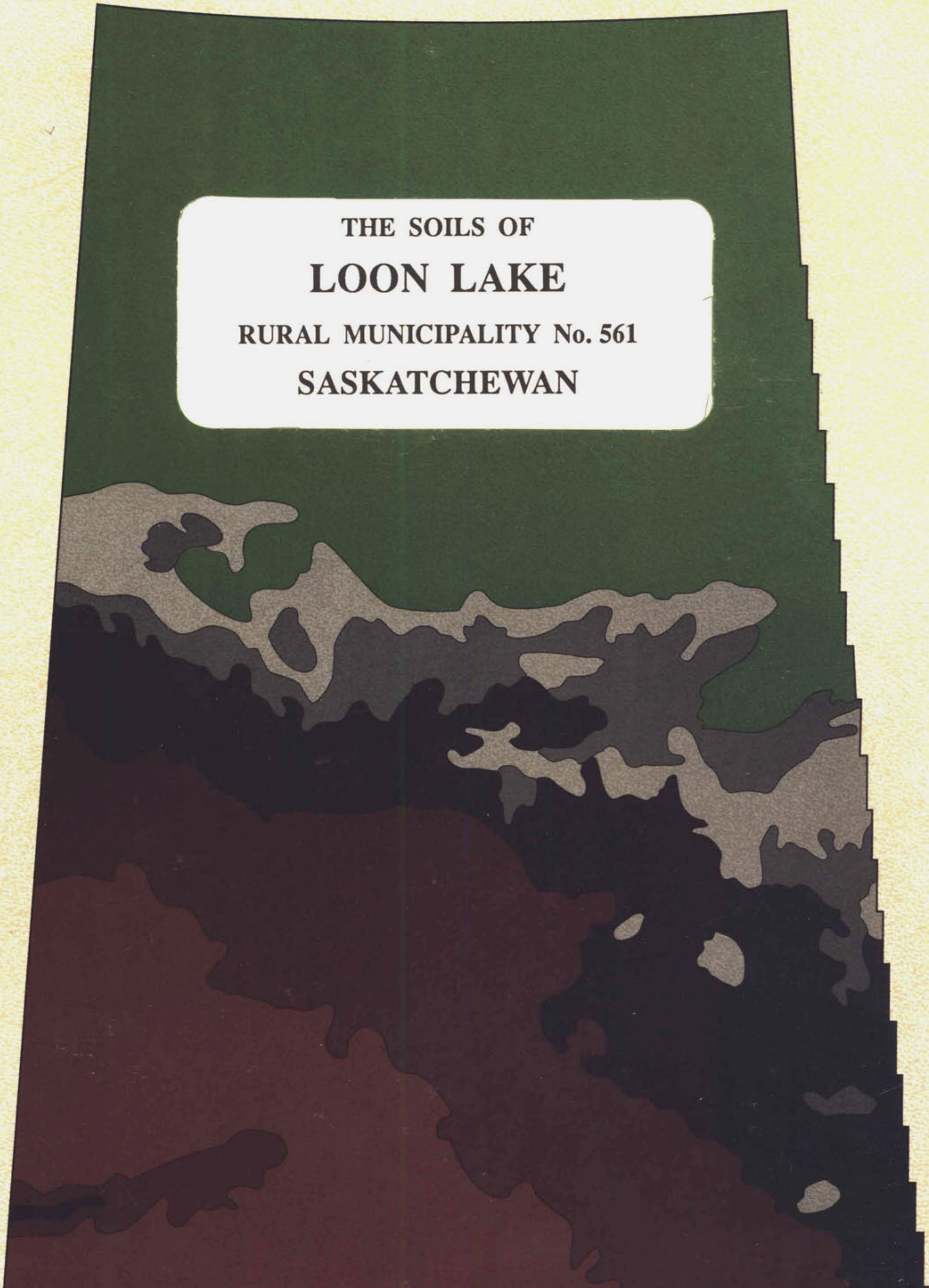

THE SOILS OF

LOON LAKE

RURAL MUNICIPALITY No. 561

SASKATCHEWAN

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1. INTRODUCTION

This publication continues the series of soil survey reports for Saskatchewan initiated on an R.M. basis in 1984. This series of publications is a continuation of the basic soil survey program in the Province, initiated in 1958; however, the publication format has been substantially changed to include more interpretive information on an R.M. basis.

The main purpose of a soil survey is to inventory the soil resources of an area, providing a description of the soils and showing their extent and distribution. It has become increasingly apparent, however, that many users require additional interpretive information for the resolution of production, conservation and other problems related to a particular set of soil conditions. To that end, this report also presents a number of interpretations based on the soil inventory information.

In order to gain the most information about any particular area within the municipality, both the soil map and report must be used together.

1.1 USING THE SOIL MAP AND REPORT

Each delineation on the soil map contains a map symbol and a unique number which are described and illustrated below.

The Soil Map Symbol

The map symbol is composed of up to three rows of information. The first row always consists of a soil association code, a map unit number and, in some cases, a substrate modifier code. The second row of information consists of a surface texture code. However, if the map symbol is composed of only two rows, this texture information is not included in the symbol. The last row is a code composed of numbers and letters that indicate the slope class and surface form of the landscape. A brief explanation of each of these map symbol components is provided in the legend on the side of the map. The legend describes the general type of soil development, the geologic material in which each soil has developed, and in complex areas, where each geologic material occurs in the landscape, as well as the kinds of soils comprising each map unit.

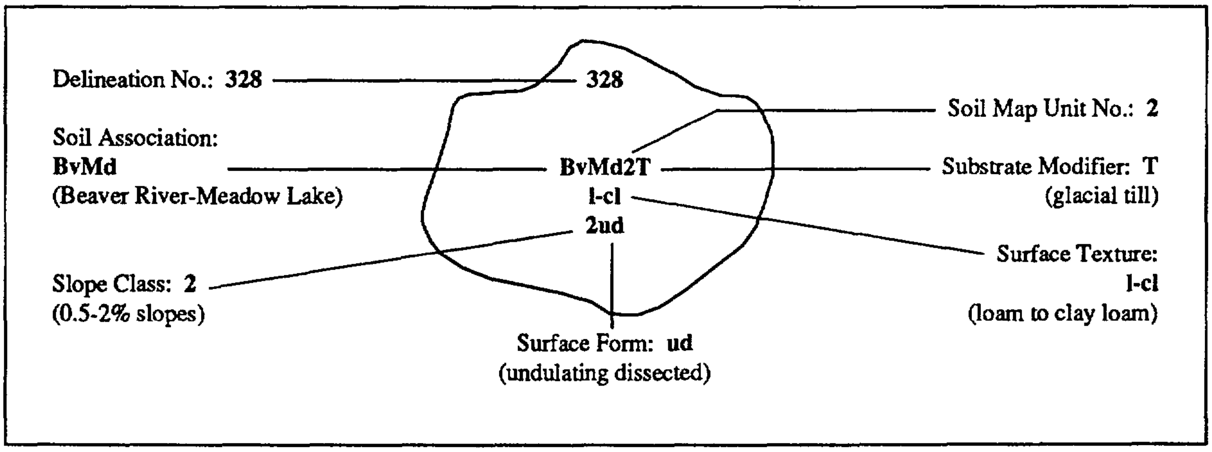
Delineation Number and Soil Interpretations

Each map delineation contains a unique number which is used to reference additional soils and interpretive information in Section 6 of the report. This section provides a tabular listing of interpretive symbols for each delineation. An explanation of these symbols is provided under the appropriate subsection in Section 4 entitled "Soil Interpretations."

Example

To determine the agricultural capability classification for area 328 (used in the example below), turn to Section 6 and look up the number 328 listed in the left-hand column under the heading, "Area No.". Next, read across to the symbols listed in the column headed, "Agricultural Capability". These symbols are explained in Subsection 4.4, entitled, "Soil Capability for Agriculture".

Figure 1. Sequence of Symbols.



2. INTRODUCTION TO SOILS

The nature and agriculturally important properties of the soils of the area are described in succeeding sections of this report. The present section, largely adapted from H.C. Moss, in **A Guide to Understanding Saskatchewan Soils**, deals mainly with features common to most prairie soils.

2.1 THE SOIL PROFILE

A soil is a natural body that occupies a relatively thin section (usually less than a meter) of the earth's surface and consists of several layers or horizons which differ in appearance and composition from the underlying material. Its formation from the original geological deposit involves various physical, chemical and biological processes which result in the formation of individual layers or horizons, extending from the surface downwards, that have specific characteristics. The whole succession of layers down to and including the original geological deposit is called the **soil profile.** Each individual layer is called a **soil horizon.** A particular soil is recognized and separated from other soils by identifying the various layers or horizons which make up its profile. The recognition of soil profiles forms the basis of soil classification and mapping.

The soils of Saskatchewan are classified according to a national system of soil classification and the names given to the soils are derived, in part, from this system. For example, an orthic profile is a soil whose characteristics are defined as an Orthic Chernozemic soil of the National system.

In profiles of mineral soils, three main horizons are recognized. From the surface downward, these are designated by the letters A, B, and C. The A horizon forms all or part of the surface soil. It may be dark colored representing an accumulation of humus, or it may be a light-colored horizon from which clay, humus and other materials have been removed. The B horizon occurs immediately below the A horizon. It may have an accumulation of clay and may have been altered to give a change in color or structure. The C horizon occupies the lower portion of the soil profile and usually represents the parent material. It is relatively unaffected by soil forming processes operative in the A and B horizons.

2.2 THE SOIL MAP

Ideally, the area represented by each soil profile should be shown on the map. This, however, is only possible where large, uniform areas of a single soil occur, or in detailed soil surveys where small areas can be separated on the map. Since, on the semi-detailed maps, it is rarely possible to delineate areas of a single soil, it is almost always necessary to combine small areas of several soils into a larger area. These larger areas are represented on the map by a map unit that identifies the kinds and distribution of the component soil profiles.

The **soil association** is used to show the relationship between map units that have formed on a similar geological deposit within a particular soil zone. The Oxbow Association, for instance, is the name given to a group of soil profiles formed on loamy glacial till occurring in the black soil zone. The various **map units** of the Oxbow Association reflect variations in the kind and distribution of Oxbow soils from one area to the next.

Where two geological deposits occur within a delineated area on the map, two associations are used. As an example, Meota-Oxbow is the name given to a group of soils of the Meota and Oxbow soil associations. Different map units of this complex are used to reflect variations in the kind and distribution of Meota and Oxbow soils from one area to the next. As an exception, areas in which several geological deposits occur in a somewhat chaotic and unpredictable pattern throughout the landscape are often given a single association name. For example, Keppel is the name given to soils formed in a highly complex mixture of loamy glacial till, silty water-modified glacial till and silty glaciolacustrine materials.

It is possible also to find soils reflecting the characteristics of two soil zones within a local area. Under these circumstances, two associations are used to reflect these different soil properties. For example, Black and Dark Gray soils that occur together are mapped in the Oxbow-Whitewood complex, the Oxbow referring to the Black soils and Whitewood to the Dark Gray soils.

The soil map, then, attempts to portray the kinds and distribution of various soil profiles throughout the municipality. The symbols on the map identify the soil map unit, the soil texture, the slope class and surface form. The map legend provides a brief description of these features. More complete descriptions of individual soil associations and their component soil types are provided in the Description of Soils section of the report. The types of geological deposits which comprise the parent materials of the various soil associations, the surface forms or shape of the land, and the soil's surface texture are described below.

2.3 SURFACE DEPOSITS

Alluvial Deposits - Alluvial deposits are materials laid down by streams and rivers, in valley bottoms and collection basins, since glaciation. These deposits are stratified and often contain beds or layers that are oblique to the main planes of stratification, indicative of their river or stream origin.

Eolian Deposits - Eolian deposits are sandy or silty deposits that have been moved and redeposited by the wind, often in the form of sand dunes or silty loessial veneers or blankets. Eolian deposits are well-sorted, poorly compacted and may contain beds or layers.

Fluvial Deposits - Fluvial deposits are materials laid down in rivers and streams carrying glacial meltwater. They are usually sandy or gravelly and, like the alluvial deposits described above, may contain beds or layers that are inclined or oblique to the main planes of stratification. These deposits are usually thick but may be thin, like a veneer, and underlain by glacial till. Materials laid down in direct contact with the glacier are termed ***glaciofluvial.***

Lacustrine Deposits - Lacustrine deposits are materials laid down in a glacial lake. These deposits are often stratified and characterized by dark- and light-colored beds or layers reflecting summer and winter depositional cycles in a glacial lake. Lacustrine deposits usually have a high content of very fine sand-, silt- or clay-sized particles. Those dominated by sand-sized particles are termed ***loamy lacustrine*** while those dominated by silt- and clay-sized particles are termed ***silty*** and ***clayey lacustrine***, respectively. They are usually thick but may be thin, like a veneer, and underlain by glacial till or gravel. Materials laid down in close contact with the glacier are termed ***glaciolacustrine*** deposits.

Morainal Deposits - Morainal deposits, often referred to as glacial till, are materials laid down by the glacial ice. These deposits are generally comprised of stones and gravels embedded in a matrix of sand-, silt- and clay-sized materials. When this matrix contains nearly equal amounts of sand, silt and clay they are called ***loamy morainal*** deposits. When there is a preponderance of sand or silt, they are referred to as ***sandy morainal*** or ***silty morainal*** deposits, respectively. Usually, there are fewer stones and gravels present in silty morainal deposits than in sandy or loamy types. Morainal deposits characterized by an abundance of surface stones are called ***bouldery morainal*** deposits.

Organic Deposits - Organic deposits are materials laid down by the accumulation of plant remains. They are generally 40 cm thick or greater and are comprised of either the remains of mosses or sedges and grasses and often have inclusions of woody materials. When the organic materials are largely undecomposed, so that there is a large amount of well-preserved fiber that is readily identifiable as to botanical origin, they are called ***fibric organic*** deposits. When the organic materials are in an intermediate stage of decomposition, so that there is an intermediate amount of fiber that is identifiable as to botanical origin, they are called ***mesic organic*** deposits. Highly decomposed materials, which have a small amount of fiber that can be identified as to botanical origin, are called ***humic organic*** deposits.

Undifferentiated Deposits - Areas where the origin of the materials for the purpose of mapping has not been specified are termed undifferentiated deposits. These deposits, usually consisting of several materials (morainal, fluvial, lacustrine, or others) occur in areas of steeply sloping land such as coulees and valley sides.

2.4 SURFACE FORMS

Aprons and Fans - A fan is a gently sloping fan-shaped area, usually occurring at the base of a valley wall, resulting from the accumulation of sediments brought down by a stream descending through a steep ravine. A series of adjacent, coalescing fans is called an apron.

Hummocky - Landscapes with a complex pattern of generally short, steep slopes extending from prominent knolls to somewhat rounded depressions or kettles are termed hummocky. They are called ***hummocky dissected*** where shallow gullies join one low area or kettle to the next and ***hummocky gullied*** where numerous, parallel or subparallel, narrow ravines interrupt the hummocky features of the landscape. Occasionally, areas have a complex of ridged and hummocky features. They are called ***hummocky-ridged.***

Inclined - Landscapes in which the general slope is in one direction only are called inclined. Where shallow gullies occur along the slope, the areas are called ***inclined dissected***; where a series of parallel or subparallel, deep gullies or ravines occur, they are called ***inclined gullied.***

Level - Landscapes that are flat or have very gently sloping surfaces are said to be level. Along flood plains of rivers and streams where the level surface is broken by abandoned river channels they are called ***level channelled.***

Ridged - Landscapes that have a linear pattern, usually of short and straight parallel ridges but sometimes a single, sinuous ridge or a series of intersecting ridges are termed ridged.

Rolling - Landscapes that are characterized by a sequence of long (often 1.6 km or greater), moderate to strong slopes extending from rounded, sometimes confined depressions to broad, rounded knolls, that impart a wave-like pattern to the land surface are called rolling. They are called ***dissected rolling*** where shallow gullies join one low area or kettle to the next.

Terraced - Areas, usually along a valley, that have a steep, short scarp slope and a horizontal or gently inclined surface above it are called terraced.

Undulating - Landscapes that are characterized by a sequence of gentle slopes extending from smooth rises to gentle hollows, that impart a wavelike pattern to the land surface are called undulating. Where shallow gullies extend from one low area to the next in these landscapes they are called ***undulating dissected*** and where the undulating surface is broken by abandoned river channels they are called ***undulating channelled.***

2.5 SURFACE TEXTURE

Mineral soil is a mixture of various-sized mineral particles, decaying organic matter, air and water. The mineral particles, exclusive of stones and gravel, may be grouped into three particle-size fractions: sands (soil particles between 0.05 and 2 mm in diameter), silts (soil particles between 0.002 and 0.05 mm in diameter), and clays (soil particles less than 0.002 mm in diameter). The relative proportions of these particle-size fractions in a soil determine its **texture.** The textural triangle (Figure 2) is used to illustrate the proportion of sand, silt and clay in the main textural classes. The vertical axis is percent clay, the horizontal axis is percent sand, while the remainder of each class is percent silt. Thus, when sand is dominant, it yields a sandy- or coarse-textured soil, whereas a fine-textured soil is made up largely of silt and clay. The terms "light" and "heavy" are often used to refer to sandy- and clayey-textured soils respectively, and are actually a measure of the power required to till the soil. These terms have nothing to do with the actual weight of soil, as a given volume of dry sand actually weighs slightly more than that of clay.

Table 1. Soil texture classes.

Symbol	Soil Texture Class
Coarse-Textured	
gs	Gravelly sand
s	Sand
fs	Fine sand
gls	Gravelly loamy sand
ls	Loamy sand
lfs	Loamy fine sand
Moderately Coarse-Textured	
gsl	Gravelly sandy loam
gl	Gravelly loam
sl	Sandy loam
fl	Fine sandy loam
vl	Very fine sandy loam
Medium-Textured	
scl	Sandy clay loam
fcl	Fine sandy clay loam
vcl	Very fine sandy clay loam
l	Loam
Moderately Fine-Textured	
sil	Silt loam
cl	Clay loam
sicl	Silty clay loam
Fine-Textured	
c	Clay
sic	Silty clay
hc	Heavy clay
Miscellaneous	
o	Organic
U	Unclassified

Textural class names such as sandy loam, clay loam, heavy clay, etc., are given to soils based upon the relative proportions of sand, silt and clay. Three broad, fundamental textural groups are recognized: sands, loams and clays.

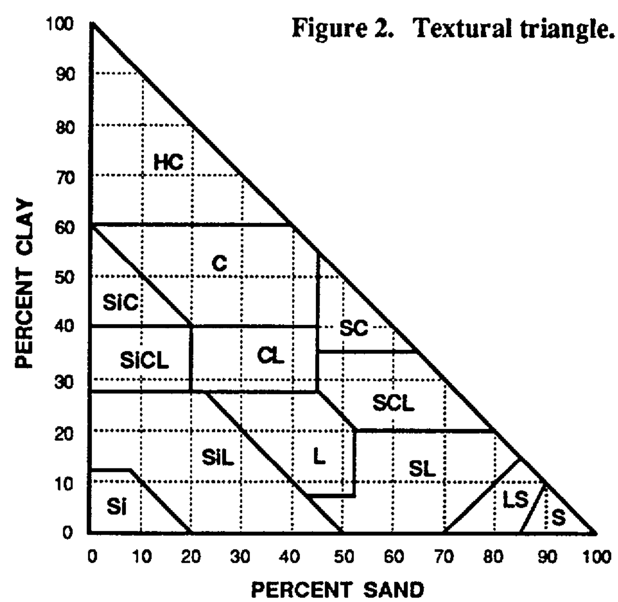
SANDS - The sand group includes soils in which the sand particles make up at least 70% of the material by weight. Two main classes are recognized: sand and loamy sand. Sands are further broken down into different sand sizes such as fine sand or coarse sand. A description of these is found under "Sand" in the glossary.

LOAMS - The loam group is intermediate in texture between the coarse-textured sands and the fine-textured clays, and these soils usually contain a significant proportion of each particle-size fraction. Class names include: sandy loam, silt loam, silty clay loam, sandy clay loam, clay loam and loam.

CLAYS - The clay group includes soils that contain at least 35% clay-size particles, and in most cases, more than 40%. Class names are : sandy clay, silty clay, clay and heavy clay. Soils of this group are often referred to as "gumbo".

Table 1 lists the surface textures and symbols that may be used in this report, grouped into particle-size categories. The miscellaneous catergory contains two non-texture entries. The "o" or organic soil texture class is used for organic soils. By definition, these soils do not contain any mineral component and, therefore, do not have a surface texture as defined and described above. The symbol "o" merely identifies the surface as being organic. The "U" or unclassified class is used for areas in which surface texture has not been determined. These include areas that have been greatly altered (such as gravel pits or mines), most wetlands and lakes, areas that have not been examined (such as towns and cities), and areas of extremely variable texture (such as some Hillwash or Runway delineations).

Figure 2. Textural triangle.



3. DESCRIPTION OF SOILS

ALLUVIUM (Av) SOILS

Alluvium soils are a mixture of soils formed in variable-textured alluvial materials, associated with stream flood plains and drainage channels. These soils have formed in materials derived from a variety of sources and thus vary markedly in color, texture, and composition. Surface textures range from sand to clay.

Alluvium soils are usually stone free, but may be underlain by stony deposits. Eroded stream beds within Alluvium areas, for example, may be very stony. Alluvium soils usually occur on level or undulating landscapes with very gentle to gentle slopes.

Alluvium soils occur in complex with soils of other associations and, in most of these complexes, the Alluvium soils occur on the lower slopes in the landscape.

Kinds of Alluvium Soils

Orthic Chernozemic - The Alluvium Orthic Chernozemic soil can occur on all slope positions in some landscapes, especially in areas of coarse-textured materials and good drainage. It is a well-drained soil characterized by a dark-colored A horizon, 10 to 20 cm thick, underlain by a brown B horizon and a light-colored, calcareous C horizon.

Orthic Gray Luvisol - The Alluvium Orthic Gray Luvisol soil can occur on all slope positions in some landscapes, especially on coarser-textured materials with good drainage. It is a well- to rapidly drained soil characterized by a light-gray A horizon, 8 to 15 cm thick, underlain by a thin, very light-gray, leached horizon with platy structure. This horizon is underlain by a dense, brownish-colored B horizon and a grayish-colored, calcareous C horizon.

Dark Gray Luvisol - The Alluvium Dark Gray Luvisol soil can occur on all slope positions in some landscapes, especially on coarse-textured materials with good drainage. It is a well- to rapidly drained soil characterized by a dark-gray A horizon, 8 to 15 cm thick, underlain by a dense, brownish B horizon and a grayish C horizon. Most of these soils, and in particular those that still occur under forest vegetation, have a light-gray leached horizon, with platy structure, separating the darker-colored surface from the B horizon. In cultivated areas, the leached horizon has been partially or totally incorporated into the plow layer.

Solonetzic - The Alluvium Solonetzic soil occurs most often on lower slopes, although on nearly level landscapes it can occur on all slope positions. It is a well-drained soil characterized by a thin A horizon and a dense, clayey B horizon that is very hard when dry. Saline subsoils are common in these areas.

Gleysolic - The Alluvium Gleysolic soils represents a variety of wet soils. They occur in undrained depressional areas that are subject to flooding and in undrained areas associated with abandoned stream meanders. They often have thick, dark-colored A horizons and drab subsurface colors that are dotted with reddish spots and streaks. Some of these soils have a very light-gray leached horizon below the dark A horizon. Alluvium peaty Gleysolic soils have a layer of peaty material, 15 to 40 cm thick, overlying mineral materials. They are generally wet for all or a significant portion of the growing season and are often flooded. Most Alluvium Gleysolic soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought. In some areas, these soils may be saline and/or carbonated.

Humic Regosol - The Alluvium Humic Regosol soil occurs on river flood plains where soil formation is restricted by periodic deposition of stream sediments. It is a well drained soil that has a dark colored A horizon that is at least 10 cm thick and that directly overlies a grayish-colored C horizon. It differs from Chernozemic soils in that the amount of organic matter in the A horizon is lower and it is formed in more recent alluvial deposits. Due to their position in the landscape, some of these soils may become saline and/or carbonated.

Agricultural Properties of Alluvium Soils

The agricultural capability of Alluvium soils ranges from class 2, good agricultural soils, to class 7, soils with no capability for arable agriculture or permanent pasture. This wide range in agricultural capability is mainly the result of varying degrees of salinity and excess wetness. Where salinity and wetness are not a problem and where the soil texture provides an adequate water-holding capacity, they are often good agricultural soils. Alluvium soils may be downrated based on other soil and landscape limitations (i.e. stones, topography, flooding, erosion, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Alluvium soils generally have a moderate amount of organic matter in the A horizon, resulting in reasonable fertility and good tilth. Because of the association of these soils with lower portions of the landscape and their occurrence in narrow bands in valley bottoms, wind erosion is not usually a serious problem. They are, however, susceptible to water erosion and to flooding because of their association with low landscape positions and drainage channels which receive runoff water in the spring or during periods of intense rainfall. They usually occur on favorable topography but areas are often small and irregular and cut by erosion channels, making cultivation difficult or impractical.

Stones are not generally a problem, however, annual clearing may be required along eroded stream beds. Areas dominated by saline or poorly drained Alluvium soils generally have little potential for crop land and are suitable mainly for forage production or pasture. If drainage can be improved and if salinity and accessibility do not pose serious limitations, some of these areas can be brought into agricultural production.

ARBOW (Aw) SOILS

Arbow soils are Gleysolic soils that have formed in variable-textured alluvial deposits associated with low-lying depressional basins, supporting a tree cover whose species vary according to the local drainage conditions. Most of these soils are overlain by up to 60 cm of peat. The texture of the mineral layer immediately below the organic layer is variable.

Arbow soils are usually stone free, although stones may occur where the alluvial materials are shallow (less than 1 m thick) and underlain by glacial till, or where glacial till is the main deposit in which these soils are formed. These soils generally occur in flat to depressional areas and often occur at the margins of Organic soils or as small islands of mineral soils within areas of Organic soils.

Kinds of Arbow Soils

Peaty Gleysolic - Arbow peaty Gleysolic soils occur mainly in low-lying depressional areas. They are characterized by a shallow layer of peaty material, from 15 to 60 cm thick, that overlies a dark-colored A horizon. The underlying horizons have drab colors that often include reddish spots and stains, indicative of formation under poorly drained conditions. When the organic material is primarily humic or mesic peat, the organic layer may be up to 40 cm thick; if primarily fibric peat, the organic layer may be up to 60 cm thick. Unless artificially drained, most of these soils are frequently wet for all or a significant portion of the growing season and are often flooded.

Agricultural Properties of Arbow Soils

Arbow soils are nonarable agricultural soils of capability classes 5 and 6, with wetness being the main limitation. These soils are wet for all or a significant portion of the growing season, thus limiting their agricultural use to permanent pasture. Their occurrence in low-lying and depressional areas makes drainage difficult and the possibility of flooding or unseasonal frost damage is always present. If cleared and adequately drained, these soils do have a limited potential for the production of forage crops. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

BODMIN (Bd) SOILS

Bodmin soils are Gray Luvisolic soils that have formed in gravelly fluvial materials, in areas where wooded vegetation has had a strong influence on soil formation. Soils that have formed under these conditions are usually strongly leached, resulting in low organic matter levels and, hence, a grayish-colored surface when cultivated. Surface textures range from loamy sand to loam or gravelly loamy sand to gravelly loam, depending on the nature of the parent material.

Bodmin soils are usually slightly to moderately stony, however, where the gravelly deposit is thin and underlain or mixed with glacial till, surface stones are often more numerous. These soils occur on a variety of landscapes. Undulating landscapes with very gentle to gentle slopes and hummocky landscapes with gentle to moderate slopes are two of the more common landforms.

Bodmin soils frequently occur in complex with soils of other associations. In most of these complexes, the Bodmin soils occur in an unpredictable manner, occupying almost any slope position.

Kinds of Bodmin Soils

Orthic Gray Luvisol - The Bodmin Orthic Gray Luvisol soil usually occurs on upper slopes and knolls. It is a well- to rapidly drained soil that, when cultivated, has a very light grayish-colored A horizon, underlain by a dense, brownish-colored B horizon with prismatic structure that breaks to angular blocky or coarse angular aggregates when dry. The B horizon, in turn, is underlain by a grayish-brown, weakly calcareous C horizon. In the native state, these soils usually occur under aspen and pine forest, where the uppermost horizons consist of a layer of leaf litter and a very thin, dark-colored A horizon overlying a very light grayish-colored, leached horizon with platy structure. Upon cultivation, these horizons become mixed, resulting in the very light grayish-colored surface.

Gleysolic Soils - Gleysolic soils represent a variety of wet soils. They occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They often have thick, dark-colored A horizons and drab subsurface colors that include reddish spots and streaks, indicative of formation under poorly drained conditions. Peaty Gleysolic soils have a surface layer of peaty material, 15 to 40 cm thick. In areas where the deposit of peat was relatively thin, much or all of the peat may have been incorporated into the upper mineral soil horizon upon cultivation. Most Gleysolic soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought. Due to their location in the landscape, some of these soils have become saline and/or carbonated.

Agricultural Properties of Bodmin Soils

Bodmin soils are poor agricultural soils of capability class 4. The main limitations of these soils are a very low water-holding capacity due to coarse textures and low inherent fertility; they have very poor drought resistance. These soils may be downrated further based on other soil and landscape limitations (i.e. salinity, topography, stones, etc.)

that are peculiar to individual delineations. For example, some Bodmin soils have been rated as class 5 (unsuitable for sustained production of annual field crops) because of their coarse surface textures and excessive amounts of stone. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

These soils are low in organic matter. They are low in available phosphorus and may be low in available potassium.

Bodmin soils generally have a low susceptibility to water erosion and a moderate to high susceptibility to wind erosion. These soils are marginal for the production of cereal crops and would, in many cases be best used for the production of forages. If these soils are to be utilized for the production of common field crops it is essential that a high degree of management be employed to guard against soil degradation and ensure their continued productivity. It is recommended that conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, and frequent inclusion of forages in crop rotations be utilized to provide dependable protection against erosion and maintain or improve the organic matter content of the soil.

Stones are usually present, however, amounts vary considerably. Some areas are almost stone free, while others require periodic removal if the soils are to be cultivated.

BAGWA LAKE (BL) SOILS

Bagwa Lake soils are Organic soils that have formed in accumulations of vegetative materials, primarily sedges, meadow grasses and shrubs. These partly decomposed plant residues have accumulated in wet lowland areas, which are known as fens. The native vegetation in these areas consist mainly of sedges, cattails, rushes, reeds and grasses, along with scattered willows and other shrubs. Trees such as tamarack and black spruce may also be present. The peat is derived from the accumulation of this vegetative material and is often saturated at or near the surface. In these areas, it is not unusual for the center of the deposit to have a small water body. The deposits are usually less than 2 m thick, but greater than 0.6 m thick, with the thickest part occurring towards the center of the deposit. The surface is generally level with strong, hummocky microrelief.

Bagwa Lake soils may occur in complex with soils of other associations. In these complexes, the Bagwa Lake soils typically occur on lower landscape positions.

Kinds of Bagwa Lake Soils

Typic Fibrisol - The Bagwa Lake Typic Fibrisol soil is formed in organic materials that are weakly decomposed (fibric), and the thickness of the organic material generally exceeds 160 cm.

Terric Fibrisol - The Bagwa Lake Terric Fibrisol soil is formed in organic materials that are weakly decomposed (fibric), and the thickness of the organic material exceeds 60 cm in thickness but is less than 160 cm.

Typic Mesisol - The Bagwa Lake Typic Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic), and the thickness of the organic material generally exceeds 160 cm.

Fibric Mesisol - The Bagwa Lake Fibric Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic). There is a subdominant layer of weakly decomposed material (fibric) greater than 25 cm thick below a depth of 40 cm from the surface. The thickness of the organic material is greater than 160 cm.

Terric Mesisol - The Bagwa Lake Terric Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic), and the thickness of the organic material exceeds 40 cm but is less than 160 cm.

Organic Soils - The Bagwa Lake Organic soils refers to a mixture of different types of Bagwa Lake soils. These soils are in various stages of decomposition, ranging from fibric, or weakly decomposed, to humic or highly decomposed. The thickness of the organic material may also be quite variable. The minimum thickness of an organic soil in an intermediate (mesic) or highly (humic) decomposed state is 40 cm, and 60 cm for those in a weakly decomposed (fibric) state. The maximum thickness of the organic material is also variable, and may exceed 160 cm in some areas.

Agricultural Properties of Bagwa Lake Soils

Bagwa Lake soils are not classified for agricultural capability unless they are being used for agricultural purposes. The rating for each delineation is listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report. Areas that are not classified are given the symbol O.

Bagwa Lake soils, in their natural state, are very wet and are suitable only for native grazing. Areas with open water are not suitable for agricultural use. If these lands are to be developed for agricultural use, they will require drainage and, usually, some clearing before breaking. Disposal of drainage water may not be feasible in some locations. Due to their low-lying position, these areas are susceptible to cold air drainage and, thus, to late spring and early fall frosts. The organic mat is also an excellent insulator and, thus, these soils are slow to warm up in the spring. This may shorten the growing season to the extent that crops may not have sufficient time to mature. Also, once the vegetative mat is disturbed by cultivation and the surface dries, these soils become very susceptible to wind erosion. If drainage is provided, the growing of perennial forage crops may be more feasible than annual cropping. Considering the cost of drainage and clearing of these areas, the possible requirement for specialized agricultural equipment, and the potential need for soil amendments such as fertilizer and lime, it may not be economically feasible to grow annual crops on these soils.

BITTERN LAKE (Bt) SOILS

Bittern Lake soils are Gray Luvisolic soils that have formed in loam to clay loam glacial till overlain by sandy glaciofluvial materials, in areas where wooded vegetation has had a strong influence on soil formation. Soils that have formed under these conditions are usually strongly leached, resulting in low organic matter levels and, hence, a grayish-colored surface when cultivated. The surface texture of these soils is commonly sandy loam.

Bittern Lake soils are usually slightly to moderately stony, however, sometimes stones will tend to be concentrated at the contact between the glacial till and the sandy overlay. These soils occur on hummocky landscapes with slopes ranging from gentle to strong, and on undulating landscapes with gentle to moderate slopes.

Bittern Lake soils commonly occur in complex with soils of other associations. The Bittern Lake soils tend to occur in an unpredictable manner occupying any slope position.

Kinds of Bittern Lake Soils

Orthic Gray Luvisol - The Bittern Lake Orthic Gray Luvisol soil usually occupies upper slope positions, however, it may extend to all slope positions in some landscapes. It is a well-drained soil which, under forested conditions, is characterized by the presence of a very thin, dark-colored surface horizon below the forest litter, underlain by a gray to grayish-brown, strongly leached horizon with platy structure. Usually, the horizon with platy structure includes the entire thickness of the sandy overlay. Upon cultivation, part or all of this leached horizon is incorporated into the plow layer, producing a light-gray surface. Below these horizons is a relatively thick, dark-brown to dark grayish-brown B horizon that usually has a strong (hard), angular blocky to prismatic structure due to an accumulation of clay leached from upper horizons. The B horizon, in turn, is underlain by a grayish-colored, moderately calcareous C horizon.

Gleyed Gray Luvisol - The Bittern Lake Gleyed Gray Luvisol soil usually occurs on the lower slope positions in the landscape. It is a moderately well- to imperfectly drained soil characterized by a light-gray, leached A horizon with platy structure. This horizon may be underlain by a transitional AB horizon and a grayish-brown B horizon. The relatively thick B horizon has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon, in turn, is underlain by a grayish-colored, weakly to moderately calcareous C horizon. The B and C horizons often have dull colors and reddish spots and stains, indicative of imperfect soil drainage.

Brunisolic Gray Luvisol - The Bittern Lake Brunisolic Gray Luvisol soil usually occupies upper slope positions, however, it may extend to all slope positions in some landscapes. It is a well-drained soil which, under forested conditions, is characterized by the presence of a very thin, dark-colored surface horizon below the forest litter, underlain by a gray to grayish-brown, strongly leached horizon with platy structure. A distinguishing characteristic of these soils is the presence of a brown horizon within this leached horizon. Usually, the horizon with platy structure includes the entire thickness of the sandy overlay. Upon cultivation, part or all of the leached horizon is incorporated into the plow layer, producing a light-gray surface. Below these horizons is a relatively thick, dark-brown to dark grayish-brown B horizon that usually has a strong (hard), angular blocky to prismatic structure due to an accumulation of clay leached from upper horizons. The B horizon, in turn, is underlain by a grayish-colored, moderately calcareous C horizon.

Dark Gray Luvisol - The Bittern Lake Dark Gray Luvisol soil usually occurs on mid- to lower slopes. It is a well- to moderately well-drained soil which, under forested conditions, is characterized by the presence of a thin, dark-colored surface horizon below the forest litter, underlain by a gray to grayish-brown, leached horizon with platy structure. Usually, the horizon with platy structure includes the entire depth of the sandy overlay. Upon cultivation, part or all of this leached horizon is incorporated into the plow layer, producing a dark-gray surface. Below these horizons is a relatively thick, dark brown to dark grayish-brown B horizon that usually has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay leached from upper horizons. The B horizon is underlain, in turn, by a grayish-colored, moderately calcareous C horizon.

Gleyed Dark Gray Luvisol - The Bittern Lake Gleyed Dark Gray Luvisol soil usually occurs on the lower slope positions in the landscape. It is a moderately well- to imperfectly drained soil characterized by a dark-gray A horizon, 5 to 10 cm thick, underlain by a light-gray, leached horizon with platy structure. This horizon may be underlain by a transitional AB horizon and a grayish-brown B horizon. The relatively thick B horizon has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon, in turn, is underlain by a grayish-colored, weakly to moderately calcareous C horizon. The B and C horizons often have dull colors and reddish spots and stains, indicative of imperfect soil drainage.

Gleysolic Soils - Gleysolic soils represent a variety of wet soils. They occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They often have thick, dark-colored A horizons and drab subsurface colors that include reddish spots and streaks, indicative of formation under poorly drained conditions. Peaty Gleysolic soils have a surface layer of peaty material, 15 to 40 cm thick. In areas where the deposit of peat was relatively thin, much or all of the peat may have been incorporated into the upper mineral soil horizon upon cultivation. Most Gleysolic soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought.

Due to their location in the landscape, some of these soils have become saline and/or carbonated.

Agricultural Properties of Bittern Lake Soils

Most Bittern Lake soils are poor agricultural soils of capability class 4. The main limitations of these soils are the hard structure of the B horizon that restricts water infiltration and root penetration, the low water-holding capacity and susceptibility to wind erosion due to the sandy nature of the surface horizon, and the low organic matter content of the surface horizon that makes seedbed preparation difficult and also makes the soil susceptible to crusting after heavy rains; this crusting results in poor seedling emergence for small-seeded crops. These soils may be further downrated based on other soil and landscape limitations (salinity, wetness, topography, stones, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Bittern Lake soils have low inherent fertility. They have a low amount of organic matter in the A horizon, are low in available phosphorus and may be low in available potassium. They are moderately acid in reaction, however, the acidity does not usually affect the yields of cereal crops. There may be small, local areas where the growth of some sensitive crops, like legumes, may be inhibited; detailed sampling and analysis for pH will determine whether it is practical to lime such areas to achieve maximum yields.

Bittern Lake soils that occur on landscapes with gentle slopes have a moderate susceptibility to wind erosion and a low susceptibility to water erosion. Those soils that occur on landscapes with moderate to strong slopes have a moderate to high susceptibility to water erosion. It is recommended that soil conservation practices, such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, cultivation across dissected slopes and grassing of major water runs, be utilized to control wind and water erosion. The addition of organic matter, through regular use of legumes in crop rotations and spreading manure, will greatly benefit the surface structure of these soils, and will maintain or enhance their long-term productivity.

A few stones can be expected on these soils and occasional clearing is required.

BEAVER RIVER (Bv) SOILS

Beaver River soils are Gray Luvisolic soils that have formed in clayey lacustrine materials, in areas where wooded vegetation has had a strong influence on soil formation. Soils formed under these conditions are highly leached, resulting in low organic matter levels and, hence, dark gray- to gray-colored surfaces upon cultivation. Surface textures usually range from loam to clay loam but may be clay in some areas.

Beaver River soils are usually nonstony, but may be slightly stony where the lacustrine materials are shallow and underlain by glacial till. They are usually associated with undulating landscapes with very gentle to gentle slopes.

Beaver River soils frequently occur in complex with soils of other associations. In most of these complexes, the Beaver River soils occur on mid-and lower slope positions.

Kinds of Beaver River Soils

Orthic Gray Luvisol - The Beaver River Orthic Gray Luvisol soil usually occurs on well- to moderately well-drained mid- to upper slope positions, however, it may extend to lower slopes in some landscapes. Under forested conditions, the surface organic litter layer is underlain by a gray to grayish-brown, strongly leached, platy horizon of variable thickness. Upon cultivation, part or all of this leached horizon is incorporated with the litter layer into the plow layer, producing a light-gray surface. This horizon may be underlain by a transitional AB horizon as a result of degradation in the upper part of the B horizon. Below these horizons is a relatively thick, brownish-colored B horizon that has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon is underlain by a grayish-brown, weakly to moderately calcareous C horizon.

Dark Gray Luvisol - The Beaver River Dark Gray Luvisol soil usually occurs on well- to moderately well-drained lower slopes, however, it may occur throughout the landscape in some areas. Under forested conditions, the surface organic litter layer is underlain by a thin, dark-colored A horizon, overlying a gray to grayish-brown, strongly leached horizon with platy structure. Upon cultivation, part or all of this leached horizon is incorporated with the litter layer into the plow layer, producing a dark-gray surface. This horizon may be underlain by a transitional AB horizon as a result of degradation in the upper part of the B horizon. Below these horizons is a relatively thick, brownish-colored B horizon that has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon is underlain by a grayish-brown, weakly to moderately calcareous C horizon.

Gleyed Dark Gray Luvisol - The Beaver River Gleyed Dark Gray Luvisol soil usually occurs on moderately well- to imperfectly drained lower slope positions. Under forested conditions, the surface organic litter layer is underlain by a thin, dark-colored A horizon, overlying a gray to grayish-brown, strongly leached horizon with platy structure. Upon cultivation, part or all of this leached horizon is incorporated with the litter layer into the plow layer, producing a dark-gray surface. This horizon may be underlain by a transitional AB horizon as a result of degradation in the upper part of the B horizon. Below these horizons is a relatively thick, brownish-colored B horizon that has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon is underlain by a grayish-brown, weakly to moderately calcareous C horizon. The B and C horizons often have dull colors and reddish spots and stains, indicative of soil formation under conditions of restricted drainage.

Gleysolic Soils - Gleysolic soils represent a variety of wet soils. They occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They often have thick, dark-colored A horizons and drab subsurface colors that include reddish spots and streaks. Peaty Gleysolic soils have a layer of peaty material that is 15 to 40 cm thick. In areas where the deposit of peat was relatively thin, much or all of the peat may have been incorporated into the upper mineral soil horizon upon cultivation. Due to their location in the landscape, some Gleysolic soils have become saline and/or carbonated. Most Gleysolic soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought.

Agricultural Properties of Beaver River Soils

Beaver River soils are good (Dark Gray Luvisol) to fair (Orthic Gray Luvisol) agricultural soils of capability classes 2 and 3, respectively. They have a high water-holding capacity and a slight moisture deficit due to the regional subhumid climate. The main limitations of these soils are associated with the structure of the A and B horizons; the low organic matter content in some of these soils results in a structure that makes seedbed preparation difficult and also makes these soils susceptible to crusting, resulting in poor seedling emergence, especially for small-seeded crops; they have a dense B horizon that restricts water infiltration and root penetration. These limitations are most strongly expressed in the Orthic Gray Luvisol soil. Beaver River soils may be further downrated based on other soil and landscape limitations (i.e. salinity, topography, wetness, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Beaver River soils have a low to moderate amount of organic matter in the A horizon. They are low in available phosphorus and high in available potassium. It is often necessary to add sulphur fertilizer to these soils, particularly when oil seed crops are being grown. These soils are moderately acid to neutral in reaction. The acidity does not significantly affect the yield of cereal crops, however, there may be local areas with moderate acidity that reduce the vigour and yield of some sensitive crops such as alfalfa.

These soils generally have a low susceptibility to wind and water erosion. During periods of intense rainfall, and particularly in areas where slopes are long, the potential for water erosion increases greatly, due to the relatively low infiltration rate of these soils. It is recommended that soil conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, cultivation across slopes and grassing of water runways in areas prone to water erosion, be utilized to provide dependable protection against erosion. Regular inclusion of legumes in crop rotations and application of manure, will help to increase the soil organic matter content and, thus, improve the surface structure of these soils.

These soils are generally stone-free with the exception of those cases where these soils are shallow and overlie glacial till.

DORINTOSH (Do) SOILS

Dorintosh soils are Gray Luvisolic soils that have formed in silty lacustrine materials, under stands of aspen in forested or forest-grassland areas. Surface textures range from silt loam to loam.

These soils commonly occur on undulating landscapes with gentle slopes and less frequently on hummocky landscapes with slopes ranging from gentle to strong. These soils are typically stone free; the exceptions are where the Dorintosh soils occur in complex with glacial till or are shallow (less than 1 m thick) overlying glacial till.

Dorintosh soils commonly occur in complex with soils of other associations. They tend to occur on lower slopes when in complex with soils formed in coarser-textured sandy fluvial or sandy lacustrine materials, or with glacial till, and on upper slopes when in complex with soils formed in finer-textured lacustrine materials.

Kinds of Dorintosh Soils

Orthic Gray Luvisol - The Dorintosh Orthic Gray Luvisol soil usually occupies the well- to moderately well-drained upper and midslope positions in the landscape. Under forested conditions, the surface organic litter layer is underlain by a light-gray to light brownish-gray colored A horizon that is highly leached. Upon cultivation, part or all of this leached horizon is incorporated with the litter layer into the plow layer, producing a light-gray surface color. The A horizon generally ranges from 15 to 30 cm thick and exhibits a well developed platy structure. This horizon may be underlain by a transitional AB horizon as a result of degradation in the upper part of the B horizon. The AB horizon is usually grayish-brown colored due to the partial removal of clay. Below these horizons is a relatively thick, grayish-brown B horizon that has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon, in turn, is underlain by a grayish-colored, weakly to moderately calcareous C horizon. Some of these soils are shallow (less than one metre thick), and are underlain by glacial till.

Dark Gray Luvisol - The Dorintosh Dark Gray Luvisol soil can occur on all slope positions in most Dorintosh landscapes. It is a moderately well-drained soil which, under forest conditions, has a dark gray A horizon, 5 to 10 cm thick, underlain by a rather dense, brown B horizon, and a grayish-colored, moderately calcareous C horizon. These soils have formed under stands of aspen or pine and exhibit significant leaching as evidenced by a thin, pale-brown to gray layer with platy structure that occurs between the A and B horizons. When these soils are cultivated, this light-colored layer is often partially or totally destroyed through mixing with the surface horizon; this mixing of horizons imparts a light-gray color to the surface of the soil. The B horizon has a noticeably heavier texture (clay accumulation from the upper horizons) than the underlying C horizon, and may have an angular, nutty structure when dry.

Gleyed Dark Gray Luvisol - The Dorintosh Gleyed Dark Gray Luvisol soil usually occurs on the lower slope positions in the landscape. It is a moderately well- to imperfectly drained soil characterized by a dark-gray A horizon, 5 to 10 cm thick, underlain by a light-gray, leached horizon with platy structure. This horizon may be underlain by a transitional AB horizon and a grayish-brown B horizon. The relatively thick B horizon has a strong (hard), angular blocky to prismatic structure due to an enrichment of clay from the leached horizon. The B horizon, in turn, is underlain by a grayish-colored, weakly to moderately calcareous C horizon. The B and C horizons often have dull colors and reddish spots and stains, indicative of imperfect soil drainage.

Gleysolic Soils - Gleysolic soils represent a variety of wet soils. They occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They often have thick, dark-colored A horizons and drab subsurface colors that include reddish spots and streaks. Peaty Gleysolic soils have a layer of peaty material that is 15 to 40 cm thick. In areas where the deposit of peat was relatively thin, much or all of the peat may have been incorporated into the upper mineral soil horizon upon cultivation. Due to their location in the landscape, some Gleysolic soils have become saline and/or carbonated. Most Gleysolic soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought.

Agricultural Properties of Dorintosh Soils

Dorintosh soils are fair agricultural soils of capability class 3. The main limitations of these soils are related to soil structure; the low organic matter content of these soils results in a structure that makes seedbed preparation difficult and also makes the soil susceptible to crusting after heavy rains, resulting in poor seedling emergence, especially for small-seeded crops; they also have a dense B horizon that impedes root development and uptake of moisture and nutrients, and hinders normal water infiltration. In some years, this structural limitation results in lower crop height and density. These soils may be further downrated based on other soil and landscape limitations (i.e. salinity, topography, wetness, etc.) that are peculiar to individual delineations. The regional climate in this area has a moderate heat deficiency limitation that may restrict the growth of some long-season crops. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Dorintosh soils have a low amount of organic matter in the A horizon. This low organic matter content increases susceptibility to surface crusting, which in turn impedes or prevents the emergence of crop seedlings. Dorintosh soils are low in available phosphorus and high in available potassium. It is often necessary to add sulphur fertilizer to these soils, particularly when oil seed crops are being grown. These soils range from neutral to moderately acid in reaction. The acidity encountered in Dorintosh soil areas is of limited areal extent and does not seriously affect the yields of cereal crops. If an acidity problem is suspected, and legumes are grown regularly, detailed soil sampling and pH analysis will indicate if it is necessary or economical to lime some areas to achieve maximum yields.

These soils have a low susceptibility to wind and water erosion. It is recommended, however, that soil conservation practices, such as maintenance of crop residues through reduced tillage, strip cropping and shelterbelts, be utilized to provide dependable protection from wind erosion; any significant additions of organic matter to the lower portions of the landscape will greatly benefit soil structure and tilth.

These soils are typically stone free with the exception of when they occur in complex with soils formed in glacial till or materials that are shallow (less than 1 m thick) and overlie glacial till.

FLAT LAKE (Fk) SOILS

Flat Lake soils are a complex of Gleysolic and saline Chernozemic soils formed in loamy alluvial materials occurring in relatively flat, depressional areas. Surface textures range from loam to clay loam.

Kinds of Flat Lake Soils

Saline Gleysolic Soils - Flat Lake saline Gleysolic soils occur in undrained depressional areas that are subject to flooding. They have thick, dark-colored A horizons and drab subsurface colors that often include reddish spots and streaks, indicative of formation under poorly drained conditions. They are wet for all or a significant portion of the growing season and are often flooded. Soluble salts are usually present within 50 cm of the surface. The salts commonly occur as white specks within the soil, although salts may not always be visible. The degree of salinity varies from weak to strong.

Agricultural Properties of Flat Lake Soils

Flat Lake soils are commonly very poor to nonarable soils of agricultural capability class 5, 6, or 7, depending on the degree of salinity and wetness. Salt-tolerant forages that can withstand some flooding may be grown in areas that are only moderately or weakly saline. Those areas of Flat Lake soils that are strongly saline and poorly drained are not suitable for arable agriculture and rarely have any value as pasture.

HAMLIN (Hm) SOILS

Hamlin soils are Black Chernozemic soils that have formed in loamy lacustrine materials. Surface textures range from sandy loam to loam.

Hamlin soils are usually stone free, however, stones may occur where the lacustrine materials are shallow (less than 1 m thick) and underlain by glacial till or gravel, or where the lacustrine materials occur in complex with glacial till or gravel. Hamlin soils usually occur on undulating landscapes with very gentle to gentle slopes, however, they can occur on hummocky landscapes with moderate to strong slopes, particularly where they occur in complex with soils formed in glacial till.

Hamlin soils commonly occur in complex with soils of other associations. In most of these complexes, the Hamlin soils occur on mid-and upper slopes, however, they will occur on lower slopes in complex with soils formed in glacial till or sandy fluvial materials.

Kinds of Hamlin Soils

Orthic Black - The Hamlin Orthic Black soil occurs on mid- and lower slopes, however, it can extend onto upper slopes in landscapes where slopes are gentle. It is a well-drained soil characterized by a black A horizon, 12 to 18 cm thick, underlain by a brownish B horizon and grayish-brown, moderately calcareous C horizon.

Eluviated Black - The Hamlin Eluviated Black soil occurs on lower slopes and also through depressions in some landscapes. It is a moderately well- to well-drained soil characterized by a black A horizon, 10 to 20 cm thick, underlain by a dark-gray to gray, leached horizon with platy structure. This horizon is underlain by a dense B horizon and a grayish-brown, moderately calcareous C horizon.

Gleyed Eluviated Black - The Hamlin Gleyed Eluviated Black soil occurs on lower slopes and through depressions in some landscapes. It is a moderately well-to imperfectly drained soil characterized by a black A horizon, 10 to 20 cm thick, underlain by a dark-gray to gray, leached horizon with platy structure. The underlying B and C horizons often have drab colors and reddish spots and stains, indicative of restricted soil drainage.

Gleysolic Soils - Gleysolic soils represent a variety of wet soils. They occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They often have thick, dark-colored A horizons and drab subsurface colors that include reddish spots and streaks, indicative of formation under poorly drained conditions. Most of these soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought. Due to their location in the landscape, some of these soils have become saline and/or carbonated.

Luvic Gleysol Soils - Luvic Gleysol soils occur mainly in sloughs and low-lying depressional areas which collect runoff from heavy rains and snowmelt. They are usually wet for the early part of the growing season and are often subject to flooding throughout the year after significant rainfall; drainage is restricted by a dense, slowly permeable subsoil. These soils have a platy (leached), light-colored layer below the surface underlain by a dense, grayish-brown B horizon that becomes very hard when dry. When cultivated, the upper layers are mixed, resulting in a light gray-colored surface which is subject to crusting. The underlying B and C horizons have dull colors and reddish spots and streaks, indicative of formation under poorly drained conditions.

Agricultural Properties of Hamlin Soils

The best Hamlin soils are those with a loam or very fine sandy loam surface texture. These are good agricultural soils of capability class 2; a moderate moisture deficit, imparted by the subhumid regional climate and a moderate water-holding capacity, is their main limitation. Hamlin soils with fine sandy loam to sandy loam surface textures are fair agricultural soils of capability class 3 due primarily to their lower water-holding capacity. Although many of the Hamlin soils have few agricultural limitations, some have been downrated based on other soil and landscape limitations (i.e. salinity, topography, wetness, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Most Hamlin soils have a moderate amount of organic matter in the A horizon, resulting in soils of reasonably good tilth. They are low in available phosphorus and high in available potassium.

Hamlin soils that occur on gentle slopes have a low susceptibility to water erosion and a low to moderate susceptibility to wind erosion. Hamlin soils have a weak to moderate cloddy surface that breaks to fine granular and single grain, which often makes them moderately susceptible to wind erosion. Hamlin soils occurring on landscapes with moderate to strong slopes, will have a moderate to high susceptibility to water erosion. It is recommended that soil conservation practices, such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, inclusion of forages in crop rotations, and shelterbelts, be utilized wherever possible to control soil erosion and maintain or enhance soil organic matter content and aggregate stability.

Stones are generally not a problem, however, periodic clearing may be required where the lacustrine materials are shallow (less than 1 m thick) and underlain by glacial till or gravel.

HORSEHEAD (Ho) SOILS

Horsehead soils are Dark Gray Chernozemic soils that have formed in weakly to moderately calcareous, loamy glacial till, in areas of mixed grassland and forest. Soils formed under these conditions are usually slightly leached, resulting in lower organic matter levels than similar soils occurring in the Black soil zone and, therefore, have a dark gray-colored surface horizon. Surface textures are predominantly loam.

These soils are slightly to moderately stony. They usually occur on hummocky landscapes having gentle to moderate slopes, although they also occur on undulating landscapes with gentle slopes.

Horsehead soils frequently occur in complex with soils of other associations. In most complexes, the Horsehead soils tend to occur on the mid- and upper slope positions, although when they occur in complex with Loon River soils, they are generally found on lower slopes.

Kinds of Horsehead Soils

Orthic Dark Gray - The Horsehead Orthic Dark Gray soil is a well-drained soil that usually occurs on mid- and upper slope positions in the landscape, however, it may occur on lower slopes in some areas. It is characterized by the presence of a dark-gray A horizon, 10 to 18 cm thick, underlain by a brownish or reddish-brown B horizon that usually has a moderate, angular blocky structure when dry. This horizon is underlain by a grayish-colored, weakly to moderately calcareous C horizon. There may be a thin, grayish-colored layer with platy structure between the A and B horizons which, if cultivated, is often incorporated into the plow layer. This mixing imparts a dark-gray color to the soil surface.

Agricultural Properties of Horsehead Soils

Horsehead soils are good agricultural soils of capability class 2. The main limitations of these soils are a slight moisture deficit due to a moderate water-holding capacity and the subhumid regional climate, together with minor soil structure problems. Some of these soils have a surface horizon that present minor difficulties for seedbed preparation and also makes these soils moderately susceptible to crusting, which in turn inhibits seedling emergence, especially for small-seeded crops; of further significance is a moderately dense subsurface horizon (B horizon) that slows infiltration and inhibits root penetration somewhat. These soils may be further downrated based on other soil and landscape limitations (i.e. salinity, topography, stones, etc.) that are peculiar to an individual delineation. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Horsehead soils have a moderate amount of organic matter in the surface horizon. They are low in available phosphorus and high in available potassium. Crops grown on these soils usually respond well to applications of nitrogen and phosphorus fertilizers.

These soils generally have a low susceptibility to wind and water erosion, however, if they occur in areas having strong to steep slopes, or dissected slopes, they may have a high to very high susceptibility to water erosion. It is recommended that soil conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, cultivation across dissected slopes, and grassing of major water runways be utilized wherever practical to provide dependable protection from erosion. Regular inclusion of forages in a crop rotation and addition of manure to those areas that are strongly leached will generally improve the surface soil structure.

These soils are typically slightly to moderately stony and regular clearing of stones can be expected.

HILLWASH (Hw) SOILS

Hillwash soils are formed in various deposits associated with the steep and eroding sides of escarpments and valleys of rivers, creeks and tributaries. They are a group of Regosolic, weakly developed Chernozemic, and Luvisolic soils. Surface textures and amounts of stone are extremely variable because of the variable nature of the parent material and the association of these soils with steeply sloping, eroded landscapes.

Agricultural Properties of Hillwash Soils

Hillwash soils are primarily nonarable due to the nature of the landscape on which they occur. Steepness of slope and susceptibility to erosion are the main limitations. They do, however, have some value as pasture land, depending upon steepness of slopes, density of tree cover and availability of water. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

KEWANOKE (Kk) SOILS

Kewanoke soils are Brunisolic soils that have formed in gravelly fluvial materials, in areas where wooded vegetation has had a strong influence on soil formation. These soils are strongly leached, low in organic matter and have gray surface colors when cultivated. Surface textures range from sand to gravelly sandy loam.

Kewanoke soils are usually nonstony and are associated with undulating, hummocky or terraced landscapes with gentle to strong slopes.

The Kewanoke soils occur in complex with many other soil associations. In most of these complexes, the Kewanoke soils occur in an unpredictable manner, occupying almost any slope position.

Kinds of Kewanoke Soils

Orthic Eutric Brunisol - The Kewanoke Orthic Eutric Brunisol soil can occur on all landscape positions. It is a rapidly drained soil which, under forested conditions, is characterized by the presence of a layer of forest litter that may overlie a very thin, dark-colored A horizon and a very thin, grayish-colored leached layer. These horizons, if present, overlie a brownish B horizon that, in turn, overlies a light yellowish-brown C horizon.

Gleyed Eutric Brunisol - The Kewanoke Gleyed Eutric Brunisol soil occurs on lower slopes. It is an imperfectly drained soil which, under forested conditions, is characterized by the presence of a layer of forest litter that may overlie a very thin, dark-colored A horizon and a very thin, grayish-colored leached layer. These horizons, if present, overlie a B and C horizon, which have dull colors and reddish spots or stains, indicative of formation under the influence of restricted soil drainage.

Eluviated Eutric Brunisol - The Kewanoke Eluviated Eutric Brunisol soil can occur on all landscape positions. It is a rapidly drained soil that, under forested conditions, is characterized by the presence of a layer of forest litter that overlies a grayish-colored, leached A horizon which, in turn, overlies a brownish B horizon and a yellowish-brown C horizon.

Peaty Gleysolic Soils - Peaty Gleysolic soils occur mainly in sloughs and low-lying depressional areas. They are characterized by a shallow layer of peaty material, from 15 to 40 cm thick, that overlies a dark-colored A horizon. The underlying horizons have drab colors that often include reddish spots and stains, indicative of formation under poorly drained conditions. When the organic material is primarily fibric peat, the organic layer may be up to 60 cm thick. Unless artificially drained, most of these soils are frequently wet for all or a significant portion of the growing season and are often flooded.

Agricultural Properties of Kewanoke Soils

Kewanoke soils are poor agricultural soils of capability class 5. The main limitations of these soils are a strong moisture deficit due to a low water-holding capacity as well as low inherent fertility. These soils may be further downrated based on other soil and landscape limitations (i.e. topography, stones, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agriculture Capability" in the Interpretive Data Tables section of this report.

These soils have a low amount of organic matter in the A horizon. They are low in available phosphorus and may be low in available potassium. These soils are moderately acidic in reaction and, as a result, yields of sensitive crops such as alfalfa, may be reduced; the yields of cereal crops are generally not affected by moderate acidity.

Kewanoke soils have a low susceptibility to water erosion and a moderate to high susceptibility to wind erosion when cultivated. These soils are not suited for the production of annual field crops, and are commonly used for native grazing, or cleared of their tree cover and seeded to pasture. Kewanoke soils normally should not be cleared of their native vegetation. If they are cleared, agricultural production will be low, even when supplemental fertilizer is used on a continual basis and adequate amounts of precipitation are obtained.

Varying amounts of stones can be expected on these soils and occasional to regular clearing can be expected.

La CORNE (Lc) SOILS

La Corne soils are Gray Luvisolic soils that have formed in loamy lacustrine materials in areas where wooded vegetation has had a strong influence on soil formation. Soils that have formed under these conditions are usually strongly leached, resulting in low organic matter levels and, hence, have a dark-gray to light grayish-colored surface upon cultivation. Surface textures are predominantly fine sandy loam to very fine sandy loam.

La Corne soils are usually stone free, however, some stones may occur where the lacustrine materials are shallow (less than 1 m thick) and underlain by glacial till or gravel. These soils usually occur on undulating landscapes with very gentle to gentle slopes, but can also occur on hummocky landscapes with gentle to moderate slopes, particularly where they occur in complex with soils formed in glacial till.

La Corne soils frequently occur in complex with soils of other associations. La Corne soils tend to occur on mid- and upper slope positions when in complex with soils formed in fine-textured lacustrine materials, and on mid- and lower slopes of the landscape when in complex with soils formed in coarse-textured sandy fluvial materials or glacial till.

Kinds of La Corne Soils

Orthic Gray Luvisol - The La Corne Orthic Gray Luvisol soil usually occurs on mid- and upper slopes and knolls, however, in some landscapes, it may be restricted to lower slopes and depressions. It is a well-drained soil which, under forested conditions, is characterized by the presence of a very thin, dark-colored surface horizon below the forest litter, underlain by a strongly leached, gray to grayish-brown, platy horizon of variable thickness. Upon cultivation, part or all of this leached horizon is incorporated into the plow layer, producing a light-gray surface. In some areas, a portion of the strongly leached, grayish-colored horizon will remain below the cultivated surface layer. Below these horizons is a relatively thick, dark-brown to dark grayish-brown, B horizon that usually has a strong (hard), angular blocky to prismatic structure, and is underlain, in turn, by a dark grayish-brown, moderately calcareous C horizon. Some of these soils are shallow (less than 1 metre), and are underlain by glacial till.

Dark Gray Luvisol - The La Corne Dark Gray Luvisol soil can occur on all slope positions in most La Corne landscapes. It is a well-drained soil which, under forested conditions, is characterized by the presence of a dark-colored A horizon below the forest litter, underlain by a strongly leached, gray to grayish-brown horizon with platy structure. These horizons, in turn, are underlain by a brownish or reddish-brown B horizon having a strong, angular blocky structure, overlying a grayish-colored, moderately calcareous C horizon. Upon cultivation, the forest litter, A horizon and part of the underlying leached horizon are incorporated together, producing a dark gray-colored surface horizon. Some of these soils are shallow (less than 1 metre), and are underlain by glacial till.

Gleyed Dark Gray Luvisol - The La Corne Gleyed Dark Gray Luvisol soil generally occurs on lower slope positions in the landscape. It is a moderately well-to imperfectly drained soil characterized by a dark-gray A horizon, 10 to 20 cm thick, underlain by a relatively thick, brownish or reddish-brown B horizon that has a strong (hard), angular blocky structure. The B and C horizons often have reddish spots and stains and dull colors, indicative of formation in areas with restricted soil drainage.

Luvic Gleysol Soils - Luvic Gleysol soils occur mainly in sloughs and low-lying depressional areas which collect runoff from heavy rains and snowmelt. They are usually wet for the early part of the growing season and are often subject to flooding throughout the year after significant rainfall; drainage is restricted by a dense, slowly permeable subsoil. These soils have a platy (leached), light-colored layer below the surface underlain by a dense, grayish-brown B horizon that becomes very hard when dry. When cultivated, the upper layers are mixed, resulting in a light gray-colored surface which is subject to crusting. The underlying B and C horizons have dull colors and reddish spots and streaks, indicative of formation under poorly drained conditions.

Agricultural Properties of La Corne Soils

La Corne soils are fair agricultural soils of capability class 3 due mainly to their moderate water-holding capacity. Although the majority of the La Corne soils are considered to be class 3 soils, some of them may have been downrated further based on various soil and landscape limitations (i.e. topography, wetness etc.) that are peculiar to individual delineations. La Corne soils occurring on strongly sloping hummocky landscapes, for example, are placed in capability class 4 due to topographic limitations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

The sandy nature and low organic matter content of the La Corne soils result in soils of only moderate fertility and tilth. The low organic matter content in some of these soils results in a structure that makes seedbed preparation difficult and also makes the soils susceptible to crusting after heavy rains, resulting in poor seedling emergence, especially for small-seeded crops. These soils are low in available phosphorus and generally have adequate levels of available potassium. It is often necessary to add sulphur fertilizer to these soils, particularly when oil seed crops are being grown.

La Corne soils that occur on landscapes with gentle slopes have a moderate susceptibility to wind erosion and a low susceptibility to water erosion. Those soils that occur on landscapes with moderate to strong slopes have a moderate to high susceptibility to water erosion. It is recommended that soil conservation practices, such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, cultivation across dissected slopes and grassing of major water runs, be utilized to control wind and water erosion. The addition of organic matter, through regular use of legumes in crop rotations and spreading manure, will greatly benefit the surface structure of these soils, and will maintain or enhance their long-term productivity.

LAVALLEE LAKE (LL) SOILS

Lavallee Lake soils are Organic soils that have formed in accumulations of vegetative materials, primarily mosses and forest vegetation. They commonly occur in bowl-shaped depressions in rather isolated, small areas of the northern fringes of the agricultural region of Saskatchewan and are often very wet. The deposits are usually less than 2 m thick, but greater than 0.6 m thick, with the thickest portion occurring towards the center of the deposit. Lavallee Lake soils typically have a level to very gently sloping surface with moderate to strong, hummocky microrelief.

Typical fens (grasses and sedges) tend to occur toward the wet center of the bowls. Near the outer edges, the peat is better drained and a bog vegetation community develops, which forms the substrate for the Lavallee Lake soils. Bogs (Lavallee Lake) are typically well treed with white spruce, black spruce and tamarack. Surface vegetation consists of various shrubs, forbs, grasses, sedges and mosses, including sphagnum.

The Lavallee Lake soils may occur in complex with other organic and mineral soil associations. In complexes with Bagwa Lake soils, Lavallee Lake soils occur on the higher landscape positions. In complexes with mineral soils, Lavallee Lake soils typically occur on the lower landscape positions.

Kinds of Lavallee Lake Soils

Typic Fibrisol - The Lavallee Lake Typic Fibrisol soil is formed in organic materials that are weakly decomposed (fibric), and the thickness of the organic material generally exceeds 160 cm.

Mesic Fibrisol - The Lavallee Lake Mesic Fibrisol soil is formed in organic materials that are weakly decomposed (fibric). There is a subdominant layer at an intermediate stage of decomposition (mesic) greater than 25 cm thick below a depth of 60 cm. The thickness of the organic material is greater than 160 cm.

Typic Mesisol - The Lavallee Lake Typic Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic), and the thickness of the organic material generally exceeds 160 cm.

Fibric Mesisol - The Lavallee Lake Fibric Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic). There is a subdominant layer of weakly decomposed material (fibric) greater than 25 cm thick below a depth of 40 cm. The thickness of the organic material is greater than 160 cm.

Terric Mesisol - The Lavallee Lake Terric Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic), and the thickness of the organic material exceeds 40 cm but is less than 160 cm.

Terric Fibric Mesisol - The Lavallee Lake Terric Fibric Mesisol soil is formed in organic materials that are in an intermediate stage of decomposition (mesic). There is a layer of weakly decomposed (fibric) material greater than 25 cm thick below the depth of 40 cm. The thickness of the organic material is less than 160 cm.

Terric Humisol - The Lavallee Lake Terric Humisol soil is formed in organic materials that are highly decomposed (humic), and the thickness of the organic material exceeds 40 cm but is less than 160 cm.

Organic Soils - The Lavallee Lake Organic soils refers to a mixture of different types of Lavallee Lake soils. These soils are in various stages of decomposition, ranging from fibric, or weakly decomposed, to humic or highly decomposed. The thickness of the organic material may also be quite variable. The minimum thickness of an organic soil in an intermediate (mesic) or highly (humic) decomposed state is 40 cm, and 60 cm for those in a weakly decomposed (fibric) state. The maximum thickness of the organic material is also variable, and may exceed 160 cm in some areas.

Agricultural Properties of Lavallee Lake Soils

Lavallee Lake soils are not classified for agricultural capability unless they are being used for agricultural purposes. The rating for each delineation is listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report. Areas that are not classified are given the symbol O.

Lavallee Lake soils are usually very wet and in their natural state, are suitable only for native grazing, or forestry purposes if treed. If these areas are to be developed for agricultural use, they will require drainage and, usually, clearing before breaking. At best, most of these efforts only result in poor agricultural soils. Due to their location in depressional areas, these soils are susceptible to cold air drainage and, consequently, to late spring and early fall frosts. The organic mat is an excellent insulator and, thus, these soils are also slow to warm up in the spring. This may delay crop development and shorten the growing season to the extent that crops may not have sufficient time to mature. Also, once the vegetative mat is disturbed by cultivation and the surface dries, these soils become very susceptible to wind erosion. If drainage is provided, the growing of perennial forage crops may be more feasible than annual cropping. However, considering the cost of drainage and clearing of these lands, the possible requirement of specialized agricultural equipment, and the potential need for soil amendments such as fertilizer and lime, it may not be economically feasible to grow annual crops on these soils.

LOON RIVER (Ln) SOILS

Loon River soils are Gray Luvisolic soils that have formed in weakly to moderately calcareous, loamy glacial till, in areas where wooded vegetation has had a strong influence on soil formation. Soils formed under these conditions are highly leached, resulting in low organic matter levels and, hence, dark-gray to gray surface colors. Surface textures range from sandy loam to loam.

Loon River soils are typically moderately to very stony but range from slightly to excessively stony in some areas. They usually occur on hummocky landscapes with slopes ranging from gentle to steep, but may also occur on very gently sloping undulating landscapes.

Loon River soils frequently occur in complex with soils of other associations. In most of these complexes, the Loon River soils occur on mid- to upper slope positions.

Kinds of Loon River Soils

Orthic Gray Luvisol - The Loon River Orthic Gray Luvisol soil usually occurs on mid- to upper slope positions, however, it may extend to lower slope positions in some landscapes. It is a well-drained soil which, under forested conditions, is characterized by a light gray to grayish-brown, strongly leached A horizon below the surface forest litter horizon. Upon cultivation, part or all of this leached horizon is incorporated into the plow layer, producing a soil with a light-gray surface color. The leached A horizon generally ranges from 15 to 30 cm in thickness and exhibits a well-developed platy structure. Below these horizons is a grayish-brown transitional AB horizon that grades into a relatively thick, dark-brown to brown B horizon. This horizon usually has strong (hard), angular blocky to prismatic structure due to an accumulation of clay leached from upper horizons. The B horizon, in turn, is underlain by a very dark grayish-brown, weakly to moderately calcareous C horizon.

Gleyed Gray Luvisol - The Loon River Gleyed Gray Luvisol soil occurs on lower slope positions. It is an imperfectly drained soil characterized by a light gray-colored A horizon that is strongly leached, with well-developed platy structure. This horizon is underlain in turn by a brownish-colored B horizon that has a strong (hard), angular blocky structure due to an accumulation of clay leached from upper horizons. The B horizon is underlain by a very dark grayish-brown, weakly calcareous C horizon. The B and C horizons often have dull colors and reddish spots and stains, indicative of imperfect soil drainage.

Brunisolic Gray Luvisol - The Loon River Brunisolic Gray Luvisol soil usually occurs on mid- to upper slope positions, however, it may extend to all slope positions in some landscapes. It is a well-drained soil which, under forested conditions, has a gray to grayish-brown, strongly leached A horizon with platy structure occurring below a thin forest litter horizon. The distinguishing characteristic of these soils is the presence of a brownish-colored horizon within this leached layer. Below these horizons is a relatively thick, dark-brown to brown B horizon that usually has strong (hard), angular blocky to prismatic structure, due to an accumulation of clay leached from upper horizons. The B horizon, in turn, is underlain by a very dark grayish-brown, weakly to moderately calcareous C horizon.

Dark Gray Luvisol - The Loon River Dark Gray Luvisol soil occurs on mid- to lower slope positions. It is a well- to moderately well-drained soil which, under forested conditions, is characterized by the presence of a thin, dark-colored A horizon below the surface forest litter horizon, underlain in turn by a gray to grayish-brown, leached A horizon with platy structure. Upon cultivation, the litter, the dark-colored surface horizon, and the upper part of the leached horizon are incorporated into the plow layer, producing a dark-gray surface. Below these horizons is a relatively thick, dark-brown to brown B horizon that usually has strong (hard), angular blocky to prismatic structure, the result of an accumulation of clay leached from upper horizons. The B horizon, in turn, is underlain by a very dark grayish-brown, weakly to moderately calcareous C horizon, in which many of the carbonates occur in streaks and splotches.

Gleyed Dark Gray Luvisol - The Loon River Gleyed Dark Gray Luvisol soil occurs on lower slope positions. It is an imperfectly drained soil characterized by a dark-gray A horizon, 5 to 20 cm thick, underlain by a light gray, leached horizon with platy structure. The leached horizon is underlain by a relatively thick, brownish B horizon that usually has strong (hard), angular blocky to prismatic structure, due to an accumulation of clay leached from upper horizons. The B horizon, in turn, is underlain by a very dark grayish-brown, weakly to moderately calcareous C horizon. The B and C horizons often have dull colors and reddish spots and stains, indicative of imperfect soil drainage.

Gleysolic Soils - Gleysolic soils represent a variety of wet soils. They occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They often have thick, dark-colored A horizons and drab subsurface colors that include reddish spots and streaks. Peaty Gleysolic soils have a surface layer of peaty material, 15 to 40 cm thick. In areas where the deposit of peat was relatively thin, much or all of the peat may have been incorporated into the upper mineral soil horizon upon cultivation. Most Gleysolic soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought. Due to their location in the landscape, some of these soils have become saline and/or carbonated.

Agricultural Properties of Loon River Soils

The best Loon River soils are those with a loam surface texture. These are fair agricultural soils of capability class 3. They have a slight moisture deficit due to the regional subhumid climate and a moderate water-holding capacity. The main limitations of these soils are related to soil structure. The low organic matter content of some of these soils results in a structure that makes seedbed preparation difficult and also makes the soil susceptible to crusting after heavy rains, resulting in poor seedling emergence especially for small-seeded crops. They also have a dense B horizon that hinders root development and uptake of moisture and nutrients, and impedes normal water infiltration. These limitations are most strongly expressed in the Gray Luvisol soils. Many Loon River soils, however, have a sandy loam surface texture and are poor agricultural soils of capability class 4. The class 4 soils, in addition to structural limitations, also have a moisture limitation due to the coarse textures of the topsoil. Furthermore, due to the occurrence of Loon River soils in the northern agricultural region of Saskatchewan, the cooler growing season, as well as the possible occurrence of late spring or early fall frosts in some years may severely damage the crops that require a long season to reach maturity. These soils may be further downrated based on other soil and landscape limitations (i.e. topography, stones, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agriculture Capability" in the Interpretive Data Tables section of this report.

Loon River soils have a low to moderate amount of organic matter in the A horizon. They are generally low in available phosphorus and high in available potassium. It is often necessary to add sulphur fertilizer to these soils, particularly when oil seed crops are being grown. Loon River soils are slightly to moderately acid in reaction, however the yields of cereal crops are not usually affected. Yields of legumes such as alfalfa can be reduced by moderate acidity; detailed soil sampling and pH analysis will indicate whether it is necessary or economical to lime some areas to achieve maximum yields.

These soils generally have a low susceptibility to wind and water erosion, however, if they occur in areas having strong to steep slopes, or dissected slopes, they may have a high to very high susceptibility to water erosion. It is recommended that soil conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, cultivation across dissected slopes, and grassing of major water runways be utilized wherever practical to provide dependable protection from erosion. Regular inclusion of forages in a crop rotation and addition of manure to those areas that are strongly leached will generally improve the surface soil structure.

These soils are commonly moderately to very stony and regular clearing can be expected.

MAKWA (Ma) SOILS

Makwa soils are Black Chernozemic soils that have formed in weakly to moderately calcareous, loamy glacial till. Surface textures are predominantly loam, but can range from sandy loam to clay loam. They are usually slightly to moderately stony and occur on undulating or hummocky landscapes with very gentle to gentle slopes.

Makwa soils may occur in complex with soils of other associations. In most of these complexes, the Makwa soils occur on lower to midslope positions.

Kinds of Makwa Soils

Orthic Black - The Makwa Orthic Black soil occurs mainly on upper slopes, but may occur on any slope position in some landscapes. It is a well-drained soil characterized by a black A horizon that may range in thickness from 10 to 20 cm, underlain by a brownish-colored B horizon and a grayish-colored, moderately calcareous C horizon.

Eluviated Black - The Makwa Eluviated Black soil occurs on mid- to lower slopes. It is a well-drained soil with a black A horizon that is underlain by a leached, grayish-colored horizon with platy structure. The leached horizon is, in turn, underlain by a grayish-brown B horizon that has moderate, angular blocky to prismatic structure due to an enrichment of clay leached from upper horizons. The B horizon is underlain by a grayish-colored, weakly to moderately calcareous C horizon.

Peaty Gleysolic Soils - Peaty Gleysolic soils occur mainly in sloughs and low-lying depressional areas. They are characterized by a shallow layer of peaty material, from 15 to 40 cm thick, that overlies a dark-colored A horizon. The underlying horizons have drab colors that often include reddish spots and stains, indicative of formation under poorly drained conditions. When the organic material is primarily fibric peat, the organic layer may be up to 60 cm thick. Unless artificially drained, most of these soils are frequently wet for all or a significant portion of the growing season and are often flooded.

Agricultural Properties of Makwa Soils

Makwa soils are good agricultural soils of capability class 2. Their main limitation is due to a moderate heat deficiency of the regional climate. Although they are potentially very productive soils, they are limited by a relatively short growing season. Makwa soils may be further downrated based on other soil and landscape limitations (i.e. salinity, wetness, topography, stones, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Most Makwa soils have a moderate amount of organic matter in the A horizon resulting in reasonably fertile soils of good tilth. These soils are usually low in available phosphorus but high in available potassium. They are slightly to moderately acid in reaction, however, yields of cereal crops are not usually affected. Yields of legumes such as alfalfa can be reduced by moderate acidity; detailed soil sampling and pH analysis will indicate whether it is necessary or economical to lime some areas to achieve maximum yields.

These soils generally have a low susceptibility to wind and water erosion, however, if they occur in areas having strong to steep slopes, or dissected slopes, they may have a high to very high susceptibility to water erosion. It is recommended that soil conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, cultivation across dissected slopes, and grassing of major water runways be utilized wherever practical to provide dependable protection from erosion.

These soils are commonly slightly to moderately stony and regular clearing of stones can be expected.

MEADOW LAKE (Md) SOILS

Meadow Lake soils are a mixture of Black Chernozemic and Black Solonetzic soils formed in clayey lacustrine materials. Some Meadow Lake soils may have a thin veneer of silty lacustrine materials overlying the clayey parent material. The parent material is usually varved, which means having alternating bands of clayey and silty materials. These soils usually occur on undulating landscapes with very gentle to gentle slopes. They are usually stone free, however, a few stones may occur where the lacustrine materials are shallow and underlain by glacial till. Surface textures are usually a silt loam to clay loam but may range from loam to clay.

Meadow Lake soils are often highly leached and may resemble Luvisolic soils except that they have a black surface color as opposed to the dark-gray or gray surface colors of Luvisolic soils.

Meadow Lake soils frequently occur in complex with soils of other associations. In most of these complexes, the Meadow Lake soils occur on the mid- to lower slope positions.

Kinds of Meadow Lake Soils

Orthic Black - The Meadow Lake Orthic Black soil may occur in any landscape position. It is a moderately well-drained soil with a black A horizon, 10 to 20 cm thick, underlain by a dark-colored B horizon and a grayish, weakly calcareous C horizon.

Eluviated Black - The Meadow Lake Eluviated Black soil usually occurs on lower slopes, but may extend to the knolls in some landscapes. It is a moderately well drained soil with a black A horizon 10 to 20 cm thick, overlying a grayish-colored, leached horizon with platy structure that is typically 5 to 15 cm thick. This grayish leached horizon is at least 2 cm thick but is more typically 5 to 10 cm thick. This leached layer is underlain by a dark-colored B horizon that has been enriched by clay leached from the A horizon, and is in turn underlain by a grayish-colored, weakly calcareous C horizon.

Solonetzic Black - The Meadow Lake Solonetzic Black soil may occur in any landscape position. It is a moderately well-drained soil with a black to very dark-gray A horizon that overlies a grayish-colored, leached horizon with platy structure. This leached horizon is underlain by a dense, dark-colored B horizon having a hard, columnar structure. In some of these soils the upper part of the B horizon is degrading, which results in a crumbly, blocky soil structure. The B horizon is underlain by a grayish-colored, weakly calcareous C horizon that may contain salts.

Black Solodized Solonetz - The Meadow Lake Black Solodized Solonetz soil may occur in any landscape position. It is a moderately well-drained soil that has a black to very dark grayish brown-colored A horizon, overlying a grayish-colored, leached horizon with platy structure. This horizon is underlain by a B horizon that has white- or gray-capped columnar structures, which are darkly stained with organic matter, and are extremely hard when dry. The B horizon is underlain by a grayish-colored, weakly calcareous C horizon that may contain salts.

Black Solod - The Meadow Lake Black Solod soil may occur in any landscape position, although it commonly occurs in lower slope positions. It is a moderately well-drained soil with a black to very dark gray-colored A horizon, underlain by a transitional AB horizon that is grayish in color and from which clay and organic matter have been leached and redeposited in the underlying B horizon. The B horizon is darkly stained by organic matter, and breaks into small blocky structures that are hard when dry. The B horizon is underlain by a grayish-colored, weakly calcareous C horizon that may contain salts.

Luvic Gleysol Soils - Luvic Gleysol soils occur mainly in sloughs and low-lying depressional areas which collect runoff from heavy rains and snowmelt. They are usually wet for a significant part of the growing season and are often subject to flooding. These soils have a platy (leached), light-colored layer below the surface and a dense grayish-brown to brownish-gray B horizon that becomes very hard when dry. When cultivated, the upper layers are mixed, resulting in a light gray-colored surface which is subject to crusting. The underlying B and C horizons have dull colors and reddish spots and streaks indicative of formation under poorly drained conditions.

Peaty Gleysolic Soils - Peaty Gleysolic soils occur mainly in sloughs and low-lying depressional areas. They are characterized by a shallow layer of peaty material from 15 to 40 cm thick that overlies a dark-colored A horizon. The underlying horizons have drab colors that often include reddish spots and stains indicative of formation under poorly drained conditions. When the organic material is primarily fibric moss peat, the organic layer may be up to 60 cm thick. Unless artificially drained, most of these soils are frequently wet for all or a significant portion of the growing season and are often flooded.

Agricultural Properties of Meadow Lake Soils

Meadow Lake soils are good agricultural soils of capability class 2. Their main limitations of these soils are adverse soil structure together with a moderate heat deficiency imparted by the regional climate. The soil structure of the A and B horizons moderately inhibits root development and penetration as well as infiltration of water. The Meadow Lake Solodized Solonetz soils are fair soils of capability class 3 due to the more restrictive characteristics of the subsoil. In these soils, the B horizon has a very dense structure that inhibits root development and penetration as well as infiltration of water. Other Meadow Lake soils may be further downrated based on other soil and landscape limitations (i.e. salinity, wetness, topography, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Meadow Lake soils have a moderate to high amount of organic matter in the A horizon, resulting in reasonably fertile soils of good tilth. These soils are usually low in available phosphorus and high in available potassium. They are slightly to moderately acid in reaction, however, the acidity does not significantly affect the yields of cereal crops; yields of sensitive crops, such as alfalfa, may be reduced by moderate acidity. Detailed soil sampling and pH analysis will determine whether it is necessary or economical to apply lime to achieve maximum yields. Very limited areas of slight to moderate salinity is associated with some solonetzic soil areas.

These soils generally have a low susceptibility to wind and water erosion. Water erosion can, however, be a serious problem during periods of intense rainfall on areas with long slopes due to the relatively low infiltration rates of these soils. It is recommended that soil conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, cultivation across slopes and grassing of runways be utilized wherever practical to provide dependable protection against wind and water erosion.

Meadow Lake soils are stone-free with the exception of where these soils are shallow and overlie glacial till.

MEADOW (Mw) SOILS

Meadow soils are Gleysolic soils that have formed in variable-textured alluvial sediments associated with low-lying depressional basins. Surface textures are variable and usually range from loam to clay.

Meadow soils are usually stone free, although some stones may occur where the alluvial materials are shallow (less than 1 m thick) and underlain by glacial till. Meadow soils usually occur on nearly level to very gently sloping landscapes.

Meadow soils may occur in complex with soils of other associations. If they are in complex with organic soils, they usually occur on upper slope positions or along the margins of the organic deposit. Occasionally, Meadow soils may occur in complex with well-drained soils. In these cases, the Meadow soils occur in lower landscape positions.

Kinds of Meadow Soils

Orthic Humic Gleysol - Meadow Orthic Humic Gleysol soils occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas which collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They have a thick, dark-colored A horizon that overlies a noncalcareous, gleyed B horizon and a calcareous C horizon. These subsurface horizons have drab colors that include reddish spots and streaks, indicative of formation under poorly drained conditions. Meadow peaty Orthic Humic Gleysol soils are covered by a shallow layer of peaty material, from 15 to 40 cm thick. Most of these soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought. Due to their location in the landscape, some of these soils have become saline and/or carbonated.

Rego Humic Gleysol - Meadow Rego Humic Gleysol soils occur mainly in sloughs and, occasionally, on the bottom of small drainage channels and low-lying depressional areas. They occur in areas which collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. They have a thick, dark-colored A horizon that directly overlies a calcareous C horizon. The C horizon has drab colors that include reddish spots and streaks, indicative of formation under poorly drained conditions. Meadow peaty Humic Gleysol soils are covered by a shallow layer of peaty material, from 15 to 40 cm thick. Most of these soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought. Due to their location in the landscape, some of these soils have become saline and/or carbonated.

Gleysolic Soils - The Meadow Gleysolic soils occur in depressional areas that are subject to flooding. They are wet for all or a significant portion of the growing season. They may have a relatively thick, dark-colored A horizon and drab-colored B and C horizons that are dotted with reddish spots and streaks, indicative of formation under poorly drained conditions. In some areas, the Meadow Gleysolic soils are almost entirely carbonated. In these areas, they have a highly calcareous A horizon underlain by a highly calcareous B or C horizon. Meadow peaty Gleysolic soils are covered by a shallow layer of peaty material, from 15 to 40 cm thick. Where the organic material is primarily fibric peat, the organic layer may be up to 60 cm thick. In some cases, the Meadow Gleysolic soils are also saline. In these areas, soluble salts are usually present within 50 cm of the surface. Meadow saline Gleysolic soils often occur intermixed with Meadow carbonated Gleysolic soils.

Agricultural Properties of Meadow Soils

Meadow soils are fair to nonarable agricultural soils of capability classes 3 to 6. The wide range in agricultural capability is mainly a result of varying degrees of wetness and salinity. Many of these soils are wet for all or a significant portion of the growing season, thus limiting their use for arable agriculture. Improved drainage, however, has permitted cultivation in some areas and may result in fair agricultural soils. While textures vary, they usually range from loam to clay; consequently, water-holding capacity is often adequate. The organic matter content of the surface horizon is usually high, resulting in reasonable fertility and good tilth. Stones are rarely a problem in Meadow soils. Because of the association of these soils with lower portions of the landscape, wind erosion is not a serious problem. On the other hand, they do receive runoff water in the spring or during periods of intense rainfall and, consequently, may be susceptible to water erosion and to flooding. Areas with peaty surfaces and saline poorly drained soils have little potential for arable agriculture and are best suited for forage production or pasture. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

PINE (Pn) SOILS

Pine soils are a mixture of Brunisolic and Regosolic soils that have formed in sandy fluvial materials, some of which have been reworked by the wind. They have formed in areas where trees have had an influence on soil formation. Soils formed under these conditions are often leached, low in organic matter and have gray surface colors when cultivated. Surface textures range from sand to loamy sand.

Pine soils are usually nonstony and are frequently associated with hummocky landscapes with gentle to strong slopes. In some areas, undulating landscapes with very gentle to gentle slopes are common.

The Pine soils occur in complex with many other soil associations. Typically, they occur in complex with soils formed in other sandy fluvial materials, in which case the Pine soils usually occur on the mid- to upper slope positions.

Kinds of Pine Soils

Eluviated Eutric Brunisol - The Pine Eluviated Eutric Brunisol soil can occur on all landscape positions. It is a rapidly drained soil that, under forested conditions, is characterized by the presence of a layer of forest litter that overlies a thin, grayish-colored, leached A horizon which, in turn, overlies a brownish B horizon and a light yellowish-brown C horizon. The B horizon may be up to 2 m or more in thickness. Upon cultivation, the upper horizons are mixed, resulting in a light grayish-colored surface.

Gleyed Eluviated Eutric Brunisol - The Pine Gleyed Eluviated Eutric Brunisol soil occurs on mid- to lower slopes. It is a moderately well- to imperfectly drained soil. Under forested conditions, it has a layer of forest litter that overlies a thin, grayish-colored, leached A horizon which, in turn, overlies a brownish B horizon and a yellowish-brown C horizon. The B and C horizons often have dull colors and reddish spots or stains, indicative of formation under the influence of restricted soil drainage.

Orthic Regosol - The Pine Orthic Regosol soil occurs on upper slopes and knolls. It is a very rapidly drained soil, which under forested conditions, is characterized by the presence of a layer of forest litter that may overlie a very thin, dark-colored A horizon that directly overlies the yellowish-brown C horizon.

Peaty Gleysolic Soils - Peaty Gleysolic soils occur mainly in sloughs and low-lying depressional areas. They are characterized by a shallow layer of peaty material, from 15 to 40 cm thick, that overlies a dark-colored A horizon. The underlying horizons have drab colors that often include reddish spots and stains, indicative of formation under poorly drained conditions. When the organic material is primarily fibric peat, the organic layer may be up to 60 cm thick. Unless artificially drained, most of these soils are frequently wet for all or a significant portion of the growing season and are often flooded.

Agricultural Properties of Pine Soils

The best Pine soils, those with a loamy sand surface texture, are very poor agricultural soils of capability class 5. The sand-textured Pine soils are considered to be nonarable and of capability class 6. The main limitations of these soils are a strong moisture deficit, due to a very low water-holding capacity, as well as low natural fertility. These soils may be further downrated based on other soil and landscape limitations (i.e. erosion, topography, wetness, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Pine soils are infertile due to their low organic matter content and coarse sandy textures. Because of this and their very low water-holding capacity, they are not usually used for the production of annual field crops, but rather for native grazing, or, are cleared of their tree cover and seeded to pasture.

These soils have a low susceptibility to water erosion and a very high susceptibility to wind erosion. Pine soils normally should not be cleared of their native vegetation; they are quite susceptible to blowing after the native vegetation has been removed. If they are cleared, agricultural production will be low, even when supplemental fertilizer is used on a continual basis and adequate amounts of precipitation are obtained. Pine soils are often acidic in reaction and the yields of sensitive crops, are usually reduced significantly. If these soils are cleared of native vegetation, perhaps to establish tame forage species, it should be done in narrow strips which will guard against widespread wind erosion. An assessment should be made of these strips over several years to determine whether these soils will sustain favorable stands of tame species.

These soils are usually stone-free with the exception of when they are shallow and overlie glacial till.

RUNWAY (Rw) SOILS

Runway soils are formed in various deposits associated with the sides and bottoms of shallow drainage channels. This group of soils includes Regosolic, Luvisolic, Chernozemic and Gleysolic soils that are primarily associated with dissected landscapes. As a result, surface texture, degree of stoniness, slope class and salinity are extremely variable.

Agricultural Properties of Runway Soils

Runway soils are usually rated as class 4, 5 or 6 for agricultural capability. Most of these soils, however, are nonarable in that the bottom lands are poorly drained and the side slopes are often too steep to permit cultivation. A few areas, where slopes permit crossing with field implements, have some potential for cultivation. As well, many areas have little potential for grazing land because they occur as narrow strips cutting through cultivated areas. Where they are large enough to be fenced, they do have some value as pasture land depending upon steepness of slope, density of tree cover and availability of water. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

SHELLBROOK (Sb) SOILS

Shellbrook soils are Dark Gray Chernozemic soils that have formed in loamy lacustrine materials, in areas of mixed grassland and forest, where wooded vegetation has had some influence on soil formation. Soils that have formed under these conditions are usually slightly leached. They have lower organic matter levels than similar soils occurring in the Black soil zone, as evidenced by a dark-gray surface horizon. Surface textures range from sandy loam to loam.

Shellbrook soils are usually stone free. Some stones may occur where the lacustrine materials are shallow (less than 1 m thick) and underlain by glacial till or gravel, or where the lacustrine materials occur in complex with glacial till or gravel. Shellbrook soils usually occur on undulating landscapes with very gentle to gentle slopes, however, they can also occur on hummocky landscapes with gentle to moderate slopes.

Shellbrook soils occur in complex with soils of many other associations. In most of these complexes, the Shellbrook soils occur on mid- and lower slopes, however, in complex with certain soils, such as Black Chernozemic soils formed in loamy lacustrine materials, they tend to occur on upper slope positions.

Kinds of Shellbrook Soils

Orthic Dark Gray - The Shellbrook Orthic Dark Gray soil occurs on mid- and lower slopes, however, it can extend onto upper slopes in some landscapes. It is a well-drained soil characterized by a dark-gray A horizon, 11 to 22 cm thick, underlain by a reddish-brown B horizon and a grayish, moderately calcareous C horizon. There may be a thin, grayish layer with platy structure between the A and B horizons which, if cultivated, is often incorporated into the plow layer.

Luvic Gleysol Soils - Luvic Gleysol soils occur mainly in sloughs and low-lying depressional areas which collect runoff from heavy rains and snowmelt. They are usually wet for early part of the growing season and are often subject to flooding after significant rainfall. These soils have a platy (leached), light-colored layer below the surface and a dense grayish-brown to brownish-gray B horizon that becomes very hard when dry. When cultivated, the upper layers are mixed, resulting in a light gray-colored surface which is subject to crusting. The underlying B and C horizons have dull colors and reddish spots and streaks indicative of formation under poorly drained conditions.

Agricultural Properties of Shellbrook Soils

The best Shellbrook soils are those with loam to very fine sandy loam surface textures. These are good agricultural soils of capability class 2; a slight moisture deficit, imparted by the subhumid regional climate and a moderate water-holding capacity, is their main limitation. Shellbrook soils with fine sandy loam to sandy loam surface textures are fair agricultural soils of capability class 3 due primarily to their low water-holding capacity. Shellbrook soils may be further downrated based on other soil and landscape limitations (i.e. salinity, topography, erosion, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

Shellbrook soils have a moderate amount of organic matter in the A horizon. They are low in available phosphorus and high in available potassium.

Shellbrook soils have a low susceptibility to water erosion and a moderate susceptibility to wind erosion. These soils have a weak to moderate cloddy structure that breaks to fine granular and single grain, making them moderately susceptible to wind erosion. When Shellbrook soils occur on landscapes with moderate slopes, and/or landscapes that are dissected, the susceptibility to water erosion may be moderate to high.

It is recommended that soil conservation practices, such as maintenance of crop residues through reduced tillage or leaving stubble standing, frequent inclusion of forages in crop rotations, strip cropping and shelterbelts, be utilized wherever possible to control soil erosion and maintain or enhance soil organic matter content and aggregate stability.

These soils are usually stone-free with the exception of when they are shallow and overlie glacial till.

SYLVANIA (Sy) SOILS

Sylvania soils are Gray Luvisolic soils that have formed in sandy fluvial materials, in areas where wooded vegetation has had a strong influence on soil formation. Soils that have formed under these conditions are usually strongly leached, resulting in low organic matter levels and, hence, a grayish-colored surface upon cultivation. Surface textures are predominantly loamy sand to very fine sandy loam.

Sylvania soils are usually stone free, however, some stones may occur where the fluvial materials are shallow (less than 1 m thick) and underlain by glacial till or gravel. Sylvania soils usually occur on hummocky landscapes with gentle to moderate slopes, but can also occur on undulating landscapes with very gentle to gentle slopes.

Sylvania soils frequently occur in complex with soils of other associations. Sylvania soils tend to occur on mid- and upper slope positions when in complex with soils formed in finer-textured lacustrine materials; they tend to occur on lower slopes when in complex with soils formed in coarser-textured fluvial materials or glacial till.

Kinds of Sylvania Soils

Orthic Gray Luvisol - The Sylvania Orthic Gray Luvisol soil usually occurs on mid- and upper slopes and knolls but, in some landscapes, it may be restricted to lower slopes and depressions. It is a well- to rapidly drained soil which, under forested conditions, is characterized by the presence of a thin, dark-colored surface horizon below the forest litter, underlain by a strongly leached, gray to grayish-brown, platy horizon of variable thickness. Upon cultivation, part or all of this leached horizon is incorporated into the plow layer, producing a light-gray surface horizon, 11 to 16 cm thick. In some areas, a portion of the strongly leached, grayish-colored horizon remains below the cultivated surface layer. Below these horizons is a relatively thick, dark-brown to dark grayish-brown B horizon that usually has a strong (hard), angular blocky to prismatic structure, and is underlain, in turn, by a dark grayish-brown, weakly calcareous C. Some of these soils are shallow (less than 1 metre thick), and are underlain by glacial till.

Dark Gray Luvisol - The Sylvania Dark Gray Luvisol soil can occupy all slope positions in most Sylvania landscapes. It is a well-drained soil which, under forested conditions, is characterized by the presence of a dark-colored A horizon below the forest litter, underlain by a strongly leached, gray to grayish-brown horizon with platy structure. Upon cultivation, the forest litter, A horizon and part of the underlying leached horizon are incorporated together, producing a dark gray-colored surface horizon, 10 to 18 cm thick. These horizons are underlain, in turn, by a brownish or reddish-brown B horizon having a strong, angular blocky structure, and is underlain in turn, by a dark grayish-brown, weakly calcareous C horizon. Some of these soils are shallow (less than 1 metre thick), and are underlain by glacial till.

Peaty Gleysolic Soils - Peaty Gleysolic soils occur mainly in sloughs and low-lying depressional areas. They are characterized by a shallow layer of peaty material, from 15 to 40 cm thick, that overlies a dark-colored A horizon. The underlying horizons have drab colors that often include reddish spots and stains, indicative of formation under poorly drained conditions. When the organic material is primarily fibric peat, the organic layer may be up to 60 cm thick. Unless artificially drained, most of these soils are frequently wet for all or a significant portion of the growing season and are often flooded.

Agricultural Properties of Sylvania Soils

The best Sylvania soils are those with very fine sandy loam textures. They are considered to be fair agricultural soils of capability class 3. Areas with fine sandy loam surface textures are, at best, only poor agricultural soils of capability class 4. A low water-holding capacity is the main agricultural limitation of these soils. Areas with very light surface textures (loamy sand) are rated class 5 due to their very low water-holding capacity and low inherent fertility. Class 5 soils are nonarable and are suitable only for the production of tame perennial forages or as improved pasture. Sylvania soils may be further downrated based on other soil and landscape limitations (i.e. topography, wetness, etc.) that are peculiar to individual delineations. Ratings for each delineation are listed under the heading "Agricultural Capability" in the Interpretive Data Tables section of this report.

The sandy nature and low organic matter content of the Sylvania soils result in soils of low fertility and poor tilth. These soils are coarse textured, lack drought resistance, and have a loose surface structure that makes them susceptible to wind erosion when cultivated.

Sylvania soils generally have a high susceptibility to wind erosion and a low susceptibility to water erosion. They are not usually susceptible to water erosion due to their high infiltration rate. These soils are marginal for the production of cereal crops and would, in many cases be best used for the production of forages. If these soils are to be utilized for the production of common field crops it is essential that a high degree of management be employed to guard against soil degradation and to ensure their continued productivity. It is recommended that conservation practices such as maintenance of crop residues through reduced tillage or leaving stubble standing, strip cropping, shelterbelts, and frequent inclusion of forages in crop rotations be utilized to provide dependable protection against erosion and maintain or improve the organic matter content of the soil.

WETLAND (Wz) SOILS

Wetland soils include Gleysolic soils formed in a mixture of materials associated with depressional areas and small areas of open water. Most occur as sloughs, too small to show separately on the soil map, and are included in the map units of the surrounding upland soils. Only the larger areas have been delineated on the map. Wetland soils are made up of a variety of soils which are referred to collectively as Gleysolic soils. All are wet for at least a portion of the growing season and many remain flooded for much or all of the growing season.

Kinds of Wetland Soils

Gleysolic Soils - Wetland Gleysolic soils occur in sloughs and, occasionally, in the bottom of small drainage channels and low-lying depressional areas. They occur in areas that collect runoff from heavy rains and snowmelt, and usually remain wet for much of the growing season. The A horizon may be thin or thick (greater than 10 cm), and darkly colored; or it may be leached and gray or grayish-brown in color. Peaty poorly drained soils have a layer of peaty material, from 15 to 40 cm thick, overlying mineral materials. Wetland soils have drab subsurface colors that are often dotted with reddish spots and streaks, indicative of formation under poorly drained conditions. Some of these poorly drained soils are also saline and carbonated. Most of the Wetland soils are not cultivated unless drained, although some may become dry enough to cultivate during periods of prolonged drought.

Agricultural Properties of Wetland Soils

All areas of Wetland soils have little or no potential for arable agriculture. Most have an agricultural capability rating of class 5, 6, or 7. Some areas are suitable for tame or native forage production or as native grazing land. Those areas indicated on the soil map with the symbol Wz1 have the highest potential. These are areas that usually become dry at some point in the growing season and have potential for forage production. Some of the shallower ones may be arable during extended dry periods and will have some potential for the production of tame hay, or early maturing, moisture-tolerant crops. Those areas indicated on the soil map with the symbol Wz2 usually have at least central portions remaining flooded for all of the growing season. In these areas, only the outer margins have any potential for the production of native hay. Those areas indicated on the soil map with the symbol Wz3 usually remain flooded for all of the growing season and have little or no potential for agricultural use, even as grazing land.

4. SOIL INTERPRETATIONS

4.1 SALINITY

Saline soils occur sporadically throughout the agricultural area of Saskatchewan. These soils contain sufficient water soluble salts to inhibit the uptake of moisture by plants, resulting in moisture stress and reduced plant growth. The presence of saline soils can often be recognized by bare spots in the crop or by uneven stands of grain or forage. Very strongly saline soils usually develop a white surface crust during dry weather. Where less salt is present, the soil is grayish in color when dry and the subsoil often has streaks or specks of salt at a depth of 5 to 25 cm or deeper. In weakly saline or moderately saline soils that are very wet, it may not be possible to see the salt.

Development of Saline Soils

Saline soils result almost invariably from the movement of salts carried by groundwater and subsequent concentration in the soil upon evaporation of this water at or near the soil surface.

Soluble salts are present in the parent materials of all soils as the result of on-going natural, chemical and physical weathering processes. When the amount of water evaporating from the soil is greater than the amount infiltrating, salts may accumulate in the soil and may result in saline soils. Areas are subject to soil salinization where water tables are high and the amount of infiltration of precipitation is limited. In most cases, this is a natural process which has been going on since the time of deglaciation. Agriculture has, however, aggravated the problem in some areas by the use of cropping systems that are not as water efficient as the natural prairie.

Management of Saline Soils

Management of saline soils requires the effective management of soil water in both the saline and nonsaline parts of the landscape. In terms of water management for soil salinity control this means making the most efficient use of soil moisture possible. Extending the cropping rotation or continuously cropping in nonsaline areas will cycle more precipitation through crops rather than allowing it to reach the water table where it may contribute to salinity in some other location. Leaving stubble standing promotes a more even distribution of snow cover reducing the amount that blows off the land into large snow drifts or depressions where, upon melting, it has a greater chance of infiltrating to the watertable. Saline soils should be seeded to long-term forage or continuously cropped with crops having the appropriate degree of salt tolerance. The objective in the saline areas is to reduce the amount of evaporation from the soil surface, lower the watertable level and move salts downward with infiltrating precipitation.

Table 2. The relative tolerance of common field crops to soil salinity. (Differences of one or two places in the ranking may not be significant.)

	Degree of Salinity Tolerated		
	Nonsaline	Moderately Saline	Strongly to Very Strongly Saline
	Annual Field Crops		
Increasing Tolerance ↓	Soybeans Field Beans Faba Beans Peas Corn Sunflowers	Canola Mustard Wheat Flax Fall Rye[a] Oats Barley[a] Sugar Beets	Barley may produce some crop but this land best suited to tolerant forages.
	Forage Crops		
Increasing Tolerance ↓	Red Clover Alsike Timothy	Reed Canary Meadow Fescue Intermediate Wheat Crested Wheat Brome Alfalfa Sweetclover[a]	Altai Wild Rye Russian Wild Rye Slender Wheatgrass[a] Tall Wheatgrass[b]

[a] These crops not tolerant of flooding, which is common in some saline areas.

[b] Under dry conditions slender wheatgrass is more tolerant than tall wheatgrass.

For more information on saline soils and their management, see the publication **The Nature and Management of Salt Affected Land in Saskatchewan** by Saskatchewan Agriculture, Soils and Crops Branch.

Explanation of the Salinity Symbol

The soil salinity symbol is made up of three components indicating the extent of saline soils, the degree of the salts in the saline soils, and the position in the landscape occupied by the saline soils within the delineation and is based on field observation alone.

Example: 1WPA	1 -	Extent Class
	W -	Degree Class
	PA -	Landscape Position

Soil Salinity Extent Class Limits

Table 3. Soil salinity extent class limits.

Extent Class	% Of Area Affected
0	0
1	0 - 3
2	3 - 10
3	10 - 20
4	20 - 40
5	40 - 70
6	> 70

Soil Salinity Degree

Table 4. Description of soil salinity degree classes.

Salinity Degree	Electrical Conductivity of 0-60 cm depth (mS/cm)	Effect on Crop Growth and Estimate of Potential Yield Loss
Nonsaline	0 - 2	There are no visible effects of salts on the growth of crops. No yield loss.
(W) Weak	2 - 4	Yields of very sensitive crops may be restricted. Cereals are generally unaffected.
(M) Moderate	4 - 8	Yields of many crops are restricted. Wheat yields may be reduced by 30%.
(S) Strong	8 - 16	Only tolerant crops yield satisfactorily. Wheat yields may be reduced by 60%.
(V) Very Strong	16+	Only a few very tolerant crops yield satisfactorily. Wheat yields may be reduced by 80-100%.

Note: Electrical conductivity values based on a saturated paste extract.
Yield loss estimates are based on recent research and only apply to the saline soils, not to the entire delineated area.

Landscape Position

The landscape position describes where in the landscape saline soils occur. In some areas, saline soils occur in more than one landscape position. These situations are indicated by the use of two letters.

Table 5. Description of landscape position symbol.

Symbol	Description
P	Saline soils occur on the edges of depressions, sloughs or runways. All soils in the bottoms of the depressions are leached and nonsaline.
A	Saline soils occur throughout the bottoms of depressions and sloughs.
D	Saline soils extend throughout the bottoms of dissections and small runways.
S	Saline soils occur on the sides of hills and slopes well above any slough or depression.
I	Saline soil parent materials within 60 cm of the soil surface generally occur on knolls and upper slopes.

4.2 IRRIGATION SUITABILITY

The irrigation suitability rating is based on soil and landscape characteristics. The suitability rating uses limiting factors to predict the potential landscape-water-crop interaction. It also considers the potential long-term consequences of irrigation such that the soil will remain permanently productive while being irrigated. It does not consider water availability and quality, climate, or economics. Within any one map delineation there may be smaller soil areas that have a higher or lower irrigation suitability than that indicated by the map symbol. **Any decision regarding irrigation should be made only after a field-specific examination is made.**

Symbol Interpretation

The combination of soil and landscape categories (Table 6), based upon the most limiting features present (Tables 7 and 8), determine the irrigation class and suitability rating (Table 9).

A maximum of three limitations are shown in the symbol. An ideal soil area to be used for irrigation will have the following characteristics:

- medium texture
- uniform texture vertically and horizontally
- uniformly well drained
- nonsaline
- permeable
- nearly level
- nonstony

Table 6. Soil and landscape categories.

Soil Category	Landscape Category	Description
1	A	nonlimiting
2	B	slightly limiting
3	C	moderately limiting
4	D	severely limiting

Irrigation Symbol

example: $2Cmvt_1$

2C - Irrigation class

m - Soil limitations

v, t_1 - Landscape limitations

The example above indicates that the area in question has slight limitations (2) due to soil factors (m) and moderate limitations (C) due to landscape factors (v, t_1). This area, therefore, has a fair suitability rating (Table 9).

Symbol Evaluation

Excellent to good areas (Table 9) can usually be considered irrigable. Fair areas are marginally suitable for irrigation providing adequate management exists such that the soil and adjacent areas are not affected adversely by water application. Poor soils can usually be considered nonirrigable. The rating is given for the area based on soil characteristics in the upper 1.2 m and the main landscape features in the area. Depending on the type and severity of the limitation, it may be advisable to investigate an area further. Portions of the total area may also be significantly better or poorer than the general rating would indicate. For example, within a poor area with steep slopes, there may be areas of gentler topography that may be suitable for small scale irrigation if the detailed examination indicates that this smaller area is otherwise suitable.

Decision to Irrigate

The cost of irrigation development can be expected to increase with less suitable soils. The suitability rating does not take into account important factors such as climate, agronomy, availability of water, or economics in determining the feasibility of an irrigation project. If a field is indicated to be suitable for irrigation based on the information presented in this report, then an onsite inspection should be made. Other factors not used in this rating should also be considered during a site specific examination. These include geological uniformity to 3 m, local relief, depth to bedrock, drainability, sodicity, organic matter content and surface crusting potential. These factors may affect the suitability to some degree in terms of the type of irrigation system that can be used, the type and amount of surface preparation needed, the response of the soil and crop to applied water, and the type of management needed. A decision can then be made whether to irrigate if economic conditions are suitable and an adequate source of water is available.

Irrigation can lead to improved stability and flexibility in farm production through improved reliability of water application. Although maximum yields may be attainable only through irrigation, assuming adequate management, other climatic considerations may affect the feasibility. Climatic factors may limit the range of crops that can be grown due to heat or growing season limitations. In higher rainfall areas of the province, irrigation water may only be, in many years, a minor supplemental source of water that may not be needed every year. In these cases, the increased returns through higher yields, in some years, may not justify the expense of development. In dry regions where the risk of crop failure due to drought is relatively high and the range of crops that can be grown is lower, irrigation water may be a potentially important source of moisture needed for crop growth.

Table 7. Landscape limitations.

Symbol	Description
a	**Impact on Target Areas** - refers to the hazard resulting from the impact of applied irrigation water to the irrigated area. Impacts may include such effects as higher water tables, wetter soils, and increases in soil salinity.
c	**Impact on Nontarget Areas** - refers to the hazard resulting from the impact of applied irrigation water on an adjacent nonirrigated area. The hazards may include such effects as higher water tables, wetter soils, development or build-up of saline areas, or flooding and sedimentation caused by runoff.
i	**Inundation** - refers to the frequency of flooding. The inundation hazard is used mainly on areas adjacent to rivers.
p	**Stones** - refers to the amount of stone present on the surface and in the soil. Stones may reduce the available water-holding capacity of the soil, increase development costs and restrict the types of crops that may be grown.
t	**Slope** - refers to the presence of simple slopes (t_1) in undulating landscapes, or complex slopes (t_2) in hummocky or inclined landscapes. Complex slopes are often more limiting than simple slopes. Topography may affect the type of irrigation system, design and management required.
v	**Horizontal Variability** - refers to the horizontal variations caused by texture, soil structure, and landscape pattern that may result in the surface ponding of irrigated soils.

Table 8. Soil limitations.

Symbol	Description
d	**Structure** - soil structural properties that restrict root and water penetration. Commonly used with soils that have a dense B horizon and an A horizon that is subject to crusting.
g	**Geological Uniformity** - the uniformity of the soil texture with depth. The greater the textural difference between the surface and subsoil, the greater the potential for the development of perched water tables and lateral water movement.
k	**Hydraulic Conductivity** - the rate at which water moves through a saturated soil. Used mainly on soil areas that swell upon wetting, restricting water movement through the soil.
m	**Available Water-Holding Capacity** - the amount of water held by a soil that can be absorbed by plants. Coarse-textured soils with a low water-holding capacity are considered to be relatively inefficient for irrigation, as compared to medium-textured soils. Soils with this limitation also have relatively high hydraulic conductivities and intake rates.
q	**Intake Rate** - the rate of movement of water into the soil. It is closely associated with hydraulic conductivity which controls the rate at which water moves through the soil, and thus affects the rate at which water is able to enter the soil. Usually used on fine-textured soils that have relatively low intake rates requiring relatively light water application rates.
r	**Depth to Bedrock** - the presence of near-surface bedrock. Perched water tables may form, resulting in poor drainage and lateral movement of water and salts.
s	**Salinity** - the presence of soluble salts that may affect the growth of crops. The potential exists for lower yields, or for lateral salt movement into adjacent areas.
w	**Drainage** - the rate of removal of water from a soil in relation to supply. Indicates areas of mainly poorly drained soils.

Table 9. Irrigation suitability classes.

Class	Rating	Degree of Limitation	Description
1A	Excellent	No soil or landscape limitations	These soils are medium textured, well drained and hold adequate available moisture. Topography is level to nearly level. Gravity irrigation methods may be feasible.
2A 2B 1B	Good	Slight soil and/or landscape limitations	The range of crops that can be grown may be limited. As well, higher development inputs and management skills are required. Sprinkler irrigation is usually the only feasible method of water application.
3A 3B 3C 1C 2C	Fair	Moderate soil and/or landscape limitations	Limitations reduce the range of crops that may be grown and increase development and improvement costs. Management may include special conservation techniques to minimize soil erosion, limit salt movement, limit water table build-up or flooding of depressional areas. Sprinkler irrigation is usually the only feasible method of water application.
4A 4B 4C 4D 1D 2D 3D	Poor	Severe soil and/or landscape limitations	Limitations generally result in a soil that is unsuitable for sustained irrigation. Some lands may have limited potential when special crops, irrigation systems, and soil and water conservation techniques are used.

4.3 STONES

The stones rating is an estimation of the average severity of stoniness in a delineation. The estimation is based on the amount of stone clearing activity required and is related to the number and size of stones on the soil surface, number and size of stone piles, and the soil parent material observed. The amount of stone clearing activity required is categorized into one of six stone severity classes listed in the table below.

Table 10. Stone classes.

Symbol	Description
S0	**Nonstony.**
S1	**Slightly stony** - stones seldom hinder cultivation. Light clearing is occasionally required.
S2	**Moderately stony** - stones are a moderate hindrance to cultivation. Annual clearing is usually required.
S3	**Very stony** - stones cause a serious hindrance to cultivation. Sufficient stones to require clearing on an annual basis.
S4	**Excessively stony** - stones prohibit cultivation or make clearing a major task. Cultivation is usually severely hindered, even after regular, heavy clearing.
U	**Unclassified.**

4.4 SOIL CAPABILITY FOR AGRICULTURE

The soil capability classification for agricultural use is an interpretive classification of soils based on limitations affecting their use for production of annual crops. These limitations are categorized according to **degree** or severity and **kind** of limitation. Degree of limitation is represented by the capability class (numbers in the example below) and kind of limitation is represented by the capability subclass (letters in the example below). (The bracketed numbers in the example below indicate the percentage of each capability class present.) Capability classes and subclasses are briefly outlined below. A complete explantation of the system of soil capability classification for agriculture is contained in the publication, **A Guide to Soil Capability and Land Inventory Maps in Saskatchewan.**

SYMBOL SEQUENCE

3(6)M5(4)TE

Class 3 soil

6/10 or 60% of the delineation

Limitation due to insufficient moisture-holding capacity (M)

Class 5 soil

4/10 or 40% of the delineation

Limitation due to adverse topography (T) and erosion damage (E)

3(6)M5(4)TE means that 60% of the area was placed in Class 3 due to a limitation in moisture-holding capacity and 40% of the area was placed in Class 5 because of limitations due to topography and erosion damage.

Capability Class (Degree of Limitation)

The mineral soils of Saskatchewan are grouped into seven capability classes. Soils rated Classes 1 to 3 are considered suitable for sustained production of common cultivated field crops, those rated Class 4 are considered marginal for sustained production of common cultivated field crops, those rated Class 5 are considered capable only of permanent pasture and hay production, those rated Class 6 are considered suitable only for use as native pasture, and those rated Class 7 are considered unsuitable for either the production of field crops or for use as native pasture.

Table 11. Description of capability classes.

CLASS 1	Soils in this class have **no significant limitations** in use for crops.
CLASS 2	Soils in this class have **moderate limitations** that restrict the range of crops or require moderate conservation practices.
CLASS 3	Soils in this class have **moderately severe limitations** that restrict the range of crops or require special conservation practices.
CLASS 4	Soils in this class have **severe limitations** that restrict the range of crops or require special conservation practices, or both.
CLASS 5	Soils in this class have **very severe limitations** that restrict their use to the production of native or tame species of perennial forage crops. Improvement practices are feasible.
CLASS 6	Soils in this class are **capable of producing native forage crops only.** Improvement practices are not feasible.
CLASS 7	Soils in this class have **no capability for arable agriculture or permanent pasture.**
CLASS O	Unimproved or virgin **organic soils** are not included in classes 1 to 7, and are designated by the letter 'O'.

Capability Subclass (Kind of Limitation)

The capability subclass represents a grouping of soils that have the same kind of limitations for crop production. If more than one limiting condition is recognized in a particular area, the subclasses are listed in order of their importance.

Table 12. Description of capability subclasses.

Climatic Limitations - Limitations due to climatic deficiencies.

Cm Depicts a moisture deficiency due to insufficient precipitation.

Cs Depicts a heat deficiency expressed in terms of length of growing season and frost-free period.

Soil Limitations - Limitations due to soil deficiencies are caused by adverse physical, chemical and morphological properties of the soil.

D Depicts adverse soil structure in the upper layers (A and B horizons) that affects the condition of the seedbed, prevents or restricts root growth and penetration, or adversely affects moisture permeability and percolation.

F Depicts adverse fertility characteristics of soils having naturally low inherent fertility due to lack of available nutrients, high acidity or alkalinity, high calcium carbonate content or inadequate cation exchange capacity.

M Depicts an insufficient soil water-holding capacity, due to the combined effects of the textural characteristics of the top 1 m and by the organic matter content of the surface horizon.

N Depicts excessive soil salinity and applies to soils with either high alkalinity or a sufficient content of soluble salts to adversely affect crop growth or the range of crops which can be grown.

S Depicts a variety of adverse soil characteristics. It is used in a collective sense in place of subclasses M, D, F and N, where more than two of them are present, or where two of these occur in addition to some other limitation.

Landscape Limitations - Limitations due to adverse characteristics of the soil landscape.

T Depicts a limitation in agricultural use of the soil as the result of unfavorable topography. It includes hazards to cultivation and cropping imposed by increasing degree of slope as well as by the irregularity of field pattern and lack of soil uniformity.

W Depicts a limitation due to excess water caused by either poor soil drainage, a high groundwater table or to seepage and local runoff. It does not include limitations that are the result of flooding.

P Depicts a limitation caused by excess stones and it applies to soils that are sufficiently stony that the difficulty of tillage, seeding and harvesting are significantly increased.

E Depicts a limitation caused by actual damage from wind and/or water erosion.

I Depicts a limitation due to inundation and applies to soils subjected to flooding by lakes or streams, but does not include local ponding in undrained depressions.

R Depicts a limitation due to shallowness to bedrock and applies to soils where the rooting zone is restricted.

X Soils having a moderate limitation due to the accumulative effect of two or more adverse characteristics of the soil and the landscape which singly are not serious enough to affect the class rating.

4.5 SURFACE pH

The pH scale, which ranges from 0 to 14 is used to indicate the relative acidity or alkalinity of a solution. A soil with a pH value of 7.0 is neutral, while one with a value less than 7.0 is acidic, and one with a value greater than 7.0 is alkaline.

The pH values indicated in the table in Section 6.0 are for the surface layer of soil which ranges in thickness from 10 to 20 cm. The soil pH was determined using a mixture of one part soil with one part distilled water. A soil with a pH between 6.5 and 7.5 provides the best environment for crop growth. Yields of sweet clover and alfalfa are reduced below a pH of 6.0. A pH of 5.5 or less may reduce the yields of wheat, barley and canola.

Table 13. Surface pH classes.

pH Class	pH Range	Description
X	less than 5.5	Moderately acid
A	5.5 to 6.0	Slightly acid
B	6.1 to 6.7	Slightly acid to neutral
C	6.8 to 7.5	Neutral to slightly alkaline
D	greater than 7.5	Alkaline

Table 14. Definition of surface pH symbol.

Symbol	Percent Surface pH Class	Symbol	Percent Surface pH Class
X0	X^{10}	B5	B^7A^3
X1	$X^5A^3B^2$	B6	B^7X^3
X2	X^7B^3	C1	$C^5B^4D^1$
X3	$X^6C^2D^2$	C2	C^7B^3
A0	A^5B^5	C3	$C^7B^2D^1$
A1	$A^7B^2C^1$	C4	C^9D^1
A2	$A^5B^2C^3$	C5	$C^5B^2D^3$
A3	$A^3B^4C^3$	C6	C^7D^3
A4	$A^3B^3C^3D^1$	C7	C^6D^4
A5	$A^4B^4X^2$	D0	$D^4C^3X^3$
A6	$A^4B^4C^1X^1$	D1	D^5C^5
B0	$B^7A^2C^1$	D2	D^7C^3
B1	$B^4C^4A^2$	D3	D^9C^1
B2	B^7C^3	D4	$D^5C^3B^2$
B3	B^5C^5	U	Unclassified
B4	$B^6C^3D^1$		

EXAMPLE

Symbol $\longrightarrow$ **B1** = $B^4C^4A^2$

B^4 - 40% of surface area has a pH in the "B" range (6.1 - 6.7)

C^4 - 40% of surface area has a pH in the "C" range (6.8 - 7.5)

A^2 - 20% of surface area has a pH in the "A" range (5.5 - 6.0)

4.6 WETLANDS CLASSIFICATION

Wetlands are intermittent, semipermanent, or permanent waterbodies and include areas that have been drained as well as areas in which organic soils occur. Undisturbed wetlands are used extensively by wildlife for shelter, breeding habitat, and as feeding areas. Agricultural use of wetlands is often limited. However, some wetlands may provide native forage or hay for livestock, and trees may be used from some organic wetlands. If drained, these wetlands may support annual crop or hay production.

The size and type of wetland is often reflective of the permanence of a wetland. Generally the larger a wetland and the more open water there is, the more permanent it is. Nevertheless, wetlands will be influenced by recent climatic conditions. Due to the drought of the 1980's, for example, many wet meadows and shallow marshes have become dry enough to cultivate. In wetter years, it may be that many of these areas will become flooded and they may not be feasible to farm without installing drainage.

Wetlands occur in almost all areas, but are often not large enough to be mapped as individual areas. The wetlands classification attempts to indicate the types of wetlands that occur in each soil area mapped, as well as their approximate size and extent. It may, however, also be used to describe an individual wetland that is large enough to be delineated on the map. The wetland types can be identified using characteristic vegetation types, and the size and extent of wetlands distributed in the landscape is estimated using air photo interpretation.

Wetland Symbol

The wetlands symbol is composed of: an extent class, followed by a wetland type, a size class, and a water quality rating.

Wetland Type

Extent Class — **4S2-N** — Water Quality

Size Class

For example: an area with the wetland symbol **4S2-N** would be interpreted as follows: 20 to 40% of the area has shallow marshes that are 1 to 5 acres in size, with fresh to moderately saline water. There may be two wetland symbols listed in the Soil Interpretation section. The first symbol refers to the most common wetland type in the polygon, and the second symbol refers to the next most common. Intermediate types of wetlands can also be expected in most areas. Ten types of wetlands are identified. A description of the wetland types and classes follow.

Wetland Types

W- Wet Meadow. Contains vegetation composed mainly of fine-textured grasses and sedges of low stature intermixed with various forbs. Occasionally willows will dominate the wet meadow. Normally wet meadows are flooded for only three or four weeks in the springtime.

S - Shallow Marsh. Contains vegetation composed of various intermediate-height grasses, sedges, and forbs. Flooding normally lasts until July or early August.

E - Emergent Deep Marsh. Contains vegetation composed of coarse grass-like plants such as bulrushes and cattails. Water normally persists into late summer and fall and occasionally throughout the winter.

O - Open Water Marsh. Contains an open water zone that occupies less than 75% of the wetland's diameter. Plants that occur in the open water area are either submerged rooted or floating. Water is normally persistent throughout the year, except in times of extreme drought.

P - Shallow Open Water Wetland. The shallow open water wetland has an open water zone that occupies greater than 75% of the wetland's diameter.

A - Open Alkali Wetland. Contains a high concentration of salts in the mineral material throughout the extent of the wetland. The length of time the wetland is flooded varies from a few weeks to months. When the wetland is dry, a salt crust usually forms on the soil surface.

C - Cultivated Wetland. Any wetland that has been altered by cultivation.

B - Bog. Wetlands having an accumulation of mosses and forest peat materials.

F - Fen. Wetlands associated with nutrient-rich groundwater, and having an accumulation of sedge residues.

L - Lake. Named lakes, and other large waterbodies that are predominantly open water and greater than 2 m in depth.

N - No Wetlands. Wetlands occupy less than 1% of the mapped area.

Wetland Extent and Size Classes

The proportion of the polygon that has wetlands is estimated and given an extent class. The main size classes of wetlands in the polygon is also determined.

Table 15. Wetland extent and size class limits.

Extent		Size	
Class	% Area	Class	Area (acres)
1	1 - 5	1	< 1
2	5 - 10	2	1 - 5
3	10 - 20	3	5 - 10
4	20 - 40	4	10 - 20
5	40 - 70	5	20 - 40
6	> 70	6	> 40

Water Quality

Quality of the water is estimated based upon the wetland vegetation.

N - Fresh to Moderately Saline. Water conductivity is less than 15,000 $\mu s/cm^3$.

H - Saline to Highly Saline. Water conductivity is greater than 15,000 $\mu s/cm^3$. Plants that are known to occur where it is saline are red samphire, alkali grass, and prairie bulrush.

4.7 WIND EROSION

Wind Erosion Potential

The calculation of wind erosion potential is based on the following formula:

$$E(p) = C \times T \times I \times K$$

E(p) Potential annual soil loss.

C **Climatic factor** (based on average wind velocity and temperature). Values are compiled from weather stations and are presented on a rural municipality basis.

T **Landscape factor** (based on slope class and surface form). Topography, including the differences in relief between one location and another, the direction, steepness and frequency of slopes, and the comparative roughness of the land's surface, has a pronounced effect on the potential erodibility of soils.

I **Soil erodibility factor** (based on texture). The relative proportions of sand, silt and clay present influence a soil's ability to absorb and retain moisture and, consequently, to form aggregates resistant to wind erosion. Coarse-textured soils have a "single grain" structure lacking sufficient amounts of silt and clay to bind individual sand particles together. Consequently, these soils are readily broken down and eroded by wind. Fine and medium-textured soils have a higher water-holding capacity and stronger surface attraction. This results in a good soil structure with a high degree of resistance to wind erosion.

K **Soil ridge roughness factor** (based on texture).

The E(p) values from the formula are used to predict a soil's susceptibility to wind erosion if the soil surface is bare (i.e. it is in summerfallow with no growth and no organic residue on the surface). Management practices and the actual amount of past wind erosion that has occurred are not considered.

Table 16. Wind erosion susceptibility classes.

Class	Susceptibility	Description
1	Very Low	Good soil management and average growing conditions will produce a crop with sufficient residue to protect these soils against wind erosion.
2	Low	Good soil management and average growing conditions may produce a crop with sufficient residue to protect these soils against wind erosion.
3	Moderate	Average growing conditions may not supply adequate residue to protect these soils against wind erosion. Enhanced soil management practices are necessary to control wind erosion.
4	High	Average growing conditions will not provide sufficient residue to protect these soils against wind erosion. Coarse-textured soils may be seeded to pasture or to forage crops to prevent severe degradation of the soil.
5	Very High	These soils should not be used for annual cropping, but rather for pasture and forage crops which will protect the surface from severe degradation.
6	Extremely High	These soils must be left in permanent pasture and are not capable of sustaining arable agriculture.
U	Unclassified	Unclassified areas (e.g. Wetlands).

4.8 WATER EROSION

Water Erosion Potential

The potential water erosion classes are obtained by using the Universal Soil Loss Equation. This equation is an erosion model developed in the United States to predict long term average soil losses from runoff. The equation is:

$$A = R \times K \times L \times S \times C \times P$$

A Computed loss per unit area (tons per acre per year).

R **Rainfall erosivity factor** (the amount and intensity of rainfall an area receives).

K **Soil erodibility factor** (calculated using several physical soil properties; texture, organic matter, infiltration rate and structure).

L **Slope length factor.**

S **Slope steepness factor.**

C **Cover and management factor.**

P **Support practice factor.**

Assessment of potential water erosion for a particular area is independent of current management practices and therefore the C and P factors in the equation are held constant.

When using this information, it should be remembered that the class assigned to an area is an estimation of potential erosion for the entire area and that individual soils may occur within the area that vary significantly from the assigned class.

Table 17. Water erosion susceptibility classes.

Class	Susceptibility	Description
1	Very Low	Conventional soil management will produce sufficient residue to protect the soil from water erosion.
2	Low	Conventional soil management and average growing conditions should produce sufficient residue to protect the soil from water erosion.
3	Moderate	Conventional farming practices will result in a steady loss of soil due to water erosion. Conservation practices should be instituted to prevent degradation of these soils.
4	High	Rapid loss of soil will occur unless conservation practices are instituted. All gullies in these areas should be grassed.
5	Very High	These soils should not be broken due to their water erosion hazard. If broken, perennial crops or permanent forage should replace annual crops.
U	Unclassified	Unclassified areas (e.g. Wetlands).
D or G Modifiers		If an area was observed to be gullied (G) or dissected (D) (dissections being shallow gullies that can be crossed with farm implements), these symbols were added to the erosion class symbol to indicate that higher rates of erosion may occur on the steeper slopes along the edges of the dissection or gully if they are left unprotected.

4.9 PAST WIND AND WATER EROSION

An erosion rating has been assigned to each soil area. This rating reflects the surveyor's best estimate of the extent and degree of erosion that has occurred in an area since cultivation. Areas that have never been cultivated usually have enough vegetative cover to protect the soil surface from erosion and, therefore, remain relatively unaffected. Some uncultivated areas, however, do have clear evidence of recent erosion.

The rating system contains six classes with the degree of past wind and water erosion ranging from unaffected (W0) to very severe (W5). These classes, with the exception of W0 (unaffected), are assigned modifiers (G, K, B) which identify the type of erosion that has occurred. Wetlands, nonsoil areas and some uncultivated areas were not classified and are designated with the symbol 'U'.

Table 18. Past wind and water erosion classes.

Class	Description
U	**Unclassified**
W0	**Unaffected.** No evidence of past wind or water erosion.
W1	**Weak.** Soils are slightly eroded.
W1K	The knolls have slightly thinner A horizons and are lighter in color than midslopes. There is no noticeable thickening of the surface horizon on mid- to lower slopes.
W1B	Wind has removed part of the soil surface resulting in thinner A horizons. There is very little mixing of the A and B horizons and little sign of soil accumulation on mid- and lower slopes.
W1G	A few very shallow dissections are present indicating very slight evidence of water erosion.
W2	**Moderate.** Soils are moderately eroded.
W2K	Eroded knolls make up 5-15% of the area. The knolls are much lighter in color than midslopes. There is a noticeable thickening of the surface horizon on lower slopes due to accumulation of upper slope material.
W2B	Wind has removed part of the A horizon resulting in moderately thin A horizons. There is slight mixing of A and B horizons during tillage and some evidence of soil accumulation near fencelines and windbreaks.
W2G	Shallow dissections are present. The dissections may easily be crossed by farm implements and have little effect on cultivation. There is evidence of rill erosion (small channels a few centimeters deep, occurring after substantial rains or snowmelt).
W3	**Strong.** Soils are strongly eroded.
W3K	Eroded knolls make up 15-40% of the area. The knolls are much lighter in color than midslopes. A large portion of the A horizon has been removed and redistributed to lower slopes. On knolls, subsoil has been incorporated into the cultivated horizon.
W3B	Wind has removed a significant amount of the A horizon. Regular tillage results in a thorough mixing of the B horizon with the remaining A horizon. Accumulation of wind-blown material occurs along fencelines and windbreaks.
W3G	Distinct dissections are present. The dissections may be crossed by farm implements with some difficulty, and have a moderate effect on cultivation. These dissections should be seeded to grass to prevent further damage from erosion.
W4	**Severe.** Soils are severely eroded.
W4K	Eroded knolls make up 40-70% of the area. The eroded knolls are white in color, with light colors extending well onto the midslope position. Erosion has destroyed the soil profile on upper slopes.
W4B	Wind has removed most of the A horizon and frequently part of the B horizon. Occasional blowout areas are present, creating a very unstable surface.
W4G	Occasional shallow gullies are present. The gullies cannot be crossed by farm implements, and therefore, should not be cultivated for annual cropping. Reclamation for improved pasture is difficult unless erosion can be controlled.
W5	**Very Severe.** Soils are very severely eroded.
W5K	Eroded knolls make up greater than 70% of the area. The knolls and midslopes are white in color. Erosion has destroyed the soil profile on upper and midslope positions.
W5B	Wind has removed most of the soil profile. Blowout holes are numerous and easily carved into the subsoil or parent material. Areas between blowouts are deeply buried by eroded soil material. At best, this land should be utilized for native or improved pasture.
W5G	Deep gullies occur frequently. Soil profiles have been destroyed except in small areas between gullies. These areas should be permanently grassed. Reclamation of eroded areas is a difficult process.

4.10 SAND AND GRAVEL

The sand and gravel symbol shows the location of near surface sources of sandy and gravelly materials. The materials can range from mixtures of sand and silt to coarse gravelly sand. These materials may be used for concrete, sub-base for roads, traffic gravel or pervious borrow for fill purposes. This symbol does not suggest whether any of these areas contain sands and gravels of sufficient volume or quality to enable commercial development.

The term sand refers to materials with greater than 50% sand and with less than 15% clay. Gravel refers to materials having a significant component of particles greater than 2 mm in diameter.

Table 19. Description of sand and gravel symbol.

Symbol	Description
SG0	No sandy or gravelly materials recognized
S1	Sandy materials occupy 1-15% of landscape
G1	Gravelly materials occupy 1-15% of landscape
SG1	Sandy and gravelly materials occupy 1-15% of landscape
S2	Sandy materials occupy 15-40% of landscape
G2	Gravelly materials occupy 15-40% of landscape
SG2	Sandy and gravelly materials occupy 15-40% of landscape
S3	Sandy materials occupy 40-70% of landscape
G3	Gravelly materials occupy 40-70% of landscape
SG3	Sandy and gravelly materials occupy 40-70% of landscape
S4	Sandy materials occupy greater than 70% of landscape
G4	Gravelly materials occupy greater than 70% of landscape
SG4	Sandy and gravelly materials occupy greater than 70% of landscape
U	Unclassified

4.11 SOIL MOISTURE AND YIELD

An estimate of the amount of available soil moisture may be of value in decision-making regarding the seeding of stubble land and the level of fertilizer inputs required. In most cases, such decisions rely, in part, on an estimate of expected yield. Since yield is largely a function of soil moisture conditions, an estimate of the amount of soil moisture available to the crop over the growing season can be used to assess the probability of obtaining a given yield.

Calculation of Available Soil Moisture

To calculate the amount of available water in the soil, multiply the soil's available water-holding capacity (see Table 20) by the depth of moist soil.

Table 20. Available soil water-holding capacity in relation to soil texture.

Texture Class	Available water-holding capacity per unit depth of moist soil
Loamy sand	0.05
Sandy loam	0.08
Fine sandy loam	0.09
Very fine sandy loam	0.10
Sandy clay loam	0.12
Loam	0.14
Silt loam	0.16
Clay loam	0.17
Silty clay loam	0.20
Clay	0.21
Silty clay	0.22
Heavy clay	0.23

Example: If a loam-textured soil were moist to a depth of 500 mm, it would contain about 70 mm (500 x 0.14) of available water.

Estimation of Potential Yield

The amount of soil moisture available to the crop equals the amount stored in the soil prior to seeding, plus that received as precipitation during the growing season. Available soil moisture prior to seeding can be estimated using Table 20. The probability of receiving various amounts of precipitation over the growing season is given in Table 21.

Table 21. Probability (%) of receiving <u>at least</u> the indicated amounts of growing-season precipitation (May 15 to August 13).

Precipitation (mm)[a]									
100	120	130	150	165	190	210	225	245	260
Probability (%)									
>95	90	85	75	65	50	35	25	15	10

[a] Precipitation data from Loon Lake weather station.

Example: If the probability of receiving 190 mm of precipitation were 50%, then <u>at least</u> 190 mm of precipitation could be expected in 5 out of 10 years.

To asses the probability of obtaining a given yield:

1. Estimate the available soil moisture prior to seeding.
2. Determine the total moisture requirements (Table 22).
3. Assess the probability of receiving enough precipitation during the growing season to make up the difference.

Example: If a loam-textured soil were moist to a depth of 500 mm, what would be the probability of obtaining a wheat yield of at least 1500 kg/ha?

1. Stored soil moisture = (500 x 0.14) = 70 mm.
2. Total moisture requirements = 200 mm.
3. Moisture required = (200 - 70) = 130 mm.
4. Probability of receiving at least 130 mm is about 85%.

Table 22. Estimated yields[b] (kg/ha) in relation to available moisture requirements.

Crop	Moisture requirements (mm) 125	150	175	200	225	250	275	300	325	350	To convert kg/ha to bu/ac multiply by:
Wheat	600	900	1200	1500	1800	2100	2400	2700	3000	3300	.015
Oats	640	950	1270	1590	1910	2230	2540	2860	3180	3500	.026
Barley	740	1110	1480	1850	2210	2580	2950	3320	3690	4060	.019
Flax	360	500	660	830	990	1160	1320	1490	1650	1820	.016
Canola	360	540	720	900	1080	1270	1440	1620	1800	1980	.018

[b] Yields are based on good management and reasonably normal seasonal climatic conditions, particularly with respect to the timeliness of rainfall events. Actual yields may exceed estimates under abnormally favorable conditions, or be below estimates due to weeds, disease, low fertility, or adverse climatic extremes.

4.12 DEEP TILLAGE

A system has been developed to rate the suitability of solonetzic soils for deep tillage treatment. Because solonetzic soils are highly variable, this rating system should be used only as a guide. **A detailed field inspection should be carried out before a decision to deep till is made.**

Deep Tillage Limitation Symbol	
example:	**Mnm**
M -	Soil Limitation Class
nm -	Soil Limitations

Table 23. Description of soil limitation classes.

Symbol	Degree of Limitation	Description
N	None	Solonetzic soils are dominant in the area and have no limitations for deep tillage.
M	Moderate	Soil or landscape properties are limiting or solonetzic soils are not sufficiently extensive to require treatment of an entire field.
S	Severe	Soil or landscape properties are severely limiting or most soils in the area are not solonetzic.
O	Not solonetzic	Soils are not solonetzic.

Table 24. Description of soil limitations.

Symbol	Limitation	Description
x	Extent	Extent of solonetzic soils in the area is not great enough to require treatment.
n	Salinity	Saline soils are present and should not be deep tilled.
m	Parent material texture	Clayey or sandy soils are present and should not be deep tilled.
p	Stones	Because stones are brought to the soil surface by deep tillage, stony soils are not suitable for tillage treatment.
t	Topography	Steep slopes are a limitation to deep tillage.
c	Soil zone	Aridity in the Brown soil zone could be a limitation to deep tillage treatment.

Some properties that will affect the success of deep tillage cannot be identified at the scale of mapping done for this report. These properties include: depth to calcium carbonate (lime), depth to the B horizon, and soil drainage. The calcium carbonate layer and the B horizon should occur within 40 cm of the soil surface and soil drainage should be good at any site selected for deep tillage. These properties should be checked in the field before tillage is done.

5. ACREAGE FACTS

Rural Municipality of Loon Lake, Number 561

	Hectares	Acres
TOTAL AREA	194681	481057
SOIL CAPABILITY FOR AGRICULTURE		
Class 1	0	0
Class 2	6343	15673
Class 3	42275	104461
Class 4	73856	182497
Class 5	30072	74308
Class 6	14800	36572
Class 7	9535	23561
Class O	14073	34774
IRRIGATION SUITABILITY		
Excellent	0	0
Good	29493	72876
Fair	67561	166944
Poor	88142	217800
SALINITY		
Very Strong	0	0
Strong	175	432
Moderate	764	1888
Weak	197	486
None	193545	478250
SAND AND GRAVEL		
Sandy	4658	11509
Sandy and Gravelly	2904	7177
Gravelly	3097	7652
STONES		
Non- to Slightly Stony	29119	71954
Moderately Stony	135741	335415
Very Stony	13424	33171
Excessively Stony	5161	12753

	Hectares	Acres
SURFACE pH (Soil Acidity)		
X (< 5.5)	16497	40763
A (5.5 - 6.0)	60794	150222
B (6.1 - 6.7)	65337	161447
C (6.8 - 7.5)	31019	76649
D (> 7.5)	9798	24212
SURFACE TEXTURE		
Sands	9359	23126
Sandy Loams	86985	214939
Loams	72406	178915
Clay Loams	7293	18021
Clays	1157	2858
Organics	6246	15435
WIND EROSION POTENTIAL		
Very Low	165207	408227
Low	7754	19161
Moderate	0	0
High	4237	10470
Very High	0	0
Extremely High	0	0
WATER EROSION POTENTIAL		
Very Low	38742	95731
Low	103186	254973
Moderate	14641	36178
High	14605	36089
Very High	6084	15034
WETLANDS AND POORLY DRAINED SOILS		
Open water and lakes	10802	26692
Wet, poorly drained soils	33556	82916

6. INTERPRETIVE DATA TABLES

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
1	HwAv1	7-6	hg	l-ls	0	4Dct2	S3	6(6)TE5(4)TW	C5	4S6-N,2C6-N	1	5G	U	S1	O	5691.9
2	PnKk1	3-2	u	s-gsl	0	4Cmp	S2	5(10)MF	A5	1B4-N	4	1	U	SG4	O	805.4
3	Hw	6-7	hd	ls-l	0	4Dct2	S2	5(6)TE6(4)TE	C5	N	2	5D	U	SG4	O	220.0
4	LnBt1	3-2	u	sl-s	0	2Cdmv	S2	4(8)MD5(2)MF	A6	1S2-N	2	2	U	S1	O	3428.5
5	Ln1	3	h	sl	0	2Bmdt2	S2	4(9)MD6(1)W	A6	1S1-N,1F2-N	1	2	U	SG0	O	396.6
6	Wz2	1	l	U	0	4Cwi	U	6(10)W	U	6E6-N	U	U	U	S1	O	100.5
7	Ln1	3-2	u	sl	0	2Bmdt1	S2	4(9)MD6(1)W	A6	1S1-N,1F3-N	1	2	W0	SG0	O	1474.9
8	LnBt2	4-5	h	sl-s	0	2Cmt2v	S2	4(6)MD5(2)MF7(2)W	A6	2F4-N,2S2-N	2	2	U	S1	O	1371.3
9	Ln1	5-6	h	sl	0	2Dmt2	S2	4(5)MD5(5)T	A6	N	1	3	U	SG0	O	97.1
10	Ln1	3-5	hd	sl	0	2Dmt2	S2	4(9)MD6(1)W	A6	1F2-N,1S1-N	1	2D	U	SG0	O	1155.7
11	Ln2	4-3	h	sl	0	2Cmt2	S2	4(8)MD7(1)WO(1)	A6	2F4-N,2S2-N	1	2	U	SG0	O	2291.0
12	HwAv1	7	hd	l-ls	0	4Dct2	S3	6(6)TE7(4)W	C5	4P6-N,3E5-N	1	5D	U	SG0	O	2811.1
13	LnBL14	5-4	h	sl-o	0	2Ddmv	S2	4(6)MD7(1)WO(3)	A3	4F5-N,1E3-N	1	3	U	SG0	O	5466.6
14	Ln1	3-4	h	sl	0	2Cmt2	S2	4(10)MD	A6	1S1-N	1	2	U	SG0	O	1012.5
15	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MDO(4)	A3	4F3-N,2S1-N	1	2	U	SG0	O	646.8
16	PnKk1	3-4	ud	s-gsl	0	4Cmp	S2	5(10)MF	A5	N	4	1D	U	SG4	O	148.5
17	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MDO(4)	A3	4F3-N,2S1-N	1	2	U	SG0	O	3064.8
18	Ln2	3-5	h	sl	0	2Dmt2	S2	4(8)MD6(1)WO(1)	A6	2F2-N,2S2-N	1	2	U	SG0	O	11309.5
19	PnKk1	3-2	u	s-gls	0	4Bmt1	S2	5(10)MF	A5	1S3-N	4	1	U	SG4	O	453.7
20	Lake									6L6-N						299.9
21	MwBL10	2	u	l-o	0	4Cwi	S2	7(4)W6(2)WO(4)	C5	5O6-N,5F5-N	1	1	U	SG0	O	231.4
22	Lake									6L6-N						221.0
23	Whitehood Lake									6L6-N						380.6
24	Ln2	3-5	h	sl	0	2Dmt2	S2	4(8)MD7(1)WO(1)	A6	2E3-N,2F2-N	1	2	U	SG0	O	227.2
25	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MDO(4)	A3	4F3-N,2S1-N	1	2	U	SG0	O	1048.1
26	LnBL14	4-5	h	sl-o	0	2Ddmv	S2	4(6)MD7(1)WO(3)	A3	3F3-N,3E3-N	1	2	U	SG0	O	145.7
27	BLLL34	1	H	o	0	4Cwi	S0	O(10)	C5	5F6-N,5B6-N	U	U	U	U	O	147.6
28	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MDO(4)	A3	4F3-N,2S1-N	1	2	U	SG0	O	3358.8
29	Ln1	3	h	sl	0	2Bmdt2	S2	4(9)MD6(1)W	A6	1S2-N,1F4-N	1	2	U	SG0	O	1185.3
30	Ln1	3	h	sl	0	2Bmdt2	S2	4(9)MD6(1)W	A6	1S2-N,1F4-N	1	2	U	SG0	O	2253.8
31	Lake									6L6-N						214.6
32	MwBL10	2	u	l-o	0	4Cwi	S3	O(5)6(5)W	C5	5E6-N,5F6-N	1	1	U	SG0	O	346.5
33	Ln2	4-3	h	sl	0	2Cmt2	S2	4(8)MD6(1)WO(1)	A6	2S2-N,2F2-N	1	2	U	SG0	O	777.0
34	MwBL10	2-3	u	l-o	1MP	4Cwi	S3	7(4)W5(2)WPO(4)	C5	5F6-N,5O6-N	1	1	U	SG0	O	728.4
35	Lake									6L6-N						259.8
36	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MDO(4)	A3	4F3-N,2S1-N	1	2	U	SG0	O	79.7
37	Ln1	5-4	h	sl	0	2Cmt2	S2	4(9)MD6(1)W	A6	1F2-N,1S2-N	1	3	U	SG0	O	76.6
38	Bv6	6-4	h	cl-c	0	2Dqt2v	S0	5(7)T6(3)W	A6	4B2-N	1	3	U	SG0	O	1663.6
39	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MDO(4)	A3	4F3-N,2S1-N	1	2	U	SG0	O	7110.9
40	Ln1	5-4	h	sl	0	2Cmt2	S2	4(9)MD6(1)W	A6	1F2-N,1S2-N	1	3	U	SG0	O	467.7
41	MwBL10	2	u	l-o	0	4Cwi	S3	6(4)W7(2)WO(4)	C5	5S6-N,5F6-N	1	1	U	SG0	O	86.9
42	MwBL10	2	u	l-o	0	4Cwi	S3	6(4)W7(2)WO(4)	C5	5S6-N,5F6-N	1	1	U	SG0	O	122.1
43	MwBL10	2	u	l-o	0	4Cwi	S3	6(4)W7(2)WO(4)	C5	5S6-N,5F6-N	1	1	U	SG0	O	458.4
44	Ln2	4-6	h	sl	0	2Dmt2v	S2	4(5)MD5(4)TWO(1)	A6	2F3-N,2S2-N	1	3	U	SG0	O	1131.0
45	MwBL10	2	u	l-o	0	4Cwi	S2	7(4)W6(2)WO(4)	C5	5F6-N,5O4-N	1	1	U	SG0	O	80.4
46	Ln1	6-5	h	sl	0	2Dmt2	S2	5(5)T6(1)W4(4)MD	A6	1S2-N,1F2-N	1	5	U	SG0	O	157.7
47	Ln1	6-5	h	sl	0	2Dmt2	S2	5(5)T6(1)W4(4)MD	A6	1S2-N,1F2-N	1	5	U	SG0	O	108.4
48	Ln1	6-5	h	sl	0	2Dmt2	S2	5(5)T6(1)W4(4)MD	A6	1S2-N,1F2-N	1	5	U	SG0	O	93.9
49	Ln2	4-6	h	sl	0	2Dmt2v	S2	4(5)MD5(4)TWO(1)	A6	2F3-N,2S2-N	1	3	U	SG0	O	203.1
50	Ln2	3-4	h	sl	0	2Cmt2	S2	4(8)MD5(1)WO(1)	A6	2S3-N,2F2-N	1	2	U	SG0	O	682.7
51	MwBL10	2	u	l-o	0	4Cwi	S2	7(4)W6(2)WO(4)	C5	5F6-N,5O4-N	1	1	U	SG0	O	129.8
52	Ln2	4-6	h	sl	0	2Dmt2v	S2	4(5)MD5(4)TWO(1)	A6	2F3-N,2S2-N	1	3	U	SG0	O	4045.7
53	MwBL10	2	u	l-o	0	4Cwi	S2	6(3)W7(2)WO(5)	C5	5S6-N,5F6-N	1	1	U	SG0	O	347.2
54	BL3	1	H	o	0	4Cwi	S0	O(10)	C5	6F6-N	U	U	U	U	O	787.9
55	Ln1	4-3	h	sl	0	2Cmt2	S2	4(9)MD6(1)W	A6	1S1-N,1F2-N	1	2	U	SG0	O	2268.9
56	MwBL10	2	u	l-o	0	4Cwi	S2	6(3)W7(2)WO(5)	C5	5S6-N,5F6-N	1	1	U	SG0	O	160.3
57	Ln2	3-4	h	sl	0	2Cmt2	S2	4(8)MD6(1)WO(1)	A6	2S2-N,2F2-N	1	2	U	SG0	O	4991.3
58	LnBt3	3-4	h	l-ls	0	2Ddv	S4	4(5)PM3(2)D5(3)PW	A6	3F3-N,2F1-N	1	2	W0	S1	O	4068.5
59	Ln2	3-5	h	sl	0	2Dmt2	S2	4(8)MD7(1)WO(1)	A6	2E3-N,2F2-N	1	2	U	SG0	O	639.4
60	Ln2	3-2	u	sl-l	0	2Ddmv	S4	4(4)PD3(2)D5(4)PW	A6	3F3-N	1	2	W0	SG0	O	8684.2
61	Long Lake									6L6-N						233.0
62	Lake									6L6-N						238.5
63	Ln1	4-6	h	sl	0	2Dmt2	S2	4(6)MD5(3)T6(1)W	A6	1S2-N,1F2-N	1	3	U	SG0	O	823.2
64	Ln2	4-6	h	sl	0	2Dmt2v	S2	4(5)MD5(4)TWO(1)	A6	2F3-N,2S2-N	1	3	U	SG0	O	66.9
65	MwBL10	2	u	l-o	0	4Cwi	S2	O(5)6(5)W	C5	5S6-N,5F6-N	1	1	U	SG0	O	284.6

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
66	Watson Lake									6L6-N						371.9
67	Ln1	5-4	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	2S1-N	1	3	U	SG0	O	255.0
68	Ln1	4-3	h	sl	0	2Cmt2	S2	4(9)MD6(1)W	A6	1S1-N,1F2-N	1	2	U	SG0	O	3164.6
69	DoLn2	2-3	u	sil-sl	0	2Cdv	S2	3(5)D4(3)MD5(2)W	A6	2S2-N,2F2-N	1	2	U	SG0	O	877.9
70	Ln2	3-5	h	sl	0	2Dmt2	S2	4(8)MD5(1)W6(1)W	A6	3S2-N	1	2	U	SG0	O	633.7
71	MwBL10	2	u	l-o	0	4Cwi	S2	O(5)6(5)W	C5	5S6-N,5F6-N	1	1	U	SG0	O	339.8
72	LnBL14	3-5	h	sl-o	0	2Dmt2v	S2	4(6)MD6(1)WO(3)	A3	4F2-N,2S1-N	1	2	U	SG0	O	2522.2
73	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MD6(1)WO(3)	A3	4F2-N,2S1-N	1	2	U	SG0	O	1853.1
74	MwBL10	2	u	l-o	0	4Cwi	S2	O(5)6(5)W	C5	5S6-N,5F6-N	1	1	U	SG0	O	487.9
75	Ln2	5-4	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3S1-N,1F2-N	1	3	U	SG0	O	105.9
76	Ln2	5-4	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3S1-N,1F2-N	1	3	U	SG0	O	162.9
77	MwBL10	2	u	l-o	0	4Cwi	S2	O(5)6(5)W	C5	5S6-N,5F6-N	1	1	U	SG0	O	236.8
78	Ln2	4-5	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3S2-N	1	2	U	SG0	O	446.8
79	LnBt31	4-3	h	sl-ls	1WA	2Cmt2v	S2	4(8)MD5(2)W	A6	3S1-N	1	2	W3B	S1	O	1851.9
80	MwBL10	2	u	l-o	0	4Cwi	S2	O(5)6(5)W	C5	5S6-N,5F6-N	1	1	U	SG0	O	82.2
81	Ln1	5-6	h	sl	0	2Dmt2	S2	4(6)MD5(4)T	A6	1S1-N	1	3	U	SG0	O	270.5
82	Ln2	5-4	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3S1-N,1F2-N	1	3	U	SG0	O	391.1
83	LnBL14	4-3	h	sl-o	0	2Ddmv	S2	4(6)MD6(1)WO(3)	A3	4F3-N,2S2-N	1	2	U	SG0	O	2693.9
84	Ln1	4-5	h	sl	0	2Cmt2	S2	4(9)MD6(1)W	A6	1S2-N,1F2-N	1	2	U	SG0	O	197.1
85	MwBL10	2	u	l-o	0	4Cwi	S2	O(5)6(5)W	C5	5S6-N,5F6-N	1	1	U	SG0	O	380.9
86	LnBL14	3-4	h	sl-o	0	2Ddmv	S2	4(6)MD6(1)WO(3)	A3	4F2-N,2S1-N	1	2	U	SG0	O	873.1
87	Mw6	1	l	l-sl	0	4Cwi	S2	5(8)W6(2)W	D1	6F6-N	1	1	W0	SG0	O	3145.7
88	Ln3	4-6	h	l	0	2Ddt2v	S3	4(6)TP5(4)TW	A6	3O2-N,3F2-N	1	4	U	SG1	O	8415.7
89	Wz3	1	l	U	1WPA	4Cwi	U	7(9)W6(1)W	U	6P6-N	U	U	U	SG0	O	121.1
90	LnBt4	4-3	h	sl-ls	0	2Ddmv	S2	4(5)MD5(4)MWO(1)	A6	3F4-N,2E3-N	1	2	U	S1	O	1156.9
91	Lake									6L6-N						307.2
92	Rw	3-4	hd	sl-o	1MA	4Dct2	S2	4(4)MW5(3)WO(3)	C5	5W3-N,4F3-N	1	3D	U	S1	O	484.7
93	Av5	3	uc	l	0	4Dwv	S0	4(6)W5(4)W	D1	5C6-N,5S2-N	1	2	U	SG0	O	261.9
94	AwBL3	2-3	u	sl-o	2MA	4Dwv	S2	5(6)W4(1)MDO(3)	C5	6F6-N	1	1	U	U	O	2708.8
95	LnBt31	4-3	h	sl-ls	1WA	2Cmt2v	S2	4(8)MD5(2)W	A6	3S1-N	1	2	W3B	S1	O	191.3
96	LnBt30	3-2	u	sl-ls	1WA	2Ddmv	S2	4(9)DW5(1)W	A6	4W1-N	1	2	W2B	S1	O	725.1
97	PnKk19	3	u	cs-gsl	1WA	4Cmpv	S2	5(8)MF4(2)W	A5	4W1-N	4	1	U	SG4	O	731.0
98	Rw	3-4	hd	sl-l	1WA	4Dct2	S2	4(5)WM5(2)WO(3)	C5	5W3-N,4F3-N	1	3D	W3G	S1	O	234.2
99	Wz3	1	l	U	1WPA	4Cwi	U	7(9)W5(1)W	U	6P6-N	U	U	U	S1	O	737.0
100	LL5	2	H	o	0	4Cwi	S0	O(10)	A4	6B6-N	U	U	U	U	O	372.9
101	LnBt31	4-3	h	sl-ls	1WA	2Cmt2v	S2	4(8)MD5(2)W	A6	3S1-N	1	2	W3B	S1	O	268.2
102	LnBt31	3-4	h	sl-ls	1WA	2Ddmv	S2	4(6)MD5(4)MW	A6	3W2-N,3S2-N	1	2	W0	S1	O	2459.4
103	LnBt31	3	h	sl-ls	1WA	2Cdmv	S2	4(5)MD5(3)MFO(2)	A6	3F2-N	1	2	W0	S1	O	741.3
104	Rw	3	ud	l	1WD	4Dct2	S2	O(7)4(3)MW	C5	6B3-N,4W2-N	1	3D	U	SG0	O	33.0
105	BtLn19	3	hd	ls-sl	1WA	3Dgmv	S2	4(5)MD5(5)MW	A6	3W1-N	1	1D	W2BG	SG1	O	75.1
106	Ln11	3-2	u	l-sl	1WA	2Ddv	S2	3(6)D4(3)MW5(1)W	A6	3W1-N	1	2	W1K	SG0	O	7.7
107	Ln1	5	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	2S2-N	1	3	U	SG0	O	233.6
108	Ln1	4-3	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	1E4-N,1S1-N	1	2	U	SG0	O	736.2
109	LnKk1	3	u	sl-gsl	0	2Cmvp	S3	4(6)MD5(3)MF6(1)W	A6	1F3-N,1S1-N	1	2	U	G2	O	700.1
110	PnKk19	3	u	cs-gsl	1WA	4Cmpv	S2	5(8)MF4(2)DW	A5	4W1-N	4	1	U	SG4	O	474.4
111	PnKk19	3	u	cs-gsl	1WA	4Cmpv	S2	5(8)MF4(2)DW	A5	4W1-N	4	1	U	SG4	O	50.3
112	PnKk19	3	u	cs-gsl	1WA	4Cmpv	S2	5(8)MF4(2)DW	A5	4W1-N	4	1	U	SG4	O	951.9
113	LnBt30	3-2	u	l-ls	1WA	2Ddv	S2	3(5)D4(4)MW5(1)W	A6	3W1-N	1	2	W1B	S1	O	385.3
114	Wz3	1	l	U	2MPA	4Cwi	U	7(8)W6(2)W	U	6P6-N	U	U	U	S1	O	698.1
115	MwBL4	2	u	l-o	3MA	4Cwi	S2	5(4)W4(3)WMO(3)	C5	5F3-N,5W3-N	1	1	W0	SG0	O	2198.3
116	LnLc3	3-2	u	l-sl	1WA	2Ddv	S2	3(7)DM4(2)MW5(1)W	A6	2S1-N,1C1-N	1	2	W1K	SG0	O	108.7
117	LnLc3	3-2	u	l-sl	1WA	2Ddv	S2	3(7)DM4(2)MW5(1)W	A6	2S1-N,1C1-N	1	2	W1K	SG0	O	238.9
118	Wz3	1	l	U	2MPA	4Cwi	U	7(8)W6(2)W	U	6P6-N	U	U	U	SG0	O	155.4
119	Av41	2-3	uc	ls-cl	0	3Dwmv	S0	5(9)WI7(1)W	D1	6S6-N,3O2-N	1	1	W0	SG4	O	242.5
120	LnBt31	4-3	hd	l-sl	1WA	2Ddv	S2	3(6)D4(3)MW5(1)W	A6	3W1-N,2S1-N	1	3D	W2KB	S1	O	375.8
121	AwLL1	2-3	u	l-o	1WA	4Dwv	S0	6(8)WO(2)	A4	5B3-N,4S3-N	1	1	W0	U	O	726.5
122	Ln11	3-2	u	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2	W1K	SG0	O	48.8
123	LnHo3	4-3	hd	l	1WA	2Cqt2v	S2	3(7)DT2(2)D5(1)W	A6	2S3-N	1	3D	W2G	SG0	O	796.8
124	Ln11	3-2	u	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2	W1K	SG0	O	100.0
125	BLAw1	2-3	Hu	o-l	3MA	4Cwi	S2	O(6)4(2)W5(2)W	C5	6F5-N,4S2-N	U	U	W0	U	O	1682.8
126	Ln1	3-4	hd	sl-l	0	2Cmt2p	S3	4(7)MD3(3)D	A6	N	1	2D	U	SG0	O	63.8
127	Ln11	2-3	u	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	1	W1K	SG0	O	1169.2
128	Ln12	3	u	l-sl	0	2Cdv	S2	3(8)D4(2)DW	A6	2C1-N	1	2	W1B	SG0	O	138.4
129	Ln13	3-2	ud	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2D	W1G	SG0	O	55.4
130	MwBL4	2	u	l-o	3MA	4Cwi	S2	5(4)W4(3)WMO(3)	C5	5F3-N,5W3-N	1	1	W0	SG0	O	130.0
131	Rw	3	uc	sl-l	2WD	4Dct2	S1	5(8)IW7(2)W	C5	4P3-N	1	3	W2G	SG0	O	62.5
132	Rw	3-4	hd	l	2MA	4Dct2	S2	4(8)WP5(2)W	C5	6S3-N	1	3D	W2G	S1	O	130.7
133	Ln11	2-3	u	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	1	W1K	SG0	O	588.0
134	Wz2	1	l	U	2WP	4Cwi	U	5(6)W7(4)W	U	5E6-N,5O6-N	U	U	U	SG0	O	123.9
135	Ln11	3	u	l	1WP	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2	W1K	SG0	O	840.1

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
136	LnBd1	3	u	l	1WA	2Bdvt1	S2	3(7)D4(2)MF5(1)W	A6	2E2-N	1	2	W1K	G2	O	133.8
137	LnBt1	3	h	l	1WP	2Cdv	S2	3(8)D4(2)MD	A6		1	2	W1K	S1	O	246.9
138	LLBL2	1	H	o	0	4Cwi	S0	O(9)3(1)TD	A3	5B3-N,5F3-N	U	U	U	U	O	535.5
139	LnHo3	3	hd	l	1WA	2Cdqv	S2	3(7)D2(2)D4(1)W	A6	2C1-N	1	2D	W1G	SG0	O	843.7
140	Rw	3-4	ud	l	2MA	4Dct2	S2	4(8)WP5(2)W	C5	6W3-N,4S2-N	1	3D	W2G	SG0	O	212.0
141	Rw	4-3	hd	l	2MA	4Dct2	S2	5(7)W6(3)W	C5	5E3-N,5S2-N	1	3D	W3G	SG0	O	38.0
142	Ln14	3-4	hd	l	1WPA	2Cdt2v	S2	3(8)D5(2)W	A6	3S2-N,2O2-N	1	2D	W2GK	SG1	O	41.8
143	Ln14	3-4	hd	l	1WPA	2Cdt2v	S2	3(8)D5(2)WD	A6	3S2-N,2O2-N	1	2D	W2GK	SG1	O	683.4
144	LnHo3	4-5	hd	l	0	2Cqt2v	S2	3(6)DT4(3)T5(1)W	A6	2C1-N,2S1-N	1	3D	W3G	SG0	O	752.4
145	LnHo3	4-3	hd	l	1WA	2Cqt2v	S2	3(7)DT2(2)D5(1)W	A6	2S1-N,2C1-N	1	3D	W2GK	SG0	O	1542.7
146	Ln11	3	u	l	1WP	2Bdvt1	S2	3(7)D4(2)MD5(1)W	A6	2C1-N	1	2	W1K	SG0	O	264.8
147	Av44	3-2	ud	l-ls	1WA	2Ddv	S2	3(5)D4(4)MW5(1)W	C5	2C1-N,2S1-N	1	2D	W1G	SG0	Mc	500.0
148	AvBL3	2-3	uc	l-o	3MA	4Dwsv	S2	5(6)WO(4)	C5	5E3-N,4F3-N	1	1	W2G	SG0	Mnc	7166.7
149	Hm14T	2-3	ud	sl-vl	1MA	2Cmv	S1	3(5)M2(3)Cs5(2)W	A6	3C2-N	1	1D	W2G	SG0	O	1317.5
150	LnBt6	3-5	h	sl-s	0	2Dmt2	S2	4(8)MD5(2)MF	A6	1F1-N	1	3	U	S1	O	893.2
151	PnBt2	3	ud	s-sl	0	4Cmv	S2	5(5)MF6(2)W4(3)MD	A6	2S2-N,2C2-N	4	1D	W1K	S3	O	1412.9
152	LnBt8	3-5	hd	l-ls	1WA	2Ddt2	S2	3(5)D4(4)MT5(1)W	A6	2S1-N,2C1-N	1	3D	W3GB	S1	O	399.0
153	Av44	3	ud	l-ls	1MA	2Ddsv	S2	2(5)D4(4)MW5(1)W	C5	3C1-N,2S1-N	1	2D	W3B	S1	Mc	715.2
154	Mw1	2-3	u	sl-ls	2MA	4Cwi	S0	4(10)WN	C5	5C4-N,5W4-N	1	1	W3B	SG0	O	188.8
155	Rw	4-6	hg	l-gsl	1WA	4Dct2	S2	5(7)EW4(3)TM	C5	5O3-N	1	5G	W4G	G2	O	1281.0
156	LnHo3	4-5	hd	l	0	2Cqt2v	S2	3(6)DT4(3)T5(1)W	A6	2C1-N,2S1-N	1	3D	W3G	SG0	O	324.2
157	Rw	4-5	hd	l	1WA	4Dct2	S2	5(4)W6(3)W4(3)WT	C5	5O2-N,4C2-N	1	4D	W3G	SG0	O	228.4
158	Ln11	3-2	ud	l-sl	1WA	2Ddv	S2	3(7)D4(3)MW	A6	2C1-N	1	2D	W1G	SG0	O	3082.1
159	Av43	3	ut	gsl-l	0	2Cdmv	S2	4(10)MF	C5		1	2	W0	SG0	O	140.5
160	Ln11	3-2	ud	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2D	W1G	SG0	O	310.4
161	LnHo3	4-5	hd	l	0	2Cqt2v	S2	3(6)DT4(3)T5(1)W	A6	2C1-N,2S1-N	1	3D	W3G	SG0	O	103.7
162	Rw	3	ud	l-gsl	1WA	4Dct2	S2	4(7)MW5(3)W	C5	4W2-N,3S2-N	1	3D	W2G	SG1	O	201.6
163	Ln12	3	h	l	1WP	2Bdt2v	S2	3(9)D4(1)W	A6		1	2	W1K	SG0	O	239.2
164	Do5	2	ud	l	1WA	2Bdv	S0	3(9)D4(1)W	A6	2C1-N	1	1D	W1G	SG0	O	173.0
165	Rw	3	ud	l	1WA	4Dct2	S2	5(7)W4(3)W	C5	3S2-N,3W2-N	1	3D	W2G	SG0	O	54.9
166	Ln3	3	h	l	1WA	2Ddv	S2	3(7)D4(2)W5(1)W	A6	3C1-N,2S2-N	1	2	W1K	SG0	O	900.4
167	Mw6	2-3	u	l	1MA	4Cwi	S3	4(6)WP5(4)W	C5	6W3-N,2O2-N	1	1	W0	SG0	O	602.7
168	LnDo12	2-3	ud	l	1WA	2Ddv	S2	3(5)D4(4)WM5(1)W	A6	4C2-N,2S1-N	1	1D	W1G	SG0	O	1029.3
169	Ln3	3	h	l-sl	1WA	2Ddv	S3	3(7)D4(3)MW	A6	3C1-N	1	2	W1K	SG1	O	468.3
170	Wz2	1	l	U	0	4Cwi	U	6(7)W4(3)W	U	6O4-N	U	U	U	SG0	O	91.7
171	LnSy1	3	u	sl-ls	1WPA	2Cdmp	S2	4(7)MD5(3)MF	A6	2C1-N	1	2	W3B	S2	O	133.9
172	LnBd1	3	ud	l-gsl	0	2Cdvp	S2	3(6)D4(4)MF	A6	N	1	2D	W1G	G2	O	82.9
173	LnBd1	3	ud	l-gsl	0	2Cdvp	S2	3(6)D4(4)MF	A6	N	1	2D	W1G	G2	O	305.7
174	Av43	3	u	l-ls	0	2Cdv	S2	2(5)D4(5)M	A6	N	1	2	W2BK	SG0	O	288.0
175	Ln1	4-6	hd	l	0	2Ddt2	S3	3(5)D4(3)T5(2)TW	A6	2S1-N	1	4D	W4G	SG1	O	1789.9
176	Rw	5-4	hg	l	1WA	4Dct2	S3	5(10)EW	C5	5S2-N	1	4G	W4G	SG1	O	93.9
177	Ln10	3	u	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2	W1G	SG0	O	853.7
178	Ln10	3	hd	l	1MA	2Bdt2v	S2	3(9)D5(1)W	A6	2W2-N	1	2D	W2G	SG1	O	631.5
179	Ln10	3	u	l	1WA	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N	1	2	W1G	SG0	O	947.4
180	LnBt2	4-3	h	l-sl	1WA	2Cdt2v	S2	3(5)D4(3)MP5(2)W	A6	3S1-N,3C1-N	1	2	W3KB	S1	O	541.9
181	Rw	4-5	hd	l	1WP	4Dct2	S3	5(4)W6(4)W4(2)TW	C5		1	4D	W3G	SG0	O	211.2
182	Ln2	3-4	h	l	0	2Cdt2v	S2	3(7)D4(1)T5(2)W	A6	3C1-N,2S1-N	1	2	W2K	SG0	O	160.9
183	Ln2	3-4	h	l	0	2Cdt2v	S2	3(7)DT4(1)T5(2)W	A6	3C1-N,2S1-N	1	2	W2K	SG0	O	1200.9
184	Ln3	4-6	h	l	0	2Ddt2	S3	5(5)TP6(2)W4(3)T	A6	3S2-N,3E2-N	1	4	U	SG0	O	2503.9
185	Ln1	3	u	sl	0	2Bmdt1	S2	4(10)MD	A6	2W2-N	1	2	W1G	SG0	O	409.2
186	Ln1	3	u	sl	0	2Bmdt1	S2	4(10)MD	A6	2W2-N	1	2	W1G	SG0	O	3427.8
187	Rw	5-4	hc	l	1WA	4Dct2	S2	5(10)EW	C5	3O3-N,3S3-N	1	4	W4G	SG0	O	165.5
188	BL3	1	H	o	0	4Cwi	S0	O(10)	D1	6F6-N	U	U	U	U	O	119.2
189	LnBt1	3	u	sl-ls	0	2Cdmv	S3	4(9)MD5(1)W	A6	2F2-N	1	2	U	S1	O	2124.8
190	Mw6	1	l	l	0	4Cwi	S2	5(8)W6(2)W	D1	5C6-N,4F5-N	1	1	W0	SG0	O	592.5
191	MwBL4	2	u	sl-o	0	4Cwi	S1	6(10)W	D3	6F6-N	1	1	U	SG0	O	216.9
192	LnBt3	4-5	h	sl-l	0	2Cmt2v	S3	4(5)TP3(3)D5(2)W	A6	3F2-N,1O2-N	1	3	U	S1	O	314.0
193	BtPn13	4-6	h	sl-s	0	3Dgt2	S2	4(6)MD5(2)MF6(2)W	A6	3F2-N	2	3	U	S2	O	931.1
194	Makwa Lake									6L6-N						8073.9
195	BL3	1	H	o	0	4Cwi	S0	O(10)	D1	6F6-N,2B3-N	U	U	U	U	O	353.9
196	KkPn7	2-3	u	s-ls	0	4Cmv	S0	5(8)MF6(2)W	A5	2F3-N,2B2-N	4	1	U	SG4	O	612.1
197	BL3	1	H	o	0	4Cwi	S0	O(10)	D1	6F6-N,2B3-N	U	U	U	U	O	1010.8
198	Av5	2	uc	sl-l	0	4Dwv	S0	6(7)W7(3)W	D1	6F6-N	1	1	U	S1	O	2316.6
199	BtPn5	3-4	h	sl-s	0	3Cgt2v	S2	4(6)MD5(2)MF6(2)W	A6	3F2-N	1	2	U	S2	O	1479.1
200	BL3	1	R	o	0	4Cwi	S0	6(10)W	D1	6F6-N	U	U	U	U	O	242.9
201	BtPn5	3-5	h	sl-s	0	3Dgt2	S2	5(4)MF6(2)W4(4)MD	A6	3F2-N	1	2	U	S2	O	2679.8
202	Ln2	5	h	sl	0	2Cmt2v	S2	4(8)MD5(2)W	A6	3F1-N	1	4	U	SG0	O	446.9
203	LnBd2	6-4	h	sl	0	2Dmt2	S2	5(5)T6(2)W4(3)M	A6	4B3-N	1	4	U	G2	O	2463.4
204	Wz1	1	l	U	0	4Cwi	U	5(5)W6(3)W7(2)W	U	6S6-N,2O2-N	U	U	U	S2	O	158.4
205	PnKk6	2-3	u	s	0	4Cmv	S0	5(8)MF6(2)W	A5	2B2-N,2F2-N	4	1	U	SG4	O	573.6

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206	BtPn3	4-6	h	sl-s	0	3Dgt2	S2	5(5)MF6(1)W4(4)MD	A6	2F2-N	2	3	U	S2	O	1455.6
207	Ghost Lake									6L6-N						198.8
208	Pn1	2-3	u	s	0	4Bmt1	S0	5(10)MF	A5	1F2-N	4	1	U	S4	O	717.6
209	DoLn2	3-5	h	l-sl	0	2Ddt2	S2	3(5)D4(3)T5(2)W	A6	3F1-N,2O2-N	1	2	U	SG0	O	2879.8
210	DoLn2	2-3	u	l-sl	0	2Cdv	S2	3(8)D5(2)W	A6	3F1-N,2F1-N	1	1	U	SG0	O	1050.1
211	BvDo2	3-4	h	cl-sil	0	2Cqt2v	S0	3(8)D5(2)W	A6	3W1-N,2F2-N	1	2	W1G	SG0	O	2231.3
212	Bt3	3-4	h	sl-ls	0	3Cgt2	S2	4(9)MD5(1)W	A6	2F1-N	1	2	U	SG0	O	1203.0
213	PnKk6	2-3	u	s	0	4Cmv	S0	5(8)MF6(1)W7(1)W	A5	2B2-N,2O2-N	4	1	U	SG4	O	510.2
214	Bt4	3	u	sl-ls	0	3Cgv	S2	4(8)MD5(1)W6(1)W	A6	3F1-N,2F2-N	1	2	U	SG0	O	2847.1
215	BL3	1	R	o	0	4Cwi	S0	O(10)	D1	6F6-N	U	U	U	U	O	222.4
216	Ln2	3-5	h	sl-ls	0	2Dmt2	S2	4(8)MT6(2)W	A6	4F2-N	1	3	U	SG1	O	1094.7
217	LnBt3	3-4	h	sl-ls	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3F2-N,2F1-N	1	2	U	S1	O	1352.0
218	Ln2	4	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3F2-N	1	3	U	SG0	O	1642.5
219	BvBL2	4-5	h	c-o	0	3Dqv	S0	3(3)D4(3)TO(4)	A3	5F2-N	1	2	U	SG0	O	2857.9
220	Ln2	3	h	sl	0	2Cdmv	S3	4(8)DP6(2)W	A6	4F2-N	1	2	U	SG0	O	3532.8
221	LnBv2	3	u	l-cl	0	2Cdqv	S2	3(8)D6(2)W	A6	4F1-N,2B3-N	1	2	U	SG0	O	716.5
222	Bv6	4-3	h	cl-c	0	2Cqt2v	S0	3(8)DT6(2)W	A6	3F2-N	1	2	W0	SG0	O	566.6
223	Goose Lake									6L6-N						477.9
224	Fk4	1-2	u	cl-l	6SA	4Dwsv	S1	6(10)NW	D1	6A6-H	1	1	U	SG0	O	464.4
225	Ln2	4-5	h	l-cl	0	2Cdt2v	S1	3(5)D4(3)T6(2)W	A6	4F2-N	1	3	W1G	SG0	O	2077.0
226	MwBL10	2	u	l-o	0	4Cwi	S2	7(6)WO(4)	C5	5O6-N,5F5-N	1	1	U	SG0	O	108.7
227	LnBL14	4-5	h	sl-o	0	2Ddmv	S2	4(6)MD7(1)WO(3)	A3	3F3-N,3E3-N	1	2	U	SG0	O	581.1
228	Ln1	3	id	l	0	2Bdt2v	S1	3(9)D6(1)W	A6	3C1-N	1	2D	W2G	SG0	O	302.7
229	Ln1	5-6	h	sl-l	0	2Dmt2v	S2	4(6)MD5(4)TW	A6	2F1-N	1	4	U	SG0	O	323.6
230	Lake									6L6-N						224.1
231	Branch Lake									6L6-N						614.4
232	Ln1	5-6	h	sl-l	0	2Dmt2v	S2	4(6)MD5(4)TW	A6	2F1-N	1	4	U	SG0	O	2713.8
233	LnBv1	3-4	h	l-cl	0	2Cqt2v	S1	3(9)D6(1)W	A6	3W1-N	1	2	W1G	SG0	O	713.3
234	LnDo1	3-5	hg	sl-sil	0	2Dmt2	S1	4(6)DT3(4)D	A6	1W1-N	1	2G	W1G	SG0	O	89.1
235	Bv3	3-4	h	cl-c	0	2Cqt2	S0	3(9)D6(1)W	A6	3W1-N	1	2	W1K	SG0	O	1604.5
236	BvLn1	3-5	h	l-scl	0	2Dqt2	S1	3(9)DT6(1)W	A6	3W1-N	1	2	W1G	SG0	O	845.6
237	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	70.7
238	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	70.4
239	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	100.7
240	Mw6	2	u	l	1WP	4Cwi	S2	5(5)W6(3)W7(2)W	C5	5C4-N,3F3-N	1	1	U	SG0	O	422.1
241	Rw	3	uc	o-l	0	4Dct2	S2	6(7)W7(3)W	C5	5F3-N,2P1-N	U	3	U	SG0	O	146.0
242	LnDo1	4-3	h	sl-cl	0	2Cmt2v	S2	3(6)D4(3)TD6(1)W	A6	2S2-N,1F1-N	1	2	W0	SG0	O	2695.2
243	LnDo1	4-3	h	sl-cl	0	2Cmt2v	S2	3(6)D4(3)T6(1)W	A6	2S2-N,1F1-N	1	2	W0	SG0	O	713.7
244	Ln2	4-5	h	sl	0	2Cmt2	S2	4(8)MD6(1)WO(1)	A6	2E3-N,2F3-N	1	2	U	SG0	O	4663.2
245	Wz2	1	l	U	1WP	4Cwi	U	6(5)W5(2)W7(3)W	U	6O6-N,3S3-N	U	U	U	SG0	O	250.4
246	BL9	1	H	o	0	4Cwi	S0	O(10)	D1	6F6-N	U	U	U	U	O	51.8
247	Ln2	4-3	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3S2-N,2F2-N	1	2	U	SG0	O	1806.3
248	Ln1	4	h	sl	0	2Cmt2	S2	4(9)MD6(1)W	A6	2S2-N	1	2	U	SG0	O	47.7
249	Do1	3	h	l-fl	0	2Bdt2v	S0	3(9)D5(1)W	A6	3S1-N	1	2	U	SG0	O	559.4
250	Ln2	4-3	h	sl	0	2Cmt2	S2	4(8)MD6(1)WO(1)	A6	2E3-N,2F3-N	1	2	U	SG0	O	287.9
251	Ln2	3	h	l-sl	0	2Cdv	S2	3(6)D4(2)MD5(2)W	A6	3S2-N,2F1-N	1	2	U	SG0	O	3331.7
252	Ministikwan Lake									6L6-N						6887.0
253	Ln2	3-4	u	l-cl	0	2Cdv	S2	3(8)D6(2)W	A6	4W2-N	1	2	W1G	SG0	O	733.8
254	Ln1	4	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	3S2-N	1	2	U	SG0	O	706.2
255	Ln1	4	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	3S2-N	1	2	U	SG0	O	410.3
256	Av5	2	ud	cl	1WA	4Dwv	S1	6(10)W	D1	6S6-N	1	2D	U	SG0	O	362.6
257	Ln1	4	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	3S2-N	1	2	U	SG0	O	699.6
258	Ln1	4	h	sl	0	2Cmt2	S2	4(9)D5(1)W	A6	3S2-N	1	2	U	SG0	O	664.1
259	BdLn4	5-4	hd	s-sl	0	4Dmv	S2	5(5)MF6(1)W4(4)MT	A6	2F2-N	4	2D	U	G3	O	29.8
260	Ln1	4	h	l-sl	0	2Cdt2	S1	3(5)D4(4)MD6(1)W	A6	3W1-N	1	3	W1G	SG0	O	430.6
261	Ln1	5-6	h	cl	0	2Dqt2	S2	4(9)TD5(1)TW	A6	3F1-N	1	4	U	SG0	O	457.4
262	LL1	2	H	o	0	4Cwi	S0	O(10)	A4	6B6-N	U	U	U	U	O	442.6
263	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	79.2
264	LnBd3	4-6	h	cl-ls	0	2Dqt2v	S2	4(5)MT6(3)W5(2)T	A6	5F2-N	1	3	U	G2	O	1316.9
265	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	G2	O	67.5
266	LnBv1	4	h	l-cl	0	2Cqt2v	S1	3(10)D	A6	1W1-N	1	3	W1G	SG0	O	241.1
267	Bv3T	3-4	h	cl	0	2Cqt2	S1	3(9)D6(1)W	A6	3W1-N	1	2	W1KG	SG0	O	3235.5
268	Lake									6L6-N						157.8
269	BLBd4	1-3	Hu	o-ls	0	4Cwi	S0	6(7)W5(2)MF4(1)D	C5	6F6-N	U	U	U	G2	O	83.0
270	BLBd4	1-3	Hu	o-ls	0	4Cwi	S0	6(7)W5(2)MF4(1)D	C5	6F6-N	U	U	U	G2	O	166.5
271	Murphy Lake									6L6-N						510.9
272	Ln2	3-4	h	sl-scl	0	2Cmt2v	S2	4(7)MD6(2)W5(1)P	A6	4F2-N	1	2	U	SG0	O	4548.6
273	Rw	3-5	hig	ls-o	1WD	4Dct2	S1	6(10)WT	C5	5F3-N	1	4G	W2G	SG0	O	365.4
274	Ln2	3-4	h	sl-l	0	2Cmt2v	S2	4(6)MD5(2)P6(2)W	A6	4F2-N	1	2	W1G	SG0	O	2010.8
275	BLMw3	1	H	o	0	4Cwi	S0	O(6)4(4)W	C5	5B3-N,2O3-N	U	U	W1G	U	O	142.3

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
276	LnBd3	3-4	h	sl-ls	0	2Cmt2v	S2	4(8)MD6(2)W	A6	4B2-N	1	2	W1G	G2	O	2481.3
277	Ln2	4-3	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3F2-N	1	3	U	SG0	O	172.9
278	Fowler Lake									6L6-N						323.4
279	LnBd2	5-6	h	sl	2WA	2Dmt2	S2	4(5)MT5(3)T6(2)W	A6	4F4-N	1	4	U	G2	O	240.6
280	Ln2	4-5	h	sl	0	2Ddmv	S2	4(7)MD6(3)W	A6	5F3-N	1	3	U	SG0	O	167.7
281	DoLn2	4-6	h	sil	0	2Ddt2	S1	4(6)T5(2)T6(2)TW	A6	3F2-N	1	4	U	SG0	O	1064.5
282	BL1	1	H	o	0	4Cwi	S0	O(10)	C5	6F6-N	U	U	U	U	O	301.3
283	BvDo1	4	h	cl-sl	0	2Cqt2v	S0	3(9)D6(1)W	A6	2W1-N	1	2	W1G	SG0	O	533.0
284	LnBd2	5-6	h	sl	2WA	2Dmt2	S2	4(5)MT5(3)T6(2)W	A6	4F4-N	1	4	U	G2	O	1960.7
285	BLBd4	2-5	Hhg	o-sl	2MA	4Cwi	S2	6(7)W5(2)T7(1)W	C5	6F5-N,2P6-N	U	U	U	G2	O	748.5
286	Ln2	3-4	h	sl	0	2Cmt2v	S2	4(8)MD5(2)W	A6	4F3-N	1	2	U	SG0	O	1859.1
287	LnBd3	6-4	h	sl-ls	0	2Dmt2	S2	5(8)T6(2)W	A6	4F2-N	2	4	U	G2	O	3632.9
288	Upper Makwa Lake									6L6-N						289.4
289	LnBd2	4-5	h	sl-ls	0	2Cmt2v	S2	4(8)MT6(2)W	A6	4B3-N	1	3	U	G2	O	541.2
290	Lake									6L6-N						582.5
291	Lake									6L6-N						328.2
292	LnBd3	6-4	h	sl-ls	0	2Dmt2	S2	5(8)T6(2)W	A6	4F2-N	2	4	U	G2	O	139.1
293	Rw	5-4	ic	sl	1MD	4Dct2	S2	6(10)TW	C5	4S2-N,3O2-N	1	4	U	SG0	O	12.4
294	Rw	6-3	ic	sl	1MA	4Dct2	S1	6(10)TW	C5	5F4-N	1	4	U	G2	O	284.5
295	LnBd3	4-6	hd	sl-ls	0	2Dmt2	S2	4(5)MT5(3)T6(2)W	A6	4F3-N	1	4D	U	G2	O	83.3
296	BLBd4	2-5	Hhg	o-sl	2MA	4Cwi	S2	6(7)W5(2)T7(1)W	C5	6F5-N,2P6-N	U	U	U	G2	O	45.3
297	LnBd8	6-7	h	sl-ls	0	2Dmt2v	S2	6(8)TWO(2)	A6	4B3-N	2	5	U	G2	O	29.8
298	Jumbo Lake									6L6-N						1291.1
299	Ln2	4-3	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3F2-N	1	3	U	SG0	O	23.2
300	LnBd8	5-6	h	sl-ls	0	2Dmt2v	S2	4(5)MD5(5)TW	A6	4B3-N	2	4	U	G2	O	552.3
301	Ln2	2-3	u	sl	0	2Cdmv	S2	4(8)MD5(2)W	A6	4W2-N	1	1	W1K	SG0	O	457.1
302	LL2	1-2	H	o	0	4Cwi	S0	O(10)	C5	6B6-N	U	U	U	U	O	1111.3
303	Mw6	2	u	l-cl	1MPA	4Cwi	S0	5(6)W4(4)W	C5	6W6-N	1	1	W1K	SG0	O	1226.1
304	LnBv3	2-3	u	l-cl	1WA	2Cdqv	S2	3(7)D2(2)D4(1)W	A6	2C1-N	1	1	W1K	SG0	O	1540.1
305	LnBv3	3	ud	l-cl	1WA	2Cdqv	S2	3(7)D2(2)D4(1)W	A6	2C1-N	1	2D	W1G	SG0	O	2102.3
306	Ln2	4-5	h	sl-l	0	2Cmt2	S2	4(8)TD6(1)WO(1)	A6	2S2-N,2F2-N	1	2	W0	SG0	O	126.0
307	Wz2	1	l	U	1MPA	4Cwi	U	5(6)W6(4)W	U	5O3-N,5E4-N	U	U	U	SG0	O	483.0
308	Ln14	3	u	l	1WPA	2Cdv	S2	3(8)D4(2)W	A6	3C1-N	1	2	W1K	SG0	O	671.0
309	Ln10	2-3	u	l	0	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N,2W1-N	1	1	W1K	SG0	O	1324.5
310	AwLL1	2	u	l-o	0	4Dwv	S2	5(6)WO(4)	A4	6B6-N	1	2	U	U	O	241.6
311	Rw	3	ud	l-sl	1WP	4Dct2	S2	4(5)WM5(5)W	C5	5W2-N,4S2-N	1	3D	W2G	SG0	O	122.6
312	Ln10	2-3	u	l	0	2Bdvt1	S2	3(9)D4(1)W	A6	2C1-N,2W1-N	1	1	W1K	SG0	O	179.0
313	Wz3	1	l	U	1WA	4Cwi	U	7(7)W5(3)W	U	6O6-N,4W3-N	U	U	U	SG0	O	260.7
314	Ln13	3-4	hd	l	0	2Cdt2	S2	3(9)D4(1)W	A6		1	2D	W2GK	SG0	O	1251.0
315	Aw1	2-3	u	l	1WPA	4Dwv	S2	5(7)W6(1)W4(2)W	A4	6B6-N	1	1	U	U	O	435.2
316	Ln10	3-4	hd	l	0	2Cdt2	S2	3(9)D5(1)W	A6	2S1-N	1	2D	W2GK	SG0	O	1413.2
317	LnMa1	3	h	l	1WPA	2Bdt2v	S2	3(6)D2(3)Cs4(1)W	A6	2C1-N	1	2	W1K	SG0	O	859.0
318	Mw2	2	u	l-c	4MPA	4Cwi	S2	3(3)N2(2)D5(5)W	C5	6W3-N,2S1-N	1	1	W0	SG0	O	358.3
319	Ln10	2	u	l	0	2Bdv	S2	3(8)D2(1)D5(1)W	A6	2C1-N,2S2-N	1	1	W1K	SG0	O	620.0
320	Aw1	2-3	u	l	1WPA	4Dwv	S2	5(7)W6(1)W4(2)W	A4	6B6-N	1	1	U	U	O	84.5
321	LLAw4	2	Hu	o-l	1MA	4Cwi	S2	O(7)5(3)W	A4	6B6-N	U	U	U	U	O	579.3
322	Ln14	3	h	l	0	2Cdv	S2	3(8)D4(2)W	A6	3C1-N	1	2	W1K	SG1	O	239.9
323	Ln10	3	ud	l	0	2Bdt1v	S2	3(10)D	A6	2W1-N	1	2D	W1G	SG0	O	262.9
324	Ln10	3	hd	l-sl	0	2Bdt2v	S2	3(7)D4(2)MD5(1)W	A6	2C1-N	1	2D	W2GK	SG0	O	1169.9
325	Ma3	2-3	u	l	0	1Bt1	S2	2(8)Cs4(2)M	A6		1	1	W1K	SG1	O	286.5
326	LLAw4	2-3	Hu	o-l	1WA	4Cwi	S0	O(7)5(3)W	A4	6B6-N	U	U	U	U	O	258.5
327	Ln10	2-3	u	l	0	2Bdvt1	S2	2(9)D4(1)W	A6	2C1-N	1	1	W1K	SG0	O	1426.7
328	BvMd2T	2	ud	l-cl	2MPA	3Csv	S2	3(6)D2(2)D4(2)W	A6	3C1-N,2S1-N	1	1D	W2GK	SG0	Sx	375.7
329	LnMa1	3	ud	l	1WPA	2Bdt1v	S2	3(7)D2(3)Cs	A6	2C1-N	1	2D	W1G	SG0	O	243.1
330	Rw	3-4	ud	l	3MPA	4Dct2	S2	5(8)W4(2)W	C5		1	3D	W2G	SG0	O	222.0
331	LnLc4	2-3	u	l-sl	0	2Cdv	S2	3(8)MD4(2)MW	A6	2C1-N	1	1	W1KB	SG0	O	132.0
332	BvMd2T	2	ud	l-cl	2MPA	3Csv	S2	2(4)D3(4)D4(2)W	A6	3C1-N,2S1-N	1	1D	W2GK	SG0	Sx	487.6
333	LnLc4	2-3	u	l-sl	0	2Cdv	S2	3(8)MD4(2)MW	A6		1	1	W1KB	SG0	O	1203.3
334	LLBL2	1	H	o	0	4Cwi	S0	O(9)3(1)TD	A3	5B3-N,5F3-N	U	U	U	U	O	159.6
335	LnBt32	3-2	ud	l-sl	0	2Cdv	S2	3(7)D4(3)MD	A6	1C1-N	1	2D	W2G	S1	O	242.3
336	Hm14T	3	u	l-sl	1WA	2Cgv	S1	3(8)M5(2)W	A6	2C1-N	1	2	W1K	SG0	O	462.3
337	Md3T	2	ud	l-cl	2SA	3Bsv	S2	3(7)D2(2)D5(1)WN	X1	1C1-N,1S1-N	1	1D	W1G	SG0	Mnc	1518.3
338	LnBt32	3-2	ud	l-sl	0	2Cdv	S2	3(7)D4(3)MD	A6	1C1-N	1	2D	W2G	S1	O	1791.0
339	Ln2	3-4	u	l-cl	0	2Cdv	S2	3(8)D6(2)W	A6	4W2-N	1	2	W1G	SG0	O	794.0
340	MaLn1	2	u	l-sl	1MA	2Bdsv	S2	2(6)Cs3(4)D	A3	1C1-N	1	1	W1G	SG0	O	2523.0
341	HmSb7T	2	u	fl-vl	1WA	2Cgv	S1	3(5)M2(3)M4(2)W	A3	3C2-N	1	1	W1K	SG0	O	1214.1
342	Rw	3	hd	sl-l	1MD	4Dct2	S2	5(10)W	C5	3S2-N	1	3D	W1G	SG0	O	107.7
343	SyPn3	2	u	ls	0	3Am	S0	5(10)MF	A5	1C1-N	1	1	W1B	S4	O	384.6
344	Hm14T	2-3	ud	sl-vl	1MA	2Cmv	S1	3(5)M2(3)Cs5(2)W	A6	3C2-N	1	1D	W2G	SG0	O	3216.9
345	Ln10	2-3	u	l-sl	0	2Bdt1v	S2	3(7)D4(3)MD	A6	1C1-N	1	1	W1G	SG1	O	913.2

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
346	Ln11	2-3	u	l-sl	0	2Bdt1v	S2	3(8)D4(2)MD	A6	1C1-N	1	1	W1G	SG0	O	1510.7
347	MaLn1	2-3	ud	l	1MA	2Bdvt1	S1	2(6)Cs3(3)D4(1)W	A6	2C1-N,1S1-N	1	1D	W2G	SG0	O	4612.2
348	MaLn1	2	u	l	1WA	2Bdv	S1	2(5)Cs3(5)D	A6	1C1-N	1	1	W0	SG0	O	562.1
349	BL7	1	H	o	0	4Cwi	S0	O(10)	D1	6F6-N	U	U	W0	U	O	693.0
350	HmSb7	2	u	sl-l	1MA	2Dmsv	S0	3(4)M2(3)M4(3)W	A6	4C2-N	1	1	W1K	SG0	O	921.9
351	Hm14T	2-3	ud	sl-vl	1MA	2Cmv	S1	3(5)M2(3)Cs5(2)W	A3	3C2-N	1	1D	W2G	SG0	O	189.5
352	Ln13	3-2	u	l	0	2Bdt1v	S2	3(10)D	A6	1C1-N,1S1-N	1	2	W1K	SG1	O	696.0
353	MaLn1	2-3	ud	l	1MA	2Bdvt1	S1	2(6)Cs3(3)D4(1)W	A6	2C1-N,1S1-N	1	1D	W2G	SG0	O	182.4
354	Av5	3	uc	l-cl	0	4Dwv	S0	6(8)W7(2)W	D3	6E6-N	1	2	W0	SG0	O	212.9
355	Ln12	2-3	ud	l	0	2Bdt1v	S2	3(10)D	X1	1C1-N	1	1D	W1G	SG0	O	4428.1
356	Ln12	2-3	ud	l	0	2Bdt1v	S2	3(10)D	X1	1C1-N	1	1D	W1G	SG0	O	406.5
357	LnDo11	2-3	ud	l	0	2Bdt1v	S1	3(10)D	A6	N	1	1D	W1G	SG0	O	663.1
358	HwAv1	3-7	hc	sl-cl	0	4Dct2	S2	6(6)T7(4)W	C5	4E3-N	1	5	U	SG0	O	467.6
359	Ln11	1-2	u	l-sl	0	2Bdvp	S2	3(6)D4(4)MD	A6	1C1-N	1	1	W0	SG0	O	1449.2
360	Rw	3	hd	l	0	4Dct2	S2	5(10)W	C5	6S3-N	1	3D	U	SG0	O	155.5
361	LnBd3	4	h	scl-s	0	2Ddqv	S2	4(5)MD5(3)MFO(2)	A6	4B2-N	2	2	U	G2	O	81.1
362	Ln11	3-4	h	sl	0	2Ddmv	S1	4(9)MW5(1)W	A6	3W1-N	1	2	W1G	SG0	O	112.1
363	BL17	1	H	o	1WA	4Cwi	S0	O(7)7(3)W	C5	5F6-N,4L6-N	U	U	U	U	O	191.7
364	MdMa2	2-3	u	l-sl	1WA	2Cqpv	S2	2(5)D3(3)P5(2)W	A6	2F3-N,2C3-N	1	1	W1K	SG0	Mxc	275.1
365	BL17	1	H	o	1WA	4Cwi	S0	O(7)7(3)W	C5	5F6-N,4L6-N	U	U	U	U	O	159.1
366	MdMa2	2-3	u	l-sl	1WA	2Cqpv	S2	2(5)D3(3)P5(2)W	A6	2F3-N,2C3-N	1	1	W1K	SG0	Mxc	6.3
367	Ln3	3-4	hd	l-sl	0	2Cdt2v	S2	3(6)D4(2)MD5(2)W	A6	3C1-N	1	2D	W1G	SG0	O	4396.2
368	Ln11	2	ud	l-sl	0	2Bdv	S2	3(8)D4(2)MD	A6	1C1-N	1	1D	W1G	SG0	O	963.2
369	Ma3	2-1	ud	l-cl	0	1Bv	S1	2(10)Cs	A3	1S1-N	1	1D	W1G	SG0	O	996.0
370	Ln11	2-3	ud	l-sl	0	2Bdt1v	S2	3(6)D4(4)MD	A6	1C1-N	1	2D	W2G	SG0	O	741.7
371	Ln11	3-4	h	l	0	2Cdt2	S2	3(9)D4(1)W	A6	2C1-N	1	2	W1G	SG0	O	194.0
372	Ln11	2-3	ud	l-sl	0	2Bdt1v	S2	3(6)D4(4)MD	A6	1C1-N	1	2D	W2G	SG0	O	1204.2
373	Av44	2-3	ud	sl-l	1MA	2Bmdt1	S1	2(5)Cs3(4)D4(1)W	C5	2C1-N	1	1D	W2G	SG0	Mmc	863.8
374	Ln12	2-1	ud	l-sl	0	2Bdvp	S2	3(8)D4(2)P	A6	1C1-N	1	2D	W2G	SG0	O	3691.0
375	Rw	3-6	hd	l-sl	0	4Dct2	S2	6(7)T7(3)W	C5	4O3-N	1	4D	W1B	SG0	O	174.3
376	Mw6	2	u	sil-sicl	1WA	4Cwi	S0	4(7)W5(3)W	D1	5C6-N,3B3-N	1	1	W0	SG0	O	629.6
377	Ln11	2-3	u	l-sl	0	2Bdt1p	S2	4(10)DP	A6	1C1-N	1	1	W1K	SG0	O	1517.1
378	LcLn1	2	ud	l	0	2Bdv	S2	3(10)MD	A6	1C1-N	1	2D	W1G	SG0	O	826.8
379	BtPn3	2-3	u	ls-s	0	3Bmgv	S1	4(7)MD5(2)MF6(1)W	A6	2S2-N	2	1	W0	S2	O	3813.4
380	Bt7	3-2	ud	fl	0	3Bgt1	S2	4(10)MD	A6	1C1-N	1	2D	W1G	SG0	O	2210.1
381	BL1	1	H	o	0	4Cwi	S0	O(10)	D1	6F6-N,2B2-N	U	U	W0	U	O	1545.4
382	Ln1	3	ud	sl	0	2Bmdt1	S2	4(9)MD6(1)W	A6	2F2-N	1	2D	W2G	SG0	O	93.9
383	Ln1	3	ud	sl	0	2Bmdt1	S2	4(10)MD	A6	1S1-N	1	2D	W1G	SG0	O	765.2
384	BtLn3	3-2	u	sl	0	3Bgt1v	S1	4(10)MD	A6	1F1-N	1	2	W0	SG0	O	549.0
385	BtLc6	2	u	ls-sl	0	3Bgmv	S2	4(7)MD3(3)M	A6	1C1-N	1	1	W1K	SG0	O	635.2
386	Av5	2-3	ud	sl	0	4Dwv	S0	5(6)W6(3)W7(1)W	D1	5C4-N,4F3-N	1	1D	W0	SG0	O	1078.6
387	Ln1	3	ud	sl	0	2Bmdt1	S2	4(10)MD	A6	1S1-N	1	2D	W1G	SG0	O	2698.5
388	Av5	2-3	ud	sl	0	4Dwv	S0	5(6)W6(3)W7(1)W	D1	5C4-N,4F3-N	1	1D	W0	SG0	O	2037.4
389	Ln9	3	h	sl-l	0	2Cdmv	S2	4(5)MD3(3)D6(2)W	A6	3F2-N	1	2	W0	SG0	O	1339.8
390	BdLn3	3	ud	ls-sl	0	3Dmv	S2	4(8)MD5(2)MF	A6	1F1-N	1	1D	W0	G3	O	1897.8
391	MwPn2	3	u	ls	0	4Cwi	S0	6(6)W5(4)MF	D0	5F4-N	1	1	W0	S2	O	28.5
392	BtLn3	3	u	ls-sl	0	3Bmgt1	S2	4(9)MD5(1)MF	X1	1C1-N	1	1	W1K	SG0	O	1196.8
393	Bt7	3-2	ud	ls-sl	0	3Bmgt1	S2	4(10)MD	X1	1C1-N	1	1D	W1G	SG0	O	676.2
394	DoLn9	2	ud	l-cl	0	2Bdv	S2	3(6)D4(3)MD5(1)W	A6	2C2-N	1	2D	W1G	SG0	O	774.4
395	Ln11	2-3	u	l	0	2Bdt1v	S2	3(10)D	X1	1C1-N	1	1	W0	SG0	O	1352.0
396	Bt1	3-2	u	sl-ls	0	3Bgt1v	S1	4(10)MD	X1	1C1-N	1	2	W1K	SG0	O	765.5
397	Rw	6	hd	l	0	4Dct2	S2	5(7)T7(3)W	C5	4S3-N	1	5D	U	SG0	O	106.4
398	Ln11	3	h	l	0	2Bdt2v	S2	3(9)D5(1)W	X1	2S2-N	1	2	W1K	SG0	O	772.3
399	LnBt29	4-3	h	l-sl	0	2Cdt2v	S2	3(5)D4(3)MD5(2)W	X1	3S2-N,1O2-N	1	2	W1K	S1	O	414.0
400	BL1	1	H	o	0	4Cwi	S0	O(9)7(1)W	D1	6F6-N,2P3-N	U	U	U	U	O	953.4
401	Wz3	1	l	U	1MP	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	123.6
402	BvLn4	3-4	ud	cl-sl	0	2Cdqv	S2	3(7)D4(3)MD	A6	1C1-N	1	2D	W2G	SG0	O	4696.1
403	LnBd1	4-5	hd	l-sl	0	2Cdt2	S2	4(10)MT	A6	1C1-N	1	2D	W1G	G2	O	56.3
404	Ma3	3	u	cl	1MA	2Bqvt1	S1	2(9)Cs5(1)W	A6	2S2-N	1	2	W1K	SG0	O	109.6
405	LnBd1	4-5	hd	l-sl	0	2Cdt2	S2	4(10)MT	A6	1C1-N	1	2D	W1G	G2	O	361.0
406	LnBv1	3-4	h	sl-l	0	2Cmt2v	S2	4(7)MD3(3)D	A6	1C1-N	1	2	W2G	SG0	O	738.1
407	LnBt1	3-4	h	l-sl	0	2Cdt2v	S2	3(6)D4(4)MD	X1	1C1-N	1	2	W1K	S1	O	563.2
408	Ln1	4-6	hd	l-sl	0	2Ddt2	S2	4(6)MD5(3)T6(1)W	A6	2C1-N	1	4D	W1G	SG0	O	649.0
409	BtLn3	3	u	ls-sl	0	3Bmgt1	S1	4(10)MD	A6	1C1-N	1	1	W1G	SG0	O	1447.9
410	LnBt7	4-6	hr	l-sl	0	2Ddt2	S2	4(6)MD5(4)MT	A6	N	1	4	W2K	S1	O	580.9
411	LnBt1	3-4	h	l-sl	0	2Cdt2v	S2	3(6)D4(4)MD	X1	1C1-N	1	2	W1K	S1	O	202.5
412	BvLn4	3-4	ud	cl-sl	0	2Cdqv	S2	3(7)D4(3)MD	A6	1C1-N	1	2D	W2G	SG0	O	329.2
413	LnBv1	3-4	hd	l	0	2Cqt2v	S2	3(10)D	A6	1C1-N,1F1-N	1	2D	W1G	SG1	O	1661.1
414	Rw	5-6	uc	l	0	4Dct2	S2	6(10)TW	C5	3O2-N,3S2-N	1	5	W0	SG0	O	358.0
415	BvLn3	4-3	h	l	1WA	2Cqt2v	S2	3(10)D	A6	1S1-N	1	2	W0	SG0	O	386.9

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
416	Av29	2-3	u	sl-l	1MA	3Bdvt1	S1	2(6)D3(3)D5(1)W	A6	2C2-N	1	1	W0	SG0	Sx	220.3
417	Ln1	4-6	hd	l-sl	0	2Ddt2	S2	4(7)MD5(3)T	A6	N	1	3D	W1G	SG1	O	1611.9
418	MdMa2	3	ud	l	0	2Cqv	S2	2(8)Cs5(2)W	A6	3C1-N,1O2-N	1	2D	W1G	SG0	Mxc	1146.7
419	Ma3	3	ud	l	1MA	2Bsvt1	S2	2(9)Cs5(1)W	X1	1C1-N,1S1-N	1	2D	W1K	SG0	O	1044.9
420	Ln13	3	u	l	0	2Bdt1v	S2	3(10)D	A6	1C1-N,1O2-N	1	2	W1K	SG0	O	400.6
421	Ln10	4-6	hd	l-sl	0	2Ddt2	S2	4(8)DT5(2)T	A6	1S1-N	1	4D	W2G	SG0	O	549.3
422	Ma3	3	u	l	2MA	3Bst1	S2	2(9)Cs3(1)D	A6	2S1-N	1	2	W1K	SG0	O	904.4
423	LnBv1	4-3	hd	l	0	2Cqt2v	S2	3(9)D5(1)W	A6	1S2-N,1C1-N	1	2D	W1G	SG0	O	1710.6
424	Ln1	6-7	hd	l	0	2Ddt2	S2	5(7)T6(3)T	A6	1S1-N	1	5D	W1G	SG0	O	320.5
425	Ln1	4-6	hd	sl-l	0	2Dmt2	S2	4(6)MD5(3)T6(1)W	A6	2C1-N,1F2-N	1	4D	W2G	SG1	O	4279.7
426	LnBv1	3	ud	l	0	2Cdqv	S2	3(10)D	A6	1C1-N	1	2D	W1G	SG0	O	2461.0
427	BvLn4	4	hd	cl-l	0	2Cqt2v	S2	3(10)D	A6	1S1-N	1	2D	W1G	SG0	O	368.8
428	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	238.3
429	LL1	1	H	o	0	4Cwi	S0	O(10)	A0	6B6-N,2P2-N	U	U	U	U	O	206.4
430	Ln1	4	hd	l	0	2Cdt2	S2	3(9)DT5(1)W	A6	2S2-N	1	2D	W1G	SG0	O	1737.1
431	Ln10	4-5	hd	l-sl	0	2Cdt2	S2	3(7)D4(3)DT	A6	1C1-N	1	2D	W2G	SG0	O	847.0
432	LnBv1	3	hd	l	0	2Cdqv	S2	3(9)D5(1)W	A6	1C1-N,1S1-N	1	2D	W1G	SG0	O	2240.8
433	Wz2	1	l	U	0	4Cwi	U	6(10)W	U	6E6-N	U	U	U	SG0	O	56.5
434	BL3	1	H	o	0	4Cwi	S0	5(10)W	D1	6F6-N	U	U	W0	U	O	49.4
435	LL1	1	H	o	0	4Cwi	S0	O(10)	A0	6B6-N	U	U	U	U	O	534.8
436	LnBv1	3	hd	l	0	2Cdqv	S2	3(9)D5(1)W	A6	1C1-N,1S1-N	1	2D	W1G	SG0	O	76.8
437	BtPn3	3	ud	sl-s	0	3Cgv	S2	4(8)MD5(2)MF	A6	1C1-N	1	2D	W1G	S2	O	165.7
438	Mw6	2	u	ls-sil	2WA	4Cwi	S1	5(4)W6(4)W4(2)W	D1	5C6-N,4F6-N	1	1	W0	S2	O	1237.3
439	LnBv1	3-4	hd	l	0	2Cqt2v	S2	3(10)D	A6	1C1-N,1F1-N	1	2D	W1G	SG1	O	587.4
440	Bv5	3-2	u	l	0	2Cdqv	S0	3(8)D4(2)W	A6	3F1-N	1	2	W0	SG0	O	109.5
441	BtPn3	3	ud	sl-s	0	3Cgv	S2	4(8)MD5(2)MF	A6	1C1-N	1	2D	W1G	S2	O	997.1
442	Lake									6L6-N						272.4
443	Do1T	3	ud	fl-l	0	2Bdt1v	S1	3(10)D	A6	1O2-N	1	2D	W0	SG0	O	1120.5
444	LnSy1	4	h	sl-fl	0	2Cmt2	S2	4(10)MF	A6	1F1-N	1	3	U	S2	O	796.6
445	BL7	1	H	o	0	4Cwi	S0	O(10)	D3	6F6-N	U	U	U	U	O	156.5
446	Ln6	4-5	hd	sl-l	0	2Cmt2	S2	4(9)DT5(1)W	A6	2B1-N	1	2D	U	SG0	O	810.2
447	BL7	1	H	o	0	4Cwi	S0	O(10)	D3	6F6-N	U	U	U	U	O	86.4
448	Ln6	4-5	hd	sl-l	0	2Cmt2	S2	4(9)DT5(1)W	A6	2B1-N	1	2D	U	SG0	O	572.2
449	LnBv1	3	ud	l-cl	0	2Cdqv	S2	3(9)D5(1)W	A6	2S2-N	1	2D	W2G	SG0	O	1488.0
450	LnDo1	3	ud	fl-cl	0	2Bdvt1	S2	4(6)MD3(3)D7(1)W	A6	1C1-N,1O4-N	1	2D	W1G	SG0	O	1245.6
451	HwAv1	2-6	uc	sl-l	0	4Dct2	S0	6(4)W5(3)T7(3)W	D1	6F6-N	1	4	U	SG0	O	1111.7
452	LnBd6	3	hd	sl-ls	0	2Bmdt2	S2	4(7)MD5(2)MF6(1)W	A6	2F1-N	1	2D	W1G	G2	O	747.9
453	Ln1	3-4	hd	l-sl	0	2Cdt2	S2	3(7)D4(3)D	A6	1C1-N,1S1-N	1	2D	W1G	SG1	O	667.0
454	LnDo1	3-2	ud	sl-l	0	2Bmdt1	S2	4(6)MD3(3)D6(1)W	A6	2E2-N,1S1-N	1	2D	W1G	SG0	O	1108.2
455	Ln1	4-6	hd	l-sl	0	2Ddt2	S2	4(7)MD5(2)T6(1)W	A6	2F2-N	1	4D	W2G	SG0	O	594.3
456	LnDo1	3-4	hd	sl-l	0	2Cmt2	S2	4(7)MD3(3)D	A6	1C1-N	1	2D	W2G	SG0	O	1327.0
457	LnBd6	3	u	sl-ls	0	2Bmdt1	S2	4(8)MD5(2)MF	A6	1F2-N	1	2	W1G	G2	O	579.4
458	Rw	5-6	hc	l-sl	0	4Dct2	S2	5(6)TW6(4)W	D1	5E3-N	1	5	U	SG0	O	135.7
459	DoLn1	3	ud	l	0	2Bdt1v	S2	3(6)D4(4)MD	A6	1C1-N	1	2D	W1G	SG0	O	1229.3
460	LnDo1	3-4	hd	sl-l	0	2Cmt2	S2	4(7)MD3(3)D	A6	1C1-N	1	2D	W2G	SG0	O	153.1
461	Ln1	3-6	hd	sl	0	2Dmt2	S2	4(8)TD5(2)T	A6	1C1-N	1	2D	W2G	SG1	O	1145.7
462	Ln1	5-6	hr	l	0	2Ddt2	S2	4(7)TD5(3)T	A6	N	1	3	W1K	SG0	O	57.1
463	BvLn1	3-5	ug	l	0	2Cqt1v	S2	3(6)D4(3)TD6(1)W	A6	2S2-N	1	2G	W2G	SG0	O	1715.5
464	Ln1	4	h	l-sl	0	2Cdt2	S2	3(7)D4(3)DM	A6	1C1-N	1	2	W1K	SG0	O	301.7
465	Ln9	3-4	h	sl-l	1WP	2Cmt2v	S2	4(8)D6(2)W	A6	3E2-N,2C1-N	1	2	W1KG	SG0	O	1051.0
466	Ln1	3	ud	sl	0	2Bmdt1	S2	4(9)MD5(1)W	A6	1E2-N,1C1-N	1	2D	W1G	SG0	O	1899.6
467	LnBd6	3	u	sl-ls	0	2Bmdt1	S2	4(8)MD5(2)MF	A6	1F2-N	1	2	W1G	G2	O	595.6
468	BtPn23	4-5	h	l-ls	0	3Cgt2v	S2	4(7)MD5(2)MF6(1)W	A6	2F1-N	1	2	W0	S2	O	679.4
469	Hw	5	hd	l-sl	0	4Dct2	S2	6(10)TW	D1	3S2-N,2O1-N	1	5D	U	SG0	O	64.0
470	LnBd6	3	ud	sl-ls	0	2Bmdt1	S2	4(8)MD5(2)MF	A6	1C1-N	1	2D	W1G	G2	O	2781.7
471	Rw	5	hc	sl-l	0	4Dct2	S2	5(6)T6(4)W	D1	4S2-N,2O1-N	1	5	U	G2	O	103.4
472	LcSy4T	3	h	l-sl	0	2Cdgv	S1	3(6)M4(2)M5(2)MW	X1	2S1-N,1C1-N	1	2	W1K	S2	O	444.9
473	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6P6-N	U	U	U	SG0	O	111.9
474	BL1	1	H	o	0	4Cwi	S0	O(10)	D3	6F6-N	U	U	U	U	O	870.4
475	Lake									6L6-N						242.7
476	LnBv3	3	ud	l-cl	1WA	2Cdqv	S2	3(7)D2(2)D4(1)W	A6	2C1-N	1	2D	W1G	SG0	O	272.3
477	Rw	5	hd	l-s	0	4Dct2	S2	5(10)TW	C5	3S2-N,2O2-N	2	5D	U	SG0	O	86.4
478	Do4T	3-2	u	l	0	2Bdvt1	S1	3(9)D5(1)W	C5	2F1-N	1	2	W1K	SG0	O	489.0
479	Ln1	3	ud	sl	0	2Bmdt1	S2	4(9)MD6(1)W	A6	1C1-N,1F2-N	1	2D	W1G	SG0	O	1309.5
480	PnLn1	5-7	hd	s-sl	0	4Dmt2v	S2	5(5)MF6(3)TW(2)MD	A6	2F1-N	4	2D	U	S3	O	1314.7
481	Wz3	1	l	U	0	4Cwi	U	7(10)W	U	6F6-N	U	U	U	S3	O	64.0
482	LnBt2	3-4	u	sl-ls	0	2Cdmv	S2	4(8)MD5(2)W	A6	3B1-N	1	2	U	S1	O	819.6
483	LnBd8	6	h	sl-ls	0	2Dmt2	S2	5(7)TM7(2)WO(1)	A6	3P3-N,2F2-N	2	5	U	G2	O	2998.5
484	Ln2	4	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3B1-N	1	3	U	SG0	O	3.7
485	PnLn1	5-7	hd	s-sl	0	4Dmt2v	S2	5(5)MP6(3)TW(2)MD	A6	2F1-N	4	2D	U	S3	O	1683.7

Area No.	Map Unit	Slope Class	Land Form	Surface Texture	Salinity	Irrigation	Stone Class	Agricultural Capability	pH	Wetlands Classification	Wind Eros.	Water Eros.	Past Eros.	Sand/ Gravel	Deep Till	Acreage (ac)
486	Lake									6L6-N						164.1
487	Lake									6L6-N						261.9
488	BL7	1	H	o	0	4Cwi	S0	O(10)	D3	6F6-N	U	U	U	U	O	110.4
489	BdLn3	3	ud	ls-sl	0	3Dmv	S2	4(8)MD5(2)MF	A6	1F1-N	1	1D	W0	G3	O	13.6
490	Rw	4-3	hd	l	1WA	4Dct2	S2	3(7)D4(2)W5(1)W	C5	3W1-N,3C1-N	1	3D	W3G	SG0	O	131.5
491	LnSy1	4	h	sl-fl	0	2Cmt2	S2	4(10)MF	A6	1F1-N	1	3	U	S2	O	112.4
492	LnBd2	4	hd	sl-ls	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3S2-N	1	2D	U	G2	O	10.2
493	Ln1	3	h	sl	0	2Bmdt2	S2	4(10)MD	A6	1F2-N	1	2	U	SG0	O	252.5
494	LnDo1	3	h	sl-l	0	2Bmdt2	S2	4(6)MD3(3)D5(1)W	A6	2S2-N	1	2	U	SG0	O	18.5
495	BLBd4	2-5	Hg	o-sl	2MA	4Cwi	S2	6(7)W5(2)T7(1)W	C5	6F5-N,2P6-N	U	U	U	G2	O	98.2
496	Ln2	4-3	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3F2-N	1	3	U	SG0	O	149.2
497	LnBd3	3-4	h	sl-ls	0	2Cmt2v	S2	4(8)MD6(2)W	A6	4B2-N	1	2	U	G2	O	3.7
498	BLBd4	1-3	Hu	o-ls	0	4Cwi	S0	6(10)W	C5	6F6-N	U	U	U	G2	O	67.7
499	BdLn4	4	h	ls-sl	0	3Dmv	S2	5(6)MF6(1)W4(3)MD	A6	2F2-N	2	1	U	G3	O	52.4
500	Ln1	4	h	sl	0	2Cmt2	S2	4(9)MD5(1)W	A6	3S2-N	1	2	U	SG0	O	30.4
501	DoSy1	4	hd	fl-sl	0	2Cdt2	S0	3(7)D4(3)M	A6	1S1-N	1	2D	U	S2	O	25.7
502	Wz2	1	l	U	1WP	4Cwi	U	6(6)W5(3)W4(1)W	U	5O4-N,5S3-N	U	U	U	SG0	O	135.2
503	Ln2	3-4	u	l-cl	0	2Ddv	S3	4(7)P6(3)W	A3	4F2-N	1	2	W1G	SG0	O	2104.3
504	LnDo2	2-3	u	l	1WPA	2Cdpv	S2	3(8)D4(2)WP	A6	3C2-N	1	1	W1K	SG0	O	1012.0
505	Lake									6L6-N						10.2
506	BvLn1	3-5	ug	l	0	2Cqt1v	S2	3(6)D4(3)T6(1)W	A6	2S2-N	1	2G	W2G	SG0	O	5.6
507	SyPn5	2-3	u	ls-gs	1WA	3Dmv	S0	4(6)MW5(4)MF	A5	4C2-N	2	1	W3B	S4	O	369.0
508	Ln2	4-3	h	sl	0	2Cmt2v	S2	4(8)MD6(2)W	A6	3F2-N	1	3	U	SG0	O	53.0
509	LnBL14	4-5	h	sl-o	0	2Ddmv	S2	4(6)MD7(1)WO(3)	A3	3F3-N,3E3-N	1	2	U	SG0	O	103.3
510	Wz3	1	l	U	0	4Cwi	U	7(6)W6(4)W	U	6O6-N	U	U	U	SG0	O	28.4

7. GLOSSARY

Acid soil - A soil having a pH of less than 7.0.

Aggregate - A group of soil particles sticking together in such a way that they behave mechanically as a unit.

Alkali soil - (i) A soil having a high degree of alkalinity (pH of 8.5 or higher), or having a high exchangeable sodium content (15% or more of the exchange capacity), or both. (ii) A soil that contains enough alkali (sodium) to interfere with the growth of most crops.
Note: The term "alkali soil" is often incorrectly used to describe a "saline soil".

Alkaline soil - A soil having a pH greater than 7.0.

Alluvial deposit - Refer to section "2.3 Surface Deposits" on page 2-1 of this report.

Apron - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Aspect - The particular direction in which a slope faces.

Available water - The portion of water in a soil that can be readily absorbed by plant roots. See also "field capacity".

Bedrock - The preglacial sediments, exclusive of stratified deposits in preglacial valleys, that underlie the surficial glacial sediments. These bedrock materials may or may not be consolidated into solid rock and may be exposed at the surface.

Blanket - A mantle of unconsolidated materials thick enough to mask minor irregularities in the underlying unit but still conforming to the general underlying topography.

Blowout - A small area from which soil material has been removed by wind.

Channel - The bed where a natural stream of water runs or has run.

Clay - (i) A soil particle that is less than 0.002 mm in diameter. (ii) A soil textural class. See also "texture, soil".

Clod - A compact, coherent mass of soil varying in size, usually produced by plowing or digging.

Cobble - Rounded or partially rounded rock or mineral fragment between 8 and 25 cm in diameter.

Cobbly - Containing appreciable quantities of cobbles. The term is used to describe both soil and land.

Colluvium - A heterogenous mixture of material that has moved down a slope and settled at its base, as a result of gravitational action.

Degradation - (i) The decline in a soil's fertility status as a result of loss of organic matter, erosion by wind or water, compaction, salinization, or acidification. (ii) The changing of a soil to a more highly leached and more highly weathered condition, usually accompanied by morphological changes such as the development of an eluviated (leached), light-colored Ae horizon.

Dissected - Where the original surface has been cut by running water, leaving a network of channels, shallow gullies, or valleys.

Dunes - Wind-built ridges and hills of sand formed in the same manner as snowdrifts. They are started where some obstruction, such as a bush, boulder, or fence, causes an eddy or otherwise thwarts the sand-laden wind. Once begun, the dunes themselves offer resistance and they grow to form various shapes.

Eluviation - The transportation of soil material in suspension or solution within the soil by the downward or lateral movement of water.

Eolian deposit - Refer to section "2.3 Surface Deposits" on page 2-1 of this report.

Erosion - The wearing away of the land surface by running water, wind, ice or gravity.

Erosivity - The tendency for a soil to erode or permit erosion.

Esker - A winding ridge of irregularly stratified sand, gravel, and cobbles deposited under the ice by a rapidly flowing glacial stream.

Fan - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Fibric layer - A layer of organic material containing large amounts of weakly decomposed fiber whose botanical origin is readily identifiable.

Field capacity - The percentage of water remaining in the soil two or three days after the soil has been saturated and free drainage has practically ceased.

Fluvial deposit - Refer to section "2.3 Surface Deposits" on page 2-1 of this report.

Genesis - The mode of origin of the soil, especially the processes or soil-forming factors responsible for the development of the solum, the true soil, from unconsolidated parent material.

Glacial till - See "till".

Glaciofluvial - Refer to section "2.3 Surface Deposits" on page 2-1 of this report.

Glaciolacustrine - Refer to section "2.3 Surface Deposits" on page 2-1 of this report.

Gleyed soil - Soil affected by gleysation.

Gleysation - A soil forming process, operating under poor drainage conditions, which results in the reduction of iron and other elements, and in gray colors and mottles.

Gravel - Rock fragments between 2 mm and 7.5 cm in diameter.

Grumic - A fine-textured (clay or heavy clay) soil which cracks extensively when dry and forms angular blocky structures with grooved surfaces in subsoils due to the effect of swelling and shrinking during periods of wetting and drying. Surface horizons are massive, often with granular secondary structure under cultivation.

Gully - A channel caused by erosion from concentrated but intermittent flow of water during and immediately after heavy rains or snowmelt. It is deep enough to interfere with and not be removed by tillage operations.

Heavy soil - A soil having a high content of fine particles, particularly clay, or a soil having a high drawbar pull and therefore requiring more power to cultivate.

Horizon - Refer to section "2.1 The Soil Profile" on page 2-1 of this report.

Humic layer - A layer of organic material containing large amounts of highly decomposed organic material; only small amounts of fiber are present that can be identified as to their botanical origin. Fibers can be easily destroyed by rubbing.

Hummocky - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Humus - (i) The fraction of the soil organic matter that remains after most of the added plant and animal residues have decomposed. It is usually dark-colored. (ii) Humus is also used in a broader sense to designate the humus forms referred to as forest humus. (iii) All the dead organic material on and in the soil that undergoes continuous breakdown, change, and synthesis.

Hydraulic conductivity - The rate at which saturated soils transmit water.

Inclined - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Infiltration - The downward movement of water into the soil.

Kettle - Depression left after the melting of a detached mass of glacial ice that was buried in glacial debris.

Knob - A pronounced, rounded hill commonly found in knob and kettle topography in morainic areas.

Knoll - A small, subdued, rounded hill commonly found in knoll and depression topography in areas of till plains.

Lacustrine deposit - Refer to section "2.3 Surface Deposits" on page 2-1 of this report.

Landform - The various shapes of the land surface resulting from a variety of actions such as deposition (eskers, moraines) and erosion (gullies, valleys).

Leaching - The downward removal from the soil of materials in solution.

Level - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Light soil - A soil having a high content of coarser particles, particularly sand, or a soil having a low drawbar pull and therefore easy to cultivate.

Loess - Material transported and deposited by wind and consisting of predominantly silt-sized particles.

Mesic layer - A layer of organic material in an intermediate stage of decomposition; intermediate amounts of fiber are present that can be identified as to their botanical origin.

Microrelief - Small scale, local differences in topography, including mounds, swales, or pits that are usually < 1 m in diameter and with elevation differences of up to 2 m.

Mineral soil - A soil consisting predominantly of mineral matter. It contains less than 17% organic carbon except for an organic surface layer that may be up to 40 cm thick if formed of mixed peat or 60 cm if formed of fibric peat.

Moraine - Distinct accumulations of glacial material, mainly till, deposited directly by glaciers.

Mottles - Spots or blotches of different color or shades of color interspersed with the dominant color.

Neutral soil - A soil having a pH of 7.0.

Organic matter, soil - The organic fraction of the soil; includes plant and animal residues at various stages of decomposition, cells and tissues of soil organisms, and substances synthesized by the soil population.

Parent material - The unconsolidated and more or less chemically unweathered mineral or organic matter from which the solum of a soil has developed.

Pedology - Those aspects of soil science involving the constitution, distribution, genesis, classification and mapping of soils.

Permeability, soil - The ease with which gases and liquids penetrate or pass through a bulk mass of soil or a layer of soil.

pH, soil - The negative logarithm of the hydrogen ion activity of a soil. The degree of acidity (or alkalinity) of a soil as determined by an electrode or indicator at a specified soil-water ratio, and expressed in terms of the pH scale.

Ridged - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Rolling - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Runoff - The portion of the total precipitation falling upon an area that flows away through stream channels or over the surface instead of entering the soil.

Runway - The channel of a stream.

Saline soil - A soil that contains enough soluble salts to interfere with the growth of most crops. As measured by the electrical conductivity of the saturation extract, the amount of salt present is great enough to produce a reading greater than 4 mS/cm. Very sensitive crops may be affected at electrical conductivities of 2 mS/cm.

Sand - (i) A soil particle between 0.05 and 2.0 mm in diameter. (ii) A soil textural class. See also "texture, soil".

very coarse sand - A soil particle between 1.0 and 2.0 mm in diameter.

coarse sand - (i) A soil particle between 0.5 and 1.0 mm in diameter. (ii) A soil textural class. See also "texture, soils".

medium sand - A soil particle between 0.25 and 0.5 mm in diameter.

fine sand - (i) A soil particle between 0.10 and 0.25 mm in diameter. (ii) A soil textural class. See also "texture, soil".

very fine sand - A soil particle between 0.05 and 0.10 mm in diameter.

Silt - (i) A soil particle between 0.002 and 0.05 mm in diameter. (ii) A soil textural class. See also "texture, soil".

Soil - (i) The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (ii) The unconsolidated mineral matter on the surface of the earth that has been subjected to and influenced by genetic and environmental factors of: parent material, climate (including moisture and temperature effects), macro- and microorganisms and topography, all acting over a period of time and producing a product (soil) that differs from the material from which it is derived in many physical, chemical, biological and morphological properties and characteristics.

Solum - The upper horizons of a soil in which the parent material has been modified and in which most plant roots are contained. It usually consists of the A and B horizons.

Stratification - The arrangement of sediments in layers or strata marked by a change in color, texture, dimension of particles, and composition. Stratification usually means layers of sediments that separate readily along bedding planes because of different sizes and kinds of material or some interruption in deposition that permitted changes to take place before more material was deposited.

Structure, soil - The combination or arrangement of primary soil particles into aggregates of secondary soil particles, which are separated from each other by surfaces of weakness. These secondary particles may be, but usually are not, arranged in the profile in such a manner as to give a distinct characteristic pattern. The secondary particles are characterized and classified on the basis of size, shape, and degree of distinctness. The general shape types are structureless, plate-like, block-like and prism-like. The terms are:

structureless - Having no observable aggregation or no definite orderly arrangement around natural lines of weakness.

single grain - Loose, incoherent mass of individual particles as in sands.

massive - A coherent mass showing no evidence of any distinct arrangement of soil particles.

block-like - Soil particles are arranged around a point and bounded by flat or rounded sides.

blocky (angular blocky) - Having block-like structures with flat, rectangular faces and sharp, angular corners.

subangular blocky - Having block-like structures with rounded or flattened faces and rounded corners.

granular - Having block-like aggregates that appear as spheroids having curved surfaces which have slight or no accommodation to the faces of the surrounding aggregates.

plate-like - Soil particles are arranged around a horizontal plane and generally bounded by relatively flat, horizontal surfaces.

platy - Having thin, plate-like aggregates with faces mostly horizontal.

prism-like - Soil particles are arranged around a vertical axis and bounded by relatively flat, vertical surfaces.

prismatic - Having prism-like structures with vertical faces well-defined, and edges near the top sharp and somewhat angular.

columnar - Having column-like structures with vertical edges near the top of columns not sharp (columns may be flat-topped, round-topped or irregular).

Substrate modifier - A material of different origin that underlies material in which a soil is formed, at a depth of 1 m or less.

Superglacial - A glaciolacustrine or glaciofluvial deposit laid down in small ponds or lakes on the melting ice surface, which subsequently becomes mixed with or underlain by glacial till upon melting. It is not as uniform as typical lacustrine or fluvial deposits.

Terrace - A nearly level, usually narrow, plain bordering a river, lake, or sea. Rivers are sometimes bordered by a number of terraces at different levels.

Texture, soil - The relative proportions of the various soil particles (sand, silt or clay) in a soil as described by the classes of soil texture. Refer to section "2.5 Surface Texture" on page 2-3 of this report. The limits of the various classes and subclasses are:

sand - Soil material that contains 85% or more sand.

coarse sand - Soil material that contains 25% or more very coarse and coarse sand, and less than 50% of any other one grade of sand.

fine sand - Soil material that contains 50% or more fine sand or less than 25% very coarse, coarse, and medium sand and less than 50% very fine sand.

gravelly sand - Soil material that meets the requirements of a sand but also contains 20 to 50% by volume of coarse fragments from 2 mm to 75 mm in diameter.

loamy sand - Soil material that usually contains 70 to 85% sand but may contain as much as 90% sand depending upon the amount of clay present.

gravelly loamy sand - Soil material that meets the requirements of a loamy sand but also contains 20 to 50% by volume of coarse fragments from 2 mm to 75 mm in diameter.

sandy loam - Soil material that usually contains 52 to 70% sand but may contain as much as 85% or as little as 43% sand depending upon the amount of clay present.

fine sandy loam - Soil material that contains 30% or more fine sand and less than 30% very fine sand or between 15 and 30% very coarse, coarse, and medium sand.

gravelly sandy loam - Soil material that meets the requirements of a sandy loam but also contains 20 to 50% by volume of coarse fragments from 2 mm to 75 mm in diameter.

very fine sandy loam - Soil material that contains 30% or more very fine sand or more than 40% fine and very fine sand, at least half of which is very fine sand, and less than 15% very coarse, coarse, and medium sand.

loam - Soil material that contains 7 to 27% clay, 28 to 50% silt, and less than 52% sand.

gravelly loam - Soil material that meets the requirements of a loam but also contains 20 to 50% by volume of coarse fragments from 2 mm to 75 mm in diameter.

silt loam - Soil material that contains 50% or more silt and 12 to 27% clay, or 50 to 80% silt and less than 12% clay.

silt - Soil material that contains 80% or more silt and less than 12% clay.

sandy clay loam - Soil material that contains 20 to 35% clay, less than 28% silt, and 45% or more sand.

clay loam - Soil material that contains 27 to 40% clay and 20 to 45% sand.

silty clay loam - Soil material that contains 27 to 40% clay and less than 20% sand.

silty clay - Soil material that contains 40% or more silt and more than 40% clay.

clay - Soil material that contains 40% or more clay, less than 45% sand, and less than 40% silt.

heavy clay - Soil material that contains more than 60% clay.

Till - Unstratified glacial drift, deposited directly by the ice, consisting of a mixture of clay, sand, silt, gravel, and boulders.

eroded till - Glacial till that has been subjected to water erosion subsequent to deposition, often leaving a dense stone lag or stony, gravelly lense on the surface.

water-modified till - Glacial till that has had significant amounts of water-sorted materials incorporated, usually during deposition, that results in less stony than normal glacial till with more sandy, silty or clayey textures than unstratified glacial till.

Tilth - The physical condition of soil as related to its ease of tillage, fitness as a seedbed, and impedance to seedling emergence and root penetration.

Topography - The physical features of a district or region, taken collectively; especially, the relief and contours of the land.

Undulating - Refer to section "2.4 Surface Forms" on page 2-2 of this report.

Veneer - Unconsolidated materials too thin to mask the minor irregularities of the underlying unit surface. A veneer will range from 10 cm to 1 m in thickness and will possess no form typical of the material's genesis. An example of this is shallow lacustrine deposits overlying glacial till.

Water, soil - Water occupying the pore spaces in the soil.

Water table - The upper surface of groundwater or that level in the ground where the water is at atmospheric pressure.

Wilting point - The moisture content of a soil at which plants wilt and fail to recover their turgidity when placed in a dark, humid atmosphere.

Zone, soil - An area in which the dominant soils reflect the zonal influence of climate and vegetation, and form a natural land pattern with other soils that exhibit the zonal influence only weakly or not at all. In Saskatchewan soils, there is a gradual increase in the organic matter content of the surface horizons as one moves from the southwest to the northeast, as reflected by their surface color. This forms the basis of soil zonal separations in the province, namely Brown, Dark Brown, Black, Dark Gray, and Gray.

8. FURTHER INFORMATION

For more information about the data contained in this report or for more information about the Saskatchewan Soil Survey, contact:

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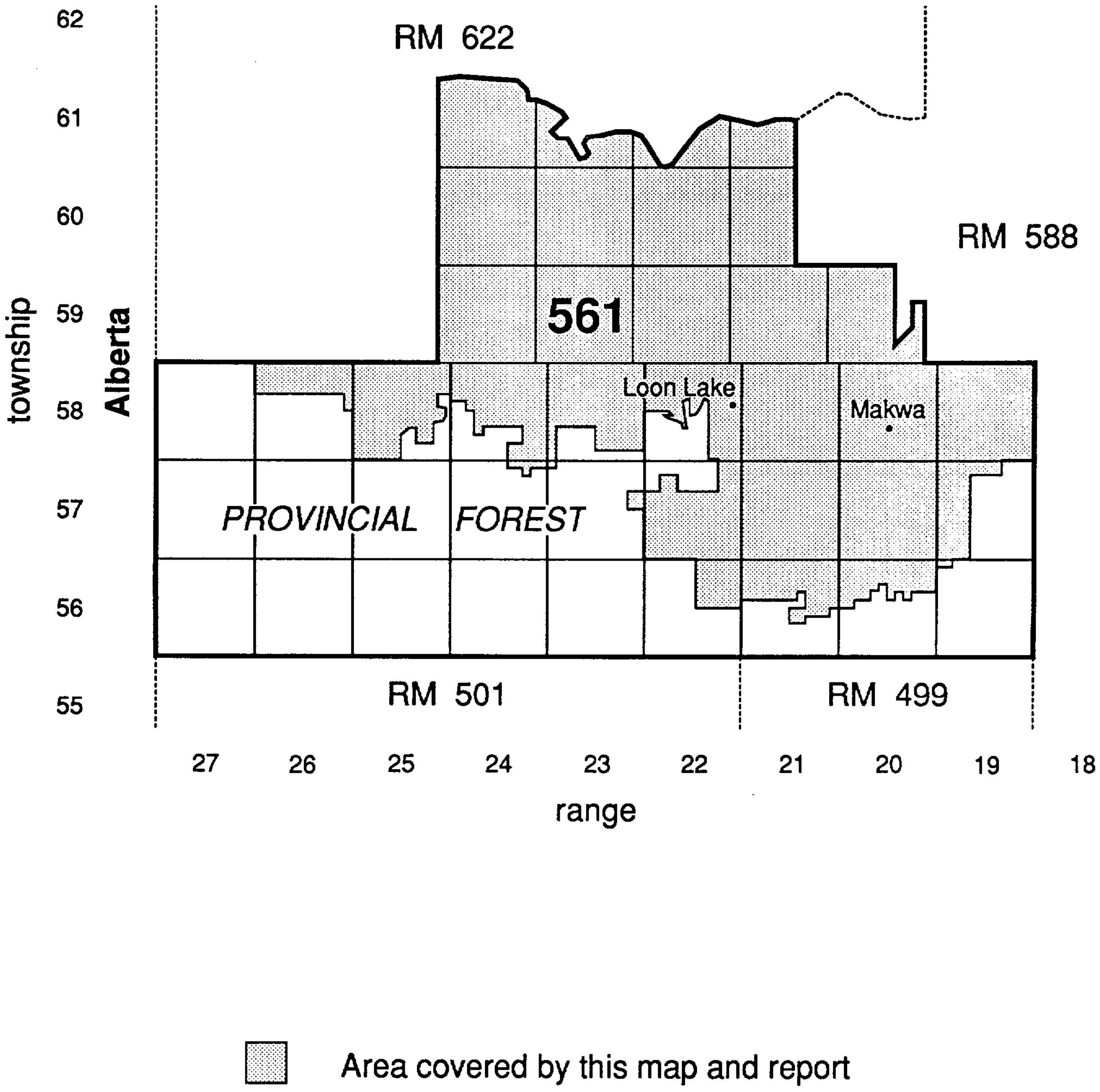
KEY MAP



RM 622
RM 588
561
Loon Lake
Makwa
PROVINCIAL FOREST
RM 501
RM 499
Alberta
township
62
61
60
59
58
57
56
55
range
27
26
25
24
23
22
21
20
19
18
Area covered by this map and report

9. MAP LEGEND

MAP UNIT	SOIL DESCRIPTION
Alluvium	**A complex of soils formed in variable-textured alluvial materials.**
Av5	Mainly Alluvium Gleysolic soils.
Av29	Mainly a mixture of Alluvium Chernozemic soils, with Alluvium Solonetzic soils intermixed.
Av41	Mainly a mixture of Alluvium Humic Regosol soils on mid- to upper slopes and Alluvium Gleysolic soils on lower slopes and in depressions.
Av43	Mainly a mixture of Alluvium Orthic Gray Luvisol and Dark Gray Luvisol soils.
Av44	Mainly a mixture of Alluvium Chernozemic soils on mid- and lower slopes and Alluvium Gray Luvisolic soils on some mid- and upper slopes.
Alluvium-Bagwa Lake	**A mixture of Gleysolic soils formed in variable-textured alluvial materials (Alluvium) and Organic soils formed in fen peat (Bagwa Lake).**
AvBL3	Mainly a mixture of Alluvium Gleysolic and peaty Gleysolic soils, with a mixture of Bagwa Lake Terric Mesisol and Typic Mesisol soils in low-lying areas.
Arbow	**Gleysolic soils formed in variable-textured alluvial materials.**
Aw1	Mainly Arbow peaty Gleysolic soils.
Arbow-Bagwa Lake	**A mixture of Gleysolic soils formed in variable-textured alluvial materials (Arbow) and Organic soils formed in fen peat (Bagwa Lake).**
AwBL3	Mainly Arbow peaty Gleysolic soils, with Bagwa Lake Terric Fibrisol soils in depressions.
Arbow-Lavallee Lake	**A mixture of Gleysolic soils formed in variable-textured alluvial materials (Arbow) and Organic soils formed in forest peat overlain by shallow sphagnum peat (Lavallee Lake).**
AwLL1	Mainly Arbow peaty Gleysolic soils, with a mixture of Lavallee Lake Mesic Fibrisol and Terric Fibric Mesisol soils intermixed.
Bodmin-Loon River	**Gray Luvisolic soils formed in a mixture of gravelly fluvial materials (Bodmin) and weakly to moderately calcareous, loamy glacial till (Loon River).**
BdLn3	Mainly Bodmin Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes, and Pine Eluviated Eutric Brunisol soils intermixed.
BdLn4	Mainly Bodmin Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes, and Kewanoke Eluviated Eutric Brunisol soils intermixed.
Bagwa Lake	**Organic soils formed in fen peat.**
BL1	Mainly Bagwa Lake Typic Mesisol soils.
BL3	Mainly Bagwa Lake Terric Mesisol soils, with Bagwa Lake Typic Mesisol soils intermixed.
BL7	Mainly Bagwa Lake Terric Mesisol soils.
BL9	Mainly Bagwa Lake Typic Fibrisol soils.
BL17	Mainly a mixture of Bagwa Lake Typic Mesisol, Typic Fibrisol and Fibric Mesisol soils, with Bagwa Lake Terric Mesisol soils along the margins.
Bagwa Lake-Arbow	**A mixture of Organic soils formed in fen peat (Bagwa Lake) and Gleysolic soils formed in variable-textured alluvial materials (Arbow).**
BLAw1	Mainly a mixture of Bagwa Lake Typic Mesisol and Terric Mesisol soils, with Arbow peaty Gleysolic soils intermixed.

MAP UNIT	SOIL DESCRIPTION
Bagwa Lake-Bodmin	**A mixture of Organic soils formed in fen peat (Bagwa Lake) and Gray Luvisolic soils formed in gravelly fluvial materials (Bodmin).**
BLBd4	Mainly a mixture of Bagwa Lake Typic Mesisol soils towards the center of depressional areas and Bagwa Lake Terric Mesisol soils along the margins, with Bodmin Orthic Gray Luvisol soils on local upland areas, and Loon River Orthic Gray Luvisol soils intermixed on upland areas.
Bagwa Lake-Lavallee Lake	**Organic soils formed in a mixture of fen peat (Bagwa Lake) and forest peat overlain by shallow sphagnum peat (Lavallee Lake).**
BLLL34	Mainly a mixture of Bagwa Lake Typic Mesisol and Terric Mesisol soils towards the center of depressional areas, with Lavallee Lake Terric Mesisol soils along the margins.
Bagwa Lake-Meadow	**A mixture of Organic soils formed in fen peat (Bagwa Lake) and Gleysolic soils formed in variable-textured alluvial materials (Meadow).**
BLMw3	Mainly Bagwa Lake Terric Mesisol soils in depressional areas, with Meadow Gleysolic soils along the margins of Bagwa Lake soils.
Bittern Lake	**Gray Luvisolic soils formed in loamy glacial till overlain by shallow, sandy glaciofluvial materials.**
Bt1	Mainly Bittern Lake Brunisolic Gray Luvisol soils, with Bittern Lake Orthic Gray Luvisol soils intermixed.
Bt3	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils.
Bt4	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils, with Bittern Lake Gleyed Gray Luvisol soils on lower slopes, and peaty Gleysolic soils in depressions.
Bt7	Mainly Bittern Lake Orthic Gray Luvisol soils.
Bittern Lake-La Corne	**Gray Luvisolic soils formed in a mixture of loamy glacial till overlain by shallow, sandy glaciofluvial materials (Bittern Lake) and loamy lacustrine materials (La Corne).**
BtLc6	Mainly Bittern Lake Orthic Gray Luvisol soils, with Bittern Lake Gleyed Gray Luvisol soils on lower slopes, and La Corne Orthic Gray Luvisol soils intermixed.
Bittern Lake-Loon River	**Gray Luvisolic soils formed in a mixture of loamy glacial till overlain by shallow, sandy glaciofluvial materials (Bittern Lake) and weakly to moderately calcareous, loamy glacial till (Loon River).**
BtLn3	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils, with a mixture of Loon River Orthic Gray Luvisol and Brunisolic Gray Luvisol soils on some mid- and upper slopes.
BtLn19	Mainly Bittern Lake Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on some mid- and upper slopes, Bittern Lake Gleyed Gray Luvisol soils on lower slopes, and Gleysolic soils in depressions.
Bittern Lake-Pine	**A mixture of Gray Luvisolic soils formed in loamy glacial till overlain by shallow, sandy glaciofluvial materials (Bittern Lake) and Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine).**
BtPn3	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils, with a mixture of Pine Orthic Regosol and Pine Eluviated Eutric Brunisol soils intermixed.
BtPn5	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils, with Bittern Lake Gleyed Gray Luvisol soils on lower slopes, Pine Eluviated Eutric Brunisol soils intermixed, and peaty Gleysolic soils in depressions.
BtPn13	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils, with Pine Eluviated Eutric Brunisol soils intermixed, and Lavallee Lake Terric Mesisol soils in depressions.
BtPn23	Mainly a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils, with Pine Eluviated Eutric Brunisol soils intermixed, and a mixture of Loon River Orthic Gray Luvisol and Brunisolic Gray Luvisol soils on some mid- and upper slopes.

MAP UNIT	SOIL DESCRIPTION
Beaver River	**Gray Luvisolic soils formed in clayey lacustrine materials.**
Bv3	Mainly Beaver River Orthic Gray Luvisol soils, with Beaver River Dark Gray Luvisol soils on lower slopes.
Bv5	Mainly Beaver River Orthic Gray Luvisol soils, with Beaver River Dark Gray Luvisol soils on some lower slopes and in depressions, and Gleysolic soils in some depressions.
Bv6	Mainly Beaver River Orthic Gray Luvisol soils, with peaty Gleysolic soils in depressions.
Beaver River-Bagwa Lake	**A mixture of Gray Luvisolic soils formed in clayey lacustrine materials (Beaver River) and Organic soils formed in materials derived from Fen peat (Bagwa Lake).**
BvBL2	Mainly Beaver River Orthic Gray Luvisol soils, with a mixture of Bagwa Lake Typic and Terric Fibrisol soils in depressions.
Beaver River-Dorintosh	**Gray Luvisolic soils formed in a mixture of clayey (Beaver River) and silty (Dorintosh) lacustrine materials.**
BvDo1	Mainly Beaver River Orthic Gray Luvisol soils, with Dorintosh Orthic Gray Luvisol soils on some upper slopes, and Beaver River Dark Gray Luvisol soils on lower slopes.
BvDo2	Mainly Beaver River Dark Gray Luvisol soils, with Beaver River Orthic Gray Luvisol soils on mid- to upper slopes, a mixture of Dorintosh Orthic Gray Luvisol and Dark Gray Luvisol soils on some upper slopes, and peaty Gleysolic soils in depressions.
Beaver River-Loon River	**Gray Luvisolic soils formed in a mixture of clayey lacustrine materials (Beaver River) and weakly to moderately calcareous, loamy glacial till (Loon River).**
BvLn1	Mainly Beaver River Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes and knolls.
BvLn3	Mainly Beaver River Dark Gray Luvisol soils, with Loon River Dark Gray Luvisol soils on upper slopes and knolls.
BvLn4	Mainly Beaver River Dark Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes, and Beaver River Orthic Gray Luvisol soils on some midslopes.
Beaver River-Meadow Lake	**A mixture of Gray Luvisolic (Beaver River) and Black Chernozemic and Black Solonetzic (Meadow Lake) soils formed in clayey lacustrine materials.**
BvMd2	Mainly Beaver River Dark Gray Luvisol soils, with Meadow Lake Eluviated Black soils on some lower slopes, and Luvic Gleysol soils in depressions.
Dorintosh	**Gray Luvisolic soils formed in silty lacustrine materials.**
Do1	Mainly Dorintosh Orthic Gray Luvisol soils.
Do4	Mainly Dorintosh Dark Gray Luvisol soils, with Dorintosh Orthic Gray Luvisol soils on some upper slopes.
Do5	Mainly Dorintosh Gleyed Dark Gray Luvisol soils, with Dorintosh Dark Gray Luvisol soils on some mid- and upper slopes.
Dorintosh-Loon River	**Gray Luvisolic soils formed in a mixture of silty lacustrine materials (Dorintosh) and weakly to moderately calcareous, loamy glacial till (Loon River).**
DoLn1	Mainly Dorintosh Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on mid- to upper slopes.
DoLn2	Mainly Dorintosh Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on mid- to upper slopes, and peaty Gleysolic soils in depressions.
DoLn9	Mainly Dorintosh Dark Gray Luvisol soils, with Dorintosh Orthic Gray Luvisol soils on mid- to upper slopes, and Loon River Orthic Gray Luvisol soils on upper slopes and knolls.
Dorintosh-Sylvania	**Gray Luvisolic soils formed in a mixture of silty lacustrine materials (Dorintosh) and sandy fluvial materials (Sylvania).**
DoSy1	Mainly Dorintosh Orthic Gray Luvisol soils, with Sylvania Orthic Gray Luvisol soils on upper slopes.
Flat Lake	**A mixture of Gleysolic soils formed in loamy alluvial materials occurring in depressional areas.**
Fk4	Mainly Flat Lake moderately saline Gleysolic soils.

MAP UNIT	SOIL DESCRIPTION
Hamlin	**Black Chernozemic soils formed in loamy lacustrine materials.**
Hm14	Mainly Hamlin Eluviated Black soils, with Hamlin Gleyed Eluviated Black soils on lower slopes, and poorly drained soils in depressions.
Hamlin-Shellbrook	**A mixture of Black Chernozemic (Hamlin) and Dark Gray Chernozemic (Shellbrook) soils formed in loamy lacustrine materials.**
HmSb7	Mainly Hamlin Orthic Black soils, with Shellbrook Orthic Dark Gray soils on some upper slopes, La Corne Dark Gray Luvisol soils on some midslopes, and Luvic Gleysol soils in depressions.
Hillwash	**A mixture of Regosolic, weakly developed Chernozemic and Luvisolic soils formed in various deposits associated with steep and eroding valley sides.**
Hw	Mainly a mixture of Hillwash Regosolic, Luvisolic and weakly developed Chernozemic soils on steep, gullied valley side slopes.
Hillwash-Alluvium	**A mixture of Regosolic, weakly developed Chernozemic and Luvisolic soils formed in various deposits associated with steep and eroding valley sides (Hillwash) and variable-textured alluvial materials (Alluvium).**
HwAv1	Mainly a mixture of Hillwash Regosolic, Luvisolic and weakly developed Chernozemic soils on steep, gullied valley side slopes, with Alluvium Gleysolic soils on stream floodplains.
Kewanoke-Pine	**A mixture of Brunisolic soils formed in gravelly fluvial materials (Kewanoke) and Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine).**
KkPn7	Mainly a mixture of Kewanoke Orthic Eutric Brunisol and Eluviated Eutric Brunisol soils, with Pine Eluviated Eutric Brunisol soils on lower slopes, Kewanoke Gleyed Eluviated Eutric Brunisol soils on lower slopes, and Lavallee Lake Terric Fibric Mesisol soils in depressions.
La Corne-Loon River	**Gray Luvisolic soils formed in a mixture of loamy lacustrine materials (La Corne) and weakly to moderately calcareous, loamy glacial till (Loon River).**
LcLn1	Mainly La Corne Orthic Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes.
La Corne-Sylvania	**Gray Luvisolic soils formed in a mixture of loamy lacustrine (La Corne) and sandy fluvial (Sylvania) materials.**
LcSy4	Mainly a mixture of La Corne Dark Gray Luvisol soils on mid- and lower slopes and La Corne Orthic Gray Luvisol soils on upper slopes and knolls, with a mixture of Sylvania Orthic Gray Luvisol soils on some upper slopes and knolls and Sylvania Dark Gray Luvisol soils on some midslopes.
Lavallee Lake	**Organic soils formed in forest peat overlain by shallow sphagnum peat.**
LL1	Mainly Lavallee Lake Typic Mesisol soils, with Lavallee Lake Typic Fibrisol soils intermixed.
LL2	Mainly Lavallee Lake Terric Mesisol soils, with Lavallee Lake Fibric Mesisol and Terric Humisol soils intermixed.
LL5	Mainly a mixture of Lavallee Lake Terric Mesisol and Typic Mesisol soils.
Lavallee Lake-Arbow	**A mixture of Organic soils formed in forest peat overlain by shallow sphagnum peat (Lavallee Lake) and Gleysolic soils formed in variable-textured alluvial materials (Arbow).**
LLAw4	Mainly a mixture of Lavallee Lake Terric Mesisol and Terric Fibric Mesisol soils, with Arbow peaty Gleysolic soils along the margins of the Lavallee Lake soils.
Lavallee Lake-Bagwa Lake	**A mixture of Organic soils formed in forest peat overlain by shallow sphagnum peat (Lavallee Lake) and fen peat (Bagwa Lake).**
LLBL2	Mainly a mixture of Lavallee Lake Terric Fibric Mesisol and Mesic Fibrisol soils, with Bagwa Lake Typic Mesisol and Terric Mesisol soils intermixed.
Loon River	**Gray Luvisolic soils formed in weakly to moderately calcareous, loamy glacial till.**
Ln1	Mainly Loon River Orthic Gray Luvisol soils.
Ln2	Mainly Loon River Orthic Gray Luvisol soils, with peaty Gleysolic soils in depressions.
Ln3	Mainly Loon River Orthic Gray Luvisol soils, with Loon River Gleyed Gray Luvisol soils on lower slopes, and peaty Gleysolic soils in depressions.

MAP UNIT	SOIL DESCRIPTION
Ln6	Mainly a mixture of Loon River Orthic Gray Luvisol and Brunisolic Gray Luvisol soils, with Loon River Gleyed Gray Luvisol soils on lower slopes and in depressions.
Ln9	Mainly Loon River Dark Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on some upper slopes, and peaty Gleysolic soils in depressions.
Ln10	Mainly Loon River Orthic Gray Luvisol soils, with Loon River Dark Gray Luvisol soils on lower slopes and through depressions.
Ln11	Mainly Loon River Dark Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes, and a mixture of Loon River Gleyed Gray Luvisol and Gleyed Dark Gray Luvisol soils on lower slopes.
Ln12	Mainly Loon River Orthic Gray Luvisol soils, with Loon River Gleyed Gray Luvisol soils in depressions, and a mixture of Loon River Dark Gray Luvisol soils on lower slopes and Loon River Gleyed Dark Gray Luvisol soils in some depressions.
Ln13	Mainly Loon River Dark Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes.
Ln14	Mainly Loon River Dark Gray Luvisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes, and Gleysolic soils in depressions.
Loon River-Bodmin	**Gray Luvisolic soils formed in a mixture of weakly to moderately calcareous, loamy glacial till (Loon River) and gravelly fluvial materials (Bodmin).**
LnBd1	Mainly Loon River Orthic Gray Luvisol soils, with Bodmin Orthic Gray Luvisol soils intermixed.
LnBd2	Mainly Loon River Orthic Gray Luvisol soils, with Bodmin Orthic Gray Luvisol soils intermixed, and peaty Gleysolic soils in depressions.
LnBd3	Mainly Loon River Orthic Gray Luvisol soils, with Bodmin Orthic Gray Luvisol soils intermixed, and Lavallee Lake Terric Mesisol soils in depressions.
LnBd6	Mainly Loon River Orthic Gray Luvisol soils, with Bodmin Orthic Gray Luvisol and Kewanoke Eluviated Eutric Brunisol soils intermixed.
LnBd8	Mainly Loon River Orthic Gray Luvisol soils, with Bodmin Orthic Gray Luvisol and Kewanoke Eluviated Eutric Brunisol soils intermixed, and peaty Gleysolic soils in depressions.
Loon River-Bagwa Lake	**A mixture of Gray Luvisolic soils formed in weakly to moderatley calcareous, loamy glacial till (Loon River) and Organic soils formed in fen peat (Bagwa Lake).**
LnBL14	Mainly Loon River Orthic Gray Luvisol soils, with a mixture of Bagwa Lake Typic Fibrisol soils in the center of depressions and Bagwa Lake Terric Fibrisol soils around the margins of depressions.
Loon River-Bittern Lake	**Gray Luvisolic soils formed in a mixture of weakly to moderately calcareous, loamy glacial till (Loon River) and loamy glacial till overlain by shallow, sandy glaciofluvial materials (Bittern Lake).**
LnBt1	Mainly Loon River Orthic Gray Luvisol soils, with Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils intermixed.
LnBt2	Mainly Loon River Orthic Gray Luvisol soils, with Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils on lower slopes, and peaty Gleysolic soils in depressions.
LnBt3	Mainly Loon River Orthic Gray Luvisol soils, with a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils intermixed, Loon River Gleyed Gray Luvisol soils on some lower slopes, and peaty Gleysolic soils in depressions.
LnBt4	Mainly Loon River Orthic Gray Luvisol soils, with a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils on lower slopes, and a mixture of Bagwa Lake Typic Mesisol and Terric Mesisol soils in depressions.
LnBt6	Mainly Loon River Orthic Gray Luvisol soils, with a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils on lower slopes, and Pine Eluviated Eutric Brunisol soils intermixed.
LnBt7	Mainly Loon River Orthic Gray Luvisol soils, with a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils on lower slopes, and Kewanoke Eluviated Eutric Brunisol soils intermixed.
LnBt8	Mainly Loon River Orthic Gray Luvisol soils, with a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils on lower slopes, Bodmin Orthic Gray Luvisol soils intermixed, and peaty Gleysolic soils in depressions.

MAP UNIT	SOIL DESCRIPTION
LnBt29	Mainly Loon River Dark Gray Luvisol soils, with Bittern Lake Dark Gray Luvisol soils intermixed, and Gleysolic soils in depressions.
LnBt30	Mainly Loon River Dark Gray Luvisol soils, with a mixture of Bittern Lake Dark Gray Luvisol and Gleyed Dark Gray Luvisol soils intermixed, and Gleysolic soils in depressions.
LnBt31	Mainly Loon River Orthic Gray Luvisol soils, with Loon River Dark Gray Luvisol soils on some mid- and lower slopes, a mixture of Bittern Lake Dark Gray Luvisol and Gleyed Dark Gray Luvisol soils intermixed and Gleysolic soils in depressions.
LnBt32	Mainly Loon River Dark Gray Luvisol soils, with Bittern Lake Dark Gray Luvisol soils on lower slopes, and Loon River Orthic Gray Luvisol soils on upper slopes.
Loon River-Beaver River	**Gray Luvisolic soils formed in a mixture of weakly to moderately calcareous, loamy glacial till (Loon River) and clayey lacustrine materials (Beaver River).**
LnBv1	Mainly Loon River Orthic Gray Luvisol soils, with Beaver River Orthic Gray Luvisol soils on lower slopes.
LnBv2	Mainly Loon River Orthic Gray Luvisol soils, with Beaver River Orthic Gray Luvisol soils on lower slopes, and peaty Gleysolic soils in depressions.
LnBv3	Mainly Loon River Dark Gray Luvisol soils, with a mixture of Beaver River Orthic Gray Luvisol and Dark Gray Luvisol soils on some mid- and lower slopes.
Loon River-Dorintosh	**Gray Luvisolic soils formed in a mixture of weakly to moderately calcareous, loamy glacial till (Loon River) and silty lacustrine materials (Dorintosh).**
LnDo1	Mainly Loon River Orthic Gray Luvisol soils, with Dorintosh Orthic Gray Luvisol soils on lower slopes.
LnDo2	Mainly Loon River Orthic Gray Luvisol soils, with Dorintosh Orthic Gray Luvisol soils on lower slopes, Loon River Gleyed Gray Luvisol soils on some lower slopes, and peaty Gleysolic soils in depressions.
LnDo11	Mainly Loon River Orthic Gray Luvisol soils, with Dorintosh Orthic Gray Luvisol soils on midslopes, and Dorintosh Dark Gray Luvisol soils on lower slopes.
LnDo12	Mainly Loon River Orthic Gray Luvisol soils, with Loon River Dark Gray Luvisol soils on some mid- and upper slopes, a mixture of Dorintosh Orthic Gray Luvisol and Dark Gray Luvisol soils on some mid- and lower slopes, and Gleysolic soils in depressions.
Loon River-Horsehead	**A mixture of Gray Luvisolic (Loon River) and Dark Gray Chernozemic (Horsehead) soils formed in weakly to moderately calcareous, loamy glacial till.**
LnHo3	Mainly a mixture of Loon River Orthic Gray Luvisol and Dark Gray Luvisol soils, with Horse Head Orthic Dark Gray soils on some upper slopes and knolls.
Loon River-Kewanoke	**A mixture of Gray Luvisolic soils formed in weakly to moderately calcareous, loamy glacial till (Loon River) and Brunisolic soils formed in gravelly fluvial materials (Kewanoke).**
LnKk1	Mainly Loon River Orthic Gray Luvisol soils, with Kewanoke Eluviated Eutric Brunisol soils intermixed.
Loon River-La Corne	**Gray Luvisolic soils formed in a mixture of weakly to moderately calcareous, loamy glacial till (Loon River) and loamy lacustrine materials (La Corne).**
LnLc3	Mainly Loon River Dark Gray Luvisol soils, with a mixture of La Corne Dark Gray Luvisol and Gleyed Dark Gray Luvisol soils on lower slopes, and Loon River Gleyed Dark Gray Luvisol soils on some mid- and lower slopes.
LnLc4	Mainly Loon River Dark Gray Luvisol soils, with La Corne Dark Gray Luvisol soils on some mid- and lower slopes, and Sylvania Dark Gray Luvisol soils intermixed.
Loon River-Makwa	**A mixture of Gray Luvisolic (Loon River) and Black Chernozemic (Makwa) soils formed in weakly to moderately calcareous, loamy glacial till.**
LnMa1	Mainly Loon River Dark Gray Luvisol soils, with Makwa Orthic Black soils on lower slopes.
Loon River-Sylvania	**Gray Luvisolic soils formed in a mixture of weakly to moderately calcareous, loamy glacial till (Loon River) and sandy fluvial materials (Sylvania).**
LnSy1	Mainly Loon River Orthic Gray Luvisol soils, with Sylvania Orthic Gray Luvisol soils intermixed.

MAP UNIT	SOIL DESCRIPTION
Makwa	**Black Chernozemic soils formed in weakly to moderately calcareous, loamy glacial till.**
Ma3	Mainly Makwa Eluviated Black soils, with Makwa Orthic Black soils on upper slopes.
Makwa-Loon River	**A mixture of Black Chernozemic (Makwa) and Gray Luvisolic (Loon River) soils formed in weakly to moderately calcareous, loamy glacial till.**
MaLn1	Mainly Makwa Eluviated Black soils, with Loon River Dark Gray Luvisol soils on upper slopes, and Makwa Orthic Black soils intermixed.
Meadow Lake	**A mixture of Black Chernozemic and Black Solonetzic soils formed in clayey lacustrine materials.**
Md3	Mainly a mixture of Meadow Lake Solonetzic Black, Black Solodized Solonetz and Black Solod soils, with Meadow Lake Orthic Black and Eluviated Black soils intermixed.
Meadow Lake-Makwa	**A mixture of Black Chernozemic and Black Solonetzic soils formed in clayey lacustrine materials (Meadow Lake) and Black Chernozemic soils formed in weakly to moderately calcareous, loamy glacial till (Makwa).**
MdMa2	Mainly Meadow Lake Eluviated Black soils, with Makwa Orthic Black soils on upper slopes, and peaty Gleysolic soils in depressions.
Meadow	**Gleysolic soils formed in variable-textured alluvial materials.**
Mw1	Mainly a mixture of Meadow Orthic Humic and Rego Humic Gleysol soils.
Mw2	Mainly Meadow saline and carbonated Rego Humic Gleysol soils.
Mw6	Mainly a mixture of Meadow Humic Gleysolic soils on mid- and upper slopes and Meadow peaty Humic Gleysolic soils on lower slopes.
Meadow-Bagwa Lake	**A mixture of Gleysolic soils formed in variable-textured alluvial materials (Meadow) and Organic soils formed in fen peat (Bagwa Lake).**
MwBL4	Mainly Meadow peaty Gleysolic soils, with Bagwa Lake Terric Mesisol soils towards the center of the depressional area.
MwBL10	Mainly Meadow peaty Gleysolic soils, with a mixture of Bagwa Lake Typic Fibrisol and Terric Fibrisol soils towards the center of depressional areas.
Meadow-Pine	**A mixture of Gleysolic soils formed in variable-textured alluvial materials (Meadow) and Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine).**
MwPn2	Mainly Meadow peaty Gleysolic soils, with a mixture of Pine Orthic Regosol soils on upper slopes and Pine Eluviated Eutric Brunisol soils on midslopes.
Pine	**Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked.**
Pn1	Mainly Pine Eluviated Eutric Brunisols soils.

MAP UNIT	SOIL DESCRIPTION
Pine-Bittern Lake	**A mixture of Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine) and Gray Luvisolic soils formed in loamy glacial till overlain by shallow, sandy glaciofluvial materials (Bittern Lake).**
PnBt2	Mainly Pine Eluviated Eutric Brunisol soils, with a mixture of Bittern Lake Brunisolic Gray Luvisol and Orthic Gray Luvisol soils on upper slopes and knolls, Pine Gleyed Eluviated Eutric Brunisol soils on lower slopes, and peaty Gleysolic soils in depressions.
Pine-Kewanoke	**A mixture of Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine) and Brunisolic soils formed in gravelly fluvial materials (Kewanoke).**
PnKk1	Mainly Pine Eluviated Eutric Brunisol soils, with Kewanoke Eluviated Eutric Brunisol soils intermixed.
PnKk6	Mainly a mixture of Pine Eluviated Eutric Brunisol and Pine Orthic Regosol soils, with a mixture of Kewanoke Orthic Eutric Brunisol and Eluviated Eutric Brunisol soils intermixed, Pine Gleyed Eluviated Eutric Brunisol soils on lower slopes, and peaty Gleysolic soils in depressions.
PnKk19	Mainly Pine Orthic Regosol soils, with a mixture of Kewanoke Orthic Eutric Brunisol and Gleyed Eutric Brunisol soils intermixed, Bittern Lake Orthic Gray Luvisol soils intermixed, and peaty Gleysolic soils in depressions.
Pine-Loon River	**A mixture of Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine) and Gray Luvisolic soils formed in weakly to moderately calcareous, loamy glacial till (Loon River).**
PnLn1	Mainly Pine Eluviated Eutric Brunisol soils, with Loon River Orthic Gray Luvisol soils on upper slopes.
Runway	**Regosolic, Luvisolic, Chernozemic and Gleysolic soils formed in various deposits associated with shallow drainage channels and gullies.**
Rw	Mainly a mixture of Runway Gleysolic soils on channel bottoms and Runway Regosolic, Luvisolic and Chernozemic soils on channel side slopes.
Sylvania-Pine	**A mixture of Gray Luvisolic soils formed in sandy fluvial materials (Sylvania) and Brunisolic and Regosolic soils formed in sandy fluvial materials, some of which have been wind worked (Pine).**
SyPn3	Mainly Sylvania Orthic Gray Luvisol soils, with a mixture of Pine Orthic Regosol and Pine Eluviated Eutric Brunisol soils on upper slopes and knolls.
SyPn5	Mainly Sylvania Orthic Gray Luvisol soils, with a mixture of Pine Eluviated Eutric Brunisol and Orthic Regosol soils on upper slopes and knolls, and peaty Gleysolic soils in depressions.
Wetland	**Gleysolic soils and shallow open water associated with wet, depressional areas.**
Wz1	Wet meadows. Mainly Wetland Gleysolic soils, with shallow open water in central areas.
Wz2	Marshes. A mixture of Wetland Gleysolic soils and shallow open water.
Wz3	Open water wetlands. Mainly shallow open water, with Wetland Gleysolic soils in marginal areas.