Interpretive Groups
Midland County, Michigan

Map symbol and soil name	Land capability classification	Michigan soil management group	Prime farmland	Hydric	HEL
AbB:	4s		Farmland of local importance		Not highly erodible land
Abscota		L-4a		No	
Ad:	5w		Farmland of local importance		Not highly erodible land
Adrian		M/4c		Yes	
AeB:	6w		Not prime farmland		Not highly erodible land
Aquents		None assigned		Yes	
Be:	3w		Prime farmland if drained		Not highly erodible land
Belleville		4/2c		Yes	
BoB:	2w		Prime farmland if drained		Not highly erodible land
Bowers		1.5b		No	
Ch:	5w		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Not highly erodible land
Cohoctah		L-2c		Yes	
CoB:	4s		Not prime farmland		Not highly erodible land
Covert		5a		No	
CsB:	4s		Farmland of local importance		Not highly erodible land
Covert		5a		No	
InB:	2w		Prime farmland if drained		Not highly erodible land
Ingersoll		2.5b-s		No	
Kg:	4w		Not prime farmland		Not highly erodible land
Kingsville		5c		Yes	

Interpretive Groups
Midland County, Michigan

Map symbol and soil name	Land capability classification	Michigan soil management group	Prime farmland	Hydric	HEL
Kn:	6w		Not prime farmland		Not highly erodible land
Kinross		5c-a		Yes	
Le:	2w		Prime farmland if drained		Not highly erodible land
Lenawee		1.5c		Yes	
LrB:	2w		Prime farmland if drained		Not highly erodible land
Lenawee		1.5c		Yes	
Wixom		4/2b		No	
LxA:	2w		Prime farmland if drained		Not highly erodible land
Londo		2.5b		No	
MeB:	3s		Farmland of local importance		Not highly erodible land
Menominee		4/2a		No	
OaB:	4s		Not prime farmland		Not highly erodible land
Oakville		5.3a		No	
Pa:	2w		Prime farmland if drained		Not highly erodible land
Parkhill		2.5c		Yes	
Pe:	2w		Prime farmland if drained		Not highly erodible land
Pella		2.5c-s		Yes	
PsB:	3w		Not prime farmland		Not highly erodible land
Pipestone		5b		No	
PtB:	3w		Not prime farmland		Not highly erodible land
Pipestone		5b		No	
PuB:	4w		Not prime farmland		Not highly erodible land
Pipestone		5b		No	

Interpretive Groups
Midland County, Michigan

Map symbol and soil name	Land capability classification	Michigan soil management group	Prime farmland	Hydric	HEL
Oakville		5.3a		No	
Urban Land		None assigned		Unranked	
PwB:	4s		Not prime farmland		Not highly erodible land
Plainfield		5.3a		No	
PxB:	2w		Prime farmland if drained		Not highly erodible land
Poseyville		3/2b		No	
Londo		2.5b		No	
Sz:	3w		Not prime farmland		Not highly erodible land
Sloan		L-2c		Yes	
Ur:	---		Not prime farmland		Not highly erodible land
Urban Land		None assigned		Unranked	
W:	---		Not prime farmland		Not highly erodible land
Water		None assigned		Unranked	
Wa:	3w		Prime farmland if drained		Not highly erodible land
Wauseon		3/1c		Yes	
WxB:	3w		Prime farmland if drained		Not highly erodible land
Wixom		4/2b		No	
WzB:	3w		Not prime farmland		Not highly erodible land
Wixom		4/2b		No	
Belleville		4/2c		Yes	
Urban Land		None assigned		Unranked	

Interpretative Groups--Continued

ENDNOTE--INTERPRETATIVE GROUPS

LAND CAPABILITY CLASSIFICATION

The land capability classification system is used to show, in a general way, the suitability of soils for cropland. It is a three-category interpretative system. The two highest categories, class and subclass, give broad perspective of the suitability of map units for certain crops or pasture. These categories indicate the degree and kinds of limitations for these uses. The system evaluates soils for mechanized farming systems that produce the more common cultivated field crops, such as corn, small grains, soybeans, and hay.

Capability Class

The highest category of the system is the capability class. The capability classes are groups of soils that have the same general suitability for the broad kinds of use common on farms and ranches. There are eight classes designated by Roman numerals I through VIII.

Classes I, II, III, and IV are suitable for mechanized production of common field crops if properly managed, and for production of pasture and woodland. The degree of limitation for production of cultivated crops increases progressively for class I to class IV. Limitations may affect production as well as the risk of permanent soil deterioration, as by erosion.

Classes V, VI, and VII are generally not suited to mechanized production of common field crops without special management, but are suitable for permanent cover such as grasses and trees. The severity of the soil limitations for crops increases from class V to class VII. Areas in class VIII are generally not suitable for crops, pasture, or wood products without management that is impractical. Class VIII areas may have potential for other uses, such as recreation or wildlife habitat.

Capability Subclass

The subclass identifies the dominant kind of limitation in the class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, IIe. The letter e shows that the main limitation is risk of erosion unless a close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use mainly to pasture, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by w, s, or c.

MICHIGAN SOIL MANAGEMENT GROUP

Mapping unit names in soil surveys identify the predominant soil series and their subdivisions. Soil series are similar in thickness, arrangement of horizons and other physical, chemical and biological properties. Each series is named for a town or geographical feature located near the place where the soil series was first recognized.

Soil series may be grouped according to dominant texture of the profile and natural drainage conditions. These groups are called soil management groups and are designated systematically by numbers and letters. This makes it easier to remember their significant properties--which affect various land uses.

Soil Texture

Texture refers to the proportion of sand, silt and clay present in a soil sample. It does not include the organic matter or gravel and coarser particles.

Interpretative Groups--Continued

Soils can be separated into mineral and organic soils on the basis of parent material. Mineral soils are given a number based on the dominant profile texture as follows: 0 - fine clay, more than 60% clay; 1 - clay, 40 to 60% clay; 1.5 - clay loam and silty clay loam; 2.5 - loam and silt loam; 3 - sandy loam; 4 - loamy sand; and 5 - sand. Some soil mapping units are identified as having soils with banded substrata. These soils have thin, finer textured bands or layers below 40 inches. These banded substrata are not included in the soil management unit concept but may be important for adsorption of materials and holding plant available water.

Because of significant differences in available water-holding capacities, the sands are further subdivided based on the subsoil development or organic matter, aluminum and iron accumulations in the B horizon; 5.0 for sands with strong subsoil development (Bhs horizon present), large organic matter, aluminum and iron accumulations; 5.3 for sands with medium subsoil development (Bs horizon present); and 5.7 for sands with weak or no subsoil development (Bw or Bs does not qualify for spodic horizon), little or no organic matter, aluminum and iron accumulations. Some mapping units are identified as having sandy soils with dark subsoils. These soils have more organic matter, aluminum, and iron than typical for the soil series and should be assigned to a group with more development, for example. Grattan sand, dark subsoil, would be assigned to the 5.0 group rather than the 5.3 group which Grattan is normally assigned.

The dominant profile texture is the texture of which most of the upper five feet of soil is composed. For example, a soil with the following horizons: Ap - 0 to 7 inches, loamy sand; A - 7 to 14 inches, loamy sand; Clg - 14 to 35 inches, sand; and C2g - 43 to 60 inches, sand, has a dominant profile texture of sand, 5. The soil has 46 inches of sand and only 14 inches of loamy sand.

Soils developed from uniform parent materials are represented by one number. Soils developed from two-storied parent materials or with contrasting textures in their profiles are represented by fractions. The numerator represents the texture of the upper story and the denominator the lower story. For example, 3/1 represents soils with 14-40 inches of sandy loam over clay. Several soils have been mapped with loamy to clayey substrata. These finer textured, contrasting substrata occur between 40 and 60 inches in sandy soils. Most of these soils would be assigned a 5/2 symbol, such as, Pipestone fine sand, loamy substratum, and Plainfield loamy sand, loamy substratum.

Soils which are very gravelly or stony throughout their profile are indicated by a capital G. Alluvial or lowland soils having stratified materials and subject to flooding are preceded by a capital L. Soils which are less than 20 inches to bedrock are indicated by a capital R.
Soils having 10 to 40 inches of soil material over bedrock are subdivided by characteristics of overlying materials as the numerator of a fraction (Table 2): 2/R - loam over bedrock; 3/R - sandy loam over bedrock; and 4/R - loamy sand or sand over bedrock.

Organic soils are indicated by a capital M for muck or peat. Thin (16 to 51 inches) organic soils are subdivided by characteristics of underlying mineral materials: M/1 - muck over clay; M/3 - muck over marl; and M/R - muck over bedrock. Thick (greater than 51 inches) organic soils are given only the symbol M.

Natural Drainage

Lower case (small) letters are used to indicate natural drainage conditions: (a) well and moderately well drained; (b) somewhat poorly drained and (c) poorly and very poorly drained. Natural soil drainage is related to water table depth and the length of time during the year that the water table is in contact with part of the soil profile. The letters follow the numbers or capital letters of the dominant profile texture in the soil management group symbol.

The somewhat poorly drained, poorly drained, and very poorly drained gravelly or stony soils, are combined into one soil management group, Gbc . The drainage classes of the shallow and very shallow bedrock soils are similarly combined. The somewhat poorly and poorly drained alluvial soils are also combined, but drainage is indicated by c, for example L-2c.

Well drained soils have water tables below 40 inches and commonly below 60 inches.
Moderately well drained soils have water tables between 30 and 40 inches for a relatively short time usually during spring. Somewhat poorly drained soils have water tables near the surface sometime during the year, usually in winter and spring. During summer these soils may have water tables below 60 inches.
Poorly drained soils have water tables near the surface much of the year, but during the summer they usually are lower in the profile and may be below 5 feet.

Interpretative Groups--Continued

Other soil profile characteristics important to land use planning are indicated by adding a dash and a second lower case letter to the number for the dominant profile texture and lower case letter for natural drainage. The characteristics used are:

a indicates soils with very strongly acid (pH less than 4.5) subsoils
c indicates calcareous or limey conditions within 10 inches of the surface
d indicates dense or compact subsoils
f indicates the presence of a fragipan which is a dense, brittle horizon
h indicates hardened or cemented subsoils (ortstein)
s indicates stratification with fine sands and silts.

If a soil has two or more other important profile characteristics, two or more letters follow the dash. For example, the 2.5b-cs includes soils with a dominant profile texture of loam or silt loam that are somewhat poorly drained, calcareous within 10 inches of the surface, and stratified with fine sands and silts.

PRIME FARMLAND

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt content, and few or no rocks. They are permeable to water and air. Prime
farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control.

The following are guidelines that are used to place a soil mapping unit into the Farmlands of Local Importance:

1. For prime farmland soils slopes of 6 to 18 percent are included.
2. For non-prime farmland soils slopes of 0 to 12 percent are included.
3. For Histosols (organic soils) the following are included :
   a. mesic, not frigid
   b. euic, not dysic
   c. non-alluvial
   d. non-shallow to bedrock
4. The following are criteria for shallow to bedrock mineral soils:
   a. 20 to 40 inches and not less than 20 inches
   b. 0 to 6 percent slopes
   c. only well drained
5. Skeletal families, except those with few corase fragments on the surface are excluded.
6. Very stony or extremely stoney soils are excluded.
7. Soils with fragipans at depths greater than 20 inches are included.
8. The following soils having greater than 3 inches of available water capacity to 40 inches are included:
   a. Somewhat poorly drained sands with loamy sand surfaces are included.
   b. Poorly drained sands with loamy sand surfaces and mollic or umbric epipedons are included.
   c. Gravelly sand above a depth of 40 inches having less than 3 inches of Available water capacity are excluded.
9. Alluvial soils with occasional flooding or less are included.
10. Sands with a loamy material from 40 to 60 inches are included.
11. Very fine clays are included.

Interpretative Groups--Continued

HYDRIC SOIL CLASSIFICATION

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995).
These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 1998) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

A map unit component that is a classified a hydric soil if it meets one or more of the criteria based on saturation, flooding or ponding. The Interpretative Group Table lists whether a soil is hydric or not, but does not list the hydric soil criteria that it meets. This information is available at the NRCS Field Offices.

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

HIGHLY ERODIBLE LAND CLASSIFICATION

The basis for identifying highly erodible land is the erodibility index of a soil map unit. The erodibility index of a soil is determined by dividing the potential erodibility for each soil by the soil loss tolerance (T) value established for the soil. The T value represents the maximum annual rate of soil erosion that could take place without causing a decline in long-term productivity. A soil map unit with an erodibility index of 8 or more is a highly erodible soil map unit.

Water Erosion

Potential erodibility for sheet and rill erosion is estimated by multiplying the following factors of the Universal Soil Loss Equation (USLE)

1. rainfall and runoff factor (R)
2. susceptibility of the soil to water erosion (K)
3. combined effects of slope length and steepness (LS)

The erodibility index for sheet and rill erosion is represented by the formula RKLS/T. A soil map unit is highly erodible if the LS factor for the shortest length and minimum percent of slope is used and the RKLS/T value equals or exceeds 8.

A soil map unit is potentially highly erodible if: (1) the RKLS/T value using the minimum LS factor is less than 8 and (2) the RKLS/T value using the maximum LS factor is equal to or greater than 8.

Interpretative Groups--Continued

Wind Erosion

Potential erodibility from wind erosion is estimated by multiplying the following factors of the Wind Erosion Equation (WEQ).

1. climatic characterization of windspeed and surface soil moisture (C)
2. the susceptibility of the soil to wind erosion (I)

The erodibility index for wind erosion is represented by the formula CI/T. A soil map unit is highly erodible if the CI/T value equals or exceeds 8.