun-Ponycreek-Arbutus complex, 0 to 6 percent slopes
Jackson	Ka	w	Kalmarville silt loam, 0 to 1 percent slopes
Jackson	LDF	+	Landfill
Jackson	Lt	wp	Loxley peat, 0 to 1 percent slopes
Jackson	M-W	+	Miscellaneous water
Jackson	MaB	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Jackson	MrA	w	Merrillan-Veedum complex, 0 to 3 percent slopes
Jackson	MxA	w	Moppet-Fordum complex, 0 to 3 percent slopes
Jackson	Ne	wp	Newlang muck, 0 to 2 percent slopes
Jackson	Pa	wp	Palms muck, 0 to 1 percent slopes
Jackson	Pt	+	Pits
Jackson	Pu	wp	Ponycreek muck, 0 to 2 percent slopes
Jackson	Pv	wp	Ponycreek-Dawsil complex, 0 to 2 percent slopes
Jackson	Pw	wp	Psammaquents, nearly level
Jackson	RkA	p	Rockdam sand, 0 to 3 percent slopes
Jackson	SpA	p	Sparta sand, 0 to 3 percent slopes
Jackson	TrB	p	Tarr sand, 0 to 6 percent slopes
Jackson	TrC	p	Tarr sand, 6 to 15 percent slopes
Jackson	TrF	p	Tarr sand, 15 to 45 percent slopes
Jackson	TtA	p	Tint sand, 0 to 3 percent slopes
Jackson	TuB	p	Tintson sand, 0 to 6 percent slopes
Jackson	UdF	+	Udorthents, loamy, very steep
Jackson	Vs	wp	Veedum-Elm Lake mucks, 0 to 2 percent slopes
Jackson	W	+	Water
Jefferson	Ad	wp	Adrian muck
Jefferson	BaA	w	Barry silt loam, 0 to 3 percent slopes
Jefferson	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded

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County	Symbol	Restiction	Map Unit Name
Jefferson	CrE	p	Casco-Rodman complex, 20 to 45 percent slopes
Jefferson	CtB	p	Chelsea loamy fine sand, 1 to 6 percent slopes
Jefferson	CtC	p	Chelsea loamy fine sand, 6 to 20 percent slopes
Jefferson	Ed	w	Edwards muck
Jefferson	Ev	w	Elvers silt loam
Jefferson	Fn	w+	Fluvaquents
Jefferson	Gd	w	Gilford sandy loam
Jefferson	Ht	wp	Houghton muck
Jefferson	Kb	w	Keowns silt loam
Jefferson	Mr	w	Milford silty clay loam
Jefferson	MvB	p	Moundville loamy sand, 1 to 6 percent slopes
Jefferson	Ot	w	Otter silt loam
Jefferson	Pa	wp	Palms muck
Jefferson	Pb	wp	Palms muck, ponded
Jefferson	Pg	p+	Pits, gravel
Jefferson	Sm	w	Sebewa silt loam
Jefferson	Sn	w	Sebewa silt loam, clayey substratum
Jefferson	Ud	+	Udorthents
Jefferson	W	+	Water
Jefferson	Wa	w	Wacousta silty clay loam
Juneau	AgA	wp	Algansee-Glendora fine sandy loams, 0 to 3 percent slopes
Juneau	BpF	rp	Boone-Plainfield-Rock outcrop complex, 12 to 60 percent slopes
Juneau	Dc	wp	Dawson muck, 0 to 1 percent slopes
Juneau	EkF	rp	Eleva-Boone-Rock outcrop complex, 30 to 60 percent slopes
Juneau	EnB	r	Elkmound sandy loam, 1 to 6 percent slopes
Juneau	Et	w	Ettrick silt loam, 0 to 2 percent slopes
Juneau	FrB	p	Friendship sand, 1 to 6 percent slopes
Juneau	FsB	p	Friendship loamy sand, loamy substratum, 1 to 6 percent slopes
Juneau	LDF	+	Landfill
Juneau	Lw	w	Lows loam, 0 to 2 percent slopes
Juneau	Lx	wp	Loxley muck, 0 to 1 percent slopes
Juneau	M-W	+	Miscellaneous water
Juneau	MnA	wp	Meehan-Newson complex, 0 to 3 percent slopes
Juneau	Ne	wp	Newson mucky loamy sand, 0 to 2 percent slopes
Juneau	Ns	wp	Newson-Dawson complex, 0 to 2 percent slopes
Juneau	Pa	wp	Palms muck, 0 to 1 percent slopes
Juneau	PbA	p	Partridge loamy fine sand, 0 to 3 percent slopes
Juneau	Pc	+	Pits
Juneau	PdB	p	Plainbo sand, 1 to 6 percent slopes
Juneau	PdC	p	Plainbo sand, 6 to 12 percent slopes
Juneau	PfB	p	Plainfield sand, 1 to 6 percent slopes
Juneau	PfC	p	Plainfield sand, 6 to 12 percent slopes
Juneau	PfD	p	Plainfield sand, 12 to 20 percent slopes
Juneau	Po	w	Poygan silt loam, 0 to 2 percent slopes
Juneau	Ps	wp	Psammaquents, nearly level
Juneau	Ud	+	Udorthents, nearly level
Juneau	UoE	+	Udorthents, loamy, steep (earthen dam)
Juneau	W	+	Water
Juneau	Wa	w	Wautoma loamy sand, 0 to 2 percent slopes
Kenosha	Ac	wp	Adrian muck

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County	Symbol	Restiction	Map Unit Name
Kenosha	Am	+	Alluvial land
Kenosha	AtA	w	Ashkum silty clay loam, 0 to 3 percent slopes
Kenosha	AuA	w	Aztalan sandy loam, 1 to 3 percent slopes
Kenosha	AzA	w	Aztalan loam, 0 to 2 percent slopes
Kenosha	AzB	w	Aztalan loam, 2 to 6 percent slopes
Kenosha	BP	+	Borrow pit
Kenosha	CP	p+	Coal pile
Kenosha	CrC	p	Casco-Rodman complex, 6 to 12 percent slopes
Kenosha	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Kenosha	CrE	p	Casco-Rodman complex, 20 to 35 percent slopes
Kenosha	Cv	+	Clayey land
Kenosha	Cw	w	Colwood silt loam
Kenosha	CyA	w	Conover silt loam, 1 to 3 percent slopes
Kenosha	DaA	w	Darroch fine sandy loam, neutral variant, 0 to 3 percent slopes
Kenosha	Dt	w	Drummer silt loam, gravelly substratum
Kenosha	EtA	w	Elliott silty clay loam, 0 to 2 percent slopes
Kenosha	EtB	w	Elliott silty clay loam, 2 to 6 percent slopes
Kenosha	Gf	wp	Granby fine sandy loam
Kenosha	Gm	wp	Granby fine sandy loam, loamy substratum
Kenosha	GnA	w	Granby fine sandy loam, brown subsoil variant, 0 to 3 percent slopes
Kenosha	GP	p+	Gravel pit
Kenosha	Ht	wp	Houghton muck
Kenosha	KaA	w	Kane loam, 1 to 3 percent slopes
Kenosha	KhA	w	Kane silt loam, clayey substratum, 1 to 3 percent slopes
Kenosha	LDF	+	Landfill
Kenosha	Lu	+	Loamy land
Kenosha	M-W	+	Miscellaneous water
Kenosha	Mf	wp	Marsh
Kenosha	MgA	w	Martinton silt loam, 1 to 3 percent slopes
Kenosha	MkA	w	Matherton loam, 1 to 3 percent slopes
Kenosha	MlA	w	Matherton loam, clayey substratum, 1 to 3 percent slopes
Kenosha	Mzc	w	Montgomery silty clay
Kenosha	MzfA	w	Mundelein silt loam, 1 to 3 percent slopes
Kenosha	Mzg	wp	Muskego muck
Kenosha	Mzk	w	Mussey loam
Kenosha	Na	w	Navan silt loam
Kenosha	Oc	wp	Ogden muck
Kenosha	Pa	wp	Palms muck
Kenosha	Ph	w	Pella silt loam
Kenosha	QUA	r +	Quarry
Kenosha	RaA	w	Radford silt loam, 0 to 3 percent slopes
Kenosha	Rt	w	Rollin muck
Kenosha	Ry	+	Rough broken land
Kenosha	Sf	p	Sandy and gravelly land
Kenosha	Sfb	+	Sandy lake beaches
Kenosha	Sg	w	Sawmill silt loam, calcareous variant
Kenosha	Sm	w	Sebewa silt loam
Kenosha	W	+	Water
Kenosha	Wa	w	Wallkill silt loam
Kenosha	WmA	w	Wasepi sandy loam, 1 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Kenosha	WnA	w	Wasepi sandy loam, clayey substratum, 1 to 3 percent slopes
Kenosha	Ww	w	Wet alluvial land
Kenosha	YaA	w	Yahara fine sandy loam, 1 to 3 percent slopes
Kewaunee	AdA	w	Allendale loamy fine sand, 0 to 3 percent slopes
Kewaunee	Ax	w	Angelica silt loam
Kewaunee	Ba	w	Bach silt loam
Kewaunee	Bn	w	Bonduel loam
Kewaunee	Bo	w	Borosaprists
Kewaunee	Ca	wp	Carbondale muck
Kewaunee	CdB	p	Casco-Rodman complex, 2 to 6 percent slopes
Kewaunee	CdC2	p	Casco-Rodman complex, 6 to 12 percent slopes, eroded
Kewaunee	CdD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Kewaunee	Cm	wp	Cathro muck
Kewaunee	FaA	w	Fabius loam, 0 to 3 percent slopes
Kewaunee	Fu	w+	Fluvaquents
Kewaunee	HsB	w	Hortonville-Symco silt loams, 1 to 6 percent slopes
Kewaunee	KuA	w	Kibbie silt loam, 0 to 3 percent slopes
Kewaunee	KvA	w	Kibbie variant silt loam, 0 to 3 percent slopes
Kewaunee	KxB	r	Kolberg variant silt loam, 1 to 6 percent slopes
Kewaunee	LDF	+	Landfill
Kewaunee	LmA	w	Lamartine silt loam, 0 to 3 percent slopes
Kewaunee	M-W	+	Miscellaneous water
Kewaunee	MeB	p	Manistee loamy fine sand, 2 to 6 percent slopes
Kewaunee	Mk	wp	Markey muck
Kewaunee	MmA	w	Matherton silt loam, 0 to 3 percent slopes
Kewaunee	MrB	p	Menominee loamy fine sand, loamy substratum, 1 to 6 percent
Kewaunee	My	w	Mussey loam
Kewaunee	NaB	r	Namur loam, 1 to 6 percent slopes
Kewaunee	NrD	r	Namur-Rock outcrop complex, 6 to 20 percent slopes
Kewaunee	OaB	p	Oakville loamy fine sand, 1 to 6 percent slopes
Kewaunee	OaC	p	Oakville loamy fine sand, 6 to 12 percent slopes
Kewaunee	Pe	w	Pella silt loam
Kewaunee	Pg	p+	Gravel pits
Kewaunee	QUA	r +	Quarry
Kewaunee	RcE	p	Rodman-Casco complex, 20 to 35 percent slopes
Kewaunee	Rs	wp	Roscommon mucky loamy sand
Kewaunee	Ru	wr	Ruse loam
Kewaunee	ShA	w	Shiocton silt loam, 0 to 3 percent slopes
Kewaunee	SoA	w	Solona silt loam, 0 to 3 percent slopes
Kewaunee	SyA	w	Symco silt loam, 0 to 3 percent slopes
Kewaunee	Uf	w	Udifluvents
Kewaunee	UoB	+	Udorthents, 0 to 6 percent slopes
Kewaunee	UoF	+	Udorthents, 25 to 50 percent slopes
Kewaunee	W	+	Water
Kewaunee	WaA	w	Wainola loamy fine sand, 0 to 3 percent slopes
La Crosse	20A	wp	Palms and Houghton mucks, 0 to 1 percent slopes
La Crosse	21A	w	Palms muck, 0 to 1 percent slopes, frequently flooded
La Crosse	30A	w	Adder muck, 0 to 1 percent slopes, frequently flooded
La Crosse	233C	p	Boone sand, 6 to 15 percent slopes
La Crosse	501A	p	Finchford loamy sand, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
La Crosse	502B2	p	Chelsea fine sand, 2 to 6 percent slopes, moderately eroded
La Crosse	502C2	p	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded
La Crosse	511B	p	Plainfield sand, 2 to 6 percent slopes
La Crosse	511C	p	Plainfield sand, 6 to 15 percent slopes
La Crosse	511F	p	Plainfield sand, 15 to 60 percent slopes
La Crosse	551A	p	Impact sand, 0 to 3 percent slopes
La Crosse	561B	p	Tarr sand, 1 to 6 percent slopes
La Crosse	561C	p	Tarr sand, 6 to 15 percent slopes
La Crosse	561F	p	Tarr sand, 15 to 60 percent slopes
La Crosse	562B	p	Gosil loamy sand, 1 to 6 percent slopes
La Crosse	562C	p	Gosil loamy sand, 6 to 12 percent slopes
La Crosse	566A	p	Tint sand, 0 to 3 percent slopes
La Crosse	569A	wp	Newlang muck, 0 to 2 percent slopes, occasionally flooded
La Crosse	609A	w	Otter silt loam, 0 to 2 percent slopes, frequently flooded
La Crosse	629A	w	Ettrick silt loam, 0 to 2 percent slopes, frequently flooded
La Crosse	656A	p	Scotah loamy fine sand, 0 to 3 percent slopes, occasionally flooded
La Crosse	739A	w	Root loam, 0 to 2 percent slopes, frequently flooded
La Crosse	1145F	p	Gaphill-Rockbluff complex, 30 to 60 percent slopes
La Crosse	1155F	rp	Brodale-Bellechester-Rock outcrop complex, 60 to 90 percent slopes
La Crosse	1233F	p	Boone-Tarr sands, 15 to 50 percent slopes
La Crosse	1658A	w	Algansee-Kalmarville complex, 0 to 3 percent slopes, frequently flooded
La Crosse	2002	+	Udorthents, earthen dams
La Crosse	2003A	+	Riverwash
La Crosse	2013	+	Pits, gravel
La Crosse	2014	+	Pits, quarry, hard bedrock
La Crosse	2020	+	Urban land, valley trains
La Crosse	2030	+	Udorthents and Udipsamments, cut or fill
La Crosse	2040	p+	Udipsamments, dredge material
La Crosse	2050	+	Landfill
La Crosse	M-W	+	Miscellaneous water
La Crosse	W	+	Water
Lafayette	Ad	w+	Alluvial land
Lafayette	BoD2	p	Boone fine sand, 6 to 20 percent slopes, moderately eroded
Lafayette	CaA	w	Calamine silt loam, 0 to 2 percent slopes
Lafayette	CaB	w	Calamine silt loam, 2 to 6 percent slopes
Lafayette	CaC2	w	Calamine silt loam, 6 to 12 percent slopes, moderately eroded
Lafayette	DuB	r	Dunbarton silt loam, 2 to 6 percent slopes
Lafayette	DuC2	r	Dunbarton silt loam, 6 to 12 percent slopes, moderately eroded
Lafayette	DuD2	r	Dunbarton silt loam, 12 to 20 percent slopes, moderately eroded
Lafayette	DuE2	r	Dunbarton silt loam, 20 to 30 percent slopes, moderately eroded
Lafayette	DuF	r	Dunbarton silt loam, 30 to 45 percent slopes
Lafayette	EdB2	r	Edmund silt loam, 2 to 6 percent slopes, moderately eroded
Lafayette	EdC2	r	Edmund silt loam, 6 to 12 percent slopes, moderately eroded
Lafayette	EdD2	r	Edmund silt loam, 12 to 20 percent slopes, moderately eroded
Lafayette	GoB2	p	Gotham loamy fine sand, 2 to 6 percent slopes, moderately eroded
Lafayette	GoC2	p	Gotham loamy fine sand, 6 to 20 percent slopes, moderately eroded
Lafayette	Hu	wp	Houghton mucky peat
Lafayette	LDF	+	Landfill
Lafayette	Ma	w	Marsh
Lafayette	Mb	w	Marshan silt loam

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County	Symbol	Restiction	Map Unit Name
Lafayette	Mp	p+	Mine pits and dumps
Lafayette	NfC2	r	Northfield loam, 6 to 12 percent slopes, moderately eroded
Lafayette	NfD2	r	Northfield loam, 12 to 20 percent slopes, moderately eroded
Lafayette	NfE2	r	Northfield loam, 20 to 30 percent slopes, moderately eroded
Lafayette	NoB2	r	Northfield sandy loam, 2 to 6 percent slopes, moderately eroded
Lafayette	NoC2	r	Northfield sandy loam, 6 to 12 percent slopes, moderately eroded
Lafayette	NoD2	r	Northfield sandy loam, 12 to 20 percent slopes, moderately eroded
Lafayette	NoE2	r	Northfield sandy loam, 20 to 30 percent slopes, moderately eroded
Lafayette	NoF	r	Northfield sandy loam, 30 to 45 percent slopes
Lafayette	Ow	w	Orion silt loam, wet variant
Lafayette	QUA	r +	Quarry
Lafayette	Sa	w	Sable silt loam
Lafayette	Sb	w	Sable silt loam, benches
Lafayette	SoC2	r	Sogn silt loam, 2 to 12 percent slopes, moderately eroded
Lafayette	SoD2	r	Sogn silt loam, 12 to 20 percent slopes, moderately eroded
Lafayette	SoE2	r	Sogn silt loam, 20 to 30 percent slopes, moderately eroded
Lafayette	SoF	r	Sogn silt loam, 30 to 45 percent slopes
Lafayette	SrE	+	Stony and rocky land, moderately steep
Lafayette	SrF	+	Stony and rocky land, steep
Lafayette	UoE	+	Udorthents, loamy, steep (earthen dam)
Lafayette	W	+	Water
Langlade	As	w	Au Gres loamy sand
Langlade	Co	w	Comstock silt loam
Langlade	Cs	p	Croswell loamy sand
Langlade	Fm	w	Fordum mucky silt loam
Langlade	HyB	w	Hatley silt loam, 2 to 6 percent slopes, stony
Langlade	Ig	w	Ingalls loamy sand
Langlade	KwD	p	Keweenaw sandy loam, 15 to 45 percent slopes, stony
Langlade	LDF	+	Landfill
Langlade	Lx	wp	Loxley peat
Langlade	M-W	+	Miscellaneous water
Langlade	MnB	p	Menominee loamy sand, 0 to 6 percent slopes
Langlade	MoB	w	Milladore silt loam, 0 to 4 percent slopes
Langlade	Ms	w	Minocqua, Cable, and Sherry mucks
Langlade	MyB	w	Mylrea silt loam, 0 to 4 percent slopes
Langlade	Os	w	Oesterle silt loam
Langlade	Pt	+	Pits, gravel
Langlade	Sy	wp	Seelyeville, Cathro, and Markey mucks
Langlade	VsB	p	Vilas loamy sand, 0 to 6 percent slopes
Langlade	VsC	p	Vilas loamy sand, 6 to 15 percent slopes
Langlade	W	+	Water
Lincoln	AuA	w	Au Gres loamy sand, 0 to 3 percent slopes
Lincoln	CoA	w	Comstock silt loam, 0 to 3 percent slopes
Lincoln	CrB	p	Croswell loamy sand, 1 to 6 percent slopes
Lincoln	CsB	p	Croswood loamy sand, 1 to 6 percent slopes
Lincoln	Fh	w	Fordum loam, 0 to 2 percent slopes
Lincoln	HyB	w	Hatley silt loam, 0 to 4 percent slopes
Lincoln	KwC	p	Keweenaw sandy loam, 6 to 15 percent slopes
Lincoln	KwD	p	Keweenaw sandy loam, 15 to 35 percent slopes
Lincoln	Lo	wp	Loxley and Dawson peats, 0 to 1 percent slopes

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County	Symbol	Restiction	Map Unit Name
Lincoln	Lu	wp	Lupton, Cathro, and Markey mucks, 0 to 1 percent slopes
Lincoln	MxB	w	Moodig sandy loam, 0 to 4 percent slopes
Lincoln	OsA	w	Ossmer silt loam, 0 to 3 percent slopes
Lincoln	Pt	p+	Gravel pit
Lincoln	VsB	p	Vilas-Sayner loamy sands, 1 to 6 percent slopes
Lincoln	VsC	p	Vilas-Sayner loamy sands, 6 to 15 percent slopes
Lincoln	VsD	p	Vilas-Sayner loamy sands, 15 to 35 percent slopes
Lincoln	W	+	Water
Lincoln	WoA	w	Worcester sandy loam, 0 to 3 percent slopes
Manitowoc	Ac	wp	Adrian muck
Manitowoc	As	+	Aquents, sloping
Manitowoc	Bu	w	Brookston silt loam
Manitowoc	CnB	r	Channahon loam, 2 to 6 percent slopes
Manitowoc	CnC	r	Channahon loam, 6 to 12 percent slopes
Manitowoc	Du	p+	Dune land
Manitowoc	Fu	w+	Fluvaquents
Manitowoc	Gb	wp	Granby fine sandy loam
Manitowoc	Hu	wp	Houghton muck
Manitowoc	Ke	w	Keowns very fine sandy loam
Manitowoc	LmA	w	Lamartine silt loam, 0 to 3 percent slopes
Manitowoc	M-W	+	Miscellaneous water
Manitowoc	MuA	w	Mundelein silt loam, 0 to 3 percent slopes
Manitowoc	OaB	p	Oakville loamy fine sand, 2 to 6 percent slopes
Manitowoc	OaC	p	Oakville loamy fine sand, 6 to 12 percent slopes
Manitowoc	OgB	wp	Oakville-Granby complex, 0 to 4 percent slopes
Manitowoc	Pa	wp	Palms muck
Manitowoc	Pe	w	Pella silt loam
Manitowoc	Pg	p+	Pits, gravel
Manitowoc	Ph	r +	Pits, quarries
Manitowoc	PlB	p	Plainfield loamy sand, 2 to 6 percent slopes
Manitowoc	PlC	p	Plainfield loamy sand, 6 to 12 percent slopes
Manitowoc	PlD	p	Plainfield loamy sand, 12 to 20 percent slopes
Manitowoc	ShA	w	Shiocton very fine sandy loam, 0 to 3 percent slopes
Manitowoc	SyA	w	Symco silt loam, 0 to 3 percent slopes
Manitowoc	TeA	w	Tedrow loamy fine sand, 0 to 3 percent slopes
Manitowoc	Ud	+	Udorthents
Manitowoc	W	+	Water
Manitowoc	WaA	w	Wasepi sandy loam, 0 to 3 percent slopes
Manitowoc	Wt	p	Willette muck
Marathon	Ad	w	Altdorf mucky silt loam, 0 to 2 percent slopes
Marathon	CbA	w	Cable silt loam, 0 to 3 percent slopes, stony
Marathon	Ch	wp	Cathro muck, 0 to 1 percent slopes
Marathon	Da	w	Dancy sandy loam, 0 to 2 percent slopes
Marathon	DoA	w	Dolph silt loam, 0 to 3 percent slopes
Marathon	Fh	w	Fordum silt loam, 0 to 1 percent slopes
Marathon	GcB	p	Graycalm loamy sand, 2 to 6 percent slopes
Marathon	Gm	p	Graycalm loamy sand, moderately well drained, 0 to 2 percent slopes
Marathon	Gr	wp	Greenwood peat, 0 to 1 percent slopes
Marathon	HtB	w	Hatley silt loam, 1 to 6 percent slopes
Marathon	HyB	w	Hatley cobbly silt loam, 1 to 6 percent slopes, bouldery

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County	Symbol	Restiction	Map Unit Name
Marathon	LDF	+	Landfill
Marathon	MbB	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Marathon	MbC	p	Mahtomedi loamy sand, 6 to 15 percent slopes
Marathon	MbE	p	Mahtomedi loamy sand, 15 to 45 percent slopes
Marathon	McA	p	Mahtomedi loamy sand, moderately well drained, 0 to 3 percent slopes
Marathon	MgA	w	Meadland loam, 0 to 3 percent slopes
Marathon	MhA	w	Meadland loam, 0 to 3 percent slopes, stony
Marathon	Mm	w	Meehan loamy sand, 0 to 2 percent slopes
Marathon	Mn	w	Minocqua sandy loam, 0 to 2 percent slopes
Marathon	MyB	w	Mylrea silt loam, 1 to 6 percent slopes
Marathon	MzB	w	Mylrea silt loam, 1 to 6 percent slopes, stony
Marathon	Ne	wp	Newson mucky loamy sand, 0 to 1 percent slopes
Marathon	Oe	w	Oesterle loam, 0 to 2 percent slopes
Marathon	Pg	+	Pits, gravel
Marathon	Ph	r +	Pits, quarries
Marathon	RcB	w	Rietbrock silt loam, 1 to 8 percent slopes
Marathon	ReB	w	Rietbrock silt loam, 1 to 8 percent slopes, stony
Marathon	RhA	w	Rockers loamy sand, 0 to 3 percent slopes
Marathon	Se	wp	Seelyeville muck, 0 to 1 percent slopes
Marathon	ShA	w	Sherry silt loam, 0 to 3 percent slopes
Marathon	St	w	Sturgeon silt loam, 0 to 2 percent slopes
Marathon	UoB	+	Udorthents, loamy, gently sloping
Marathon	UoE	+	Udorthents, loamy, steep, (earthen dam)
Marathon	W	+	Water
Marinette	AkC	p	Alpena gravelly sandy loam, 6 to 12 percent slopes
Marinette	AkE	p	Alpena gravelly sandy loam, 12 to 35 percent slopes
Marinette	Ar	w	Arnheim silt loam, 0 to 1 percent slopes
Marinette	AuA	w	Au Gres loamy sand, 0 to 3 percent slopes
Marinette	BaA	w	Banat sandy loam, 0 to 3 percent slopes
Marinette	BnA	w	Bonduel loam, 0 to 3 percent slopes
Marinette	Bs	w	Brevort muck, 0 to 2 percent slopes
Marinette	Bv	w	Bruce fine sandy loam, 0 to 2 percent slopes
Marinette	ChA	w	Charlevoix fine sandy loam, 0 to 3 percent slopes
Marinette	CmB	w	Charlevoix-Emmet fine sandy loams, 1 to 6 percent slopes
Marinette	CtB	p	Croswell loamy sand, 1 to 6 percent slopes
Marinette	De	wp	Deford mucky fine sand, 0 to 2 percent slopes
Marinette	EaC	p	Emmert-Pence-Sarona complex, 6 to 15 percent slopes
Marinette	EaD	p	Emmert-Pence-Sarona complex, 15 to 35 percent slopes
Marinette	Ey	w	Ensley loam, 0 to 2 percent slopes
Marinette	Fw	w	Forada mucky loam, 0 to 1 percent slopes
Marinette	GaA	w	Gaastra silt loam, 0 to 3 percent slopes
Marinette	IsA	w	Iosco loamy fine sand, 0 to 3 percent slopes
Marinette	IxC	rp	Ishpeming-Rock outcrop complex, 4 to 15 percent slopes
Marinette	KaB	p	Karlin loamy fine sand, 2 to 6 percent slopes
Marinette	KaC	p	Karlin loamy fine sand, 6 to 15 percent slopes
Marinette	KeB	p	Keweenaw loamy sand, 1 to 6 percent slopes
Marinette	KeC	p	Keweenaw loamy sand, 6 to 15 percent slopes
Marinette	KeD	p	Keweenaw loamy sand, 15 to 25 percent slopes
Marinette	LDF	+	Landfill
Marinette	Ls	wp	Loxley and Dawson peats, 0 to 1 percent slopes

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County	Symbol	Restiction	Map Unit Name
Marinette	M-W	+	Miscellaneous water
Marinette	McB	p	Mancelona loamy sand, 0 to 6 percent slopes
Marinette	McC	p	Mancelona loamy sand, 6 to 12 percent slopes
Marinette	McD	p	Mancelona loamy sand, 12 to 20 percent slopes
Marinette	MeB	p	Manistee loamy sand, 2 to 6 percent slopes
Marinette	MhB	p	Menahga sand, 0 to 6 percent slopes
Marinette	MhC	p	Menahga sand, 6 to 15 percent slopes
Marinette	MhD	p	Menahga sand, 15 to 25 percent slopes
Marinette	MmB	p	Menahga-Mancelona-Menominee complex, 2 to 6 percent slopes
Marinette	MmC	p	Menahga-Mancelona-Menominee complex, 6 to 15 percent slopes
Marinette	MmD	p	Menahga-Mancelona-Menominee complex, 15 to 25 percent slopes
Marinette	MoB	p	Menominee loamy sand, 2 to 6 percent slopes
Marinette	MoC	p	Menominee loamy sand, 6 to 12 percent slopes
Marinette	MoD	p	Menominee loamy sand, 12 to 20 percent slopes
Marinette	MrC	r	Michigamme-Rock outcrop complex, 4 to 15 percent slopes
Marinette	MsA	w	Monico fine sandy loam, 0 to 3 percent slopes
Marinette	Nh	w	Nahma muck, 0 to 2 percent slopes
Marinette	Pn	w	Pinconning loamy sand, 0 to 2 percent slopes
Marinette	Pt	p+	Pits
Marinette	Rc	wp	Roscommon mucky loamy sand, 0 to 2 percent slopes
Marinette	Rm	wrp	Roscommon-Rock outcrop complex, 0 to 2 percent slopes
Marinette	RsB	p	Rousseau loamy fine sand, 1 to 6 percent slopes
Marinette	Sa	w	Saprists and Psammaquents, ponded
Marinette	ScB	p	Sayner loamy sand, 1 to 6 percent slopes
Marinette	ScC	p	Sayner loamy sand, 6 to 15 percent slopes
Marinette	Sd	wp	Seelyeville and Markey mucks, 0 to 1 percent slopes
Marinette	SeA	w	Selkirk silt loam, 0 to 3 percent slopes
Marinette	SfB	p	Shawano loamy fine sand, 2 to 6 percent slopes
Marinette	SfC	p	Shawano loamy fine sand, 6 to 12 percent slopes
Marinette	SfD	p	Shawano loamy fine sand, 12 to 30 percent slopes
Marinette	SuB	r	Summerville fine sandy loam, 1 to 6 percent slopes
Marinette	SuC	r	Summerville fine sandy loam, 6 to 12 percent slopes
Marinette	Ud	+	Udorthents, loamy, nearly level
Marinette	UoE	+	Udorthents, loamy, steep (earthen dam)
Marinette	Ur	+	Urban land
Marinette	W	+	Water
Marinette	WaA	w	Wainola loamy fine sand, 0 to 3 percent slopes
Marinette	WrA	w	Worcester fine sandy loam, 0 to 3 percent slopes
Marquette	Ac	p	Adrian mucky peat, deep
Marquette	Ad	p	Adrian mucky peat, shallow
Marquette	Ae	p	Adrian mucky peat, deep, stratified subsoil variant
Marquette	Ak	p	Adrian mucky peat, shallow, stratified subsoil variant
Marquette	Am	+	Alluvial land
Marquette	An	w	Alluvial land, wet
Marquette	Co	w	Colwood fine sandy loam
Marquette	GlA	p	Gotham loamy fine sand, 0 to 2 percent slopes
Marquette	GlB	p	Gotham loamy fine sand, 2 to 6 percent slopes
Marquette	GlC	p	Gotham loamy fine sand, 6 to 12 percent slopes
Marquette	GlD	p	Gotham loamy fine sand, 12 to 20 percent slopes
Marquette	GmA	p	Gotham loamy fine sand, loamy substratum, 0 to 2 percent slopes

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County	Symbol	Restiction	Map Unit Name
Marquette	GmB	p	Gotham loamy fine sand, loamy substratum, 2 to 6 percent slopes
Marquette	GmC2	p	Gotham loamy fine sand, loamy substratum, 6 to 12 percent slopes, eroded
Marquette	GmD2	p	Gotham loamy fine sand, loamy substratum, 12 to 20 percent slopes, eroded
Marquette	GnA	p	Gotham fine sandy loam, 0 to 2 percent slopes
Marquette	GnB	p	Gotham fine sandy loam, 2 to 6 percent slopes
Marquette	GoA	p	Gotham fine sandy loam, loamy substratum, 1 to 3 percent slopes
Marquette	GP	p+	Gravel pit
Marquette	Gr	wp	Granby loamy fine sand
Marquette	Gs	wp	Granby fine sandy loam
Marquette	Gt	wp	Granby fine sandy loam, loamy substratum
Marquette	Hm	wp	Houghton mucky peat
Marquette	Hp	wp	Houghton peat, acid variant
Marquette	Ke	w	Keowns fine sandy loam
Marquette	M-W	+	Miscellaneous water
Marquette	Ma	wp	Marsh
Marquette	MtA	w	Mosel fine sandy loam, 0 to 3 percent slopes
Marquette	MuA	w	Mosel loam, 0 to 3 percent slopes
Marquette	MvA	p	Moundville loamy fine sand, 0 to 3 percent slopes
Marquette	MwA	p	Moundville fine sandy loam, 0 to 3 percent slopes
Marquette	MxA	w	Mundelein loam, 0 to 3 percent slopes
Marquette	MyA	w	Mundelein silt loam, 0 to 3 percent slopes
Marquette	Pa	wp	Palms mucky peat, deep
Marquette	Pc	p	Palms mucky peat, shallow
Marquette	PfC2	p	Plainfield sand, 0 to 12 percent slopes, eroded
Marquette	PfD2	p	Plainfield sand, 12 to 20 percent slopes, eroded
Marquette	PlA	p	Plainfield loamy fine sand, 0 to 2 percent slopes
Marquette	PlB	p	Plainfield loamy fine sand, 2 to 6 percent slopes
Marquette	PlC	p	Plainfield loamy fine sand, 6 to 12 percent slopes
Marquette	PlD2	p	Plainfield loamy fine sand, 12 to 20 percent slopes, eroded
Marquette	PnB	p	Plainfield-Wyocena complex, 2 to 6 percent slopes
Marquette	PnC	p	Plainfield-Wyocena complex, 6 to 12 percent slopes
Marquette	PnE	p	Plainfield-Wyocena complex, 12 to 30 percent slopes
Marquette	Po	w	Poygan fine sandy loam
Marquette	Ps	w	Poygan silty clay loam
Marquette	QUA	r +	Quarry
Marquette	Ro	w	Rollin mucky peat
Marquette	StF	p	Steep sandy land
Marquette	TdA	w	Tedrow loamy fine sand, 0 to 3 percent slopes
Marquette	TeA	w	Tedrow loamy fine sand, loamy substratum, 0 to 3 percent slopes
Marquette	TfA	w	Tedrow fine sandy loam, 0 to 3 percent slopes
Marquette	TlA	w	Tedrow fine sandy loam, loamy substratum, 0 to 3 percent slopes
Marquette	W	w +	Water
Menominee	AuA	w	Au Gres loamy sand, 0 to 3 percent slopes
Menominee	CeB	p	Cress sandy loam, 0 to 6 percent slopes
Menominee	CeC	p	Cress sandy loam, 6 to 15 percent slopes
Menominee	CeD	p	Cress sandy loam, 15 to 35 percent slopes
Menominee	CrB	p	Cromwell sandy loam, 0 to 6 percent slopes
Menominee	CrC	p	Cromwell sandy loam, 6 to 15 percent slopes
Menominee	CrD	p	Cromwell sandy loam, 15 to 35 percent slopes
Menominee	CsA	p	Croswell loamy sand, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Menominee	GaB	p	Grayling loamy sand, 0 to 6 percent slopes
Menominee	GaC	p	Grayling loamy sand, 6 to 15 percent slopes
Menominee	GaD	p	Grayling loamy sand, 15 to 35 percent slopes
Menominee	GyB	p	Grayling sand, 0 to 6 percent slopes
Menominee	GyC	p	Grayling sand, 6 to 15 percent slopes
Menominee	GyD	p	Grayling sand, 15 to 35 percent slopes
Menominee	IgA	w	Ingalls loamy sand, 0 to 3 percent slopes
Menominee	IsB	w	Iosco loamy sand, 0 to 4 percent slopes
Menominee	IxB	rp	Ishpeming-Rock outcrop complex, 0 to 6 percent slopes
Menominee	IxC	rp	Ishpeming-Rock outcrop complex, 6 to 15 percent slopes
Menominee	KaB	p	Karlin sandy loam, 0 to 6 percent slopes
Menominee	KaC	p	Karlin sandy loam, 6 to 15 percent slopes
Menominee	KaD	p	Karlin sandy loam, 15 to 35 percent slopes
Menominee	LaB	w	Lablatz sandy loam, 0 to 4 percent slopes
Menominee	LDF	+	Landfill
Menominee	LoA	wp	Loxley peat, 0 to 1 percent slopes
Menominee	LuA	wp	Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes
Menominee	M-W	+	Miscellaneous water
Menominee	MaB	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Menominee	MaC	p	Mahtomedi loamy sand, 6 to 15 percent slopes
Menominee	MaD	p	Mahtomedi loamy sand, 15 to 35 percent slopes
Menominee	MoC	p	Menominee loamy fine sand, 6 to 15 percent slopes
Menominee	MoD	p	Menominee loamy fine sand, 15 to 35 percent slopes
Menominee	MqB	r	Mequithy-Rock outcrop complex, 0 to 6 percent slopes
Menominee	MqC	r	Mequithy-Rock outcrop complex, 6 to 15 percent slopes
Menominee	MuA	w	Minocqua muck, 0 to 2 percent slopes
Menominee	MwB	w	Moodig fine sandy loam, 0 to 4 percent slopes, very bouldery
Menominee	MzB	p	Moshawquit loamy sand, 2 to 6 percent slopes
Menominee	MzC	p	Moshawquit loamy sand, 6 to 15 percent slopes
Menominee	NeA	p	Neconish fine sand, 0 to 3 percent slopes
Menominee	Pt	p+	Pits, gravel
Menominee	RaB	p	Rabe loamy sand, 2 to 6 percent slopes
Menominee	RaC	p	Rabe loamy sand, 6 to 15 percent slopes
Menominee	RaD	p	Rabe loamy sand, 15 to 35 percent slopes
Menominee	RbA	w	Robago fine sandy loam, 0 to 3 percent slopes
Menominee	RcA	wp	Roscommon muck, 0 to 2 percent slopes
Menominee	RsB	p	Rousseau fine sand, 0 to 6 percent slopes
Menominee	RsC	p	Rousseau fine sand, 6 to 15 percent slopes
Menominee	RsD	p	Rousseau fine sand, 15 to 35 percent slopes
Menominee	SfB	p	Shawano fine sand, 0 to 6 percent slopes
Menominee	SfC	p	Shawano fine sand, 6 to 15 percent slopes
Menominee	SfD	p	Shawano fine sand, 15 to 35 percent slopes
Menominee	ToB	p	Tourtillotte loamy sand, 0 to 6 percent slopes
Menominee	ToC	p	Tourtillotte loamy sand, 6 to 15 percent slopes
Menominee	UdD	p	Udipsamments, moderately steep or steep (earthen dam)
Menominee	VsB	p	Vilas loamy sand, 0 to 6 percent slopes
Menominee	VsC	p	Vilas loamy sand, 6 to 15 percent slopes
Menominee	VsD	p	Vilas loamy sand, 15 to 35 percent slopes
Menominee	W	+	Water
Menominee	WaA	w	Wainola loamy fine sand, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Menominee	WkB	r	Wayka-Rock outcrop complex, 0 to 4 percent slopes
Menominee	WrA	w	Worcester fine sandy loam, 0 to 3 percent slopes
Menominee	WtA	w	Wormet fine sandy loam, 0 to 3 percent slopes
Menominee	WuA	p	Wurtsmith sand, 0 to 3 percent slopes
Milwaukee	Ac	wp	Adrian muck
Milwaukee	Am	+	Alluvial land
Milwaukee	AsA	w	Ashkum silty clay loam, 0 to 3 percent slopes
Milwaukee	BP	+	Borrow pit
Milwaukee	BsA	w	Brookston silt loam, 0 to 3 percent slopes
Milwaukee	CP	+	Coal pit
Milwaukee	CrC2	p	Casco-Rodman complex, 6 to 12 percent slopes, eroded
Milwaukee	CrD	p	Casco-Rodman complex, 12-20 percent slopes
Milwaukee	CrE	p	Casco-Rodman complex, 20 to 30 percent slopes
Milwaukee	CrF	p	Casco-Rodman complex, 30 to 45 percent slopes
Milwaukee	CtB	p	Chelsea fine sand, 1 to 6 percent slopes
Milwaukee	CtD	p	Chelsea fine sand, 6 to 20 percent slopes
Milwaukee	Cv	+	Clayey land
Milwaukee	Cw	w	Colwood silt loam
Milwaukee	Dt	w	Drummer silt loam, gravelly substratum
Milwaukee	Gd	w	Gilford loam
Milwaukee	Gf	wp	Granby fine sandy loam
Milwaukee	GP	p+	Gravel pit
Milwaukee	HtA	wp	Houghton muck, 0 to 2 percent slopes
Milwaukee	HtB	wp	Houghton muck, 2 to 6 percent slopes
Milwaukee	LDF	+	Landfill
Milwaukee	Lu	+	Loamy land
Milwaukee	M-W	+	Miscellaneous water
Milwaukee	Mf	wp	Marsh
Milwaukee	Mzb	w	Montgomery silty clay loam
Milwaukee	Mzg	wp	Muskego muck
Milwaukee	Mzk	w	Mussey loam
Milwaukee	Na	w	Navan silt loam
Milwaukee	Oc	wp	Ogden muck
Milwaukee	Pa	wp	Palms muck
Milwaukee	Ph	w	Pella silt loam
Milwaukee	Pm	w	Pella silt loam, moderately shallow variant
Milwaukee	QUA	r +	Quarry
Milwaukee	RkB	r	Ritchey silt loam, 1 to 6 percent slopes
Milwaukee	RkC2	r	Ritchey silt loam, 6 to 12 percent slopes, eroded
Milwaukee	RkE	r	Ritchey silt loam, 12 to 30 percent slopes
Milwaukee	Ru	w	Rollin muck, deep
Milwaukee	Rv	w	Rollin muck, shallow
Milwaukee	Ry	+	Rough broken land
Milwaukee	Sf	+	Sandy and gravelly land
Milwaukee	SfB	+	Sandy lake beaches
Milwaukee	Sg	w	Sawmill silt loam, calcareous variant
Milwaukee	Sm	w	Sebewa silt loam
Milwaukee	UA	+	Unmapped area
Milwaukee	W	+	Water
Milwaukee	Wa	w	Wallkill silt loam

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County	Symbol	Restiction	Map Unit Name
Milwaukee	Ww	w	Wet alluvial land
Monroe	AbA	p	Abscota loamy sand, 0 to 3 percent slopes
Monroe	BoC	p	Boone sand, 6 to 12 percent slopes
Monroe	BoF	p	Boone sand, 12 to 45 percent slopes
Monroe	BpF	rp	Boone-Rock outcrop complex, 30 to 70 percent slopes
Monroe	Dc	wp	Dawson peat
Monroe	Et	w	Ettrick silt loam
Monroe	Hu	wp	Houghton muck
Monroe	ImA	p	Impact sand, 0 to 2 percent slopes
Monroe	ImB	p	Impact sand, 2 to 6 percent slopes
Monroe	IpA	p	Impact sand, moderately well drained, 0 to 3 percent slopes
Monroe	Ka	w	Kato silt loam
Monroe	LDF	+	Landfill
Monroe	Lw	w	Lows sandy loam
Monroe	Lx	wp	Loxley mucky peat
Monroe	M-W	+	Miscellaneous water
Monroe	Mb	w	Menasha silty clay loam
Monroe	Ne	wp	Newson loamy sand
Monroe	Pa	wp	Palms muck
Monroe	Pd	+	Pits
Monroe	Pm	wp	Psammaquents, nearly level
Monroe	Ps	+	Psamments, nearly level
Monroe	TrB	p	Tarr sand, 0 to 6 percent slopes
Monroe	TrC	p	Tarr sand, 6 to 12 percent slopes
Monroe	TrD	p	Tarr sand, 12 to 20 percent slopes
Monroe	TrE	p	Tarr sand, 20 to 45 percent slopes
Monroe	TsA	p	Tarr sand, moderately well drained, 0 to 3 percent slopes
Monroe	W	+	Water
Monroe	Wa	w	Wautoma sand
Oconto	AaE	p	Alpena gravelly sandy loam, 20 to 35 percent slopes
Oconto	Bs	w	Brevort mucky loamy sand, 0 to 2 percent slopes
Oconto	Co	wp	Cormant loamy fine sand, 0 to 1 percent slopes
Oconto	Es	w	Ensley mucky loam, 0 to 2 percent slopes
Oconto	KeB	p	Keweenaw loamy fine sand, 2 to 6 percent slopes
Oconto	KeC	p	Keweenaw loamy fine sand, 6 to 15 percent slopes
Oconto	KeD	p	Keweenaw loamy fine sand, 15 to 35 percent slopes
Oconto	KvB	p	Kiva sandy loam, 2 to 6 percent slopes
Oconto	KvC	p	Kiva sandy loam, 6 to 15 percent slopes
Oconto	KvD	p	Kiva sandy loam, 15 to 35 percent slopes
Oconto	LDF	+	Landfill
Oconto	Lx	wp	Loxley mucky peat, 0 to 1 percent slopes
Oconto	M-W	+	Miscellaneous water
Oconto	McB	p	Mancelona loamy sand, 1 to 6 percent slopes
Oconto	McC	p	Mancelona loamy sand, 6 to 15 percent slopes
Oconto	MnB	p	Menahga sand, 0 to 6 percent slopes
Oconto	MnC	p	Menahga sand, 6 to 15 percent slopes
Oconto	MnD	p	Menahga sand, 15 to 35 percent slopes
Oconto	MoB	p	Menominee loamy fine sand, 2 to 6 percent slopes
Oconto	MoC	p	Menominee loamy fine sand, 6 to 12 percent slopes
Oconto	MoD	p	Menominee loamy fine sand, 12 to 20 percent slopes

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County	Symbol	Restiction	Map Unit Name
Oconto	Mu	w	Minocqua mucky fine sandy loam, 0 to 2 percent slopes
Oconto	OvC	p	Onaway-Kiva-Menahga complex, 4 to 15 percent slopes
Oconto	OvD	p	Onaway-Kiva-Menahga complex, 15 to 35 percent slopes
Oconto	PeA	p	Pelkie loamy fine sand, 1 to 3 percent slopes
Oconto	PsD	r	Peshekee-Rock outcrop complex, 4 to 30 percent slopes
Oconto	Pt	p+	Pits
Oconto	RsB	p	Rousseau fine sand, 1 to 6 percent slopes
Oconto	Sb	w	Saprists and Aquents, ponded
Oconto	Sd	wp	Seelyeville and Markey mucks, 0 to 1 percent slopes
Oconto	SfB	p	Shawano fine sand, 2 to 6 percent slopes
Oconto	SfC	p	Shawano fine sand, 6 to 12 percent slopes
Oconto	SfD	p	Shawano fine sand, 12 to 30 percent slopes
Oconto	SuB	r	Summerville fine sandy loam, 2 to 8 percent slopes
Oconto	SuE	r	Summerville fine sandy loam, 20 to 45 percent slopes
Oconto	W	+	Water
Oconto	Wd	w	Waupaca very fine sandy loam, 0 to 2 percent slopes
Oconto	Wf	p	Winterfield fine sandy loam, 0 to 2 percent slopes
Oneida	Au	w	Au Gres loamy sand, 0 to 2 percent slopes
Oneida	CaA	w	Cable muck, 0 to 3 percent slopes, stony
Oneida	Cb	wp	Carbondale, Lupton, and Markey mucks, 0 to 1 percent slopes
Oneida	CrA	p	Croswell sand, 0 to 3 percent slopes
Oneida	CsA	p	Croswell loamy sand, loamy substratum, 0 to 3 percent slopes
Oneida	DAM	+	Dams, large
Oneida	EmE	p	Emmert very gravelly sand, 20 to 45 percent slopes
Oneida	Fh	w	Fordum mucky very fine sandy loam, 0 to 2 percent slopes
Oneida	Gr	wp	Greenwood, Loxley, and Dawson peats, 0 to 1 percent slopes
Oneida	KaB	p	Karlin loamy fine sand, 0 to 6 percent slopes
Oneida	KeB	p	Keweenaw sandy loam, 1 to 6 percent slopes, stony
Oneida	KeC	p	Keweenaw sandy loam, 6 to 15 percent slopes, stony
Oneida	KeD	p	Keweenaw sandy loam, 15 to 25 percent slopes, stony
Oneida	KnB	p	Keweenaw-Vilas complex, 1 to 6 percent slopes, stony
Oneida	KnC	p	Keweenaw-Vilas complex, 6 to 15 percent slopes, stony
Oneida	KrD	p	Keweenaw-Sayner complex, 15 to 30 percent slopes, stony
Oneida	Ks	wp	Kinross muck, 0 to 2 percent slopes
Oneida	Mc	w	Minocqua silt loam, 0 to 2 percent slopes
Oneida	MoB	w	Monico loam, 1 to 6 percent slopes, stony
Oneida	PrB	wp	Pequaming loamy sand, 1 to 3 percent slopes, stony
Oneida	Pt	p+	Pits, gravel
Oneida	RsB	p	Rousseau loamy fine sand, 0 to 6 percent slopes
Oneida	RsC	p	Rousseau loamy fine sand, 6 to 15 percent slopes
Oneida	SaB	p	Sayner loamy sand, 0 to 6 percent slopes
Oneida	SaC	p	Sayner loamy sand, 6 to 15 percent slopes
Oneida	SaD	p	Sayner loamy sand, 15 to 45 percent slopes
Oneida	UdB	+	Udorthents, nearly level and gently sloping
Oneida	VsB	p	Vilas loamy sand, 0 to 6 percent slopes
Oneida	VsC	p	Vilas loamy sand, 6 to 15 percent slopes
Oneida	VsD	p	Vilas loamy sand, 15 to 25 percent slopes
Oneida	W	+	Water
Oneida	WoA	w	Worcester sandy loam, 0 to 3 percent slopes
Outagamie	AdA	w	Allendale loamy fine sand, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Outagamie	Ax	w	Angelica silt loam
Outagamie	BnA	w	Bonduel silt loam, 0 to 3 percent slopes
Outagamie	Ca	wp	Carbondale muck
Outagamie	Cm	wp	Cathro muck
Outagamie	CnB	r	Channahon silt loam, 2 to 6 percent slopes
Outagamie	De	wp	Deford loamy fine sand
Outagamie	Fu	w+	Fluvaquents
Outagamie	Gp	p+	Gravel pits
Outagamie	HtB	w	Hortonville-Symco silt loams, 2 to 6 percent slopes
Outagamie	Ke	w	Keowns silt loam
Outagamie	LDF	+	Landfill
Outagamie	Ln	rp+	Limestone quarries
Outagamie	Lo	w	Lobo peat
Outagamie	M-W	+	Miscellaneous water
Outagamie	MeB	p	Manistee loamy fine sand, 2 to 6 percent slopes
Outagamie	MeC2	p	Manistee loamy fine sand, 6 to 12 percent slopes, eroded
Outagamie	MfB	p	Manistee fine sandy loam, 2 to 6 percent slopes
Outagamie	Mk	wp	Markey muck
Outagamie	MsB	p	Menominee loamy fine sand, loamy substratum, 2 to 6 percent slopes
Outagamie	MsC2	p	Menominee loamy fine sand, loamy substratum, 6 to 12 percent slopes, eroded
Outagamie	MuA	w	Mundelein silt loam, 0 to 3 percent slopes
Outagamie	NaB	r	Namur silt loam, 1 to 6 percent slopes
Outagamie	Pe	w	Pella silt loam
Outagamie	Ra	r +	Rock outcrop
Outagamie	Rd	wp	Rondeau muck
Outagamie	RoB	p	Rousseau loamy fine sand, 2 to 6 percent slopes
Outagamie	SeC	p	Shawano fine sand, rolling
Outagamie	SeD	p	Shawano fine sand, hilly
Outagamie	ShA	w	Shiocton silt loam, 0 to 3 percent slopes
Outagamie	SkA	w	Shiocton silt loam, clayey substratum, 0 to 3 percent slopes
Outagamie	SnB	w	Shiocton-Nichols complex, 2 to 6 percent slopes
Outagamie	SoA	w	Solona silt loam, 1 to 3 percent slopes
Outagamie	SP	p	Sand pit
Outagamie	Su	wp	Suamico muck
Outagamie	SyA	w	Symco silt loam, 1 to 3 percent slopes
Outagamie	SzA	w	Symco variant, 0 to 3 percent slopes
Outagamie	Uf	w	Udifluvents
Outagamie	Uo	+	Udorthents
Outagamie	W	+	Water
Outagamie	WaA	w	Wainola loamy fine sand, 0 to 3 percent slopes
Outagamie	Wb	w	Will silt loam
Outagamie	ZtA	w	Zittau silty clay loam, 0 to 3 percent slopes
Ozaukee	Ak	wp+	Adrian mucky peat
Ozaukee	Am	+	Alluvial land
Ozaukee	As	w	Ashkum silt loam
Ozaukee	AzA	w	Aztalan loam, 1 to 3 percent slopes
Ozaukee	BsA	w	Brookston silt loam, 0 to 3 percent slopes
Ozaukee	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Ozaukee	CrE2	p	Casco-Rodman complex, 20 to 35 percent slopes, eroded
Ozaukee	Cv	+	Clayey land

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County	Symbol	Restiction	Map Unit Name
Ozaukee	Cw	w	Colwood silt loam
Ozaukee	DaA	w	Darroch fine sandy loam, neutral variant, 0 to 3 percent slopes
Ozaukee	Ge	wp	Granby loamy sand, loamy substratum
Ozaukee	GP	p+	Gravel pit
Ozaukee	Hu	wp	Houghton mucky peat
Ozaukee	Km	w	Keowns silt loam
Ozaukee	KyA	w	Knowles silt loam, mottled subsoil variant, 0 to 2 percent slopes
Ozaukee	LDF	+	Landfill
Ozaukee	Lu	+	Loamy land
Ozaukee	M-W	+	Miscellaneous water
Ozaukee	MaA	w	Manawa silt loam, 1 to 3 percent slopes
Ozaukee	Mf	wp	Marsh
Ozaukee	MgA	w	Martinton silt loam, 1 to 3 percent slopes
Ozaukee	MkA	w	Matherton loam, 0 to 2 percent slopes
Ozaukee	MmA	w	Matherton silt loam, 1 to 3 percent slopes
Ozaukee	MtA	w	Mequon silt loam, 1 to 3 percent slopes
Ozaukee	Mzg	wp	Muskego muck
Ozaukee	Mzk	w	Mussey loam
Ozaukee	Na	w	Navan silt loam
Ozaukee	NnA	w	Nenno silt loam, 1 to 3 percent slopes
Ozaukee	Od	wp	Ogden mucky peat
Ozaukee	Pc	wp	Palms mucky peat
Ozaukee	Ph	w	Pella silt loam
Ozaukee	Py	w	Poygan silty clay loam
Ozaukee	QUA	r +	Quarry
Ozaukee	RaA	w	Radford silt loam, 0 to 3 percent slopes
Ozaukee	RkB	r	Ritchey silt loam, 0 to 6 percent slopes
Ozaukee	RkD2	r	Ritchey silt loam, 6 to 20 percent slopes, eroded
Ozaukee	Rw	w	Rollin mucky peat
Ozaukee	Ry	+	Rough broken land
Ozaukee	Sf	+	Sandy and gravelly land
Ozaukee	Sfb	+	Sandy lake beaches
Ozaukee	Sm	w	Sebewa silt loam
Ozaukee	SP	p	Sand pit
Ozaukee	UL	+	Urban land
Ozaukee	W	+	Water
Ozaukee	WmA	w	Wasepi sandy loam, 1 to 3 percent slopes
Ozaukee	Ww	w +	Wet alluvial land
Ozaukee	YhA	w	Yahara very fine sandy loam, 1 to 3 percent slopes
Pepin	11A	w	Markey muck, flooded, 0 to 1 percent slopes
Pepin	20A	wp	Palms and Houghton mucks, 0 to 1 percent slopes
Pepin	21A	w	Palms muck, flooded, 0 to 1 percent slopes
Pepin	40A	wp	Markey and Seelyeville mucks, 0 to 1 percent slopes
Pepin	233C	p	Boone sand, 6 to 15 percent slopes
Pepin	265B	p	Garne loamy sand, 2 to 6 percent slopes
Pepin	265C	p	Garne loamy sand, 6 to 12 percent slopes
Pepin	429A	w	Lows loam, 0 to 2 percent slopes
Pepin	501A	p	Finchford loamy sand, 0 to 3 percent slopes
Pepin	501B	p	Finchford loamy sand, 2 to 6 percent slopes
Pepin	502B2	p	Chelsea fine sand, 2 to 6 percent slopes, eroded

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County	Symbol	Restiction	Map Unit Name
Pepin	502C2	p	Chelsea fine sand, 6 to 15 percent slopes, eroded
Pepin	506A	p	Komro loamy sand, 0 to 3 percent slopes
Pepin	510B	p	Boplain sand, 0 to 6 percent slopes
Pepin	510C	p	Boplain sand, 6 to 15 percent slopes
Pepin	510F	p	Boplain sand, 15 to 60 percent slopes
Pepin	511A	p	Plainfield sand, 0 to 3 percent slopes
Pepin	511B	p	Plainfield sand, 2 to 6 percent slopes
Pepin	511C	p	Plainfield sand, 6 to 15 percent slopes
Pepin	511F	p	Plainfield sand, 15 to 60 percent slopes
Pepin	512B	p	Drammen loamy sand, 1 to 6 percent slopes
Pepin	512C	p	Drammen loamy sand, 6 to 12 percent slopes
Pepin	512D	p	Drammen loamy sand, 12 to 20 percent slopes
Pepin	516A	p	Aldo sand, 0 to 3 percent slopes
Pepin	546A	p	Prissel loamy sand, 0 to 3 percent slopes
Pepin	546B	p	Prissel loamy sand, 2 to 6 percent slopes
Pepin	546F	p	Prissel loamy sand, 15 to 60 percent slopes
Pepin	561B	p	Tarr sand, 1 to 6 percent slopes
Pepin	566A	p	Tint sand, 0 to 3 percent slopes
Pepin	589A	wp	Newson mucky loamy sand, 0 to 2 percent slopes
Pepin	629A	w	Ettrick silt loam, 0 to 2 percent slopes
Pepin	656A	p	Scotah loamy fine sand, 0 to 3 percent slopes
Pepin	1145F	p	Gaphill-Rockbluff complex, 30 to 60 percent slopes
Pepin	1155F	rp	Brodale-Bellechester-Rock outcrop complex, 60 to 90 percent slopes
Pepin	1224F	p	Boone-Elevasil complex, 15 to 50 percent slopes
Pepin	1648A	w	Northbend-Ettrick silt loams, 0 to 3 percent slopes
Pepin	1658A	w	Algansee-Kalmarville complex, 0 to 3 percent slopes
Pepin	2003A	+	Riverwash, nearly level
Pepin	2013	+	Pits, gravel
Pepin	2014	+	Pits, quarry, hard bedrock
Pepin	2040	p+	Udipsamments, dredge material
Pepin	2050	+	Landfill
Pepin	M-W	+	Miscellaneous water
Pepin	W	+	Water
Pierce	162C	r	Northfield silt loam, meteorite crater, 6 to 12 percent slopes
Pierce	162D	r	Northfield silt loam, meteorite crater, 12 to 20 percent slopes
Pierce	162F	r	Northfield silt loam, meteorite crater, 20 to 45 percent slopes
Pierce	230C	p	Boone loamy fine sand, till plain, 6 to 15 percent slopes
Pierce	230F	p	Boone loamy fine sand, till plain, 15 to 50 percent slopes
Pierce	489A	w	Marshan silt loam, 0 to 2 percent slopes
Pierce	501A	p	Finchford loamy sand, 0 to 3 percent slopes
Pierce	501B	p	Finchford loamy sand, 2 to 6 percent slopes
Pierce	502B2	p	Chelsea fine sand, 2 to 6 percent slopes, moderately eroded
Pierce	502C2	p	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded
Pierce	506A	p	Komro loamy sand, 0 to 3 percent slopes
Pierce	511A	p	Plainfield sand, 0 to 3 percent slopes
Pierce	511B	p	Plainfield sand, 2 to 6 percent slopes
Pierce	511C	p	Plainfield sand, 6 to 15 percent slopes
Pierce	511F	p	Plainfield sand, 15 to 60 percent slopes
Pierce	512B	p	Drammen loamy sand, 1 to 6 percent slopes
Pierce	512C	p	Drammen loamy sand, 6 to 12 percent slopes

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County	Symbol	Restiction	Map Unit Name
Pierce	512D	p	Drammen loamy sand, 12 to 20 percent slopes
Pierce	546B	p	Prissel loamy sand, 2 to 6 percent slopes
Pierce	546C	p	Prissel loamy sand, 6 to 15 percent slopes
Pierce	546F	p	Prissel loamy sand, 15 to 60 percent slopes
Pierce	629A	w	Ettrick silt loam, 0 to 2 percent slopes, frequently flooded
Pierce	656A	p	Scotah loamy fine sand, 0 to 3 percent slopes, occasionally flooded
Pierce	819A	w	Clyde silt loam, 0 to 3 percent slopes
Pierce	1105F	p	Dorerton, very stony-Boone-Whalan complex, 20 to 60 percent slopes
Pierce	1145F	p	Gaphill-Rockbluff complex, 30 to 60 percent slopes
Pierce	1155F	rp	Brodale-Bellechester-Rock outcrop complex, 60 to 90 percent slopes
Pierce	1608A	p	Scotah-Orion-Riverwash complex, 0 to 2 percent slopes, frequently flooded
Pierce	1628A	w	Orion-Coland complex, 0 to 2 percent slopes, occasionally flooded
Pierce	1648A	w	Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded
Pierce	1658A	w	Algansee-Kalmarville complex, 0 to 3 percent slopes, frequently flooded
Pierce	1816F	p	Lilah-Wykoff-Boone complex, 20 to 35 percent slopes
Pierce	1841D	p	Lilah-Wykoff complex, 12 to 20 percent slopes
Pierce	2002	+	Udorthents, earthen dams
Pierce	2013	+	Pits, gravel
Pierce	2014	+	Pits, quarry, hard bedrock
Pierce	2016	+	Pits, quarry, soft bedrock
Pierce	2050	+	Landfill
Pierce	M-W	+	Miscellaneous water
Pierce	W	+	Water
Polk	Ag	w	Alstad loam, 0 to 3 percent slopes
Polk	AoB	p	Amery complex, 1 to 6 percent slopes
Polk	AoC	p	Amery complex, 6 to 12 percent slopes
Polk	AoD	p	Amery complex, 12 to 20 percent slopes
Polk	AoE	p	Amery complex, 20 to 30 percent slopes
Polk	ArC	r	Amery-Rock outcrop complex, 2 to 12 percent slopes
Polk	ArD	r	Amery-Rock outcrop complex, 12 to 45 percent slopes
Polk	Bf	w	Bluffton loam
Polk	Cc	wp	Cathro muck
Polk	CmA	w	Comstock silt loam, 0 to 3 percent slopes
Polk	CpA	w	Comstock variant loam, 0 to 3 percent slopes
Polk	CrA	p	Cromwell sandy loam, 0 to 2 percent slopes
Polk	CrB	p	Cromwell sandy loam, 2 to 6 percent slopes
Polk	CrC	p	Cromwell sandy loam, 6 to 12 percent slopes
Polk	CrD	p	Cromwell sandy loam, 12 to 25 percent slopes
Polk	CsA	w	Cromwell variant sandy loam, 0 to 3 percent slopes
Polk	CtA	p	Croswell loamy sand, 0 to 3 percent slopes
Polk	CxB	p	Cushing complex, 2 to 6 percent slopes
Polk	CxC2	p	Cushing complex, 6 to 12 percent slopes, eroded
Polk	CxD2	p	Cushing complex, 12 to 20 percent slopes, eroded
Polk	DvA	w	Dakota variant silt loam, 0 to 3 percent slopes
Polk	EmD	p	Emmert gravelly sandy loam, 12 to 35 percent slopes
Polk	Fa	+	Fluvaquents
Polk	Fe	w	Fluvaquents, wet
Polk	HrB	p	Hubbard loamy sand, 0 to 6 percent slopes
Polk	LnA	w	Lino loamy fine sand, 0 to 3 percent slopes
Polk	M-W	+	Miscellaneous water

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County	Symbol	Restiction	Map Unit Name
Polk	Mk	wp	Markey muck
Polk	MnB	p	Menahga loamy sand, 1 to 6 percent slopes
Polk	MnC	p	Menahga loamy sand, 6 to 12 percent slopes
Polk	MnD	p	Menahga loamy sand, 12 to 25 percent slopes
Polk	Ns	wp	Newson loamy fine sand
Polk	NyA	p	Nymore fine sand, 0 to 3 percent slopes
Polk	OgB	p	Omega fine sand, 2 to 6 percent slopes
Polk	OgC	p	Omega fine sand, 6 to 12 percent slopes
Polk	OgD	p	Omega fine sand, 12 to 20 percent slopes
Polk	Pg	p+	Pits, gravel
Polk	PxA	w	Poskin silt loam, 0 to 3 percent slopes
Polk	QUA	r +	Quarry
Polk	Rf	wp	Rifle muck
Polk	RpB	p	Rosholt-Cromwell complex, 2 to 6 percent slopes
Polk	RpC	p	Rosholt-Cromwell complex, 6 to 12 percent slopes
Polk	RpD	p	Rosholt-Cromwell complex, 12 to 20 percent slopes
Polk	RpE	p	Rosholt-Cromwell complex, 20 to 30 percent slopes
Polk	Se	wp	Saprists and Aquents
Polk	Sm	wp	Seelyeville muck
Polk	Us	p	Udorthents, sandy
Polk	Uy	+	Udorthents, loamy
Polk	W	+	Water
Polk	Wv	w	Warman variant sandy loam
Portage	Ab	w	Alluvial land, wet
Portage	Af	w	Altdorf silt loam
Portage	Ca	wp	Cathro muck
Portage	CoB	p	Coloma loamy sand, 2 to 6 percent slopes
Portage	CoC	p	Coloma loamy sand, 6 to 12 percent slopes
Portage	Da	w	Dancy sandy loam
Portage	DoA	w	Dolph silt loam, 1 to 3 percent slopes
Portage	FrA	p	Friendship loamy sand, 0 to 3 percent slopes
Portage	GP	p+	Gravel pit
Portage	KeA	w	Kert silt loam, 1 to 3 percent slopes
Portage	LDF	+	Landfill
Portage	LeA	w	Leola loamy sand, 0 to 3 percent slopes
Portage	Lu	wp	Lupton muck
Portage	Ma	wp	Markey muck
Portage	Mb	wp	Markey muck, shallow
Portage	Mc	w	Marsh
Portage	MeA	w	Meadland loam, 1 to 3 percent slopes
Portage	MnA	w	Meehan loamy sand, 0 to 3 percent slopes
Portage	MoA	w	Meehan loamy sand, sandstone substratum, 0 to 3 percent slopes
Portage	MpA	w	Meehan loamy sand, red surface, 0 to 3 percent slopes
Portage	Mr	w	Meehan fine sandy loam, gravelly variant
Portage	Oe	w	Oesterle sandy loam
Portage	Ov	w	Oesterle loam, silty subsoil variant
Portage	PbB	p	Plainbo loamy sand, 2 to 6 percent slopes
Portage	PfA	p	Plainfield loamy sand, 0 to 2 percent slopes
Portage	PfB	p	Plainfield loamy sand, 2 to 6 percent slopes
Portage	PfC	p	Plainfield loamy sand, 6 to 12 percent slopes

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County	Symbol	Restiction	Map Unit Name
Portage	PgB	p	Plainfield loamy sand, granite substratum, 2 to 6 percent slopes
Portage	Ph	p	Plainfield and Kranski soils
Portage	PkB	p	Plainfield sandy loam, gravelly variant, 2 to 6 percent slopes
Portage	PoA	w	Point sandy loam, 1 to 3 percent slopes
Portage	RfA	p	Richford loamy sand, 0 to 2 percent slopes
Portage	RfB	p	Richford loamy sand, 2 to 6 percent slopes
Portage	RfC	p	Richford loamy sand, 6 to 12 percent slopes
Portage	RgB	p	Richford loamy fine sand, 2 to 6 percent slopes
Portage	RhA	w	Rockers loamy sand, 1 to 3 percent slopes
Portage	Rk	r +	Rock land
Portage	Rm	wp	Roscommon muck
Portage	Rn	wp	Roscommon-Meehan complex, 0 to 3 percent slopes
Portage	Ro	w	Roscommon sandy loam, loamy variant
Portage	Rp	w	Roscommon sandy loam, loamy variant, loamy substratum
Portage	RuD	p	Rosholt complex, 12 to 20 percent slopes
Portage	RuE	p	Rosholt complex, 20 to 40 percent slopes
Portage	Se	wp	Seelyeville muck
Portage	Sh	w	Sherry silt loam
Portage	Vs	w	Vesper silt loam
Portage	W	+	Water
Price	22A	w	Comstock silt loam, 0 to 3 percent slopes
Price	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Price	193A	w	Minocqua muck, 0 to 2 percent slopes
Price	217B	p	Karlin loamy fine sand, 0 to 6 percent slopes
Price	217C	p	Karlin loamy fine sand, 6 to 15 percent slopes
Price	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Price	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Price	408A	wp	Lupton and Cathro soils, 0 to 1 percent slopes
Price	414A	wp	Loxley and Beseman soils, 0 to 1 percent slopes
Price	418A	wp	Loxley and Dawson soils, 0 to 1 percent slopes
Price	425B	p	Karlin sandy loam, 0 to 6 percent slopes
Price	425C	p	Karlin sandy loam, 6 to 15 percent slopes
Price	425D	p	Karlin sandy loam, 15 to 30 percent slopes
Price	441C	wp	Freeon, very stony-Cathro complex, 0 to 15 percent slopes
Price	445A	w	Kinross muck, 0 to 2 percent slopes
Price	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Price	475D	p	Rubicon-Sayner complex, 15 to 30 percent slopes
Price	520A	w	Annriver silt loam, 0 to 2 percent slopes
Price	537D	wp	Newot, very stony-Newood, very stony-Cathro complex, 0 to 35 percent slopes
Price	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Price	571B	p	Pelissier gravelly sandy loam, 2 to 6 percent slopes
Price	571C	p	Pelissier gravelly sandy loam, 6 to 15 percent slopes
Price	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Price	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Price	594B	p	Vilas-Lindquist complex, 0 to 6 percent slopes
Price	594C	p	Vilas-Lindquist complex, 6 to 15 percent slopes
Price	594D	p	Vilas-Lindquist complex, 15 to 30 percent slopes
Price	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes
Price	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Price	670B	p	Keweenaw-Pence complex, 0 to 6 percent slopes, stony

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County	Symbol	Restiction	Map Unit Name
Price	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Price	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Price	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Price	701A	w	Whisklake silt loam, 0 to 3 percent slopes
Price	755A	w	Moppet, occasionally flooded-Fordum, frequently flooded complex, 0 to 3 percent slopes
Price	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Price	974B	p	Sayner-Pence-Vilas complex, 0 to 6 percent slopes
Price	974C	p	Sayner-Pence-Vilas complex, 6 to 15 percent slopes
Price	974D	p	Sayner-Pence-Vilas complex, 15 to 30 percent slopes
Price	2015	+	Pits
Price	2030	+	Udorthents and udipsamments, cut or fill
Price	2050	+	Landfill
Price	3114A	w	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded, flooded
Price	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Price	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Price	3556C	wp	Newood, very stony-Magnor, very stony-Cathro complex, 0 to 15 percent slopes
Price	3569C	wp	Newood, very stony-Pesabic, very stony-Cathro complex, 0 to 15 percent slopes
Price	9012B	p	Sayner-Lindquist complex, 0 to 6 percent slopes
Price	9012C	p	Sayner-Lindquist complex, 6 to 15 percent slopes
Price	9012D	p	Sayner-Lindquist complex, 15 to 30 percent slopes
Price	9050A	wp	Fordum, Totagatic, and Bowstring soils, 0 to 1 percent slopes, frequently flooded
Price	9052A	p	Cathro-Capitola, very stony-Lupton complex, 0 to 1 percent slopes
Price	9060D	p	Pelissier sandy loam, 20 to 45 percent slopes
Price	9113B	p	Padus-Karlin complex, 0 to 6 percent slopes
Price	9113C	p	Padus-Karlin complex, 6 to 15 percent slopes
Price	9113D	p	Padus-Karlin complex, 15 to 30 percent slopes
Price	9155A	wp	Haplosaprists, Peats, and Mucks, 0 to 1 percent slopes
Price	M-W	+	Miscellaneous water
Price	W	+	Water
Racine	Ac	wp	Adrian muck
Racine	Am	+	Alluvial land
Racine	AtA	w	Ashkum silty clay loam, 0 to 3 percent slopes
Racine	AuA	w	Aztalan sandy loam, 1 to 3 percent slopes
Racine	AzA	w	Aztalan loam, 0 to 2 percent slopes
Racine	AzB	w	Aztalan loam, 2 to 6 percent slopes
Racine	BP	+	Borrow pit
Racine	CP	p+	Coal pile
Racine	CrC	p	Casco-Rodman complex, 6 to 12 percent slopes
Racine	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Racine	CrE	p	Casco-Rodman complex, 20 to 35 percent slopes
Racine	Cv	+	Clayey land
Racine	Cw	w	Colwood silt loam
Racine	CyA	w	Conover silt loam, 1 to 3 percent slopes
Racine	DaA	w	Darroch fine sandy loam, neutral variant, 0 to 3 percent slopes
Racine	Dt	w	Drummer silt loam, gravelly substratum
Racine	EtA	w	Elliott silty clay loam, 0 to 2 percent slopes
Racine	EtB	w	Elliott silty clay loam, 2 to 6 percent slopes
Racine	Gf	wp	Granby fine sandy loam
Racine	Gm	wp	Granby fine sandy loam, loamy substratum

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County	Symbol	Restiction	Map Unit Name
Racine	GnA	w	Granby fine sandy loam, brown subsoil variant, 0 to 3 percent slopes
Racine	GP	p+	Gravel pit
Racine	Ht	wp	Houghton muck
Racine	KaA	w	Kane loam, 1 to 3 percent slopes
Racine	KhA	w	Kane silt loam, clayey substratum, 1 to 3 percent slopes
Racine	LDF	+	Landfill
Racine	Lu	+	Loamy land
Racine	M-W	+	Miscellaneous water
Racine	Mf	wp	Marsh
Racine	MgA	w	Martinton silt loam, 1 to 3 percent slopes
Racine	MkA	w	Matherton loam, 1 to 3 percent slopes
Racine	MlA	w	Matherton loam, clayey substratum, 1 to 3 percent slopes
Racine	Mzc	w	Montgomery silty clay
Racine	MzfA	w	Mundelein silt loam, 1 to 3 percent slopes
Racine	Mzg	wp	Muskego muck
Racine	Mzk	w	Mussey loam
Racine	Na	w	Navan silt loam
Racine	Oc	wp	Ogden muck
Racine	Pa	wp	Palms muck
Racine	Ph	w	Pella silt loam
Racine	QUA	r +	Quarry
Racine	RaA	w	Radford silt loam, 0 to 3 percent slopes
Racine	Rt	w	Rollin muck
Racine	Ry	+	Rough broken land
Racine	Sf	p	Sandy and gravelly land
Racine	Sfb	+	Sandy lake beaches
Racine	Sg	w	Sawmill silt loam, calcareous variant
Racine	Sm	w	Sebewa silt loam
Racine	W	+	Water
Racine	Wa	w	Wallkill silt loam
Racine	WmA	w	Wasepi sandy loam, 1 to 3 percent slopes
Racine	WnA	w	Wasepi sandy loam, clayey substratum, 1 to 3 percent slopes
Racine	Ww	w	Wet alluvial land
Racine	YaA	w	Yahara fine sandy loam, 1 to 3 percent slopes
Richland	20A	wp	Palms and Houghton mucks, 0 to 1 percent slopes
Richland	21A	w	Palms muck, 0 to 1 percent slopes, frequently flooded
Richland	284C2	p	Gillingham loamy fine sand, 6 to 12 percent slopes, moderately eroded
Richland	284D2	p	Gillingham loamy fine sand, 12 to 20 percent slopes, moderately eroded
Richland	293B2	p	Muscoda loamy fine sand, 1 to 6 percent slopes, moderately eroded
Richland	293C2	p	Muscoda loamy fine sand, 6 to 12 percent slopes, moderately eroded
Richland	293D2	p	Muscoda loamy fine sand, 12 to 20 percent slopes, moderately eroded
Richland	502B2	p	Chelsea fine sand, 2 to 6 percent slopes, moderately eroded
Richland	502C2	p	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded
Richland	504A	p	Sparta loamy fine sand, 0 to 3 percent slopes
Richland	506A	p	Komro loamy sand, 0 to 3 percent slopes
Richland	511C	p	Plainfield sand, 6 to 15 percent slopes
Richland	511F	p	Plainfield sand, 15 to 60 percent slopes
Richland	572B2	p	Windward loamy fine sand, 2 to 6 percent slopes, moderately eroded
Richland	572C2	p	Windward loamy fine sand, 6 to 12 percent slopes, moderately eroded
Richland	629A	w	Ettrick silt loam, 0 to 2 percent slopes, frequently flooded

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County	Symbol	Restiction	Map Unit Name
Richland	656A	p	Scotah loamy fine sand, 0 to 3 percent slopes, occasionally flooded
Richland	1145F	p	Gaphill-Rockbluff complex, 30 to 60 percent slopes
Richland	1155F	rp	Brodale-Bellechester-Rock outcrop complex, 60 to 90 percent slopes
Richland	1505C2	p	Sparta-Blownout land complex, 0 to 15 percent slopes
Richland	1648A	w	Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded
Richland	1658A	w	Algansee-Kalmarville complex, 0 to 3 percent slopes, frequently flooded
Richland	2002	+	Udorthents, earthen dams
Richland	2003A	+	Riverwash, nearly level
Richland	2013	+	Pits, gravel
Richland	2014	+	Pits, quarry, hard bedrock
Richland	2030	+	Udorthents and Udipsamments, cut or fill
Richland	2050	+	Landfill
Richland	M-W	+	Miscellaneous water
Richland	W	+	Water
Rock	Ad	wp	Adrian muck
Rock	Aw	w	Alluvial land, wet
Rock	AzA	w	Aztalan silt loam, 0 to 3 percent slopes
Rock	BP	+	Borrow pit
Rock	Br	w	Brookston silt loam
Rock	Co	w	Colwood silt loam
Rock	Da	w	Darroch loam
Rock	DcA	p	Dickman sandy loam, 0 to 2 percent slopes
Rock	DcB	p	Dickman sandy loam, 2 to 6 percent slopes
Rock	DcC2	p	Dickman sandy loam, 6 to 12 percent slopes, eroded
Rock	EdB2	r	Edmund loam, 2 to 6 percent slopes, eroded
Rock	EdC2	r	Edmund loam, 6 to 12 percent slopes, eroded
Rock	EdD2	r	Edmund loam, 12 to 20 percent slopes, eroded
Rock	EdE	r	Edmund loam, 20 to 35 percent slopes
Rock	ElA	w	Elburn silt loam, 0 to 3 percent slopes
Rock	EmA	w	Elburn silt loam, gravelly substratum, 0 to 3 percent slopes
Rock	EoA	w	Elburn silt loam, overwash, 0 to 3 percent slopes
Rock	GoA	p	Gotham loamy sand, 0 to 2 percent slopes
Rock	GoB	p	Gotham loamy sand, 2 to 6 percent slopes
Rock	GoC2	p	Gotham loamy sand, 6 to 12 percent slopes, eroded
Rock	GoD	p	Gotham loamy sand, 12 to 20 percent slopes
Rock	GP	p+	Gravel pit
Rock	Ha	w	Hayfield loam
Rock	Ho	wp	Houghton muck
Rock	LkA	w	Locke loam, 0 to 3 percent slopes
Rock	M-W	+	Miscellaneous water
Rock	Ma	w	Mahalasville silt loam
Rock	Mb	w	Mahalasville silt loam, overwash
Rock	Mc	wp	Marsh
Rock	Md	w	Marshan loam
Rock	Me	wp	Maumee loamy sand
Rock	Mf	w	Millington silt loam
Rock	Na	w	Navan silt loam
Rock	Ot	w	Otter silt loam
Rock	Pa	wp	Palms muck
Rock	QUA	r +	Quarry

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County	Symbol	Restiction	Map Unit Name
Rock	Ro	r	Rock land
Rock	RrC2	p	Rodman-Lorenzo complex, 6 to 12 percent slopes, eroded
Rock	RrE	p	Rodman-Lorenzo complex, 20 to 30 percent slopes
Rock	RrF	p	Rodman-Lorenzo complex, 30 to 45 percent slopes
Rock	Rs	w	Rollin muck
Rock	Se	w	Sebewa silt loam
Rock	SoB	r	Sogn loam, 2 to 6 percent slopes
Rock	SoC2	r	Sogn loam, 6 to 12 percent slopes, eroded
Rock	SoD	r	Sogn loam, 12 to 20 percent slopes
Rock	SoF	r	Sogn loam, 30 to 45 percent slopes
Rock	W	+	Water
Rock	Wb	w	Watseka loamy fine sand
Rock	WcA	w	Wauconda silt loam, 0 to 3 percent slopes
Rusk	1B	w	Humaquepts-Fluvaquents complex, 0 to 4 percent slopes, very stony, frequently flooded
Rusk	22A	w	Comstock silt loam, 0 to 3 percent slopes
Rusk	24A	w	Poskin silt loam, 0 to 3 percent slopes
Rusk	160A	w	Oesterle sandy loam, 0 to 2 percent slopes
Rusk	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Rusk	193A	w	Minocqua muck, 0 to 2 percent slopes
Rusk	315A	w	Rib silt loam, 0 to 2 percent slopes
Rusk	324A	w	Maplehurst silt loam, 0 to 3 percent slopes
Rusk	383B	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Rusk	383C	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Rusk	383D	p	Mahtomedi loamy sand, 12 to 30 percent slopes
Rusk	406A	wp	Loxley mucky peat, 0 to 1 percent slopes
Rusk	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Rusk	408A	wp	Lupton and Cathro soils, 0 to 1 percent slopes
Rusk	412A	wp	Rifle and Tacoosh soils, 0 to 1 percent slopes
Rusk	414A	wp	Loxley and Beseman soils, 0 to 1 percent slopes
Rusk	415A	wp	Greenwood mucky peat, 0 to 1 percent slopes
Rusk	425B	p	Karlin sandy loam, 0 to 6 percent slopes
Rusk	425C	p	Karlin sandy loam, 6 to 15 percent slopes
Rusk	439B	p	Graycalm-Menahga complex, 0 to 6 percent slopes
Rusk	439C	p	Graycalm-Menahga complex, 6 to 12 percent slopes
Rusk	439D	p	Graycalm-Menahga complex, 12 to 30 percent slopes
Rusk	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Rusk	520A	w	Annriver silt loam, 0 to 2 percent slopes
Rusk	532B	w +	Aquepts and Saprists, 0 to 6 percent slopes, extremely bouldery
Rusk	537D	wp	Newot, very stony-Newood, very stony-Cathro complex, 0 to 35 percent slopes
Rusk	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Rusk	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Rusk	574C	p	Sayner loamy sand, 6 to 15 percent slopes
Rusk	574E	p	Sayner loamy sand, 15 to 45 percent slopes
Rusk	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Rusk	594B	p	Vilas-Lindquist complex, 0 to 6 percent slopes
Rusk	594C	p	Vilas-Lindquist complex, 6 to 15 percent slopes
Rusk	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes
Rusk	615B	p	Cress sandy loam, 0 to 6 percent slopes
Rusk	615C	p	Cress sandy loam, 6 to 12 percent slopes

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

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County	Symbol	Restiction	Map Unit Name
Rusk	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Rusk	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Rusk	700B	p	Menahga loamy sand, 0 to 6 percent slopes
Rusk	700C	p	Menahga loamy sand, 6 to 12 percent slopes
Rusk	746D	wp	Pence-Sconsin-Tawas complex, 0 to 25 percent slopes
Rusk	755A	w	Moppet,occasionally flooded-Fordum, frequently flooded complex, 0 to 3 percent slopes
Rusk	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Rusk	934A	w	Glenflora silt loam, 0 to 2 percent slopes
Rusk	2000	+	Rubble land
Rusk	2002	+	Udorthents, earthen dams
Rusk	2015	+	Pits
Rusk	2030	+	Udorthents and udipsamments, cut or fill
Rusk	2050	+	Landfill
Rusk	3114A	w	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded, flooded
Rusk	3125A	wp	Meehan loamy sand, 0 to 2 percent slopes
Rusk	3126A	p	Wurtsmith loamy sand, 0 to 3 percent slopes
Rusk	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Rusk	3446A	w	Newson muck, 0 to 2 percent slopes
Rusk	3556C	wp	Newood, very stony-Magnor, very stony-Cathro complex, 0 to 15 percent slopes
Rusk	3569C	wp	Newood, very stony-Pesabic, very stony-Cathro complex, 0 to 15 percent slopes
Rusk	9052A	p	Cathro-Capitola, very stony-Lupton complex, 0 to 1 percent slopes
Rusk	M-W	+	Miscellaneous water
Rusk	W	+	Water
Sauk	Ad	wp	Adrian muck
Sauk	BoB	p	Boone sand, 2 to 6 percent slopes
Sauk	BoC	p	Boone sand, 6 to 12 percent slopes
Sauk	BoD	p	Boone sand, 12 to 30 percent slopes
Sauk	BrA	p	Brems loamy sand, 0 to 3 percent slopes
Sauk	Co	w	Colwood loam
Sauk	DAM	+	Dam, concrete
Sauk	EnB	r	Elkmound sandy loam, 2 to 6 percent slopes
Sauk	EnC	r	Elkmound sandy loam, 6 to 12 percent slopes
Sauk	EnD	r	Elkmound sandy loam, 12 to 20 percent slopes
Sauk	Et	w	Ettrick silt loam
Sauk	Fu	+	Fluvaquents
Sauk	Fw	w	Fluvaquents, wet
Sauk	GoB	p	Gotham loamy sand, 1 to 6 percent slopes
Sauk	GoC	p	Gotham loamy sand, 6 to 12 percent slopes
Sauk	GoD	p	Gotham loamy sand, 12 to 25 percent slopes
Sauk	Gr	wp	Granby loamy sand
Sauk	Gv	w	Granby variant, loamy sand
Sauk	Ho	wp	Houghton muck
Sauk	LDF	+	Landfill
Sauk	M-W	+	Miscellaneous water
Sauk	Mc	w	Marshan loam
Sauk	NrE	r	Norden and Eleva soils and rock outcrop, 12 to 60 percent slopes
Sauk	Os	w	Ossian silt loam
Sauk	Pa	wp	Palms muck
Sauk	Pd	p+	Pits, gravel

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County	Symbol	Restiction	Map Unit Name
Sauk	Pe	r +	Pits, quarries
Sauk	PfB	p	Plainfield loamy sand, 1 to 6 percent slopes
Sauk	PfC	p	Plainfield loamy sand, 6 to 12 percent slopes
Sauk	PfD	p	Plainfield loamy sand, 12 to 30 percent slopes
Sauk	Rt	r +	Rock outcrop, quartzite
Sauk	Se	wp	Saprists and Aquents
Sauk	SpB	p	Sparta loamy sand, 1 to 6 percent slopes
Sauk	SpC	p	Sparta loamy sand, 6 to 12 percent slopes
Sauk	St	p	Sparta variant loamy sand
Sauk	UoE	+	Udorthents, loamy, steep (earthen dam)
Sauk	W	+	Water
Sawyer	1B	w	Humaquepts-Fluvaquents complex, 0 to 4 percent slopes, very stony, frequently flooded
Sawyer	3A	wp	Totagatic-Bowstring-Ausable complex, 0 to 2 percent slopes, frequently flooded
Sawyer	22A	w	Comstock silt loam, 0 to 3 percent slopes
Sawyer	24A	w	Poskin silt loam, 0 to 3 percent slopes
Sawyer	69B	p	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
Sawyer	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Sawyer	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Sawyer	160A	w	Oesterle sandy loam, 0 to 2 percent slopes
Sawyer	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Sawyer	193A	w	Minocqua muck, 0 to 2 percent slopes
Sawyer	217B	p	Karlin loamy fine sand, 0 to 6 percent slopes
Sawyer	217C	p	Karlin loamy fine sand, 6 to 15 percent slopes
Sawyer	380D	p	Cress-Rosholt complex, 12 to 25 percent slopes
Sawyer	383B	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Sawyer	383C	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Sawyer	383D	p	Mahtomedi loamy sand, 12 to 30 percent slopes
Sawyer	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Sawyer	406A	wp	Loxley mucky peat, 0 to 1 percent slopes
Sawyer	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Sawyer	408A	wp	Lupton and Cathro soils, 0 to 1 percent slopes
Sawyer	412A	wp	Rifle and Tacoosh soils, 0 to 1 percent slopes
Sawyer	414A	wp	Loxley and Beseman soils, 0 to 1 percent slopes
Sawyer	415A	wp	Greenwood mucky peat, 0 to 1 percent slopes
Sawyer	425B	p	Karlin sandy loam, 0 to 6 percent slopes
Sawyer	425C	p	Karlin sandy loam, 6 to 15 percent slopes
Sawyer	439B	p	Graycalm-Menahga complex, 0 to 6 percent slopes
Sawyer	439C	p	Graycalm-Menahga complex, 6 to 12 percent slopes
Sawyer	439D	p	Graycalm-Menahga complex, 12 to 30 percent slopes
Sawyer	441C	wp	Freeon, very stony-Cathro complex, 0 to 15 percent slopes
Sawyer	442C	wp	Haugen, very stony-Greenwood complex, 0 to 15 percent slopes
Sawyer	443D	wp	Amery, very stony-Greenwood complex, 0 to 35 percent slopes
Sawyer	445A	w	Kinross muck, 0 to 2 percent slopes
Sawyer	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Sawyer	520A	w	Annriver silt loam, 0 to 2 percent slopes
Sawyer	532B	w +	Aquepts and Saprists, 0 to 6 percent slopes, extremely bouldery
Sawyer	537D	wp	Newot, very stony-Newood, very stony-Cathro complex, 0 to 35 percent slopes
Sawyer	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Sawyer	571C	p	Pelissier gravelly sandy loam, 6 to 15 percent slopes

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County	Symbol	Restiction	Map Unit Name
Sawyer	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Sawyer	574B	p	Sayner loamy sand, 0 to 6 percent slopes
Sawyer	574C	p	Sayner loamy sand, 6 to 15 percent slopes
Sawyer	574E	p	Sayner loamy sand, 15 to 45 percent slopes
Sawyer	582B	p	Padus-Pence-Keweenaw complex, 0 to 6 percent slopes, stony
Sawyer	582C	p	Padus-Pence-Keweenaw complex, 6 to 15 percent slopes, stony
Sawyer	582D	p	Padus-Pence-Keweenaw complex, 15 to 30 percent slopes, stony
Sawyer	591A	p	Croswell-Chinwhisker complex, 0 to 3 percent slopes
Sawyer	594B	p	Vilas-Lindquist complex, 0 to 6 percent slopes
Sawyer	594C	p	Vilas-Lindquist complex, 6 to 15 percent slopes
Sawyer	594D	p	Vilas-Lindquist complex, 15 to 30 percent slopes
Sawyer	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes
Sawyer	615B	p	Cress sandy loam, 0 to 6 percent slopes
Sawyer	615C	p	Cress sandy loam, 6 to 12 percent slopes
Sawyer	615D	p	Cress sandy loam, 12 to 30 percent slopes
Sawyer	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Sawyer	670B	p	Keweenaw-Pence complex, 0 to 6 percent slopes, stony
Sawyer	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Sawyer	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Sawyer	675A	w	Robago fine sandy loam, 0 to 3 percent slopes
Sawyer	755A	w	Moppet, occasionally flooded-Fordum, frequently flooded complex, 0 to 3 percent slopes
Sawyer	771A	p	Lenroot loamy sand, 0 to 3 percent slopes
Sawyer	815A	w	Wormet sandy loam, 0 to 3 percent slopes
Sawyer	874E	p	Keweenaw, stony-Rubicon complex, 20 to 45 percent slopes
Sawyer	925C	rp+	Rock outcrop-Ishpeming complex, 0 to 15 percent slopes
Sawyer	943D	wp	Stanberry, very stony-Greenwood complex, 0 to 35 percent slopes
Sawyer	970C	wp	Keweenaw, stony-Pence, stony-Greenwood complex, 0 to 15 percent slopes
Sawyer	970E	wp	Keweenaw, stony-Pence, stony-Greenwood complex, 0 to 45 percent slopes
Sawyer	974C	p	Sayner-Pence-Vilas complex, 6 to 15 percent slopes
Sawyer	974D	p	Sayner-Pence-Vilas complex, 15 to 30 percent slopes
Sawyer	1070D	p	Fremstadt, stony-Cress complex, 15 to 30 percent slopes
Sawyer	2002	+	Udorthents, earthen dams
Sawyer	2015	+	Pits
Sawyer	2030	+	Udorthents and Udipsamments, cut or fill
Sawyer	2050	+	Landfill
Sawyer	3114A	w	Saprists, Aquents, and Aquepts, 0 to 1 percent slopes, ponded, flooded
Sawyer	3125A	wp	Meehan loamy sand, 0 to 2 percent slopes
Sawyer	3126A	p	Wurtsmith loamy sand, 0 to 3 percent slopes
Sawyer	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Sawyer	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Sawyer	3446A	w	Newson muck, 0 to 2 percent slopes
Sawyer	3556C	wp	Newood, very stony-Magnor, very stony-Cathro complex, 0 to 15 percent slopes
Sawyer	9012B	p	Sayner-Lindquist complex, 0 to 6 percent slopes
Sawyer	9012C	p	Sayner-Lindquist complex, 6 to 15 percent slopes
Sawyer	9012D	p	Sayner-Lindquist complex, 15 to 30 percent slopes
Sawyer	9050A	wp	Fordum, Totagatic, and Bowstring soils, 0 to 1 percent slopes, frequently flooded
Sawyer	9113B	p	Padus-Karlin complex, 0 to 6 percent slopes
Sawyer	9113C	p	Padus-Karlin complex, 6 to 15 percent slopes
Sawyer	9113D	p	Padus-Karlin complex, 15 to 30 percent slopes

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County	Symbol	Restiction	Map Unit Name
Sawyer	9155A	wp	Haplosaprists, Peats, and Mucks, 0 to 1 percent slopes
Sawyer	M-W	+	Miscellaneous water
Sawyer	W	+	Water
Shawano	Ah	w	Angelica silt loam
Shawano	AuA	w	Au Gres loamy sand, 0 to 3 percent slopes
Shawano	AxA	w	Au Gres variant loamy fine sand, 0 to 3 percent slopes
Shawano	Ba	w	Bach silt loam
Shawano	Bs	w	Brevort mucky loamy sand
Shawano	Co	wp	Cormant mucky loamy fine sand
Shawano	CrB	p	Cromwell sandy loam, 1 to 6 percent slopes
Shawano	CrC	p	Cromwell sandy loam, 6 to 12 percent slopes
Shawano	CrD	p	Cromwell sandy loam, 12 to 20 percent slopes
Shawano	CtA	p	Croswell loamy sand, 0 to 3 percent slopes
Shawano	Dp	+	Dumps
Shawano	Fu	w	Fordum loam
Shawano	IsA	w	Iosco loamy sand, 0 to 3 percent slopes
Shawano	Lx	wp	Loxley mucky peat
Shawano	M-W	+	Miscellaneous water
Shawano	MaA	p	Mahtomedi-Menahga loamy sands, 0 to 2 percent slopes
Shawano	MaB	p	Mahtomedi-Menahga loamy sands, 2 to 6 percent slopes
Shawano	MaC	p	Mahtomedi-Menahga loamy sands, 6 to 12 percent slopes
Shawano	MaD	p	Mahtomedi-Menahga loamy sands, 12 to 30 percent slopes
Shawano	Mk	wp	Markey and Cathro mucks
Shawano	MnA	p	Menahga loamy sand, 0 to 2 percent slopes
Shawano	MnB	p	Menahga loamy sand, 2 to 6 percent slopes
Shawano	MnC	p	Menahga loamy sand, 6 to 12 percent slopes
Shawano	MnD	p	Menahga loamy sand, 12 to 30 percent slopes
Shawano	MsB	p	Menominee loamy sand, 1 to 6 percent slopes
Shawano	MsC	p	Menominee loamy sand, 6 to 12 percent slopes
Shawano	MsD	p	Menominee loamy sand, 12 to 20 percent slopes
Shawano	Mu	w	Minocqua silt loam
Shawano	ObA	w	Oesterle loam, 0 to 3 percent slopes
Shawano	Pt	p+	Pits
Shawano	RmD	r	Rock outcrop-Rosholt variant complex, 2 to 35 percent slopes
Shawano	RrD	r	Rosholt-Rock outcrop complex, 2 to 35 percent slopes
Shawano	RsA	p	Rousseau loamy fine sand, 0 to 2 percent slopes
Shawano	RsB	p	Rousseau loamy fine sand, 2 to 6 percent slopes
Shawano	RuB	p	Rubicon sand, 1 to 6 percent slopes
Shawano	RuC	p	Rubicon sand, 6 to 12 percent slopes
Shawano	RuD	p	Rubicon sand, 12 to 20 percent slopes
Shawano	Sb	w	Saprists, ponded
Shawano	Sd	wp	Seelyeville muck
Shawano	SfB	p	Shawano loamy fine sand, 1 to 6 percent slopes
Shawano	SfC	p	Shawano loamy fine sand, 6 to 12 percent slopes
Shawano	SfD	p	Shawano loamy fine sand, 12 to 20 percent slopes
Shawano	SgB	p	Shawano-Briggsville complex, 2 to 6 percent slopes
Shawano	SgC	p	Shawano-Briggsville complex, 6 to 12 percent slopes
Shawano	ShA	w	Shiocton silt loam, 0 to 3 percent slopes
Shawano	SkA	w	Shiocton variant silt loam, 0 to 3 percent slopes
Shawano	SoA	w	Solona loam, 0 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Shawano	SyB	w	Solona-Onaway complex, 1 to 6 percent slopes
Shawano	W	+	Water
Shawano	WaA	w	Wainola fine sand, 0 to 3 percent slopes
Shawano	Wh	wp	Wheatley loamy fine sand
Sheboygan	Ag	wp	Adrian muck
Sheboygan	Ak	wp	Adrian-Granby-Oakville complex
Sheboygan	Am	+	Alluvial land
Sheboygan	An	wp	Alluvial land, wet
Sheboygan	Ba	w	Barry silt loam
Sheboygan	Bd	p	Beaches, sandy
Sheboygan	Bk	wp	Boots muck
Sheboygan	CrC	p	Casco-Rodman complex, 6 to 12 percent slopes
Sheboygan	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Sheboygan	CrE	p	Casco-Rodman complex, 20 to 30 percent slopes
Sheboygan	CrF	p	Casco-Rodman complex, 30 to 45 percent slopes
Sheboygan	Cw	w	Colwood silt loam
Sheboygan	Cx	p	Cut and fill land, sandy and gravelly
Sheboygan	Cy	+	Cut and fill land, loamy
Sheboygan	Cz	+	Cut and fill land, clayey
Sheboygan	Dn	p+	Dune land
Sheboygan	Ed	w	Edwards muck
Sheboygan	Ev	w	Elvers silt loam
Sheboygan	Gb	wp	Granby loamy fine sand
Sheboygan	Gg	wp	Granby silt loam, gravelly variant
Sheboygan	Gp	p+	Gravel pit
Sheboygan	Hu	wp	Houghton muck
Sheboygan	KlA	w	Kendall silt loam, 0 to 3 percent slopes
Sheboygan	KuA	w	Kibbie silt loam, 0 to 3 percent slopes
Sheboygan	LDF	+	Landfill
Sheboygan	LmA	w	Lamartine silt loam, 0 to 3 percent slopes
Sheboygan	Lo	w+	Loamy land, seeped
Sheboygan	M-W	+	Miscellaneous water
Sheboygan	Ma	+	Made land
Sheboygan	MbA	w	Manawa silt loam, 0 to 3 percent slopes
Sheboygan	Mf	wp	Marsh
Sheboygan	MgA	w	Martinton silt loam, 0 to 3 percent slopes
Sheboygan	MkA	w	Matherton silt loam, 0 to 3 percent slopes
Sheboygan	Mo	w	Montgomery silty clay loam
Sheboygan	Mz	wp	Muskego muck
Sheboygan	Na	w	Navan loam
Sheboygan	NnA	w	Nenno silt loam, 0 to 2 percent slopes
Sheboygan	NnB	w	Nenno silt loam, 2 to 6 percent slopes
Sheboygan	OaB	p	Oakville loamy fine sand, 0 to 6 percent slopes
Sheboygan	OaC	p	Oakville loamy fine sand, 6 to 12 percent slopes
Sheboygan	Ot	w	Otter silt loam
Sheboygan	Pa	wp	Palms muck
Sheboygan	Ph	w	Pella silt loam
Sheboygan	Ry	+	Rough broken land
Sheboygan	Sm	w	Sebewa silt loam
Sheboygan	Sw	w	Stony land, wet

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County	Symbol	Restiction	Map Unit Name
Sheboygan	W	+	Water
Sheboygan	Wa	w	Wasepi sandy loam
Sheboygan	We	p	Willette muck
Sheboygan	YhA	w	Yahara very fine sandy loam, 0 to 3 percent slopes
St. Croix	AnC2	p	Amery-Cromwell sandy loams, 6 to 12 percent slopes, eroded
St. Croix	AnD2	p	Amery-Cromwell sandy loams, 12 to 25 percent slopes, eroded
St. Croix	BnB	p	Boone loamy fine sand, 2 to 6 percent slopes
St. Croix	BnC	p	Boone loamy fine sand, 6 to 12 percent slopes
St. Croix	BnD	p	Boone loamy fine sand, 12 to 20 percent slopes
St. Croix	CyA	w	Clyde silt loam, 0 to 3 percent slopes
St. Croix	Cz	+	Cut and fill areas
St. Croix	DAM	+	Dams, large
St. Croix	DkB	p	Dickman sandy loam, 2 to 6 percent slopes
St. Croix	Du	wp	Duelm loamy sand
St. Croix	EmE	p	Emmert loamy sand, 12 to 35 percent slopes
St. Croix	FdA	w	Floyd silt loam, 0 to 3 percent slopes
St. Croix	Fe	+	Fluvaquents
St. Croix	Fm	w	Fluvaquents, wet
St. Croix	GoB	p	Gotham loamy fine sand, 2 to 6 percent slopes
St. Croix	GoC	p	Gotham loamy fine sand, 6 to 12 percent slopes
St. Croix	Gp	p+	Gravel pits
St. Croix	HaA	w	Halder silt loam, 0 to 3 percent slopes
St. Croix	HrB	p	Hubbard loamy sand, 0 to 6 percent slopes
St. Croix	HsB	p	Hubbard loamy sand, loamy substratum, 0 to 6 percent slopes
St. Croix	HsC	p	Hubbard loamy sand, loamy substratum, 6 to 12 percent slopes
St. Croix	LcA	w	Lawler silt loam, 0 to 3 percent slopes
St. Croix	PmB	p	Plainfield loamy sand, 2 to 6 percent slopes
St. Croix	PmC	p	Plainfield loamy sand, 6 to 12 percent slopes
St. Croix	PmD	p	Plainfield loamy sand, 12 to 20 percent slopes
St. Croix	QUA	r +	Quarry
St. Croix	RhA	w	Rib silt loam, 0 to 3 percent slopes
St. Croix	RnB	r	Ritchey silt loam, 2 to 6 percent slopes
St. Croix	RnC2	r	Ritchey silt loam, 6 to 12 percent slopes, eroded
St. Croix	RnD2	r	Ritchey silt loam, 12 to 20 percent slopes, eroded
St. Croix	RoE	r	Ritchey soils and rock outcrop, 20 to 35 percent slopes
St. Croix	Se	w	Saprists and aquents
St. Croix	Sm	wp	Seelyeville muck
St. Croix	SrA	w	Skyberg silt loam, 0 to 3 percent slopes
St. Croix	Ud	+	Udifluvents
St. Croix	W	+	Water
Taylor	22A	w	Comstock silt loam, 0 to 3 percent slopes
Taylor	24A	w	Poskin silt loam, 0 to 3 percent slopes
Taylor	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Taylor	193A	w	Minocqua muck, 0 to 2 percent slopes
Taylor	315A	w	Rib silt loam, 0 to 2 percent slopes
Taylor	324A	w	Maplehurst silt loam, 0 to 3 percent slopes
Taylor	408A	wp	Lupton and Cathro soils, 0 to 1 percent slopes
Taylor	414A	wp	Loxley and Beseman soils, 0 to 1 percent slopes
Taylor	537D	wp	Newot, very stony-Newood, very stony-Cathro complex, 0 to 35 percent slopes
Taylor	555A	w	Fordum silt loam, 0 to 2 percent slopes

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County	Symbol	Restiction	Map Unit Name
Taylor	571E	p	Pelissier gravelly sandy loam, 15 to 45 percent slopes
Taylor	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Taylor	755A	w	Moppet-Fordum complex, 0 to 3 percent slopes
Taylor	2015	+	Pits
Taylor	3556C	wp	Newood, very stony-Magnor, very stony-Cathro complex, 0 to 15 percent slopes
Taylor	3569C	wp	Newood, very stony-Pesabic, very stony-Cathro complex, 0 to 15 percent slopes
Taylor	9052A	p	Cathro-Capitola, very stony-Lupton complex, 0 to 1 percent slopes
Taylor	9055A	wp	Loxley peat, 0 to 1 percent slopes
Taylor	9060D	p	Pelissier sandy loam, 20 to 45 percent slopes
Taylor	9089B	wp	Newood, very stony-Lupton complex, 0 to 10 percent slopes
Taylor	9090C	wp	Newood, very stony-Newot, very stony-Lupton complex, 0 to 30 percent slopes
Taylor	9096C	wp	Newot, very stony-Pesabic, very stony-Lupton complex, 0 to 30 percent slopes
Taylor	9098A	w	Oesterle loam, 0 to 3 percent slopes
Taylor	9197C	p	Pelissier very cobbly sandy loam, 10 to 30 percent slopes
Taylor	M-W	+	Miscellaneous water
Taylor	W	+	Water
Trempealeau	BnB	p	Boone loamy sand, 2 to 6 percent slopes
Trempealeau	BnC2	p	Boone loamy sand, 6 to 12 percent slopes, eroded
Trempealeau	BnE2	p	Boone loamy sand, 12 to 30 percent slopes, eroded
Trempealeau	BP	+	Borrow pit
Trempealeau	EnF	p	Eleva-Boone complex, 20 to 45 percent slopes
Trempealeau	Er	w	Ettrick silt loam
Trempealeau	Et	w	Ettrick silt loam, clayey subsoil variant
Trempealeau	GoA	p	Gotham loamy fine sand, 0 to 2 percent slopes
Trempealeau	GoB	p	Gotham loamy fine sand, 2 to 6 percent slopes
Trempealeau	GoC	p	Gotham loamy fine sand, 6 to 12 percent slopes
Trempealeau	GoD2	p	Gotham loamy fine sand, 12 to 20 percent slopes, eroded
Trempealeau	GpD	p	Gotham-Sparta loamy fine sands, 12 to 20 percent slopes
Trempealeau	Gu	+	Gullied land
Trempealeau	Ho	wp	Houghton muck
Trempealeau	Ka	w	Kato loam, sandy loam variant
Trempealeau	KcA	w	Kato silt loam, 0 to 3 percent slopes
Trempealeau	Lv	+	Loamy alluvial land
Trempealeau	M-W	+	Miscellaneous water
Trempealeau	Ma	wp	Marsh
Trempealeau	Pa	wp	Palms muck
Trempealeau	QUA	r +	Quarry
Trempealeau	Sa	p+	Sandy alluvial land
Trempealeau	Sd	p+	Sandy terrace escarpments
Trempealeau	SP	p	Sand pit
Trempealeau	SpA	p	Sparta loamy sand, 0 to 2 percent slopes
Trempealeau	SpB	p	Sparta loamy sand, 2 to 6 percent slopes
Trempealeau	SpC	p	Sparta loamy sand, 6 to 12 percent slopes
Trempealeau	St	+	Stony and rocky land
Trempealeau	TrA	p	Trempe loamy sand, 0 to 2 percent slopes
Trempealeau	TrB	p	Trempe loamy sand, 2 to 6 percent slopes
Trempealeau	Ud	+	Udorthents, dike
Trempealeau	W	+	Water
Trempealeau	WaA	w	Wallkill silt loam, 0 to 3 percent slopes
Trempealeau	We	w	Wet alluvial land

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County	Symbol	Restiction	Map Unit Name
Vernon	Ad	+	Alluvial land, frequently flooded
Vernon	Al	w	Alluvial land, wet, frequently flooded
Vernon	BsE	p	Boone loamy sand, 12 to 30 percent slopes
Vernon	BsF	p	Boone loamy sand, 30 to 45 percent slopes
Vernon	DvD2	r	Dunbarton and Sogn stony soils, 12 to 20 percent slopes, moderately eroded
Vernon	DvE2	r	Dunbarton and Sogn stony soils, 20 to 30 percent slopes, moderately eroded
Vernon	Et	w	Ettrick silt loam, frequently flooded
Vernon	Gu	+	Gullied land
Vernon	Hu	wp	Houghton muck, frequently flooded
Vernon	LDF	+	Landfill
Vernon	M-W	+	Miscellaneous water
Vernon	Ma	w	Marsh, frequently flooded
Vernon	Ow	w	Orion silt loam, wet variant, frequently flooded
Vernon	QUA	r +	Quarry
Vernon	SaA	p	Sparta loamy sand, 0 to 2 percent slopes
Vernon	SaB2	p	Sparta loamy sand, 2 to 6 percent slopes, moderately eroded
Vernon	SaC2	p	Sparta loamy sand, 6 to 12 percent slopes, moderately eroded
Vernon	ScB	+	Stony colluvial land, gently sloping, frequently flooded
Vernon	ScC	p	Stony colluvial land, sloping, frequently flooded
Vernon	SkE	r	Stony rock land, moderately steep
Vernon	SkF	r	Stony rock land, steep
Vernon	SP	p	Sand pit
Vernon	Tr	+	Terrace escarpments, loamy
Vernon	Ts	+	Terrace escarpments, sandy
Vernon	Ud	+	Udorthents, nearly level
Vernon	UoE	+	Udorthents, loamy, steep (earthen dam)
Vernon	W	+	Water
Vilas	Au	w	Au Gres sand, 0 to 2 percent slopes
Vilas	CaA	w	Cable silt loam, 0 to 3 percent slopes
Vilas	CrA	p	Croswell sand, 0 to 3 percent slopes
Vilas	CsA	p	Croswell sand, loamy substratum, 0 to 3 percent slopes
Vilas	Fh	wp	Fluvaquents, sandy, nearly level
Vilas	Ga	w	Gaastra silt loam, 0 to 2 percent slopes
Vilas	Hp	wp	Histosols, ponded
Vilas	KaB	p	Karlin loamy fine sand, 0 to 6 percent slopes
Vilas	KaC	p	Karlin loamy fine sand, 6 to 15 percent slopes
Vilas	KbB	p	Keweenaw sandy loam, 0 to 6 percent slopes
Vilas	KbC	p	Keweenaw sandy loam, 6 to 15 percent slopes
Vilas	KbD	p	Keweenaw sandy loam, 15 to 30 percent slopes
Vilas	KeB	p	Keweenaw-Karlin complex, 0 to 6 percent slopes
Vilas	KeC	p	Keweenaw-Karlin complex, 6 to 15 percent slopes
Vilas	KnD	p	Keweenaw-Sayner complex, 15 to 30 percent slopes
Vilas	Kr	wp	Kinross mucky sand, 0 to 2 percent slopes
Vilas	Lo	wp	Loxley and Dawson peats, 0 to 1 percent slopes
Vilas	MoA	w	Monico silt loam, 0 to 3 percent slopes
Vilas	Pt	p+	Pits, gravel
Vilas	RoB	p	Rubicon sand, 0 to 6 percent slopes
Vilas	RoC	p	Rubicon sand, 6 to 15 percent slopes
Vilas	RoD	p	Rubicon sand, 15 to 30 percent slopes
Vilas	SaB	p	Sayner-Rubicon complex, 0 to 6 percent slopes

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County	Symbol	Restiction	Map Unit Name
Vilas	SaC	p	Sayner-Rubicon complex, 6 to 15 percent slopes
Vilas	SaD	p	Sayner-Rubicon complex, 15 to 35 percent slopes
Vilas	Se	wp	Seelyeville and Markey mucks, 0 to 1 percent slopes
Vilas	W	+	Water
Vilas	Wv	w	Worcester variant sandy loam, 0 to 2 percent slopes
Walworth	Ac	wp	Adrian muck
Walworth	Am	+	Alluvial land
Walworth	AzA	w	Aztalan loam, 1 to 3 percent slopes
Walworth	BP	+	Borrow pit
Walworth	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Walworth	CrE2	p	Casco-Rodman complex, 20 to 30 percent slopes, eroded
Walworth	CtB	p	Chelsea fine sand, 1 to 6 percent slopes
Walworth	CtE	p	Chelsea fine sand, 6 to 30 percent slopes
Walworth	Cw	w	Colwood silt loam
Walworth	CyA	w	Conover silt loam, 1 to 3 percent slopes
Walworth	Dt	w	Drummer silt loam, gravelly substratum
Walworth	EbA	w	Elburn silt loam, 1 to 3 percent slopes
Walworth	EgA	w	Elburn silt loam, gravelly substratum, 1 to 3 percent slopes
Walworth	GP	p+	Gravel pit
Walworth	Ht	wp	Houghton muck
Walworth	KlA	w	Kendall silt loam, 1 to 3 percent slopes
Walworth	LDF	+	Landfill
Walworth	LzD2	p	Lorenzo-Rodman complex, 12 to 20 percent slopes, eroded
Walworth	M-W	+	Miscellaneous water
Walworth	MDL	+	Made land
Walworth	Mf	wp	Marsh
Walworth	MgA	w	Martinton silt loam, 1 to 3 percent slopes
Walworth	MmA	w	Matherton silt loam, 1 to 3 percent slopes
Walworth	MzfA	w	Mundelein silt loam, 1 to 3 percent slopes
Walworth	Na	w	Navan silt loam
Walworth	Pa	wp	Palms muck
Walworth	Ph	w	Pella silt loam
Walworth	QUA	r +	Quarry
Walworth	RaA	w	Radford silt loam, 0 to 3 percent slopes
Walworth	RsF	p	Rodman-Casco complex, 30 to 45 percent slopes
Walworth	Ru	w	Rollin muck, deep
Walworth	Rv	w	Rollin muck, shallow
Walworth	Sfb	p	Sandy lake beaches
Walworth	Sm	w	Sebewa silt loam
Walworth	W	+	Water
Walworth	Wa	w	Wallkill silt loam
Walworth	Ww	w	Wet alluvial land
Washburn	3A	wp	Totagatic-bowstring-ausable complex, 0 to 2 percent slopes, frequently flooded
Washburn	22A	w	Comstock silt loam, 0 to 3 percent slopes
Washburn	24A	w	Poskin silt loam, 0 to 3 percent slopes
Washburn	64A	wp	Totagatic-Winterfield complex, 0 to 2 percent slopes, frequently flooded
Washburn	69B	p	Keweenaw-Sayner-Vilas complex, 2 to 6 percent slopes, stony
Washburn	69C	p	Keweenaw-Sayner-Vilas complex, 6 to 15 percent slopes, stony
Washburn	69E	p	Keweenaw-Sayner-Vilas complex, 15 to 45 percent slopes, stony
Washburn	74B	p	Vilas loamy sand, 0 to 6 percent slopes

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County	Symbol	Restiction	Map Unit Name
Washburn	74C	p	Vilas loamy sand, 6 to 15 percent slopes
Washburn	74D	p	Vilas loamy sand, 15 to 30 percent slopes
Washburn	100B	p	Menahga sand, 0 to 6 percent slopes
Washburn	100C	p	Menahga sand, 6 to 12 percent slopes
Washburn	100D	p	Menahga sand, 12 to 30 percent slopes
Washburn	160A	w	Oesterle sandy loam, 0 to 2 percent slopes
Washburn	192A	w	Worcester sandy loam, 0 to 3 percent slopes
Washburn	193A	w	Minocqua muck, 0 to 2 percent slopes
Washburn	315A	w	Rib silt loam, 0 to 2 percent slopes
Washburn	368B	p	Mahtomedi-Cress complex, 2 to 6 percent slopes
Washburn	368C	p	Mahtomedi-Cress complex, 6 to 12 percent slopes
Washburn	368D	p	Mahtomedi-Cress complex, 12 to 25 percent slopes
Washburn	371A	p	Croswell loamy sand, 0 to 3 percent slopes
Washburn	380B	p	Cress-Rosholt complex, 2 to 6 percent slopes
Washburn	380C	p	Cress-Rosholt complex, 6 to 12 percent slopes
Washburn	380D	p	Cress-Rosholt complex, 12 to 25 percent slopes
Washburn	383B	p	Mahtomedi loamy sand, 0 to 6 percent slopes
Washburn	383C	p	Mahtomedi loamy sand, 6 to 12 percent slopes
Washburn	383D	p	Mahtomedi loamy sand, 12 to 30 percent slopes
Washburn	396B	p	Friendship-Wurtsmith-Grayling complex, 0 to 6 percent slopes
Washburn	397A	w	Perchlake loamy fine sand, 0 to 2 percent slopes
Washburn	399B	p	Grayling sand, 0 to 6 percent slopes
Washburn	399C	p	Grayling sand, 6 to 12 percent slopes
Washburn	399D	p	Grayling sand, 12 to 30 percent slopes
Washburn	405A	wp	Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes
Washburn	406A	wp	Loxley mucky peat, 0 to 1 percent slopes
Washburn	407A	wp	Seelyeville and Markey soils, 0 to 1 percent slopes
Washburn	410A	wp	Seelyeville and Cathro soils, 0 to 1 percent slopes
Washburn	412A	wp	Rifle and Tacoosh soils, 0 to 1 percent slopes
Washburn	415A	wp	Greenwood mucky peat, 0 to 1 percent slopes
Washburn	439B	p	Graycalm-Menahga complex, 0 to 6 percent slopes
Washburn	439C	p	Graycalm-Menahga complex, 6 to 12 percent slopes
Washburn	439D	p	Graycalm-Menahga complex, 12 to 30 percent slopes
Washburn	441C	wp	Freeon, very stony-Cathro complex, 0 to 15 percent slopes
Washburn	442C	wp	Haugen, very stony-Greenwood complex, 0 to 15 percent slopes
Washburn	443D	wp	Amery, very stony-Greenwood complex, 0 to 35 percent slopes
Washburn	461A	wp	Bowstring muck, 0 to 1 percent slopes, frequently flooded
Washburn	484A	wp	Greenwood and Beseman soils, 0 to 1 percent slopes
Washburn	495B	p	Karlsborg-Grettum-Perida complex, 1 to 6 percent slopes
Washburn	495C	p	Karlsborg-Grettum-Perida complex, 6 to 12 percent slopes
Washburn	495D	p	Karlsborg-Grettum-Perida complex, 12 to 30 percent slopes
Washburn	524E	r+	Rock outcrop-Frogcreek-Metonga complex, 2 to 45 percent slopes, very stony
Washburn	544F	p	Menahga and Mahtomedi soils, 30 to 45 percent slopes
Washburn	555A	w	Fordum silt loam, 0 to 2 percent slopes, frequently flooded
Washburn	574B	p	Sayner loamy sand, 0 to 6 percent slopes
Washburn	574C	p	Sayner loamy sand, 6 to 15 percent slopes
Washburn	574E	p	Sayner loamy sand, 15 to 45 percent slopes
Washburn	600A	w +	Haplosaprists and Psammaquents, 0 to 2 percent slopes
Washburn	615B	p	Cress sandy loam, 0 to 6 percent slopes
Washburn	615C	p	Cress sandy loam, 6 to 12 percent slopes

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County	Symbol	Restiction	Map Unit Name
Washburn	615D	p	Cress sandy loam, 12 to 30 percent slopes
Washburn	624A	w	Ossmer silt loam, 0 to 3 percent slopes
Washburn	670C	p	Keweenaw-Pence complex, 6 to 15 percent slopes, stony
Washburn	670E	p	Keweenaw-Pence complex, 15 to 45 percent slopes, stony
Washburn	671B	p	Spoonerhill, stony-Spoonerhill complex, 2 to 6 percent slopes
Washburn	706A	wp	Winterfield-Totagatic complex, 0 to 2 percent slopes, frequently flooded
Washburn	724A	wr	Rib-Rock outcrop complex, 0 to 2 percent slopes
Washburn	726B	p	Sissabagama loamy sand, 0 to 6 percent slopes
Washburn	771A	p	Lenroot loamy sand, 0 to 3 percent slopes
Washburn	943D	wp	Stanberry, very stony-Greenwood complex, 0 to 35 percent slopes
Washburn	970C	wp	Keweenaw, stony-Pence, stony-Greenwood complex, 0 to 15 percent slopes
Washburn	970E	wp	Keweenaw, stony-Pence, stony-Greenwood complex, 0 to 45 percent slopes
Washburn	1070C	p	Fremstadt, stony-Cress complex, 6 to 15 percent slopes
Washburn	1070D	p	Fremstadt, stony-Cress complex, 15 to 30 percent slopes
Washburn	1080B	p	Spoonerhill-Spoonerhill, stony-Cress complex, 1 to 6 percent slopes
Washburn	2015	+	Pits
Washburn	2050	+	Landfill
Washburn	3125A	wp	Meehan loamy sand, 0 to 2 percent slopes
Washburn	3126A	p	Wurtsmith loamy sand, 0 to 3 percent slopes
Washburn	3276A	w	Au Gres loamy sand, 0 to 3 percent slopes
Washburn	3403A	wp	Loxley, Beseman, and Dawson soils, 0 to 1 percent slopes
Washburn	3446A	w	Newson muck, 0 to 2 percent slopes
Washburn	3629B	p	Perida loamy sand, 0 to 4 percent slopes
Washburn	M-W	+	Miscellaneous water
Washburn	W	+	Water
Washington	Ak	wp	Adrian mucky peat
Washington	Am	+	Alluvial land
Washington	AtA	w	Ashkum silty clay loam, 0 to 3 percent slopes
Washington	AzA	w	Aztalan loam, 0 to 2 percent slopes
Washington	AzB	w	Aztalan loam, 2 to 6 percent slopes
Washington	BsA	w	Brookston silt loam, 0 to 3 percent slopes
Washington	CrC2	p	Casco-Rodman complex, 6 to 12 percent slopes, eroded
Washington	CrD2	p	Casco-Rodman complex, 12 to 20 percent slopes, eroded
Washington	CrE	p	Casco-Rodman complex, 20 to 35 percent slopes
Washington	Cw	w	Colwood silt loam
Washington	DaA	w	Darroch fine sandy loam, neutral variant, 0 to 3 percent slopes
Washington	Dt	w	Drummer silt loam, gravelly substratum
Washington	GfA	wp	Granby fine sandy loam, 0 to 3 percent slopes
Washington	GP	p+	Gravel pit
Washington	Hu	wp	Houghton mucky peat
Washington	Hv	wp	Houghton peat, acid variant
Washington	KlA	w	Kendall silt loam, 1 to 3 percent slopes
Washington	Km	w	Keowns silt loam
Washington	LDF	+	Landfill
Washington	LmA	w	Lamartine silt loam, 1 to 3 percent slopes
Washington	Lu	+	Loamy land
Washington	M-W	+	Miscellaneous water
Washington	Mf	wp	Marsh
Washington	MgA	w	Martinton silt loam, 1 to 3 percent slopes
Washington	MmA	w	Matherton silt loam, 1 to 3 percent slopes

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County	Symbol	Restiction	Map Unit Name
Washington	MtA	w	Mequon silt loam, 1 to 3 percent slopes
Washington	Mzb	w	Montgomery silty clay loam
Washington	MzfA	w	Mundelein silt loam, 1 to 3 percent slopes
Washington	MzkA	w	Mussey loam, 0 to 3 percent slopes
Washington	NnA	w	Nenno silt loam, 1 to 3 percent slopes
Washington	Ot	w	Otter silt loam
Washington	Pc	wp	Palms mucky peat
Washington	Ph	w	Pella silt loam
Washington	QUA	r +	Quarry
Washington	RaA	w	Radford silt loam, 0 to 3 percent slopes
Washington	RkB	r	Ritchey silt loam, 2 to 6 percent slopes
Washington	RkC2	r	Ritchey silt loam, 6 to 12 percent slopes, eroded
Washington	Sf	+	Sandy and gravelly land
Washington	Sm	w	Sebewa silt loam
Washington	SP	p	Sand pit
Washington	VsA	w	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes
Washington	W	+	Water
Washington	Wa	w	Wallkill silt loam
Washington	WmA	w	Wasepi sandy loam, 1 to 3 percent slopes
Washington	Ww	w	Wet alluvial land
Washington	YrA	w	Yahara silt loam, 1 to 3 percent slopes
Waukesha	Ac	wp	Adrian muck
Waukesha	Am	+	Alluvial land
Waukesha	AsA	w	Ashkum silty clay loam, 0 to 3 percent slopes
Waukesha	BP	+	Borrow pit
Waukesha	BsA	w	Brookston silt loam, 0 to 3 percent slopes
Waukesha	CP	+	Coal pit
Waukesha	CrC2	p	Casco-Rodman complex, 6 to 12 percent slopes, eroded
Waukesha	CrD	p	Casco-Rodman complex, 12-20 percent slopes
Waukesha	CrE	p	Casco-Rodman complex, 20 to 30 percent slopes
Waukesha	CrF	p	Casco-Rodman complex, 30 to 45 percent slopes
Waukesha	CtB	p	Chelsea fine sand, 1 to 6 percent slopes
Waukesha	CtD	p	Chelsea fine sand, 6 to 20 percent slopes
Waukesha	Cv	+	Clayey land
Waukesha	Cw	w	Colwood silt loam
Waukesha	Dt	w	Drummer silt loam, gravelly substratum
Waukesha	Gd	w	Gilford loam
Waukesha	Gf	wp	Granby fine sandy loam
Waukesha	GP	p+	Gravel pit
Waukesha	HtA	wp	Houghton muck, 0 to 2 percent slopes
Waukesha	HtB	wp	Houghton muck, 2 to 6 percent slopes
Waukesha	LDF	+	Landfill
Waukesha	Lu	+	Loamy land
Waukesha	M-W	+	Miscellaneous water
Waukesha	Mf	wp	Marsh
Waukesha	Mzb	w	Montgomery silty clay loam
Waukesha	Mzg	wp	Muskego muck
Waukesha	Mzk	w	Mussey loam
Waukesha	Na	w	Navan silt loam
Waukesha	Oc	wp	Ogden muck

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County	Symbol	Restiction	Map Unit Name
Waukesha	Pa	wp	Palms muck
Waukesha	Ph	w	Pella silt loam
Waukesha	Pm	w	Pella silt loam, moderately shallow variant
Waukesha	QUA	r +	Quarry
Waukesha	RkB	r	Ritchey silt loam, 1 to 6 percent slopes
Waukesha	RkC2	r	Ritchey silt loam, 6 to 12 percent slopes, eroded
Waukesha	RkE	r	Ritchey silt loam, 12 to 30 percent slopes
Waukesha	Ru	w	Rollin muck, deep
Waukesha	Rv	w	Rollin muck, shallow
Waukesha	Ry	+	Rough broken land
Waukesha	Sf	+	Sandy and gravelly land
Waukesha	SfB	+	Sandy lake beaches
Waukesha	Sg	w	Sawmill silt loam, calcareous variant
Waukesha	Sm	w	Sebewa silt loam
Waukesha	UA	+	Unmapped area
Waukesha	W	+	Water
Waukesha	Wa	w	Wallkill silt loam
Waukesha	Ww	w	Wet alluvial land
Waupaca	Ax	w	Angelica silt loam
Waupaca	Cm	wp	Cathro and Markey mucks
Waupaca	EcC	p	Elderon-Rosholt complex, 6 to 12 percent slopes
Waupaca	EcD	p	Elderon-Rosholt complex, 12 to 30 percent slopes
Waupaca	Fa	w	Fordum loam
Waupaca	LDF	+	Landfill
Waupaca	Lx	wp	Loxley mucky peat
Waupaca	M-W	+	Miscellaneous water
Waupaca	Mh	w	Meehan loamy sand
Waupaca	MlA	w	Meehan loamy sand, loamy substratum, 0 to 3 percent slopes
Waupaca	Mp	w	Menasha silty clay
Waupaca	Ms	w	Minocqua mucky fine sandy loam
Waupaca	OeA	w	Oesterle sandy loam, 0 to 3 percent slopes
Waupaca	Pe	p+	Pits, gravel
Waupaca	PfA	p	Plainfield loamy sand, 0 to 2 percent slopes
Waupaca	PfB	p	Plainfield loamy sand, 2 to 6 percent slopes
Waupaca	PfC	p	Plainfield loamy sand, 6 to 12 percent slopes
Waupaca	PfD	p	Plainfield loamy sand, 12 to 30 percent slopes
Waupaca	PlB	p	Plainfield loamy sand, loamy substratum, 2 to 6 percent slopes
Waupaca	PmA	p	Plainfield loamy sand, wet substratum, 0 to 3 percent slopes
Waupaca	QUA	r +	Quarry
Waupaca	RfA	p	Richford loamy sand, 0 to 2 percent slopes
Waupaca	RfB	p	Richford loamy sand, 2 to 6 percent slopes
Waupaca	RfC	p	Richford loamy sand, 6 to 12 percent slopes
Waupaca	Rm	wp	Roscommon loamy sand
Waupaca	RrB	r	Rosholt-Rock outcrop complex, 2 to 10 percent slopes
Waupaca	RsA	p	Rousseau loamy fine sand, 0 to 3 percent slopes
Waupaca	Sb	wp	Seelyeville muck
Waupaca	SfB	p	Shawano loamy fine sand, 2 to 6 percent slopes
Waupaca	SfC	p	Shawano loamy fine sand, 6 to 12 percent slopes
Waupaca	SfD	p	Shawano loamy fine sand, 12 to 20 percent slopes
Waupaca	SyA	w	Symco loam, 0 to 3 percent slopes

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Waupaca	UdC	p	Udipsamments, undulating
Waupaca	W	+	Water
Waupaca	Wa	w	Wainola loamy fine sand
Waushara	Ad	wp	Adrian muck, 0 to 1 percent slopes
Waushara	BzD	p	Boyer-Mecosta complex, 12 to 20 percent slopes
Waushara	CoB	p	Coloma loamy sand, 2 to 6 percent slopes
Waushara	CoC	p	Coloma loamy sand, 6 to 12 percent slopes
Waushara	CoD	p	Coloma loamy sand, 12 to 30 percent slopes
Waushara	FkA	w	Fisk loamy sand, 0 to 3 percent slopes
Waushara	Hu	wp	Houghton muck, 0 to 1 percent slopes
Waushara	Hw	w	Houghton muck, ponded, 0 to 1 percent slopes
Waushara	Ke	w	Keowns silt loam, 0 to 2 percent slopes
Waushara	Ks	wp	Kingsville loamy sand, 0 to 2 percent slopes
Waushara	LDF	+	Landfill
Waushara	Le	w	Leola loamy sand, 0 to 2 percent slopes
Waushara	M-W	+	Miscellaneous water
Waushara	MbA	w	Manawa silt loam, 0 to 3 percent slopes
Waushara	MoA	w	Meehan loamy sand, 0 to 3 percent slopes
Waushara	MrA	w	Morocco fine sand, 0 to 3 percent slopes
Waushara	Pa	wp	Palms muck, 0 to 1 percent slopes
Waushara	Pe	p+	Pits, gravel
Waushara	PfA	p	Plainfield sand, 0 to 2 percent slopes
Waushara	PfB	p	Plainfield sand, 2 to 6 percent slopes
Waushara	PfC	p	Plainfield sand, 6 to 12 percent slopes
Waushara	PfD	p	Plainfield sand, 12 to 30 percent slopes
Waushara	PlB	p	Plainfield sand, loamy substratum, 2 to 6 percent slopes
Waushara	PmA	p	Plainfield sand, wet substratum, 0 to 3 percent slopes
Waushara	Py	w	Poygan silty clay loam, 0 to 2 percent slopes
Waushara	RfA	p	Richford loamy sand, 0 to 2 percent slopes
Waushara	RfB	p	Richford loamy sand, 2 to 6 percent slopes
Waushara	RfC	p	Richford loamy sand, 6 to 12 percent slopes
Waushara	RfD	p	Richford loamy sand, 12 to 20 percent slopes
Waushara	Sp	p	Sparta loamy sand, 0 to 2 percent slopes
Waushara	SwA	w	Symco loamy fine sand, 0 to 3 percent slopes
Waushara	SyA	w	Symco silt loam, 0 to 3 percent slopes
Waushara	W	+	Water
Waushara	Wm	wp	Willette muck, 0 to 1 percent slopes
Waushara	YaA	w	Yahara very fine sandy loam, 0 to 3 percent slopes
Waushara	ZtA	w	Zittau clay, 0 to 3 percent slopes
Waushara	ZvA	w	Zittau variant clay, 0 to 3 percent slopes
Winnebago	Ak	wp	Adrian muck
Winnebago	AtA	w	Atterberry silt loam, 0 to 3 percent slopes
Winnebago	BrB	wp	Brems fine sand, 1 to 4 percent slopes
Winnebago	Ed	w	Edwards muck
Winnebago	FkA	w	Fisk loamy fine sand, 0 to 3 percent slopes
Winnebago	Fn	w+	Fluvaquents
Winnebago	Hu	wp	Houghton muck
Winnebago	Hw	w	Houghton muck, ponded
Winnebago	Ke	w	Keowns silt loam
Winnebago	Ks	wp	Kingsville mucky loamy fine sand

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Winnebago	LDF	+	Landfill
Winnebago	LmA	w	Lamartine silt loam, 0 to 3 percent slopes
Winnebago	M-W	+	Miscellaneous water
Winnebago	MaA	w	Manawa silty clay loam, 0 to 3 percent slopes
Winnebago	Mn	w	Menasha clay
Winnebago	MoA	w	Morocco loamy fine sand, 0 to 3 percent slopes
Winnebago	NnA	w	Nenno loam, 0 to 3 percent slopes
Winnebago	OaB	p	Oakville fine sand, 2 to 6 percent slopes
Winnebago	OaC	p	Oakville fine sand, 6 to 12 percent slopes
Winnebago	Os	w	Ossian silt loam
Winnebago	Pa	wp	Palms muck
Winnebago	Pg	p+	Pits, gravel
Winnebago	Ph	rp+	Pits, quarries
Winnebago	Pu	w	Poygan silty clay loam
Winnebago	RhB	r	Ritchey silt loam, 2 to 6 percent slopes
Winnebago	RhC2	r	Ritchey silt loam, 6 to 12 percent slopes, eroded
Winnebago	RhD2	r	Ritchey silt loam, 12 to 30 percent slopes, eroded
Winnebago	UoA	+	Udorthents, 0 to 3 percent slopes
Winnebago	W	+	Water greater than 40 acres
Winnebago	Wm	wp	Willette muck
Winnebago	YaA	w	Yahara silt loam, 0 to 3 percent slopes
Winnebago	ZtA	w	Zittau silty clay loam, 0 to 3 percent slopes
Wood	Aa	+	Alluvial land
Wood	Ab	w	Alluvial land, wet
Wood	Af	w	Altdorf silt loam
Wood	Au	w	Au Gres loamy sand
Wood	Ca	wp	Cathro mucky peat
Wood	CrA	p	Croswell loamy sand, 0 to 3 percent slopes
Wood	Da	w	Dancy sandy loam
Wood	Db	wp	Dawson peat
Wood	Dc	wp	Dawson mucky peat
Wood	Do	w	Dolph silt loam
Wood	EkB	r	Elkmound sandy loam, 2 to 6 percent slopes
Wood	EkC	r	Elkmound sandy loam, 6 to 12 percent slopes
Wood	EkD2	r	Elkmound sandy loam, 12 to 20 percent slopes, eroded
Wood	Em	wp	Elm Lake loamy sand
Wood	FrA	p	Friendship loamy sand, 1 to 3 percent slopes
Wood	GP	p+	Gravel pit
Wood	Gr	wp	Greenwood peat
Wood	LDF	+	Landfill
Wood	M-W	+	Miscellaneous water
Wood	Ma	w	Mann silt loam
Wood	Mc	wp	Markey mucky peat
Wood	Md	w	Marsh
Wood	Mf	w	Marshfield silt loam
Wood	Mh	w	Meehan loamy sand
Wood	MpA	w	Merrillan sandy loam, 1 to 3 percent slopes
Wood	Mr	w	Milladore silt loam
Wood	Ne	wp	Newson loamy sand
Wood	NoB	r	Norgo silt loam, 2 to 6 percent slopes

Soil Map units with 590 Restrictions due to potential for nitrate leaching to ground water:

p = hydrologic group A (highly permiable soil)
w = average water table at less than 12 inches for any duration at any time of the year
r = average rock depth of less than 20 inches (any kind or bedrock)
+ = the map unit may have multiple restrictions. An on-site investigation is needed to identify which restrictions may actually be present

County	Symbol	Restiction	Map Unit Name
Wood	NoC2	r	Norgo silt loam, 6 to 12 percent slopes, eroded
Wood	NoD2	r	Norgo silt loam, 12 to 20 percent slopes, eroded
Wood	NyA	p	Nymore loamy sand, 0 to 2 percent slopes
Wood	NzA	p	Nymore loamy sand, red subsoil, 0 to 2 percent slopes
Wood	NzB	p	Nymore loamy sand, red subsoil, 2 to 6 percent slopes
Wood	PbB	p	Plainbo sand, 2 to 12 percent slopes
Wood	PbD	p	Plainbo sand, 12 to 30 percent slopes
Wood	PfA	p	Plainfield sand, 0 to 2 percent slopes
Wood	PfB	p	Plainfield sand, 2 to 6 percent slopes
Wood	PfC	p	Plainfield sand, 6 to 12 percent slopes
Wood	PfE	p	Plainfield sand, 12 to 35 percent slopes
Wood	PgA	p	Plainfield loamy sand, 0 to 2 percent slopes
Wood	PgB	p	Plainfield loamy sand, 2 to 6 percent slopes
Wood	PoB	w	Point loamy sand, 2 to 6 percent slopes
Wood	Ps	w	Poskin silt loam
Wood	Pw	wp	Psammaquents, nearly level
Wood	Rb	w	Rib silt loam
Wood	ReB	w	Rietbrock silt loam, 2 to 6 percent slopes
Wood	ReC	w	Rietbrock silt loam, 6 to 12 percent slopes
Wood	Rf	wp	Rifle mucky peat
Wood	Rg	wp	Rifle peat
Wood	Sh	w	Sherry silt loam
Wood	Ss	w	Sherry stony silt loam
Wood	Ve	w	Veedum silt loam
Wood	Vs	w	Vesper silt loam
Wood	W	+	Water
Wood	WeA	w	Withee silt loam, 0 to 2 percent slopes
Wood	WeB	w	Withee silt loam, 2 to 6 percent slopes

APPENDIX 2

CERTIFIED SOIL TEST LABORATORIES

The following laboratories have been approved as of the publication date of this document.

UW Soil & Plant Analysis Laboratory
5711 Mineral Point Road
Madison, WI 53705
Ph: (608) 262-4364

UW Soil & Forage Laboratory
8396 Yellowstone Drive
Marshfield, WI 54449
Ph: (715) 387-2523

Rock River Laboratory
710 Commerce Drive
P. O. Box 169
Watertown, WI 53094
Ph: (920) 261-0446

Dairyland Laboratories
217 E. Main Street
Arcadia, WI 54612
Ph: (608) 323-2123

Agsource Soil & Forage Laboratory
106 N. Cecil Street
Bonduel, WI 54107
Ph: (715) 758-2178

A&L Great Lakes Laboratories
3505 Conestoga Drive
Fort Wayne, IN 46808
Ph: (260) 483-4759

Mowers Soil Testing Plus, Inc.
117 E. Main Street
Toulon, IL 61483
Ph: (309) 286-2761

APPENDIX 3

NUTRIENT MANAGEMENT FOR WISCONSIN CRANBERRY PRODUCTION

This appendix to the Wisconsin Conservation Planning Technical Note WI-1 ("the technical note") has been developed in order to provide guidance for nutrient management planning on cranberry production systems. A cranberry nutrient management plan that meets the criteria included in this appendix should satisfy the requirements of the Wisconsin NRCS Nutrient Management Conservation Practice Technical Standard ("the 590 standard") and the technical note. Reference is made to particular sections of the 590 standard and the technical note, where special attention may be needed.

The guidance and instructions included in this appendix are in addition to those found in the 590 standard. Implementation of a plan developed based upon the guidance included in this document must be in accordance with the 590 standard. Federal, state, and local laws may provide additional requirements.

This appendix provides detailed guidance on the following:

Section I: Criteria Unique to Cranberry Nutrient Management Planning

Section II: Cranberry Nutrient Management Tables

Section III: Cranberry Nutrient Management Plan Outline and Optional Forms

Section I: Criteria Unique to Cranberry Nutrient Management Planning

I. General

A. Cranberry nutrient management planning shall be based on plant tissue analysis. Plant tissue analysis shall be performed annually, on each individual nutrient management unit, in accordance with *Cranberry Tissue Testing for Producing Beds in North America* (Extension publication EM-8610). Tissue analysis should be performed by a reputable laboratory—preferably one that participates in the North American Proficiency Testing Program. A minimum of one sample shall be collected per management unit per year. In addition, a total of at least one sample per 5 acres of cranberry beds, within each nutrient management unit, shall be collected every 4 years. (For example, on a 25-acre nutrient management unit, collect at least one tissue sample every year and a total of at least 5 samples over a 4-year period.) Refer to EM-8610 and "How to Take a Cranberry Tissue Sample," (Teryl R. Roper, Professor and Extension Fruit Crops Specialist, UW-Madison, 2006) for further guidance.

B. Soil fertility analysis should also be considered in cranberry nutrient management planning. Soil samples must be analyzed by an approved Wisconsin laboratory. (Refer to Appendix 2 of this technical note for contact information.) Consider collecting a total of at least one composite sample per 5 acres of producing cranberry beds, within each nutrient management unit, every 4 years. Refer to *Sampling Soils for Testing* (UW-Extension publication A2100) and "How to Take a Cranberry Soil Sample," (Teryl R. Roper, Professor and Extension Fruit Crops Specialist, UW-Madison, 2006) for further guidance.

C. Additional considerations in cranberry nutrient management planning should include monitoring and observation of plant vigor and appearance, production history, and grower experience, in addition to the considerations described in the Extension publications referenced in this document.

D. Ensure that application equipment is properly calibrated.

E. Applications of nutrient and soil amendments should not be made when soil temperatures are low (<50 deg. F) or fields are saturated with water.

F. Applications of nutrient and soil amendments should be rescheduled when predicted weather conditions are likely to transport these amendments to non-target areas (*i.e.* precipitation events, planned irrigation events, frost protection events, etc.). The nutrient management plan shall document mitigation practices to be implemented when rescheduling is not possible.

G. An analysis of the water chemistry of irrigation and/or flood water should be

considered when the conservation planning resource assessment has identified that water chemistry may significantly influence nutrient management by altering soil acidity and/or resulting in the application of significant quantities of plant nutrients.

H. Efforts should be made to limit the detachment and transport of vegetation and soil materials (i.e. material that is removed or disturbed in the processes of bed renovation/construction or managed "floods"), which may result in the deposition of these materials into surface waters.

II. Soil Acidity

A. Maintain soil pH at or below 6.0, where practical. The "target pH" is 5.6 for mineral soils and 5.4 for organic soils, as identified in *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin* (UWEX publication A2809). Note circumstances where the difference between the actual soil pH and the target pH is greater than 0.5, and describe procedures utilized to adjust pH, if such efforts are made.

B. Annual sulfur applications should not exceed 500 lbs elemental S per acre.

C. Individual sulfur applications should not exceed 150 lbs elemental S per acre.

III. Nitrogen (for producing beds)

A. Nitrogen management strategies shall be in accordance with *Nitrogen for Bearing Cranberries in North America* (Extension publication EM-8741). Note: Hybrid varieties, such as Stevens and Pilgrim, may benefit from tissue-N concentrations up to 1.3% (2006 Wisconsin Cranberry School Proceedings, Teryl Roper, UW-Extension).

B. Ammonium or urea forms of nitrogen fertilizer should be used.

C. Individual nitrogen applications should not exceed 20 lbs/ac.

D. Identify and implement water quality mitigation practices for beds where soil pH is greater than 5.5 and 70 lbs or more of nitrogen fertilizer are applied per acre per year.

E. Annual applications of fertilizer containing N should be made using a minimum of three passes, unless total planned applications for the season do not exceed 20 lbs N per acre.

F. Applications of fertilizer containing N should be timed to coincide with peak crop demand (active growth).

IV. Phosphorous (for producing beds)

A. Phosphorous management strategies shall be in accordance with *Phosphorous for Bearing Cranberries in North America* (UW-Extension publication, Nov. 2004).

B. Annual phosphorous applications shall not exceed 20 lbs actual P per acre (~45 lbs P_2O_5 per acre), unless the need for additional annual P is documented by plant tissue analysis or other considerations as outlined in *Phosphorous for Bearing Cranberries in North America*.

C. Develop a fertilizer reduction strategy where planned, annual applications of phosphorous fertilizer exceed 20 lbs actual P per acre (~45 lbs P_2O_5 per acre), on producing beds; tissue analysis demonstrates that nutrient concentrations are within or exceed recommended levels; and no deficiency of phosphorous has been demonstrated through soil fertility analysis. Cranberry tissue nutrient content guidelines for producing beds and soil test interpretation categories for phosphorous are summarized in Section II of this appendix.

D. Applications of fertilizer containing P should be timed to coincide with peak crop demand (hook to fruit set). Multiple, lighter applications of fertilizer containing P are preferred over fewer, heavier applications.

V. Potassium (for producing beds)

A. The goal of potassium fertility management should be to maintain plant tissue concentrations within the recommended range (refer to EM-8610 or Section II).

B. Large doses of potassium fertilizer have the potential to disrupt the balance of available cations (positively-charged ions) in the soil. Because of this, individual applications of fertilizer containing potassium should not exceed ~62 lbs actual K per acre (75 lbs K_20 per acre).

C. Multiple, lighter applications of fertilizer containing K are preferred over fewer, heavier applications.

VI. New Plantings

A. Nutrient management strategies for new plantings shall be based upon soil fertility analysis and consideration of soil characteristics. Collect soil samples for analysis at a rate of one composite sample per 5 acres of cranberry beds after the beds have been prepared for planting. Refer to UWEX publication A2809, or Section II of this Appendix, for fertilizer application guidelines based on soil test results.

B. Annual applications of nitrogen should not exceed 150 lbs/ac.

C. Individual applications of fertilizer should not exceed 15 lbs N per acre.

D. If fertilizers containing phosphorous and/or potassium are to be applied after the plants have become established, consider alternating fertilizer applications between nitrogen-only products [i.e. urea or ammonium sulfate (21-0-0)] and complete, N-P-K blends [i.e. 13-13-13, 10-10-30, or similar products].

E. Pre-plant applications of fertilizer containing phosphorous and/or potassium should be incorporated into the soil. Applications must be based upon soil test results and UW-Extension guidelines (see A2809 or Section II of this Appendix).

F. Frequent, lighter applications of fertilizers are preferred on new plantings over fewer, heavier applications.

SECTION II: CRANBERRY NUTRIENT MANAGEMENT TABLES

Table 1: Soil test interpretation categories for phosphorous (P) and potassium (K) for *common cranberry soils:

Nutrient	Very Low	Low	Optimum	High	Very High	Excessively High
P (ppm)	<18	18-25	26-37	38-55		>55
K (ppm)	<50	50-80	81-120	121-160	161-220	>220

*These categories apply to Subsoil Group E [Sandy, coarse-textured soils (sands and loamy sands)] and Subsoil Group O [Organic soils (mucks and peats)], as defined in *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin* (UWEX publication A2809). Refer to A2809 if the dominant soil type does not meet either of these descriptions.

Table 2: Phosphorous and potassium fertilizer application rate guidelines [from UWEX publication A2809]:

Fertilizer Component	Very Low	Low	Optimum	High	Very High	Excessively High
P_2O_5 (lbs/ac)	†200	†125	NA	NA	--	NA
K_2O (lbs/ac)	†250	†200	NA	NA	NA	NA

†**These rates are only applicable prior to cranberry bed establishment**. Incorporate all P_2O_5 and K_2O before planting. For established cranberry beds, use tissue testing to guide fertilizer application rates.

Table 3: Cranberry tissue nutrient content guidelines for producing beds:

Nutrient	Normal Concentration (%)	Nutrient	Normal Concentration (ppm)
Nitrogen (N)	0.90 – ‡1.10	Boron (B)	15 – 60
Phosphorous (P)	0.10 – 0.20	Iron (Fe)	>20
Potassium (K)	0.40 – 0.75	Manganese (Mn)	>10
Calcium (Ca)	0.30 – 0.80	Zinc (Zn)	15 – 30
Magnesium (Mg)	0.15 – 0.25	Copper (Cu)	4 – 10
Sulfur (S)	0.08 – 0.25		

‡Hybrid varieties, such as Stevens and Pilgrim, may benefit from tissue-N concentrations of up to 1.30%.

SECTION III: CRANBERRY NUTRIENT MANAGEMENT PLAN OUTLINE AND OPTIONAL FORMS

A cranberry nutrient management plan shall be developed according to the 590 standard, as well as the criteria included in this technical note. The following outline should be used as a guide in the development of a cranberry nutrient management plan. The attached forms may be useful tools when developing a plan. These forms are not required. [Bracketed references to individual forms are included, for guidance, within this outline.] Note: Completing the optional forms may satisfy some of the items listed below. However, use of the optional forms will not preclude the need to develop a plan narrative, as some items will require further explanation.

Consider organizing the plan around nutrient management units. *Nutrient management units are groups of fields or beds that are managed similarly. A single management unit may include a group of beds with similar soil conditions, production status (new plantings, plantings of similar age, fresh-fruit beds, non-producing beds, etc.), or other considerations, which allow the unit to be managed as a whole.*

A cranberry nutrient management plan should satisfy the requirements of the 590 standard by satisfying the following items, as well as the criteria outlined in Section I of this appendix:

I. Plan Narrative:

The purpose of the narrative is to provide an overview of the operation and describe the nutrient management strategies for the growing season, including descriptions of how the plan will be implemented and why the proposed strategies were selected. The narrative should provide an overview of the operation, identify the nutrient management units on the marsh, explain past practices and results, explain how current strategies have been developed or refined, and discuss potential factors that may cause deviation from the intended strategies. The narrative should explain how the nutrient management plan will be implemented, with an explanation of how nutrient management decisions will be made.

A. Identify nutrient management units and include the following information:

[*Management Unit Identification Worksheet*]

1. Current production status.
2. A general description of the soil, including subsoil characteristics and soil characteristics within the rooting zone. Explain bed construction/renovation and management histories, including sanding practices. Focus on those characteristics and past activities that may influence nutrient management.

B. Summarize records of nutrient and soil amendment applications, tissue and soil fertility test results, and crop yields from previous years. If available, records from the most recent four years should be summarized in the narrative and either included with the plan or referenced if available in another format or easily accessible location. Include the following details per individual management unit:

[*5-Year Nutrient Management Summary per Management Unit*]

1. Applications of commercial fertilizers, organic byproducts (i.e. fish waste), and soil amendments (i.e. elemental sulfur), including the form, rate, and timing.
2. Plant tissue analysis results.
3. Soil fertility analysis results.
4. Historic crop yields.

C. Planned nutrient and soil amendment applications, including the rate, form, and timing. In addition, identify anticipated or expected yields per management unit. These should be based on historical production records, crop conditions, crop varieties grown, and grower experience.

[*Planned Nutrient Management Practices* worksheet]

[*Fertilizer Decision-Making Checklist*]

II. Aerial photographs and/or maps of the farm containing:

A. Boundaries, identification numbers, and acreage for all beds and nutrient management units. The Wisconsin DNR has a free, internet mapping program, which may be used to generate marsh maps based on aerial photography or topographic maps: http://maps.dnr.state.wi.us.

B. A soil map. NRCS has a free, internet mapping program, which may be used to generate soil maps: http://websoilsurvey.nrcs.usda.gov.

C. Locate and identify features that require additional protection. These may include groundwater risk areas (i.e. abandoned wells), surface water risk areas (i.e. water conveyance ditches, reservoirs, streams or lakes, wetlands, etc.), or other sensitive areas. Delineate boundaries for nutrient application restriction areas. Consider depicting routes of surface water flow, reservoirs, and key surface water control points (i.e. water control structures or bulkheads), which allow for the storage or recovery of discharges from beds. Include a legend of map symbols.

III. Documentation of nutrient management activities:

Document the following within-season activities per individual nutrient management unit:

A. Actual nutrient and soil amendment applications, including the rate, form, and timing.

[*Actual Nutrient Management Practices* worksheet]

B. Monitoring efforts (i.e. measurements of crop potential, upright growth, soil temperatures, precipitation, etc.) and observations (i.e. plant vigor and appearance, weather events and climatic conditions, etc.) made in support of nutrient management decisions. Nutrient management activities that are inconsistent with the plan narrative should be documented.

[Annual Nutrient Management Observation Checklist]

*****Cranberry Nutrient Management Optional Forms are included on the following pages*****

Marsh: _____ Plan Year:_____

NUTRIENT MANAGEMENT PLAN

Landowner:

Address:

Contact Person:_____ Title:_____

Telephone No.: _____ Email:_____

County: _____ Township:_____

Legal Description:

Nutrient Management Plan Acceptance

I/we have reviewed and do accept the attached plan. I/we agree to implement this plan, for the crop year identified in the plan. I/we agree that implementation of this plan shall be in accordance with the NRCS Conservation Practice Standard 590, Nutrient Management. I/we recognize that this is a management plan that should be reviewed and updated annually, with the help of a qualified technical specialist.

Signed: _____Date: _____

Developed by: _____Date: _____

Approved by: _____Date: _____

Planner's/Review's Qualifications: _____

Marsh: _____ Plan Year:_____

Plan Narrative Supplemental Worksheet

Describe how fertilizers and soil amendments are applied:

_____

_____

_____

Discuss the weather/climatic considerations that go into deciding when/if to make a fertilizer application. [In which situations will applications be cancelled or rescheduled?]

_____

_____

_____

Discuss the monitoring and observations of plant vigor and appearance that go into deciding when/if to make a fertilizer or soil amendment application.

_____

_____

_____

Describe how and when fertilizer/soil amendment application equipment is calibrated:

_____

_____

_____

Are you planning to renovate beds this season? ☐ Yes ☐ No

If so – and if that process will include the removal and relocation of vegetation and/or soil materials – please explain how those materials will be utilized or disposed of:

_____

_____

_____

Marsh: _____ Plan Year:_____

Management Unit Identification Worksheet

Management Unit Name: Total Acres:

[Include one worksheet per management unit. Alternatively, attach "Exhibit A" or similar maps to your plan, with management units delineated, and describe the individual units in your plan narrative.]

Bed ID	Acres	*Variety	Production Status†	Year Planted	Bed ID	Acres	*Variety	Production Status†	Year Planted

*Use abbreviations such as *BL* for Ben Lear, *ST* for Stevens, *SE* for Searles, etc., as appropriate.

†Use words such as *fresh*, *process*, *out*, and *new* for fresh fruit, processed fruit, beds out of production, and new plantings.

Describe the soil conditions within the management unit (including history of, and plans for, sanding and bed renovations):

_____

_____

_____

_____

_____

_____

Marsh: _____ Plan Year:_____

5-Year Nutrient Management Summary per Management Unit

Management Unit: _____

Total Acres: _____

Recommendations		Units		Year x-4	Year x-3	Year x-2	Year x-1	This Yr. (x)	5-Year Averages
Yield		bbl/ac	MAX						
			AVG						
			MIN						
N Fertilizer Applications		lbs N/ac	MAX						
			AVG						
N Tissue Concentration	*1.10 to 0.90	%	MAX						
			AVG						
			MIN						
P Fertilizer Applications	≤45	lbs P2O5/ac	MAX						
			AVG						
	≤20	lbs P/ac	MAX						
			AVG						
P Tissue Concentration	0.20 to 0.10	%	MAX						
			AVG						
			MIN						
P Soil Test [DATCP-certified lab]	37 Optimum Range 26	ppm	MAX						
			AVG						
			MIN						
K Fertilizer Applications		lbs K2O/ac	MAX						
			AVG						
		lbs K/ac	MAX						
			AVG						
K Tissue Concentration	0.75 to 0.40	%	MAX						
			AVG						
			MIN						
K Soil Test [DATCP-certified lab]	120 Optimum Range 81	ppm	MAX						
			AVG						
			MIN						
Soil Acidity	≤6.0	pH	MAX						
			AVG						
			MIN						
Elemental S Applications	≤500	lbs/ac	MAX						
			AVG						

* Hybrid varieties, such as Stevens and Pilgrim, may benefit from tissue-N concentrations of up to 1.3%

Marsh: _____ Plan Year: _____

Planned Nutrient Management Practices

Management Unit: Yield Goal (bbl/ac):

Average of Prior-Year Yields (bbl/ac): No. of Years Included in Avg. Yield (3-5 recommended):

Approximate Timing	**Product** (i.e. 9-20-19)	**Rate** (lbs/ac)	**Nitrogen** (lbs/ac)	**P2O5** (lbs/ac)	**K2O** (lbs/ac)	**Sulfur** (lbs/ac)	**Other____** (lbs/ac)	**Other____** (lbs/ac)
	Totals (N-P2O5-K2O):							
	Totals (Actual N-P-K):							
Most recent Maximums, Averages, and Minimums for beds included within this management unit:	MAX Tissue (%):							
	AVG Tissue (%):							
	MIN Tissue (%):							
	MAX Soil (ppm):	OM%:			pH:			
	AVG Soil (ppm):	OM%:			pH:			
	MIN Soil (ppm):	OM%:			pH:			

Describe planned variations within this unit (i.e. sanded beds, new plantings, low-yielding beds, frost/pest damage, etc.):

_____

_____

If required, describe phosphorous fertilizer reduction strategy: _____

_____

_____

Describe soil/tissue testing strategy: _____

_____

_____

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Marsh: _____ Plan Year: _____

Actual Nutrient Management Practices

Management Unit: _____

Method of Application: A = Air, BG = Boom/granular; BL = Boom/liquid; S = Sprinkler

Date	**Product** (i.e. 9-20-19)	**Rate** (lbs/ac)	**Beds Applied To**	^ **Method**	**N** (lbs/ac)	**P_2O_5** (lbs/ac)	**K_2O** (lbs/ac)	**Sulfur** (lbs/ac)	**Other____** (lbs/ac)	**Other____** (lbs/ac)
				Totals (N-P2O5-K2O):						
				Totals (Actual N-P-K):						

Notes & observations (including deviations from original plan):

_____

_____

_____

_____

_____

_____

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Marsh: _____ Plan Year: _____

Annual Nutrient Management Observation Checklist

Use one form per management unit per year.

Management Unit: _____Plan Year: _____

	Date of Observation	Notes
Are you producing a crop this year?		
General condition of the management unit		
Vine stresses: Winter injury? Mechanical damage? *Phytophthora* root rot?		
Frost damage?		
Sanded? Pruned? Mowed? (When?)		
Insect infestations affecting yield?		
Date of 55 ºF soil temperature		
Upright length (vegetative and flowering uprights)	June	
Runners present?		
Upright density		
Leaf color		Green Pale green Off color
Crop potential - flowers and density of flowering uprights		Excellent Good Fair Poor None
Additional observations		

Adapted from Massachusetts NRCS

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Marsh: _____ Plan Year: _____

Fertilizer Decision-Making Checklist – N rate

Use one form per management unit per year. Recommendations are listed below each question.

Management Unit: _____Plan Year: _____

	Yes/No	Notes/Action Taken
Crop produced? (use less)		
Bog renovated? Soil test organic matter <1%? (use more)		
Rate adjusted for variety?		
Is subsoil peat? (use less)		
Is bog built on mineral soil? (use more in small increments)		
Is organic matter in soil test >3% (use less in spring)		
Was bog sanded this year? (use less in spring)		
Was bog pruned or mowed? (less if pruned, more if mowed)		
Was previous crop abnormal? (less if light, more if heavy)		
Was tissue test N abnormal? (less if >1.1%, more if <0.75%)		
Is upright length abnormal? (less if >4" or many runners, more if <2" above flowers)		
Is stand density adequate? (less if rank, more if thin)		
Is bloom adequate? Frost? (less if limited, more if heavy)		
Has insect or disease damage limited crop potential? (use less)		
Are vines yellowed? (check for other issues; use more)		
Base nitrogen fertilizer rate (list planned minimum or range)	lbs/ac	Notes:

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Page ___ of ___

Marsh: _____ Plan Year: _____

Fertilizer Decision-Making Checklist – P Rate

Use one form per management unit per year.

Management Unit: _____Plan Year:

	yes/no	Recommendation	Action/ rate used
Tissue test P >0.1%?		If yes - use N-P-K with 1:2 ratio; 20 lb/a P If no - go to next line	
Is tissue test <0.1%? Is soil test (Bray) >20 ppm?		If yes - use a foliar P pre-bloom (2-4 lb/a P) If no - go to next line	
Is tissue test <0.1%? Is soil test (Bray) <20 ppm?		If yes - use N-P-K with 1:3 or greater ratio	
Is soil test (Bray) >80 ppm?		If yes - avoid high P fertilizers, 1:1 ratio is recommended	

Adapted from Massachusetts NRCS

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