Combs & Associates Inc

- Land Surveying
- Land Planning
- Civil Engineering

STORM WATER MANAGEMENT

and

EROSION CONTROL PLAN

New Storage Buildings for 24hr Home Comfort Services

310 Sunnyside Drive

Milton, Wisconsin

April 22, 2020

109 W. Milwaukee St. • Janesville, WI 53548 • 608-752-0575 • Fax 608-752-0534
CombsSurvey.com

PROJECT DESCRIPTION

This "infill" development project includes the construction of five new metal buildings, with bituminous lanes, and drainage improvements on a site disturbing approximately 2.3 acres of a 4.28 acre property. The site is located at 310 Sunnyside Drive in Milton, Wisconsin.

Pre-Development:
The property currently contains three metal buildings and associated bituminous drives and lanes throughout its western half. The most recent construction, including that of the pond, occurred in 2013. The proposed improvements will lie on the eastern half, currently being undeveloped, relatively flat mowed grass area. The site currently drains gently overland to the northwest (see site topography), to an existing pond lying in the westerly developed area. That pond discharges to public storm sewer in Sunnyside Drive. On-site soils, as depicted in the Rock County Soil Survey, are Plano silt loam, gravelly substratum, 0 to 2 percent slopes (PmA).

Post-Development:
This project includes construction of five new mini-warehouse buildings, totaling 36,800 sf (each ranging from 2,400 sf to 9,200 sf) along with associated paved lanes. Some pavement demolition and gravel removal for new paving is proposed. Additionally, storm water management improvements consisting of a vegetated swale and a bio-filter will be constructed. The swale and the bio-filter will be sized to handle the increase in TSS due to the construction of the buildings and pavement. The bio-filter will release via infiltration and overtopping to the existing pond in larger events (see drainage plan).

Site plan documents and supporting information for are included with this submittal package.

The developed site will include a total of 36,800 sf of roof, 39,750 sf of gross paved parking areas (while removing 7,000 sf bituminous and 3,300 sf gravel in those areas), and a storm water management area.

STORM WATER MANAGEMENT

The developed site will drain, via the swale – or directly to – the new bio-filter area north of the buildings and pavement. This management area includes a 450-foot long grass swale and a new bio-filter (900 sf), and makes use of the existing depression and culvert relay to the existing detention pond. The detention pond was constructed in 2013 in accordance with the plans and permits in effect at that time.

The swale will be seeded with matching native turf grass, and the bio-filter will be seeded with a wet prairie seed mix.

Storm water performance standards

City of Milton and WDNR require storm water management performance standards for post-construction in-fill sites, as follows for peak flow, infiltration, and total suspended solids removal.

Methodologies

WinSlamm software is used to determine infiltration and Total Suspended Solids (TSS) removal.
Average Annual Rainfall: 28.81 inches, Madison, 1981
(March 12 to December 2)

Peak Flow: Per NR 151.123 (2)(c), an infill of less than 5 acres is **exempt** from peak flow control.

Total Suspended Solids (TSS) removal: Reduce TSS load by 80% based on an average annual rainfall, as compared to no runoff management controls (NR 151.122 (1) Table 1) for an infill less than 5 acres.

A 450-foot long grass swale, leading to a bio-filter with a total area of **900** sf will be constructed in the storm water management area. This swale/filter system will provide TSS removal and infiltration of storm water. The results of the modeling indicate an ***86.3%*** reduction in TSS (see attached WinSlamm 10.4.0 modeling results).

Worksheets and input/output data for the ***SLAMM*** modeling are included with this report.

Infiltration Requirement: NR 151.124 (3)(b)(4) An in-fill development area less than 5 acres is **exempt** from infiltration.

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CERTIFIED SURVEY MAP OF

PART OF LOT 2 OF A CERTIFIED SURVEY MAP AS RECORDED IN VOLUME 15, PAGES 162 THRU 164, LOCATED IN THE SE.1/4 OF THE SW.1/4 OF SECTION 26, T.4N., R.13E. OF THE 4TH P.M., CITY OF MILTON, ROCK COUNTY, WISCONSIN.

CITY OF MILTON APPROVAL

Approved by the City Plan Commission this 17 day of October, 1994, and the City Council this 18 day of October, 1994.

City Clerk Doris E. Viney

NOTE: This survey is subject to any and all easements and agreements, recorded or unrecorded.

NOTE: Assumed EAST along the South Line of the S.W 1/4 of Section 26-4-13.

THERE ARE NO OBJECTIONS TO THIS PLAT WITH RESPECT TO SECTION 236.12(2) (B) OF THE W.S. ONSIN STATUTES.
CERTIFIED THIS 24th DAY OF Oct. 1994
James Sumstad SECRETARY
ROCK COUNTY PLANNI..G & D.VELOPMENT COMMITTEE

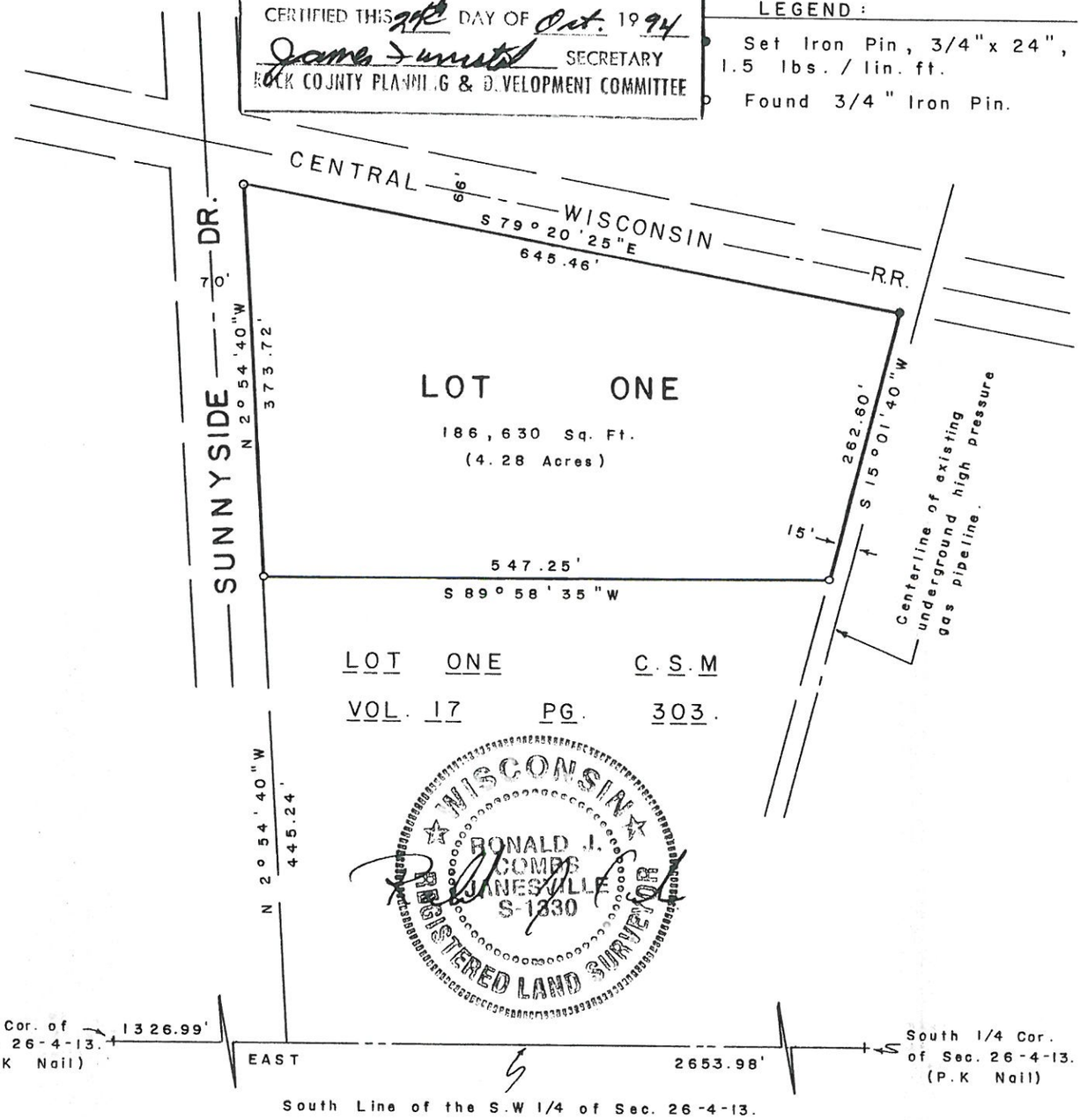
N

SCALE: 1" = 150'

0' 25' 50' 100' 200' 300'

LEGEND:

- Set Iron Pin, 3/4"x 24", 1.5 lbs./lin. ft.
- Found 3/4" Iron Pin.



SHEET ONE OF TWO SHEETS

Order No. 94-464-for-City of Milton

4th

CERTIFIED SURVEY MAP

PART OF LOT 2 OF A CERTIFIED SURVEY MAP AS RECORDED IN VOLUME 15, PAGES 162 THRU 164, LOCATED IN THE SE.1/4 OF THE SW.1/4 OF SECTION 26, T.4N., R.13E. OF THE 4TH P.M., CITY OF MILTON, ROCK COUNTY, WISCONSIN.

SURVEYOR'S CERTIFICATE

State of Wisconsin
County of Rock SS. I, Ronald J. Combs, a Registered Land Surveyor, do hereby certify that I have surveyed, divided, and mapped part of Lot 2 of a Certified Survey Map as recorded in Volume 15, Pages 162 thru 164, located in the SE.1/4 of the SW.1/4 of Section 26, T.4N., R.13E. of the 4th P.M., City of Milton, Rock County, Wisconsin, DESCRIBED AS FOLLOWS: Commencing at a PK Nail at the SW Corner of said Section 26; thence East (assumed) along the South Line of the SW.1/4 of said Section, 1326.99 feet; thence N.2°54'40"W. 445.24 feet to the NW Corner of Lot One of a Certified Survey Map as recorded in Volume 17, Pages 303 and 304, also being at the place of beginning for the land to be herein described; thence continuing N.2°-54'40"W. 373.72 feet to the NW Corner of said Lot 2 (Volume 15, Pages 162 thru 164); thence S.79°20'25"E. 645.46 feet; thence S.15°01'40"W. 262.60 feet to the NE Corner of said Lot One; thence S.89°58'35"W. 547.25 feet to the place of beginning. Containing 4.28 acres. That such map is a correct representation of all of the exterior boundaries of the land surveyed and the division of that land. That I have made such survey, division and map by the direction of City of Milton and that I have fully complied with the provisions of Chapter 236.34 of the Wisconsin Statutes in surveying, dividing and mapping the same.

Given under my hand and seal this 11th day of October, 1994 at Janesville, Wisconsin.

CORPORATE OWNER'S CERTIFICATE

As owners, the City of Milton, a Municipal Corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin caused the land described on this map to be surveyed, mapped, divided and dedicated as represented hereon. IN WITNESS WHEREOF, the said City of Milton has caused these presents to be signed by Richard Dalson, its Mayor and countersigned by Doris E. Viney, its City Clerk, at Milton, Wisconsin.

Richard Dalson
Mayor

Doris E. Viney
City Clerk

State of Wisconsin
County of Rock SS. Personally came before me this 17th day of October, 1994, Richard Dalson, Mayor and Doris E. Viney, City Clerk of the above named corporation, to me known to be the persons who executed the foregoing instrument and to me known to be such officers of said corporation, and acknowledged that they executed the foregoing instrument as such officers as deed of said corporation, by its authority.

Notary Public, Rock County, Wisconsin Vicki L. Heritage
My Commission expires: 1-28-1996

RECORDING DATA
No. 1248153 received for Record this 27 day of October, 1994, at 9:40 o'clock A.M., and recorded in Volume 17, Pages 464 & 465 of Certified Survey Maps of Rock County, Wisconsin.
Card 742 Image 793 & 794
Register Donna L. Berkley

WISCONSIN
RONALD J. COMBS
JANESVILLE
S-1330
REGISTERED LAND SURVEYOR

SHEET TWO OF TWO SHEETS

Order No. 94-464-for-City of Milton

12.00

465

EXISTING SITE IMAGES

310 Sunnyside Drive, Milton WI 53563

Looking West from proposed building site

Looking West from proposed building site

EXISTING SITE IMAGES

310 Sunnyside Drive, Milton WI 53563

Looking East from existing 310 Sunnyside Drive site

Looking North from Southerly property line

24hr Home Comfort Services

Legend

- NRCS Wetspots
- Maximum Extent Wetland Indicators
- Index to EN_Image_Basemap_Leaf_Off

Notes

Indicative Soils

0.1 0 0.03 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 1,980

Data file name: T:\PROJECTS\2020 Projects\120-082 24hr Home Comfort Services\Engineering\Winslamm\2020-04-22_24hr Home Comfort Svc_actual site.mdb
WinSLAMM Version 10.4.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 04-22-2020 Time: 13:26:51
Site information:
Simmons redevelopment

Pre-Development Area Description	Pre-Development Area (ac)	Pre-Development CN
Exi Bldg	.073	98
exi pvmt	.071	98
exi gravel	1.075	98
Total Area (ac)/Composite CN	1.219	98

LU# 1 - Commercial: Commercial Storage (actual) Total area (ac): 1.757
  1 - Roofs 1: 0.845 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  13 - Paved Parking 1: 0.912 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Grass Swale CP# 1 (DS) - Grass Swale
Total drainage area (acres)= 1.757
Fraction of drainage area served by swales (ac) = 1.00
Swale density (ft/ac) = 216.66
Total swale length (ft) = 450
Average swale length to outlet (ft)= 75
Typical bottom width (ft) = 3.0
Typical swale side slope (_H:1V) = 3.0
Typical longitudinal slope (ft.H/ft.V) = 0.007
Swale retardance factor: C
Typical grass height (in) = 6.0
Swale dynamic infiltration rate (in/hr)= 0.500
Typical swale depth (ft) for cost analysis (optional) = 0.0
Particle size distribution file name: Not needed - calculated by program
Use total swale length instead of swale density for infiltration calculations: True

Control Practice 2: Biofilter CP# 1 (DS) - DS Biofilters # 5

2020-04-22_24hr Home Comfort Svc_actual site - InputData.txt

1. Top area (square feet) = 3000
2. Bottom aea (square feet) = 900
3. Depth (ft): 3.5
4. Biofilter width (ft) - for Cost Purposes Only: 30
5. Infiltration rate (in/hr) = 3.6
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.01
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.33
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 15
2. Weir crest width (ft): 3
3. Height of datum to bottom of weir opening: 3.2

SLAMM for Windows Version 10.4.0

Data file name: T:\PROJECTS\2020 Projects\120-082 24hr Home Comfort Services\Engineering\Winslamm\2020-04-22_24hr Home Comfort Svc_actual site.mdb
Data file description: Simmons redevelopment
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/01/81 Model Run End Date: 12/31/81
Date of run: 04-22-2020 Time of run: 13:22:29
Total Area Modeled (acres): 1.757
Years in Model Run: 1.00

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	150223	-	77.70	728.7	-
Outfall Total with Controls:	21901	85.42%	73.16	100.0	86.28%
Annualized Total After Outfall Controls:	21961			100.3	

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rock County, Wisconsin

24hr Home Comfort Services

April 2, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


88° 55' 49" W
342090
342100
342110
342120
342130
342140
342150
342160
342170
342180
342190
342200
342210
342220
42° 46' 29" N
4737600
4737590
4737580
4737570
4737560
4737550
4737540
4737530
4737520
4737510
4737500
PmA
Soil Map may not be valid at this scale.
42° 46' 25" N
88° 55' 49" W
Map Scale: 1:779 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 10 20 40 60
Feet
0 35 70 140 210
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFOR

The soil surveys that comprise your
1:20,000.

Warning: Soil Map may not be valid

Enlargement of maps beyond the sc
misunderstanding of the detail of ma
line placement. The maps do not sh
contrasting soils that could have bee
scale.

Please rely on the bar scale on each
measurements.

Source of Map: Natural Resources
Web Soil Survey URL:
Coordinate System: Web Mercator

Maps from the Web Soil Survey are
projection, which preserves direction
distance and area. A projection that
Albers equal-area conic projection, s
accurate calculations of distance or

This product is generated from the U
of the version date(s) listed below.

Soil Survey Area: Rock County, Wi
Survey Area Data: Version 17, Sep

Soil map units are labeled (as space
1:50,000 or larger.

Date(s) aerial images were photogra
2015

The orthophoto or other base map o
compiled and digitized probably diffe
imagery displayed on these maps. A
shifting of map unit boundaries may

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PmA	Plano silt loam, gravelly substratum, 0 to 2 percent slopes	2.3	100.0%
Totals for Area of Interest		**2.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rock County, Wisconsin

PmA—Plano silt loam, gravelly substratum, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tjwy
Elevation: 660 to 1,080 feet
Mean annual precipitation: 33 to 37 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Plano, gravelly substratum, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Plano, Gravelly Substratum

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy outwash over sandy and gravelly outwash

Typical profile

Ap - 0 to 16 inches: silt loam
Bt1 - 16 to 46 inches: silty clay loam
2Bt2 - 46 to 57 inches: loam
2C - 57 to 79 inches: stratified gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Forage suitability group: High AWC, adequately drained (G095BY008WI)
Hydric soil rating: No

Minor Components

Elburn, gravelly substratum

Percent of map unit: 10 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Warsaw

Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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