1. INTRODUCTION

This report and map have been prepared as an interim document, to enable the Saskatchewan Centre for Soil Research to make available pertinent soil data and interpretive soil information for this municipality.

A final report and maps, which will include this and other data, may be printed in the future. The information presented within this report is designed for the interpretation of various soil and landscape properties that may benefit planning and land management within the municipality. Due to the preliminary nature of this report, the final soil map and interpretive data may be slightly altered before a final publication is printed.

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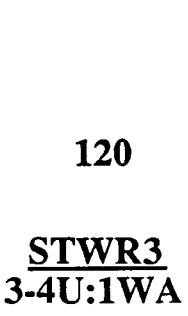
3. HOW TO USE THIS MAP AND REPORT

The Soil Map

The soil map, contained in the back cover of this report, shows all soil areas delineated during the mapping of the municipality. The soils, and some of their properties, are represented on the map by a series of symbols that identify the kinds and distribution of the component soils within each delineation. This symbol is illustrated below.



120	Delineation Number (120)
STWR3	STWR3- Soil map unit (Scott-Weyburn 3)
3-4	3-4- Slope class (2-10% slopes)
U	U- Surface form (undulating)
1WA	1WA- Soil salinity (0-3% of area is weakly saline in low-lying areas of the landscape)

i.e. Surface form and salinity symbols may not be present on the map but are always included in the Soil Interpretation section.

The mapunit (e.g.STWR3) indicates the types of soils present within the delineation. A description of these soils is presented in Section 7 entitled,"Soil Map Unit Descriptions". An explanation of the symbols for surface form and slope class is presented in Section 4 entitled, "Explanation of The Map Symbol".

Other Interpretations

This report includes a series of properties and interpretations in tabular form at the back on such aspects of soils as surface texture, salinity, irrigation potential, agricultural capability, stoniness, wetlands and drainage, and sand and gravel occurrences. This information can be obtained by determining the delineation number from the soil map and referring to Section 8 for a listing of the symbols. Then, by referring to the appropriate subsection, an explanation of the symbols can be obtained.

4. EXPLANATION OF THE MAP SYMBOL

4.1 Slope Classes

CLASS	DESCRIPTION
1	Nearly level - slopes of 0.5% or less.
2	Very gently sloping - slopes up to 2% but dominantly 0.5 to 2%.
3	Gently sloping - slopes up to 5% but dominantly 2 to 5%.
4	Moderately sloping - slopes up to 10% but dominantly 5 to 10%.
5	Strongly sloping - slopes up to 15% but dominantly 10 to 15%.
6	Steeply sloping - slopes up to 30% but dominantly 15 to 30%.
7	Very steeply sloping - slopes dominantly greater than 30%.

Note: A one-percent slope is a change in elevation of one metre in a horizontal distance of 100 metres.

4.2 Surface Forms

Map Symbol	Name
H	Hummocky
I	Inclined
L	Level
M	Rolling
R	Ridged
T	Terraced
U	Undulating
F	Fan

Erosional Modifiers

Map Symbol	Name
C	Channelled
D	Dissected
G	Gullied

Surface Forms, Cont.

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. 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.** Along flood plains of rivers and streams where the inclined surface is broken by abandoned river channels they are called **inclined channelled.**

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 regular sequence of moderate slopes extending from rounded, sometimes confined, concave depressions to broad, rounded convexities producing a wavelike pattern of moderate relief are termed **rolling.**

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.** Where a series of parallel or subparallel,deep gullies or ravines occur,they are called **undulating gullied.**

Fan

A landform with a fan shape and gently inclined surface, formed by the deposition of materials from a stream descending through a steep ravine, where the stream enters a floodplain or an area of much lower gradient.

4.3 Salinity Symbol

S A L I N I T Y

A saline soil is a soil with sufficient amounts of water soluble salts to inhibit the uptake of moisture by plants. This inhibition of water uptake results in moisture stress and reduced plant growth. The most common soluble salts in Saskatchewan soils are magnesium and sodium sulfates. Calcium sulfates also occur but are not as easily dissolved and are less harmful. Calcium, magnesium and sodium chlorides may also be present. The presence of saline soils can often be recognized by bare spots in the crop or as 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 (2 to 10 in.) or deeper. In some cases, it may not be possible to see the salt and a soil analysis must be carried out.

Management of Saline Soils

Saline soils should be managed in such a way as to either prevent further spread or intensification of the problem and, where possible, to reclaim land which has already become salinized. Since most of the salinity is the result of groundwater movement, the key to control lies in the effective management of groundwater flow and water table levels.

One method of achieving this objective is to use precipitation where it falls preventing it from entering the groundwater system. Extending the cropping rotation in saline areas will cycle more precipitation through crops rather than allowing it to reach the water table. This practice is most effective in areas of recharge where water that reaches the water table is very often responsible for soil salinization on lower slopes. Saline soils should be cropped continuously or seeded to long term forage crops. High moisture use crops will intercept incoming groundwater and may lower the water table.

Crop production on saline soils may also be improved by using farmyard manure or green manure, growing salt-tolerant crops and improving surface or subsoil drainage. Fertilizer may help if soils are weakly or moderately saline. The choice of crops which can be grown on saline soils should be based on a soil test. It must be recognized, however, that even though a crop is considered to be tolerant to a specific degree of salinity,some yield reduction can be expected.

On some soils, the use of subsurface drainage installations may be effective in lowering the water table and reducing soil salinity. These drainage installations are most effective in relatively permeable materials affected by shallow water tables. Subsurface drainage may be costly and potential sites need to be studied and water tables monitored for a period of time to determine the feasibility of this drainage method to produce the desired results.

Drainage of water ponded in sloughs may be beneficial in controlling soil salinity. In some areas, the source of water entering the shallow groundwater flow systems is the water ponded in these sloughs.

Drainage of any type, however, requires an approved permit. In Saskatchewan, anyone installing drainage works may be held responsible for any subsequent damage caused by the drained water.

Salinity, Cont.

Further information on soil salinity and drainage can be found in the publications *Understanding Salt-Affected Soils* and *Subsurface Drainage for Salinity Control* , available from Saskatchewan Agriculture.

SALINITY MAP EDIT

e.g. 1WA

1	-Soil salinity extent class
W	-Soil salinity degree class
A	-Landscape position

Extent and Degree of Saline Soils

The salinity symbol indicates the extent and degree of the salt affected soils and is based on field observation alone. The extent of soil salinity was estimated as a percentage of the area of the map delineation in which soil salinity occurred. Estimates of the degree of soil salinity were based on the observed effect of the salinity on crop growth.

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%

Salinity, Cont.

Soil Salinity Degree Classes

Salinity Degree	Electrical Conductivity of 0-60 depth (mS/cm)	Effect on Crop Growth
Nonsaline	0-2	There are no visible effects of salts on the growth of crops.
Weak (W)	2-4	Yields of very sensitive crops may be restricted.
Moderate (M)	4-8	Yields of many crops are restricted.
Strong (S)	8-16	Only tolerant crops yield satisfactorily.
Very Strong (V)	16+	Only a few very tolerant crops yield satisfactorily.

Landscape Position

P Saline soils occur on the edges of depressions, sloughs or runways. All soils in the bottoms of the depressions are leached and nonsaline. These areas generally occur on relatively level or very gentle regional slopes.

A Saline soils occur throughout the bottoms of depressions and sloughs. Salinity may extend out from the slough or depression but is generally the strongest in the most low-lying areas of the landscape. These areas generally occur in low-lying areas of the region.

D Saline soils extend throughout the bottoms of dissections and small runways in the landscape. It is very similar to class A, however, it is restricted to soil areas which have dissections and/or runways.

S Saline soils occur on the sides of hills and slopes well above any slough or depression. The occurrence of salinity is controlled by stratigraphic differences in the materials.

I Saline soil materials generally occur on knolls and upper slopes. In these areas, salts occur below the A horizon due to insufficient in filtration of precipitation to leach the salts out of the root zone. In some areas, erosion has removed sufficient topsoil to expose saline soil or to cause saline soils to be nearer the surface. Salts in these areas are usually of weak degree and are at or slightly higher than the degree of natural salts occurring in the parent material.

5. SOIL INTERPRETATION SYMBOLS

5.1 Surface Texture

Soil Texture

A 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 (the largest or coarsest), silts, and clays (the smallest or finest). The relative proportions of these particle-size fractions in a soil determine its texture. Thus, sand, when dominant, 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', often used to refer to sand- and clayey- textured soils, respectively, are actually a measure of the power required to till the soil and were originally related to the number of horses required to pull the plough __light or sandy land was described as one-horse land, and heavy land as four-horse land. 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.

Textural class names such as sandy loam, clay loam, heavy clay and the like are given to soils based upon the relative proportions of sand, silt and clay. Three broad, yet 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.

CLAYS - The clay group contains at least 35% clay, and in most cases more than 40%. Class names are sandy clay, silty clay, clay and heavy clay. Soils of this group are often called 'gumbo'.

LOAMS- The loam group is intermediate in texture between the coarse-textured sands and the fine-textured clays, and usually contains 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.

Surface Texture cont,

MAP SYMBOL	SOIL TEXTURE CLASS
	Coarse-Textured
GS	Gravelly sand
S	Sand
GLS	Gravelly loamy sand
LS	Loamy sand
FS	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
L	Loam
FCL	Fine sandy clay loam
SCL	Sandy clay loam
VCL	Very fine sandy clay loam
	Moderately Fine-Textured
CL	Clay loam
SIL	Silt loam
SICL	Silty clay loam
	Fine-Textured
C	Clay
HC	Heavy clay
SIC	Silty clay

5.2 Irrigation Suitability

Introduction

The irrigation suitability rating is based on measured or interpreted soil and landscape characteristics described in the various maps and sections of this report. 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 which have higher or lower irrigation suitability than that indicated by the map unit.

SYMBOL DESCRIPTION

e.g. $2Cmvt_1$

2C - Irrigation class

m - Soil limitations

v, t_1 - Landscape limitations

The combination of soil and landscape categories, based upon the most limiting features present, determines the irrigation class and suitability rating.

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

Irrigation Suitability, Cont.

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 slight soil and/or landscape limitations may limit the range of crops that can be grown, require higher development inputs and require greater management skills. Sprinkler irrigation is usually the only feasible method of water application.
3A 3B 3C 1C 2C	Fair	Moderate soil and/or landscape limitations	The moderate soil and/or landscape limitations reduce the range of crops that may be grown and increase developement 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	The severe soil and/or landscape limitations generally result in a soil that is unsuitable for sustained irrigation use. Some lands may have limited potential when special crops, irrigation systems, and soil and water conservation techniques are used.

Irrigation Suitability, Cont.

Landscape Limitations

Symbol	Description
t	**Slope** - the presence of simple slopes (t^1) in undulating landscapes, or complex slopes (t^2) on hummocky or inclined landscapes. Complex slopes (t^2) are often more limiting than simple slopes. Topography may affect the type of irrigation system design and management required.
p	**Stones** - the amount of ground covered by stones. Stones may reduce the available water-holding capacity of the soil, increase development costs and restrict the type of crops that may be grown.
i	**Inundation** - the frequency of flooding. The inundation hazard is used mainly in areas adjacent to rivers.
c	**Impact on Nontarget areas** - the hazard resulting from the impact of applied irrigation water on an adjacent non-irrigated area. The hazards may include such affects as higher water tables, wetter soils, development or build-up of saline areas, or flooding and sedimentation caused by runoff.
v	**Horizontal Variability** - the horizontal variations caused by texture, soil structure, and landscape pattern that may result in the surface ponding of irrigated soils.

Irrigation Suitability, Cont.

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.
k	**Hydraulic Conductivity** - the rate at which water moves through a saturated soil. Used mainly on soil areas that have a B horizon that swells upon wetting and restricts 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 soil. Soils with this limitation also have relatively high hydraulic conductivities and intake rates.
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 watertables and lateral water movement.
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.
q	**Intake Rate** - the rate of movement of water into and through the soil. Usually used on fine-textured soils that have relatively low intake rates requiring relatively light water application rates.
w	**Drainage** - the rate of removal of water from a soil in relation to supply. Indicates areas of mainly poorly drained soils.
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.

5.3 Agricultural Capability

Capability Class
(Degree of Limitation)

The mineral soils of Saskatchewan are grouped into seven capability classes. Soils rated Class 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.

Example 3(6)M5(4)TE

In the symbol notation, the first number indicates the capability class, the bracketed number indicates the percent of the area, and the letters indicate the limitation.

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 in Class 5 because of limitations due to topography and erosion damage.

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.

Agricultural Capability, Cont.

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 limitation is recognized in a particular area, the subclasses are listed in order of importance.

Climatic Limitations

Limitations due to climate are caused by deficiencies in the amount and distribution of precipitation, length of growing season, frost-free period and amount of heat units available for plant growth.

Subclass C: Depicts a moisture deficiency due to insufficient precipitation.

Soil Limitations

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

Subclass 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.

Subclass M: Depicts an insufficient water-holding capacity, due to the combined effects of the textural characteristics of the top 1 m (3 to 4 ft.) and by the organic matter content of the surface horizon.

Subclass 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.

Subclass 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 limition.

Landscape Limitation

Limitations due to adverse characteristics of the soil landscape.

Subclass 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.

Subclass 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.

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

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

Subclass 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.

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

5.4 Stones

Symbol	Description
S0	Nonstony.
S1	Slightly stony - stones seldom hinder cultivation . Light clearing is occasionally required.
S1B1	Slightly stony, slightly bouldery - stones and boulders seldom hinder cultivation. Light clearing is occasionally required.
S1B2	Slightly stony and moderately bouldery - stones and boulders cause moderate interference with cultivation. Annual clearing is usually required.
S2	Moderately stony - stones are a moderate hindrance to cultivation. Annual clearing is usually required.
S2B1	Moderately stony, slightly bouldery - stones cause moderate interference with cultivation. Annual clearing of stones is usually required. Boulders seldom hinder cultivation - light clearing is occasionally required.
S2B2	Moderately stony, moderately bouldery - stones and boulders cause moderate interference with 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.
S3B2	Very stony, moderately bouldery - stones and boulders cause a serious hindrance to cultivation. Sufficient boulders and stones to require clearing on an annual basis.
B3	Very bouldery - boulders cause a serious hindrance to cultivation. Sufficient boulders 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.
S4B1	Excessively stony, slightly bouldery - stones and boulders prohibit cultivation or make clearing a major task. Cultivation is usually hindered, even after regular, heavy clearing.

Stones, Cont.

Symbol	Description
S4B2	Excessively stony, moderately bouldery - stones and boulders prohibit cultivation and make clearing a major task. Boulders make clearing more difficult. Cultivation is severely hindered, even after regular, heavy clearing.
U	Unclassified.

5.5 Wetlands and Drainage

Wetlands, commonly referred to as sloughs, ponds or marshes, develop in depressional areas that receive surface runoff from the surrounding landscape, but lack external surface drainage. They are frequently flooded in the spring and may contain water throughout the year. Although most are considered agricultural wastelands, they are often critical wildlife habitats.

Four types of wetlands, based on the duration of flooding and the proportion of the area permanently occupied by open water and the occurance of organic materials are recognized: organic wetlands, wet meadows, marshes and open water wetlands.

Surface drainage, or runoff, refers to the loss of water from an area by flow over the land surface. The water either ends up in local undrained depressions or, following a network of local channels, creeks and streams, is carried out of the area. Surface drainage is controlled principally by two factors: (1) the texture and structural characteristics of the land, and (2) the direction, steepness and frequency of slopes, often referred to as topography.

Map Symbol	Extent of Wetlands
	Regional Runoff
A1	0 - 5%
A2	5 - 15%
A3	15 - 40%
	Local Runoff and Accumulation
B1	0 - 5%
B2	5 - 15%
B3	15 - 40%
	Major Accumulation
C1	0 - 5%
C2	5 - 15%
C3	15 - 40%
C4	40 - 70%
	Wetlands
DW	Organic Wetlands
DX	Wet Meadows
DY	Marshes
DZ	Open Water Wetlands

Surface Drainage Classes

A. Areas of Regional Surface Water Runoff - These are landscapes where most, if not all, of the water that is shed locally is carried out of the area to major creeks, rivers, or lakes. They are usually characterized by the presence of gullies.

B. Areas of Local Runoff and Accumulation of Surface Water - These are landscapes where water that is shed from upper slopes collects in local depressions that are too small to be shown on the map. They are usually recognized by chaotic, hummocky landscapes with numerous, enclosed depressions or sloughs.

C. Areas of Major Accumulation of Surface Water - These are typically low-lying flat or depressional landscapes that receive surface runoff from surrounding areas resulting in temporary periods of wetness due to occasional flooding.

D. Wetland Areas - These are areas that receive sufficient water from runoff and other sources to be considered a wetland. They are primarily nonagricultural lands made up of wet, poorly drained soils.

Wetlands

DW. Organic Wetlands. These areas are dominated by shallow organic soils. Wet poorly drained soils occur near the margins and all soils remain saturated for most of the year.

DX. Wet Meadows. These areas consist mainly of wet, poorly drained soils. Flooding occurs mainly in the spring but can last until midsummer. These are often hayland areas but may be partially cultivated during periods of drought.

DY. Marshes. These areas consist of wet, poorly drained soils near the edges with shallow open water in the centre. Flooding usually persists until late summer and occasionally throughout the year. Haying may take place around the slough margins but these areas are rarely cultivated.

DZ. Open Water Wetlands. These areas are dominated by shallow open water with wet, poorly drained soils around the outer fringes. They are permanently flooded.

5.6 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.

Map Symbols	Description
SG0	- No sandy or gravelly materials recognized.
S1	- Very limited areas of sandy materials (1-15% of landscape).
G1	- Very limited areas of gravelly materials (1-15% of landscape).
SG1	- Very limited areas of sandy and gravelly materials (1-15% of landscape).
S2	- Limited areas of sandy materials (15-40% of landscape).
G2	- Limited areas of gravelly materials (15-40% of landscape).
SG2	- Limited areas of sandy and gravelly materials (15-40% of landscape).
S3	- Extensive areas of sandy materials (40-70% of landscape).
G3	- Extensive areas of gravelly materials (40-70% of landscape).
SG3	- Extensive areas of sandy and gravelly materials (40-70% of landscape).
S4	- Very extensive areas of sandy materials (greater than 70% of landscape).
G4	- Very extensive areas of gravelly materials (greater than 70% of landscape).
SG4	- Very extensive areas of sandy and gravelly materials (greater than 70% of landscape).
U	- Unclassified.

5.7 Surface pH

The pH scale, ranging from 0 to 14 is used to indicate the relative acidity or alkalinity of a solution. pH is determined by measuring the concentration of hydrogen ions in the soil solution. Thus , a soil with a pH value of 7.0 is said to be neutral, while a value less than 7.0, acid, and a value greater than 7.0, alkaline.

The pH values indicated in the table in Section 8 are for the surface layer of soil and are equivalent to pH measured in 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 6.0. A pH of 5.5 or less may reduce the yields of wheat, barley and canola.

pH Class	pH Range
X	less than 5.5
A	5.5 to 6.0
B	6.1 to 6.7
C	6.8 to 7.5
D	greater than 7.5

Surface pH Classes

Symbol	Percent Surface pH Class
X1	$X^5A^3B^2$
A1	$A^7B^2C^1$
A2	$A^5B^2C^3$
A3	$A^3B^4C^3$
A4	$A^3B^3C^3D^1$
B1	$B^4C^4A^2$
B2	B^7C^3
B3	B^5C^5
B4	$B^6C^3D^1$
C1	$C^5B^4D^1$
C2	C^7B^3
C3	$C^7B^2D^1$
C4	C^9D^1
C5	$C^5B^2D^3$
C7	C^6D^4
D1	C^5D^5

FOR EXAMPLE:

Symbol ---------> 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)

5.8 Wind Erosion

Wind Erosion Potential

In Saskatchewan, there was relatively little wind erosion while our soils were under natural vegetation, but, since the early 1900's, erosion has had profound effects resulting in excessive losses of topsoil from agricultural land. In the past, there was little concern about soil losses due to wind erosion because of our inability to monitor the importance and extent of these losses. Presently, we are able to study and understand the physical, chemical and biological properties which control wind erosion and thereby we can classify and predict a soils wind erosion potential.

The wind erosion potential of the soils in this municipality is based on the dominant surface texture, topography, ridge roughness and climatic conditions within an area. These features are used to predict a soil's susceptibility to wind erosion. The actual amount of past wind erosion that has occurred is not considered. As well, the influence of management practices is not part of the initial evaluation even though this parameter has a pronounced effect on the potential erodibility of soils.

Surface 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-textured soils have a high water-holding capacity and strong surface attraction. This results in a good soil structure with a high degree of resistance to wind erosion. Medium-textured soils contain sufficient amounts of silt and clay to bind sand grains forming a good soil structure resistant to granulation and, consequently, wind erosion.

Topography

The influence of topography, which includes such features as the differences in relief or height between one place and another, the direction, steepness and frequency of slopes, and the comparative roughness of the land's surface all have a pronounced effect on the potential erodibility of soils. In general, the greater the slope of the land (section 4.1), the greater the potential for wind erosion to occur.

Climate

The climatic information used to calculate potential wind erosion is based on the average wind velocity and the precipitation-evaporation index for a particular location. This information was compiled from official weather records of specific Saskatchewan locations.

Soil-Ridge Roughness

The soil-ridge roughness factor refers to the roughness of the soil surface in the form of ridges which result mainly from the operation of tillage and planting equipment. The fields are classified as smooth, semi-ridged, or ridged.

Wind Erosion, Cont.

Class		Wind Erosion Susceptibility Classes
1	Very Low	Soils in this class have a very low susceptibility to wind erosion. Good soil management and average growing conditions will produce a crop with sufficient trash cover to protect these soils against wind erosion.
2	Low	Soils in this class have a low susceptibility to wind erosion. Good soil management and average growing conditions may produce a crop with sufficient trash cover to protect these soils against wind erosion.
3	Moderate	Soils in this class have a moderate susceptibilty to wind erosion. Average growing conditions may not supply adequate trash cover to protect these soils against wind erosion. Enhanced soil management practices are necessary to control wind erosion.
4	High	Soils in this class have a high susceptibility to wind erosion. Average growing conditions will not provide sufficient trash cover to protect these soils against wind erosion. Coarse-textured soils may be seeded to pasture or forage crops to prevent severe degradation of the soil.
5	Very High	Soils in this class have a very high susceptibility to wind erosion. These soils shoud not be used for annual cropping, but rather for pasture and forage crops which will protect the surface from severe degradation.
6	Extremely High	Soils in this class have an extremely high susceptibility to wind erosion. These soils must be left in permanent pasture and are not capable of maintaining arable agriculture.
U	Unclassified	Unclassified areas (Wetlands).

5.9 Water Erosion

Potential Water Erosion Of Soils

The potential water erosion classes are obtained from calculations using the Universal Soil Loss Equation. This equation takes into account soil texture, soil organic matter content, slope length and gradient, soil infiltration rates, soil surface structure and the rainfall erosivity.

The distribution of soil particle sizes (soil texture) influences the soil's potential for erosion. The silt-size particles are most easily transported by water followed by clay and sand-sized particles. Thus, soils high in silt are more easily eroded.

Soil organic matter acts like a "glue", binding soil particles together so that a greater force is required to break away individual particles that can be transported by water. Soils of high organic matter contents will, therefore, be less erodible than those with lower contents.

Slope length and gradient are very important to a soil's potential to erode. These factors control the amount and speed of water movement over the soil surface. Long, steep slopes are much more erodible than short, gentle slopes.

The rate of infiltration of water affects the amount of water that will run over the surface of the soil. Runoff occurs once the rate of water accumulation exceeds the rate of infiltration. Fine-textured soils such as clays have much lower rates of infiltration than coarser-textured soils.

The rate of infiltration is also influenced by the origin of the materials. Soils of similar textures but different origins may have different rates of infiltration.

Soil surface structure influences the speed of water movement and, therefore, the erosive force the water exerts on the soil. A rough soil surface causes much slower water movement and therefore there is less erosive force.

The rainfall erosivity refers to the intensity and amount of rainfall an area receives. An area that receives gentle, short showers will experience less erosion than one subjected to prolonged downpours with all other conditions being equal.

For the classes assigned to the map units, the soils were assumed to be under conventional summerfallow in order to determine a class that would represent the maximum potential for erosion. If dissections or gullies were observed in the field, this was noted by a "D" or a "G" next to the class number since there may be higher potential erosion rates associated with these features.

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 actual rates for individual soils within that area may vary significantly from the assigned class.

Water Erosion, Cont.

Class		Water Erosion Susceptibility Classes
1	Very Low	Little or no susceptibility to water erosion.
2	Low	Slight susceptibility to water erosion.
3	Moderate	Moderate susceptibility to water erosion. Conventional farming practices will result in a steady loss of soil due to water erosion. Conservation practices should be instituted to prevent degradation of the soils.
4	High	High susceptibility to water erosion. Rapid loss of soil will occur unless conservation practices are instituted. All gullies in these areas should be grassed.
5	Very High	Very high susceptibility to water erosion. 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 (wetlands)
	Modifiers	If an area was observed to be gullied (G) or dissected (dissections being shallow gullies that can be crossed with farm implements) (D) ,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.

5.10 Past Wind and Water Erosion

An erosion rating has been assigned to each soil area. This rating reflects the surveyors 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.

Classes

W0 - No evidence of past wind or water erosion. (**Unaffected**).

W1 - Soils are slightly eroded. (**Weak**).

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- and 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 - Soils are moderately eroded. (**Moderate**).

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 centimetres deep occurring after substantial rains or snowmelt).

Past Wind and Water Erosion Cont.

W3 - Soils are strongly eroded. **(Strong)**

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 but with some difficulty and have a moderate effect on cultivation. These dissections should be seeded to grass to prevent further damage from erosion.

W4 - Soils are severely eroded. **(Severe)**.

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 horizon.

W4G - Occasional shallow gullies are present. The gullies cannot be crossed by farm implements and therefore cannot be cultivated for annual cropping. Reclamation for improved pasture is difficult unless erosion can be controlled.

W5 - Soils are very severely eroded. **(Very Severe)**.

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 pasture or improved pasture.

W5G - Deep gullies occur frequently. Soil profiles have been destroyed except in small areas between gullies. The gullies are deep enough to prevent cultivtion. These areas should be permanently grassed.

6. ACREAGE FACTS

RURAL MUNICIPALITY OF ENTERPRISE
NUMBER 142

	HECTARES	ACRES
TOTAL AREA	100967	249493
SOIL CAPABILITY FOR AGRICULTURE		
Class 1	0	0
Class 2	0	0
Class 3	10396	25689
Class 4	74986	185292
Class 5	10719	26488
Class 6	4220	10429
Class 7	483	1194
IRRIGATION SUITABILITY		
Excellent	0	0
Good	41219	101854
Fair	44122	109027
Poor	15464	38213
SALINITY		
Very Strong	346	855
Strong	780	1929
Moderate	2391	5909
Weak	163	404
None	97285	240395
SAND AND GRAVEL		
Sandy	3174	7843
Sandy and Gravelly	1151	2846
Gravelly	59	146
STONES		
Non Stony to Slightly Stony	75847	187420
Moderately Stony	23940	59158
Very Stony	1018	2516
Excessively Stony	0	0
SURFACE pH		
X < 5.0	0	0
A 5.1 - 5.5	0	0
B 5.6 - 6.5	9752	24099
C 6.6 - 7.5	55804	137895
D > 7.5	35248	87100
SURFACE TEXTURE		
Sands	2985	7377
Sandy Loams	544	1344
Loams	78991	195190
Clay Loams	15430	38129
Clays	128	318

6. ACREAGE FACTS

RURAL MUNICIPALITY OF ENTERPRISE
NUMBER 142

	HECTARES	ACRES
WIND EROSION POTENTIAL		
Very Low	0	0
Low	51826	128065
Moderate	41380	102252
High	794	1962
Very High	1037	2562
Extremely High	5107	12620
WATER EROSION POTENTIAL		
Very Low	6845	16915
Low	82156	203011
Moderate	10556	26085
High	445	1100
Very High	142	351
WETLANDS AND POORLY DRAINED SOILS		
Open water and lakes	411	1017
Wet, poorly drained soils	5709	14109

7. Soil Mapunit Descriptions

Mapunit	Soil Landscape Relationship

ARDILL: Brown soils formed in clay loam glacial till.

Ad 4 Mainly orthic Ardill soils, with a mixture of calcareous and eroded Ardill soils on upper slopes and knolls.

ARDILL-BIRSAY: Brown soils formed in a mixture of clay loam glacial till (Ardill) and loamy lacustrine materials (Birsay).

AdBy 9 Mainly orthic Ardill soils, with orthic Birsay soils on mid- and lower slopes, and saline Birsay soils in depressions.

ARDILL-FOX VALLEY: Brown soils formed in a mixture of clay loam glacial till (Ardill) and silty lacustrine materials (Fox Valley).

AdFx 4 Mainly orthic Ardill soils, with orthic Fox Valley soils on mid- and lower slopes, and calcareous Ardill soils on knolls.

ARDILL-KELSTERN: A mixture of Brown soils formed in clay loam glacial till (Ardill) and Brown Solonetzic soils formed in silty lacustrine materials (Kelstern).

AdKn 1 Mainly orthic Ardill soils, with Kelstern solonetzic soils on mid- and lower slopes.

ARDILL-VALOR: Brown soils formed in a mixture of clay loam glacial till (Ardill) and shallow, silty lacustrine materials underlain by glacial till (Valor).

AdVa 2 Mainly orthic Ardill soils, with orthic Valor soils on mid and lower slopes, calcareous Ardill soils on upper slopes and knolls, and poorly drained soils in depressions.

AdVa 4 Mainly orthic Ardill soils, with orthic Valor soils on mid and lower slopes, and calcareous Ardill soils on knolls.

ANTELOPE: Weakly developed soils formed in wind-worked, sandy fluvial materials, in the Brown soil zone.

Ap 3 Mainly eroded Antelope soils, with weakly developed Antelope soils on lower slopes.

ANTELOPE-HATTON: A mixture of weakly developed soils formed in wind-worked, sandy fluvial materials (Antelope) and Brown soils formed in sandy fluvial materials (Hatton).

ApHt 1 Mainly weakly developed Antelope soils, with orthic Hatton soils on lower slopes.

ApHt 9 Mainly weakly developed Antelope soils, with orthic Hatton soils and eroded Antelope soils intermixed, and saline Hatton soils on lower slopes.

ALLUVIUM: A complex of soils formed in variable-textured alluvial materials.

Av 8 Mainly a mixture of saline weakly developed and saline poorly drained Alluvium soils.

Av11 Mainly a mixture of poorly drained, saline poorly drained and carbonated poorly drained Alluvium soils.

BIRSAY-HAVERHILL: Brown Chernozemic soils formed in a mixture of loamy lacustrine materials (Birsay) and loamy glacial till (Haverhill).

ByHr 4 Mainly orthic Birsay soils, with orthic Haverhill soils on upper slopes, and calcareous Haverhill soils on knolls.

CHAPLIN: Brown soils formed in gravelly fluvial materials.

Ch 5 Mainly orthic Chaplin soils, with calcareous Chaplin soils on upper slopes and knolls.

CATHKIN: A complex of soils formed in sandy alluvial materials occurring in depressional areas.

Ct 3 Mainly strongly saline, poorly drained soils.

CATHKIN-GRILL LAKE: A complex of soils formed in a mixture of sandy (Cathkin) and clayey (Grill Lake) alluvial materials occurring in depressional areas.

CtGr 1 Mainly gleyed, saline weakly developed Cathkin soils with gleyed, saline weakly developed Grill Lake soils on lower slopes and poorly drained Grill Lake soils in depressions.

FLAT LAKE: A complex of soils formed in loamy alluvial materials occurring in depressional areas.

Fk 1 Mainly strongly saline, gleyed, Flat Lake soils, with strongly saline poorly drained soils.
Fk 2 Mainly moderately saline, gleyed, Flat Lake soils, with moderately saline poorly drained soils.
Fk 4 Mainly moderately saline, poorly drained soils.

FOX VALLEY: Brown soils formed in silty lacustrine materials.

Fx 1 Mainly orthic Fox Valley soils.

Fx 4 Mainly orthic Fox Valley soils, with poorly drained soils in depressions.

Fx 6 Mainly a mixture of orthic and eluviated Fox Valley soils, with a mixture of saline and carbonated Fox Valley soils on lower slopes.

FOX VALLEY-HAVERHILL: Brown soils formed in a mixture of silty lacustrine materials (Fox Valley) and loamy glacial till (Haverhill).

FxHr 1 Mainly orthic Fox Valley soils, with orthic Haverhill soils on upper slopes.

GRILL LAKE: A complex of soils formed in clayey alluvial materials occurring in depressional areas.

Gr 3 Mainly strongly saline, poorly drained soils.
Gr 4 Mainly moderately saline, poorly drained soils.

HAVERHILL: Brown soils formed in loamy glacial till.

Hr 4 Mainly orthic Haverhill soils, with a mixture of calcareous and eroded Haverhill soils on upper slopes and knolls.
Hr 5 Mainly orthic Haverhill soils, with calcareous Haverhill soils on

upper slopes and knolls.

Hr13 Mainly orthic Haverhill soils, with saline and carbonated soils on lower slopes.

HAVERHILL-BIRSAY: Brown Chernozemic soils formed in a mixture of loamy glacial till (Haverhill) and loamy lacustrine materials (Birsay).

HrBy 4 Mainly orthic Haverhill soils, with calcareous Haverhill soils on knolls, and orthic Birsay soils on lower slopes.

HAVERHILL-CHAPLIN: Brown Chernozemic soils formed in a mixture of loamy glacial till (Haverhill) and gravelly fluvial materials (Chaplin).

HrCh 4 Mainly orthic Haverhill soils, with calcareous Haverhill soils on upper slopes and knolls, and orthic Chaplin soils intermixed.

HAVERHILL-HATTON: Brown Chernozemic soils formed in a mixture of loamy glacial till (Haverhill) and sandy fluvial materials (Hatton).

HrHt 4 Mainly orthic Haverhill soils, with orthic Hatton soils on mid- and lower slopes, and calcareous Haverhill soils on knolls.

HAVERHILL-VALOR: Brown Chernozemic soils formed in a mixture of loamy glacial till (Haverhill) and shallow, silty lacustrine materials underlain by glacial till (Valor).

HrVa 1 Mainly orthic Haverhill soils, with orthic Valor soils on lower slopes.

HrVa 2 Mainly orthic Haverhill soils, with calcareous Haverhill soils on knolls, orthic Valor soils on lower slopes, and poorly drained soils in depressions.

HrVa 4 Mainly orthic Haverhill soils, with calcareous Haverhill soils on knolls, and orthic Valor soils on lower slopes.

HATTON-BIRSAY (till substrate): Brown soils formed in a mixture of shallow, sandy fluvial (Hatton) and loamy lacustrine (Birsay) materials underlain by glacial till.

HtBy 1 Mainly orthic Hatton soils, with orthic Birsay soils intermixed. Most of these soils are shallow to glacial till.

HATTON-BIRSAY: Brown Chernozemic soils formed in a mixture of sandy fluvial (Hatton) and loamy lacustrine (Birsay) materials.

HtBy 9 Mainly orthic Hatton soils, with orthic Birsay soils on midslopes, and saline Birsay soils on lower slopes and in depressions.

HATTON-CHAPLIN: Brown Chernozemic soils formed in a mixture of sandy (Hatton) and gravelly (Chaplin) fluvial materials.

HtCh 1 Mainly orthic Hatton soils, with orthic Chaplin soils on upper slopes and knolls.

HATTON-HAVERHILL: Brown Chernozemic soils formed in a mixture of sandy fluvial materials (Hatton) and loamy glacial till (Haverhill).

HtHr 1 Mainly orthic Hatton soils, with orthic Haverhill soils on upper slopes.

HtHr 4 Mainly orthic Hatton soils, with orthic Haverhill soils on upper slopes, and calcareous Haverhill soils on knolls.

HILLWASH: Weakly developed soils formed in various deposits associated with steep and eroding valley sides.

Hw Mainly shallow, eroded and weakly developed Hillwash soils on steep, gullied valley side slopes.

KETTLEHUT-KELSTERN: Brown Solonetzic soils formed in a mixture of clay loam glacial till (Kettlehut) and silty lacustrine materials (Kelstern).

KhKn 8 Mainly Kettlehut solonetzic soils, with solod Kelstern soils on lower slopes, and saline Kelstern solonetzic soils in depressions.

RUNWAY: Weakly developed and poorly drained soils formed in various deposits associated with shallow drainage channels and gullies.

Rw Mainly a mixture of poorly drained Runway soils on channel bottoms and eroded or weakly developed Runway soils on channel side slopes.

VALOR: Brown soils formed in shallow, silty lacustrine materials underlain by glacial till.

Va 1 Mainly orthic Valor soils.

Va 4 Mainly orthic Valor soils, with calcareous Valor soils on upper slopes and knolls.

Va 9 Mainly orthic Valor soils, with saline Valor soils on lower slopes.

VALOR-ARDILL: Brown soils formed in a mixture of shallow, silty lacustrine materials underlain by glacial till (Valor) and clay loam glacial till (Ardill).

VaAd 1 Mainly orthic Valor soils, with orthic Ardill soils on upper slopes and knolls.

VaAd 2 Mainly orthic Valor soils, with orthic Ardill soils on upper slopes, calcareous Ardill soils on knolls, and poorly drained soils in depressions.

VaAd 4 Mainly orthic Valor soils, with orthic Ardill soils on upper slopes, and calcareous Ardill soils on knolls.

VALOR-FOX VALLEY: Brown soils formed in a mixture of shallow, silty lacustrine materials underlain by glacial till (Valor) and silty lacustrine materials (Fox Valley).

VaFx 4 Mainly orthic Valor soils, with orthic Fox Valley soils on lower slopes, and calcareous Valor soils on upper slopes and knolls.

VALOR-HAVERHILL: Brown soils formed in a mixture of shallow, silty lacustrine materials underlain by glacial till (Valor) and loamy glacial till (Haverhill).

VaHr 1 Mainly orthic Valor soils, with orthic Haverhill soils on upper slopes.

VaHr 4 Mainly orthic Valor soils, with orthic Haverhill soils on upper slopes, and calcareous Haverhill soils on knolls.

VaHr 9 Mainly orthic Valor soils, with orthic Haverhill soils on upper slopes, and saline Valor soils on lower slopes.

Mapunit	Soil Landscape Relationship

WETLAND: Poorly drained soils and shallow open water associated with wet, depressional areas.

X	Wet Meadows. Mainly poorly drained soils, with shallow open water in central areas.
Y	Marshes. A mixture of poorly drained soils and shallow open water.

WETLAND: Poorly drained soils and shallow open water associated with wet, depressional areas.

Z	Open water wetlands. Mainly shallow open water, with poorly drained soils in marginal areas.

DELIN-EATION	MAPUNIT	SLOPE CLASS	SURFACE FORM	SALINITY SYMBOL	SURFACE TEXTURE	IRRIG ATION	AGRICULTURAL CAPABILITY	STONE CLASS	WETLAND DRAIN	SAND+ GRAVEL	pH	EROSION WIND	EROSION WATER	PAST EROS	AREA IN ACRES
0001	HRVA 4	4-3	U	0	L	1Bvt1	4(10)M	S2	B1	SGO	C7	3	2	W2K	1016
0002	HRVA 4	5-4	HD	2MA	L-SIL	3Cst2	5(7)MT4(3)M	S2	A1	SGO	D1	3	3D	W3K	79
0003	HR 5	5-4	H	1WA	L	1Ct2	4(10)MT	S2	B2	SGO	C7	3	2	W3K	458
0004	VA 1	3-4	UD	0	SIL	1Bvt1	4(10)M	S1	A1	SGO	C7	2	2D	W3G	257
0005	HR 5	5	UD	1WA	L	1Ct1	4(10)MT	S1	A1	SGO	C7	3	3D	W2K	15
0006	HRVA 1	4-3	UD	0	L	1Bvt1	4(10)M	S1	A1	SGO	C7	3	2D	W1GK	102
0007	VAHR 4	4-5	H	1MA	SIL-L	2Cst2	4(10)MT	S1	B1	SGO	C7	3	2	W3K	1448
0008	VA 1	3	U	2MA	SIL	3Bst1v	4(10)M	S1	B1	SGO	C7	2	2	W1K	2188
0009	FK 4	2-3	U	6MA	SICL	4Dwsv	5(10)NW	S0	C4	SGO	D1	2	1	W0	138
0010	FX 6	3	U	3MA	SICL	4Csv	3(8)M 5(2)NW	S1	B2	SGO	C7	2	2	W1K	339
0011	FX 6	3-2	U	4SA	SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SGO	C7	2	2	W0	71
0012	FX 6	3	U	3MA	SICL	4Csv	3(8)M 5(2)NW	S1	B2	SGO	C7	2	2	W1K	245
0013	VAHR 4	3-4	U	1WP	SIL-L	1Bvt1	4(10)M	S1	B2	SGO	C7	2	2	W3K	14555
0014	Y	2	U	6SA	L	4Cwi	6(10)NW	S0	DY	SGO	D1	U	U	W0	128
0015	HR 5	5-4	HD	1MA	L	2Cst2	5(10)MT	S2	A2	SGO	C7	3	3D	W0	5297
0016	FXHR 1	3-4	UD	0	SIL-L	1Bvt1	4(10)M	S1	A1	SGO	C7	2	2D	W1GK	194
0017	FXHR 1	3-4	UD	0	SIL-L	1Bvt1	4(10)M	S1	A1	SGO	C7	2	2D	W1GK	119
0018	VA 1	3	UD	1WP	SIL	1Bvt1	4(10)M	S1	A2	SGO	C7	2	2D	W1G	185
0019	VA 1	3	UD	1WP	SIL	1Bvt1	4(10)M	S1	A2	SGO	C7	2	2D	W1G	763
0020	HR 5	5	HIG	2MA	L	3Cst2	5(10)MT	S2	A2	SGO	D1	3	3G	W0	421
0021	HRVA 4	4-5	H	0	L	1Ct2	4(10)MT	S2	B1	SGO	C7	3	2	W2K	2541
0022	VAHR 4	4-3	H	1WA	SIL-L	1Ct2	4(10)M	S1	B2	SGO	C7	3	3	W2K	8368
0023	Y	2	U	6SA	SICL	4Cwi	6(10)NW	S0	DY	SGO	D1	U	U	W0	74
0024	FX 6	3-2	U	4MA	SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SGO	C7	2	2	W1K	1449
0025	HRVA 4	4-5	H	0	L-SIL	1Ct2	4(10)MT	S2	B1	SGO	C7	3	2	W2K	780
0026	FX 6	3-2	U	4MA	SICL	4Dsv	3(5)M 5(5)NW	S0	B3	SGO	C7	2	2	W1G	475
0027	HRVA 4	4-5	H	0	L	1Ct2	4(10)MT	S2	B2	SGO	C7	3	2	W2K	94
0028	VAHR 4	4-3	H	1WA	SIL-L	1Ct2	4(10)M	S1	B1	SGO	D1	3	3	W2K	70
0029	HR 5	5-4	H	1MA	L	2Cst2	4(10)MT	S2	B2	SGO	C7	3	2	W0	1324
0030	HRVA 4	5-4	H	0	L-SIL	1Ct2	4(10)MT	S2	B1	SGO	C7	3	3	W3K	328
0031	HRVA 4	5-4	H	0	L-SIL	1Ct2	4(10)MT	S2	B1	SGO	C7	3	3	W3K	176
0032	FX 6	3-2	U	4MA	SIL-SICL	4Dsv	4(7)M 5(3)NW	S0	B3	SGO	D1	2	2	W1K	44
0033	HRVA 4	5-4	H	0	L-SIL	1Ct2	4(10)MT	S2	B1	SGO	C7	3	3	W3K	130
0034	HRVA 4	5-4	H	0	L-SIL	1Ct2	4(10)MT	S2	B1	SGO	C7	3	3	W3K	186
0035	HRVA 4	5-4	H	0	L-SIL	1Ct2	4(10)MT	S2	B1	SGO	C7	3	3	W3K	188
0036	FX 4	2-3	U	2MPA	SICL	3Dsv	3(6)M 5(4)W	S0	B3	SGO	C5	2	1	W0	34
0037	GR 4	2	U	6MA	SICL	4Dwsv	5(10)NW	S0	C4	SGO	D1	2	1	W0	112
0038	FX 6	2	U	4MA	SIL-SICL	4Bsv	4(7)M 5(3)N	S0	B1	SGO	C5	2	1	W1K	17
0039	FX 1	3-2	U	2MPA	SICL-SIL	3Bst1v	3(9)M 5(1)NW	S0	B2	SGO	C5	2	2	W1K	886
0040	VA 1	3	U	0	SIL	1Bvt1	4(10)M	S1	B1	SGO	C5	2	2	W1K	340
0041	VAHR 4	4-5	H	0	SIL-L	1Ct2	4(10)MT	S2	B1	SGO	C7	3	3	W3K	457
0042	VAHR 1	3-4	U	1MP	SIL-L	2Bst1v	4(10)M	S1	B2	SGO	C5	2	2	W1K	1765
0043	FX 6	3-2	U	4MA	SIL-SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SGO	C7	2	2	W1K	676
0044	VA 1	3	U	1MPA	SIL	2Bst1v	4(10)M	S1	B2	SGO	C7	2	2	W1K	7616
0045	FX 1	3-2	U	1MA	SICL-SIL	2Bqsv	3(9)M 5(1)NW	S0	B2	SGO	C7	2	2	W1GK	2770
0046	FX 6	2-3	U	4MPA	SICL	4Bst1	3(6)M 4(3)N 5(1)N	S0	B2	SGO	C7	2	1	W1K	1106
0047	GR 4	2	U	6MA	SICL	4Dwsv	5(10)NW	S0	C4	SGO	D1	2	1	W0	172
0048	FX 4	2-3	U	2MPA	SICL	3Dsv	3(6)M 5(4)NW	S0	B3	SGO	C5	2	1	W0	125
0049	FX 6	3-2	U	4MA	SICL	4Dsv	3(5)M 5(5)NW	S0	B3	SGO	C7	2	2	W1G	97
0050	VAFX 4	3	U	2MA	SIL	3Bst1v	4(10)M	S0	B1	SGO	C5	2	2	W1K	4924
0051	FX 6	3-2	U	3MA	SICL	4Dsv	3(7)M 5(3)NW	S0	B3	SGO	C7	2	2	W1K	1130
0052	HRVA 4	4-5	H	1MA	L-SIL	2Cst2	4(10)MT	S2	B2	SGO	C7	3	2	W3K	6401
0053	VA 1	3	U	1MA	SIL	2Bst1v	4(9)M 5(1)W	S1	B2	SGO	C5	2	2	W1K	523
0054	VAHR 4	4	H	1WP	SIL-L	1Ct2	4(10)M	S1	B1	SGO	C7	3	3	W3K	388

8. SOIL INTERPRETATIONS

DELIN-EATION	MAPUNIT	SLOPE CLASS	SURFACE FORM	SALINITY SYMBOL	SURFACE TEXTURE	IRRIG ATION	AGRICULTURAL CAPABILITY	STONE CLASS	WETLAND DRAIN	SAND+ GRAVEL	pH	EROSION WIND	EROSION WATER	PAST EROS	AREA IN ACRES
0055	HRVA 4	4-3	H	1MA	L	2Cst2	4(10)M	S1	B1	SG0	C7	3	2	W2K	118
0056	HRVA 4	4-5	H	1WA	L-SIL	1Ct2	4(10)MT	S1	B1	SG0	C7	3	2	W2K	2154
0057	VA 1	3	U	1MA	SIL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	4174
0058	FX 6	3	U	3SA	SIL-SICL	4Bst1v	4(7)M 5(3)N	S0	B2	SG0	D1	2	2	W1K	1315
0059	FK 2	2	U	5MA	SIL	4Dwsv	5(10)WN	S0	C3	SG0	D1	2	1	W0	79
0060	VAHR 4	3-4	U	1MPA	L	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	2149
0061	FX 6	2	U	4MA	SICL	4Dsv	3(5)M 5(5)NW	S0	B3	SG0	D1	2	1	W1G	157
0062	FX 6	2	U	4MA	SICL	4Dsv	3(5)M 5(5)NW	S0	B3	SG0	D1	2	1	W1G	93
0063	FX 6	2	U	4MA	SICL	4Dsv	3(5)M 5(5)NW	S0	B3	SG0	D1	2	1	W1G	94
0064	RW	2-4	UC	5MA	SICL	4Dct2	5(7)NW6(3)NW	S0	A3	SG0	D1	2	3	W2G	707
0065	HRVA 4	4-3	H	1MA	L	2Cst2	4(10)M	S1	B1	SG0	C7	3	2	W2K	1237
0066	HRVA 4	4	H	1MPA	L	2Cst2	4(10)MT	S2	B1	SG0	C7	3	2	W2K	335
0067	FK 2	2	U	5MA	SICL	4Dwsv	5(7)NW6(3)NW	S0	C3	SG0	D1	2	1	W0	163
0068	VAHR 4	3-4	UI	1MA	L	2Bst1v	4(10)M	S2	B1	SG0	C5	2	2	W1K	481
0069	VAHR 4	3-5	U	1MPA	SIL-L	2Cst1	4(10)MT	S1	B1	SG0	C7	2	3	W2K	1770
0070	FX 6	3	U	3MA	SIL	4Dsv	4(7)M 5(3)NW	S0	B3	SG0	C5	2	2	W2KB	1284
0071	FX 6	3-2	U	3MA	SIL-SICL	4Bst1v	4(8)M 5(2)N	S0	B2	SG0	C5	2	2	W1K	225
0072	VAHR 1	3-4	U	1MA	SIL-L	2Bst1v	4(10)M	S1	B2	SG0	C5	2	2	W1K	393
0073	FX 6	3-2	U	4MA	SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SG0	C7	2	2	W1K	575
0074	FK 2	2	U	6MA	SICL	4Dwsv	5(10)NW	S0	C3	SG0	D1	2	1	W0	90
0075	GR 3	2-3	U	6SA	SIC-SICL	4Dwsv	6(10)NW	S0	C4	SG0	D1	3	1	W0	79
0076	FX 1	3	U	1WA	SICL-SIL	2Bqt1v	3(10)M	S0	B2	SG0	C5	2	2	W1K	1779
0077	FX 6	3-2	U	4MA	SIL-SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SG0	C7	2	2	W1K	123
0078	GR 3	2-3	U	6SA	SICL	4Dwsv	6(10)NW	S0	C4	SG0	D1	2	1	W0	110
0079	FX 6	3-2	U	4MA	SIL-SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SG0	C7	2	2	W1K	325
0080	VA 1	3	U	1MA	SIL	2Bst1v	4(10)M	S1	B2	SG0	C7	2	2	W1K	162
0081	FX 6	3-2	U	4MA	SIL-SICL	4Dsv	3(6)M 5(4)NW	S0	B3	SG0	C7	2	2	W1K	53
0082	VAHR 1	3	U	1WP	SIL-L	1Bvt1	4(10)M	S1	B2	SG0	C5	2	2	W1K	879
0083	HRVA 4	4-5	H	1MA	L-SIL	2Cst2	4(10)MT	S2	B2	SG0	C7	3	2	W3K	123
0084	HRVA 4	4-5	H	1MA	L-SIL	2Cst2	4(10)MT	S2	B2	SG0	C7	3	2	W3K	316
0085	X	2	U	6MA	SICL	4Cwi	5(10)NW	S0	DX	SG0	D1	U	U	W0	20
0086	VAHR 1	3-4	U	1MA	SIL-L	2Bst1v	4(10)M	S1	B2	SG0	C5	2	2	W1K	4135
0087	RW	3-4	ID	2MAD	L	4Dct2	4(10)MT	S1	A1	SG0	D1	2	3D	W3G	41
0088	HR 5	5-4	HD	0	L	1Ct2	4(10)MT	S2	A1	SG0	C7	3	3D	W2GK	628
0089	RW	3-4	ID	4SAD	L	4Dct2	4(10)MT	S1	A1	SG0	D1	2	3D	W3G	40
0090	HRVA 4	4-3	U	1MA	L	2Bst1v	4(10)M	S1	B1	SG0	C7	3	2	W2K	1554
0091	HRVA 4	4-5	H	1MA	L	2Cst2	4(10)MT	S2	B2	SG0	C7	3	2	W2K	6432
0092	HR 5	5-6	HD	0	L	1Dt2	5(7)T 4(3)MT	S2	A1	SG0	C7	3	3D	W0	493
0093	VAAD 2	4-3	H	2MPA	SICL-CL	3Cst2v	3(8)MT4(2)W	S2	B3	SG0	C7	3	3	W2K	42
0094	FK 4	2	U	5MA	CL	4Dwsv	4(10)NW	S0	C4	SG0	C7	2	1	W0	34
0095	HRVA 4	3	U	0	L	1Bvt1	4(10)M	S1	B1	SG0	C7	2	2	W1K	515
0096	HR 5	5-6	HD	0	L	1Dt2	4(6)MT5(4)T	S3	A1	SG0	C7	3	3D	W2K	2360
0097	HRVA 4	4-3	HD	0	L	1Ct2	4(10)M	S1	A1	SG0	C7	3	2D	W2K	2800
0098	HRVA 4	5-4	HD	1MPA	L-SIL	2Cst2	4(7)MT5(3)TE	S2	A1	SG0	C7	3	2D	W2KG	87
0099	HRVA 4	5-4	HD	1MPA	L-SIL	2Cst2	4(7)MT5(3)TE	S2	A1	SG0	C7	3	2D	W2KG	9724
0100	HRVA 4	3-4	UD	1WA	L	1Bvt1	4(10)M	S1	A1	SG0	C5	2	2D	W1KG	1805
0101	VAHR 4	3	U	1MA	L-SL	2Bst1v	4(10)M	S1	B1	SG0	C5	3	2	W2K	891
0102	HRBY 4	4-5	HD	1SPA	L-SL	2Cst2	4(8)MT5(2)M	S2	A1	SG0	C7	4	2D	W2K	192
0103	HRVA 4	4	H	1MPA	L	2Cst2	4(10)MT	S2	B1	SG0	C7	3	2	W2K	157
0104	HRVA 4	4	HD	1SA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C7	3	2D	W2K	3201
0105	FK 4	2-3	U	6MA	CL	4Dwsv	5(10)NW	S0	C4	SG0	D1	2	1	W0	152
0106	VAHR 4	3	U	2MA	SIL-L	3Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	1358
0107	X	2	U	4SA	CL	4Cwi	5(10)NW	S0	DX	SG0	C5	U	U	W0	87
0108	VAHR 4	3-4	U	1MPA	L	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W2K	2691

DELIN-EATION	MAPUNIT	SLOPE CLASS	SURFACE FORM	SALINITY SYMBOL	SURFACE TEXTURE	IRRIG ATION	AGRICULTURAL CAPABILITY	STONE CLASS	WETLAND DRAIN	SAND+ GRAVEL	pH	EROSION WIND	EROSION WATER	PAST EROS	AREA IN ACRES
0109	RW	4	ID	6SA	L	4Dct2	6(10)N	S0	A1	SG0	C7	3	4D	W0	230
0110	VA 4	3	UI	2MA	SIL-SICL	3Bst1v	4(8)M 3(2)M	S1	B1	SG0	C5	2	2	W2K	171
0111	VAHR 4	3	U	1MA	SIL-L	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	584
0112	HRVA 4	4-5	HD	1MPA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C7	3	2D	W2K	1239
0113	VAHR 4	3-4	U	2SA	L	3Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	435
0114	VAHR 4	3	UID	1MPA	SIL-L	2Bst1v	4(10)M	S1	A1	SG0	C5	2	2D	W1K	339
0115	VAHR 4	3	UID	1MPA	SIL-L	2Bst1v	4(10)M	S1	A1	SG0	C5	2	2D	W1K	26
0116	HRVA 4	4	HD	1MPA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C7	3	2D	W2KG	300
0117	RW	4	ID	5MA	L-CL	4Dct2	5(10)WN	S0	A3	SG0	C7	3	4D	W0	328
0118	HRVA 4	5	HD	1MPA	L	2Cst2	5(10)MT	S2	A1	SG0	C7	3	3D	W2KG	1163
0119	HR 5	4	H	1MA	L	2Cst2	4(10)M	S1	B1	SG0	C7	3	2	W2K	20
0120	HRVA 1	3	U	1MA	L-SIL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	311
0121	VAHR 9	3	U	5MA	L-SIL	4Bst1v	4(6)M 5(4)N	S1	B1	SG0	C5	2	2	W1K	63
0122	HRVA 1	3	U	1MA	L-SIL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	233
0123	HRVA 4	4	HD	1MPA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C7	3	2D	W2KG	634
0124	VAHR 4	3	UID	1MPA	SIL-L	2Bst1v	4(10)M	S1	A1	SG0	C5	2	2D	W1K	72
0125	HRVA 4	4	HD	1MPA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C7	3	2D	W2KG	847
0126	HR13	3	U	3MA	L-SL	4Bst1v	4(8)M 5(2)N	S1	B1	SG0	C5	3	2	W0	107
0127	X	2	U	3MA	CL	4Cwi	5(10)W	S0	DX	SG0	C5	U	U	W0	27
0128	Z	1	L	2MPA	CL	4Cwi	7(10)W	S0	DZ	SG0	C5	U	U	W0	85
0129	Y	2	U	3MA	L	4Cwi	6(10)W	S0	DY	SG0	C5	U	U	W0	97
0130	HRVA 4	4	UD	1MPA	L-SIL	2Bst1v	4(10)MT	S2	A1	SG0	C7	3	2D	W1K	1631
0131	HRVA 4	3-4	UI	1MA	L-SICL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W2K	2676
0132	Y	2	U	1MA	L	4Cwi	6(10)W	S0	DY	SG0	C5	U	U	W0	38
0133	HRVA 4	3	U	1MA	L	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	715
0134	HRVA 4	4	H	1WA	L	1Ct2	4(10)M	S1	B1	SG0	C5	3	2	W2K	294
0135	HRVA 4	3	U	1WA	L	1Bvt1	4(10)M	S1	B1	SG0	C5	2	2	W2K	506
0136	HRVA 4	4-3	UD	1MA	L	2Bst1v	4(10)M	S1	A1	SG0	C5	3	2D	W2K	1358
0137	HRVA 4	4-5	H	1WA	L-SICL	1Ct2	4(10)MT	S1	B1	SG0	C5	3	2	W3KG	336
0138	HRVA 2	4-3	H	1MA	L-SICL	2Cst2v	3(6)M 4(2)MT5(2)W	S1	B3	SG0	C5	3	2	W2KG	1514
0139	FX 1	3	UI	1MA	SICL	2Bqst1	3(10)M	S0	B1	SG0	C5	2	2	W2K	98
0140	HRVA 4	4-5	H	1WA	L-SICL	1Ct2	4(10)MT	S1	B1	SG0	C5	3	2	W3KG	4757
0141	VAHR 1	3	UI	1MA	SIL-CL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W2K	373
0142	AV11	2-4	ID	5SA	SICL-GS	4Dwsv	6(6)NW7(4)NW	S1	C4	SG0	D1	4	1D	W2G	187
0143	HRVA 4	4-3	UID	1MA	L-SICL	2Bst1v	4(10)M	S1	A1	SG0	C5	3	2D	W2KG	277
0144	HRVA 4	4-3	UID	1MA	L-SICL	2Bst1v	4(10)M	S1	A1	SG0	C5	3	2D	W2KG	442
0145	VAHR 4	3	UI	1MA	SIL-CL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W2K	954
0146	RW	3-4	UID	4MPA	SIL-L	4Dct2	5(3)W 6(3)NW4(4)MT	S1	A3	SG0	C5	2	3D	W3G	205
0147	VA 4	3	UI	2MA	SIL-SICL	3Bst1v	4(8)M 3(2)M	S1	B1	SG0	C5	2	2	W2K	350
0148	HRCH 4	5-4	HG	1MA	L-GSL	2Dsv	4(6)M 5(4)MT	S1	A1	G2	C5	5	3G	W3KG	102
0149	Lake								398						
0150	HRCH 4	5-4	HG	1MA	L-GSL	2Dsv	4(6)M 5(4)MT	S1	A1	G2	C5	5	3G	W3KG	85
0151	HRCH 4	5-4	HG	1MA	L-GSL	2Dsv	4(6)M 5(4)MT	S1	A1	G2	C5	5	3G	W3KG	69
0152	RW	3-4	UID	4MPA	SIL-L	4Dct2	5(3)W 6(3)NW4(4)MT	S1	A3	SG0	C5	2	3D	W3G	23
0153	HRVA 4	4-3	UID	1MA	L-SIL	2Bst1v	4(10)M	S1	A1	SG0	C5	3	2D	W2KG	1096
0154	X	2	U	5VA	SICL	4Cwi	5(10)NW	S1	DX	SG0	D1	U	U	W0	243
0155	AV11	2	U	6SA	SICL-GS	4Dwsv	7(10)NW	S0	C4	SG0	D1	5	1	W0	66
0156	HRVA 4	3	UI	1MA	CL-SICL	2Bqsv	3(10)M	S1	B1	SG0	C5	2	2	W2K	244
0157	HRVA 2	3	U	1MPA	CL-SICL	2Cqsv	3(8)M 5(2)W	S1	B3	SG0	C5	2	2	W2K	1688
0158	HRVA 4	3	U	1MPA	CL-SIL	2Bqsv	3(7)M 4(3)M	S1	B1	SG0	C5	2	2	W2K	564
0159	VAHR 9	3	UD	3SA	SIL-L	4Dsv	4(6)M 5(4)NW	S1	A3	SG0	C7	2	2D	W2G	586
0160	VAHR 4	3	UI	1MA	SICL-CL	2Bqsv	3(10)M	S1	B1	SG0	C5	2	2	W2K	965
0161	HRVA 4	3	U	2MPA	L-SICL	3Bst1v	4(10)M	S1	B1	SG0	C3	2	2	W2KG	5785
0162	X	2	U	5SA	SICL	4Cwi	5(10)NW	S0	DX	SG0	D1	U	U	W0	55

DELIN-EATION	MAPUNIT	SLOPE CLASS	SURFACE FORM	SALINITY SYMBOL	SURFACE TEXTURE	IRRIG ATION	AGRICULTURAL CAPABILITY	STONE CLASS	WETLAND DRAIN	SAND+ GRAVEL	pH	EROSION WIND	EROSION WATER	PAST EROS	AREA IN ACRES
0163	HRBY 4	3	UI	2MP	L-SL	3Bst1v	4(10)M	S1	B1	SG0	C3	3	2	W2K	193
0164	Y	2	U	6VA	CL	4Cwi	7(10)NW	S0	DY	SG0	C7	U	U	W0	326
0165	Y	2	U	4SA	CL	4Cwi	6(10)NW	S0	DY	SG0	C5	U	U	W0	267
0166	HRVA 4	4-5	H	1MA	L	2Cst2	4(10)MT	S1	B1	SG0	C7	3	2	W2K	1116
0167	HRVA 4	3	UD	1MA	L	2Bst1v	4(10)M	S1	A1	SG0	C5	2	2D	W2K	19212
0168	FK 2	3	UD	5MA	L-CL	4Dwsv	4(6)NW5(4)NP	S3	C3	SG0	C7	2	1D	W0	157
0169	HR 5	5	ID	0	L	1Ct2	4(10)TE	S1	A1	SG0	C7	3	3D	W2G	101
0170	ADFX 4	5-6	HD	0	CL-SIL	2Dqt2	5(10)T	S2	A2	SG0	C7	3	3D	W1G	158
0171	KHKN 8	2-3	UD	5MA	CL-L	4Bksv	4(6)ND3(2)M 5(2)N	S1	A1	SG0	C5	2	1D	W1G	339
0172	HRVA 4	4-5	ID	1MPA	L	2Cst2	4(10)MT	S1	A1	SG0	C5	3	2D	W2G	170
0173	VAHR 9	3-2	UD	5SA	SIL-L	4Bst1v	5(7)N 4(3)M	S1	A1	SG0	C7	2	2D	W1K	762
0174	HR 5	4-5	H	0	L	1Ct2	4(6)MT3(4)M	S1	B1	SG0	C7	3	2	W2K	338
0175	HRVA 4	4-5	H	1MA	L-CL	2Cst2	4(10)MT	S1	B1	SG0	C7	3	2	W2K	829
0176	FK 2	2	U	5MA	L-CL	4Dwsv	4(10)NW	S1	C3	SG0	C7	2	1	W1K	87
0177	Y	1	L	6VA	CL	4Cwi	6(10)NW	S0	DY	SG0	D1	U	U	W0	156
0178	HR13	3	U	4MA	L	4Bst1	4(10)MN	S2	B1	SG0	C5	2	2	W0	476
0179	HRVA 4	3	UD	1MA	L	2Bst1v	4(10)M	S1	A1	SG0	C5	2	2D	W2K	121
0180	HRVA 4	4-5	HD	1MA	L	2Cst2	4(10)MT	S2	A1	SG0	C7	3	2D	W2GK	1163
0181	VAAD 4	3	U	1MA	SIL-CL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W2K	2370
0182	ADVA 4	3-4	U	1MA	CL-SIL	2Bqt1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	299
0183	HRVA 4	3	U	1MA	L-SIL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W2K	1136
0184	RW	4-3	ID	2SD	CL	4Dct2	4(6)MT6(4)NW	S1	A3	SG0	C5	3	3D	W3G	109
0185	HRVA 4	3	UD	1MA	L	2Bst1v	4(10)M	S1	A1	SG0	C5	2	2D	W2K	138
0186	RW	3-4	UID	1SA	SICL-SIL	4Dct2	4(6)MT5(4)W	S0	A3	SG0	C5	2	3D	W2G	334
0187	VA 1	3-2	U	1MA	SIL	2Bst1v	4(10)M	S1	B1	SG0	C5	2	2	W1K	253
0188	VAAD 4	3	U	1MA	SICL-CL	2Bqsv	3(10)M	S1	B1	SG0	C5	2	2	W1K	672
0189	ADVA 2	4-3	HD	1MA	CL-SICL	2Dqsv	4(4)MT3(3)M 5(3)TW	S1	A3	SG0	C5	3	2D	W3KG	278
0190	RW	4-3	HD	2SD	L-CL	4Dct2	5(7)MT6(3)NW	S2	A3	SG0	C5	3	3D	W3GK	109
0191	HRVA 4	4-5	H	1WA	L-SICL	1Ct2	4(10)MT	S1	B1	SG0	C5	3	2	W3KG	2509
0192	HRVA 2	4-3	H	1MA	L-SICL	2Cst2v	3(6)M 4(2)MT5(2)W	S1	B3	SG0	C5	3	2	W2KG	98
0193	RW	4-5	HID	1MD	CL-SICL	4Dct2	4(6)MT5(2)T 6(2)NW	S1	A3	SG0	C5	3	4D	W3GK	542
0194	HRVA 4	4-5	H	1WA	L-SICL	1Ct2	4(10)MT	S1	B1	SG0	C5	3	2	W3KG	56
0195	VAHR 4	3-4	UI	2MA	SICL-CL	3Bst1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	264
0196	X	2	U	3MA	SICL	4Cwi	6(6)W 5(4)NW	S0	DX	SG0	D1	U	U	W0	30
0197	VAAD 2	3-4	UI	2MA	SICL-CL	3Csv	3(8)M 5(2)W	S1	B3	SG0	C5	2	2	W2K	79
0198	HR 4	6	HD	1WA	L	1Dt2	5(10)TE	S2	A1	SG0	C7	3	5D	W3KG	48
0199	HR 4	6	HD	1WA	L	1Dt2	5(10)TE	S2	A1	SG0	C7	3	5D	W3KG	30
0200	VAAD 1	3	U	1WA	SICL-CL	2Bqt1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	994
0201	HRVA 4	4-5	H	1WA	L-SICL	1Ct2	4(10)MT	S1	B1	SG0	C5	3	2	W3KG	83
0202	ADVA 4	3-4	U	1MA	CL-SICL	2Bqt1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	689
0203	AV 8	2-3	U	4MA	GL-S	4Dsv	5(5)MN6(5)NW	S2	C3	SG0	D1	5	1	W0	378
0204	VAAD 1	3	U	1WA	SIL-CL	1Bvt1	4(10)M	S1	B1	SG0	C5	2	2	W2K	158
0205	ADVA 4	3-4	U	1MA	CL-SICL	2Bqt1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	176
0206	ADVA 4	3-4	U	1MA	CL-SICL	2Bqt1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	807
0207	FK 2	2	U	3MA	SICL	4Dwsv	4(6)NW5(4)NW	S0	C3	SG0	D1	2	1	W0	133
0208	VA 9	3	UI	3MA	SICL	4Bst1v	3(8)M 4(2)N	S0	B1	SG0	C7	2	2	W0	82
0209	VAHR 9	3-4	UID	3SA	SICL-L	4Dsv	3(6)M 5(4)NW	S1	A3	SG0	D1	2	2D	W2G	407
0210	VA 9	3	UI	3MA	SICL	4Bst1v	3(8)M 4(2)N	S0	B1	SG0	C7	2	2	W0	37
0211	VAHR 4	3-4	UI	1MA	SIL-SCL	2Bst1v	4(10)M	S1	B1	SG0	C5	3	2	W2K	562
0212	ADVA 4	4-3	U	1WA	CL-SICL	2Bqt1v	3(10)M	S1	B1	SG0	C5	3	2	W2K	256
0213	BYHR 4	3	U	0	SL-L	2Bmt1v	4(10)M	S2	B1	SG0	C5	4	2	W2K	396
0214	HR 4	5	ID	0	L	1Ct2	4(7)MT5(3)ME	S2	A1	SG0	C7	3	3D	W3KG	69
0215	HTBY 1	4-3	U	0	LS-SL	3Bmt1v	5(10)M	S1	B1	S3	C5	5	2	W2K	343
0216	CTGR 1	2-3	U	4MA	LS-C	4Dwsv	5(7)NW4(3)W	S0	C4	S3	C5	4	1	W0	611

8. SOIL INTERPRETATIONS

DELIN-EATION	MAPUNIT	SLOPE CLASS	SURFACE FORM	SALINITY SYMBOL	SURFACE TEXTURE	IRRIG ATION	AGRICULTURAL CAPABILITY	STONE CLASS	WETLAND DRAIN	SAND+ GRAVEL	pH	EROSION WIND	EROSION WATER	PAST EROS	AREA IN ACRES
0217	HTCH 1	4-3	U	1WA	LS-GS	3Cmv	6(10)ME	S1	B1	SG4	C5	6	2	W2B	738
0218	HTCH 1	4-5	H	0	LS-GS	3Cmvt2	6(10)ME	S2	B1	SG4	C5	6	1	W2B	175
0219	HTBY 9	3	U	4MA	SL-VL	4Bst1v	5(10)MN	S0	B1	S3	C5	4	2	W2B	600
0220	CT 3	2	U	6SA	SL	4Dwsv	7(10)NW	S0	C4	S4	D1	4	1	W0	56
0221	HTBY 1	4-3	U	0	LS-SL	3Bmt1v	5(10)M	S1	B1	S3	C5	5	2	W2K	40
0222	HR 4	6-5	ID	1WA	L	1Dt2	5(6)TE4(4)MT	S1	A1	SG0	C5	3	5D	W3KG	104
0223	HTCH 1	4-5	H	0	LS-GS	3Cmvt2	6(10)ME	S2	B1	SG4	C5	6	1	W2B	357
0224	HTCH 1	3	U	1WA	LS-GS	3Cmv	5(8)ME6(2)ME	S1	B1	SG4	C5	6	1	W1B	231
0225	HTCH 1	5-3	HD	1MA	LS-GS	3Dmt2	6(10)ME	S1	A1	SG4	C5	6	2D	W3GB	328
0226	AV 8	2	UD	5SA	SCL-SL	4Dsv	6(6)NW7(4)NW	S0	C3	SG0	D1	2	1D	W2G	172
0227	HR 4	6-5	ID	1WA	L	1Dt2	5(6)TE4(4)MT	S1	A1	SG0	C5	3	5D	W3KG	170
0228	RW	3-4	UD	1MA	CL-SL	4Dct2	4(5)M 5(5)TW	S2	A3	SG0	C5	3	3D	W2G	145
0229	ADVA 4	4-5	HD	1MA	CL-SICL	2Cqst2	3(6)M 4(4)MT	S1	A1	SG0	C5	3	2D	W2KG	556
0230	VAAD 4	3-4	UD	1WA	SIL-CL	1Bvt1	4(10)M	S1	A1	SG0	C5	2	2D	W2KG	290
0231	ADVA 4	4-5	HD	1MA	CL-SICL	2Cqst2	3(6)M 4(4)MT	S1	A1	SG0	C5	3	2D	W2KG	42
0232	ADVA 4	4-5	HD	1MA	CL-SICL	2Cqst2	3(6)M 4(4)MT	S1	A1	SG0	C5	3	2D	W2KG	584
0233	VA 1	3	U	1WA	SICL	2Bqt1v	3(10)M	S1	B1	SG0	C5	2	2	W2K	225
0234	VAAD 2	3	UD	2MA	SICL-L	3Dsv	3(7)M 5(3)W	S1	A3	SG0	C5	2	2D	W2KG	55
0235	AD 4	5-6	HD	1MA	CL	2Dqst2	4(7)MT5(3)TE	S1	A1	SG0	C7	3	3D	W3K	756
0236	AD 4	5-6	HD	1MA	CL	2Dqst2	4(7)MT5(3)TE	S1	A1	SG0	C7	3	3D	W3K	362
0237	ADKN 1	4-3	HD	2MA	CL-SIL	3Cdst2	4(6)MD3(4)M	S2	A1	SG0	C5	3	2D	W2KG	334
0238	ADVA 4	4-3	U	1WA	CL-SICL	2Bqt1v	3(10)M	S1	B1	SG0	C5	3	2	W2K	1124
0239	HRHT 4	4-5	H	1MA	L-LS	2Csvt2	4(6)MT5(4)ME	S1	B1	S2	C5	5	2	W2B	749
0240	APHT 1	5-3	H	1WA	FS-LS	4Dmt2	6(7)ME5(3)ME	S1	B1	S4	C5	6	1	W4B	296
0241	APHT 9	3-4	U	3SA	S-LS	4Cmsv	6(8)ME5(2)NW	S0	B2	S4	C7	6	1	W3B	1648
0242	HTCH 1	3	U	1WA	LS-GS	3Cmv	5(8)ME6(2)ME	S1	B1	SG4	C5	6	1	W1B	268
0243	HTCH 1	4-3	U	1WA	S-GS	4Cmv	5(7)ME6(3)ME	S1	B1	SG4	C5	6	1	W2B	862
0244	HTCH 1	3	U	1WA	LS-GS	3Cmv	5(8)ME6(2)ME	S1	B1	SG4	C5	6	1	W1B	598
0245	AP 3	4-5	H	0	S	4Cmt2	6(10)ME	S0	B1	S4	C5	6	1	W3B	289
0246	AV 8	2	U	6VA	LS	4Dsv	7(10)NW	S0	C3	SG0	D1	5	1	W0	451
0247	APHT 9	3-4	U	3SA	S-LS	4Cmsv	6(8)ME5(2)NW	S0	B2	S4	C7	6	1	W3B	55
0248	APHT 1	5-3	H	1WA	FS-LS	4Dmt2	6(7)ME5(3)ME	S1	B1	S4	C5	6	1	W4B	64
0249	AV 8	2	U	6SA	SICL	4Dsv	6(6)NW7(4)NW	S0	C3	SG0	D1	2	1	W0	168
0250	ADKN 1	4-3	HD	1MA	CL-SIL	3Cdt2	3(8)M 4(2)MD	S1	A1	SG0	C5	3	2D	W2K	5356
0251	AD 4	5-6	HD	1MA	CL	2Dqst2	4(7)MT5(3)TE	S1	A1	SG0	C7	3	3D	W3K	114
0252	ADVA 4	3-4	U	1MA	CL-SIL	2Bqt1v	4(10)M	S2	B1	SG0	C5	2	2	W2K	2426
0253	GR 4	2	U	3MA	HC	4Dwqs	4(10)W	S0	C4	SG0	C7	4	1	W0	239
0254	ADBY 9	3	UD	5MA	L	4Bsvp	4(10)MN	S2	A1	SG0	C7	2	2D	W1GK	871
0255	ADKN 1	4-5	HD	2MA	CL-SIL	3Cdst2	4(7)MD3(3)M	S1	A1	SG0	C5	3	2D	W2G	542
0256	FK 1	3	U	2SA	SIL	4Dwv	5(6)NW6(4)W	S0	C3	SG0	C7	2	2	W0	94
0257	ADVA 4	4-5	HD	1MA	CL-SIL	2Cqst2	4(6)MT3(4)M	S1	A1	SG0	C7	3	2D	W2K	192
0258	CH 5	4-3	H	0	GS-LS	4Cmt2	5(10)M	S2	B1	G4	C5	6	2	W2BG	103
0259	APHT 1	5-3	H	1WA	FS-LS	4Dmt2	6(7)ME5(3)ME	S1	B1	S4	C5	6	1	W4B	5997
0260	HRVA 1	3-4	U	1WA	L-SIL	1Bvt1	4(10)M	S1	B1	SG0	C5	2	2	W2K	325
0261	HRVA 4	3-4	U	1WA	L-SIL	1Bvt1	4(10)M	S2	B1	SG0	C7	2	2	W1K	183
0262	HTHR 1	3-4	U	0	SL-L	2Cmv	5(6)M 4(4)M	S1	B1	S3	C5	4	2	W2B	133
0263	HTHR 4	3-4	U	0	LS-L	3Cmv	5(7)M 4(3)M	S2	B1	S3	C5	5	1	W2B	280
0264	HRVA 4	4-3	HD	1MA	L-SICL	2Cst2	4(10)M	S1	A1	SG0	C7	3	2D	W2K	1966
0265	HRVA 4	4-5	H	1MA	L-SIL	2Cst2	4(10)MT	S1	B1	SG0	C7	3	2	W2K	545
0266	HRVA 4	3-4	UD	1MA	L-SIL	2Bst1v	4(10)M	S2	A1	SG0	C7	2	2D	W2G	2659
0267	VAHR 9	4	HD	2SA	SIL-L	3Dsv	4(6)MT5(4)NW	S1	A3	SG0	D1	3	2D	W2G	199
0268	VA 4	3	U	1WA	SIL-SICL	1Bvt1	4(6)M 3(4)M	S1	B1	SG0	C5	2	2	W1K	1062
0269	VAHR 9	3	U	3SA	SIL-L	4Dsv	4(7)M 5(3)NW	S2	B3	SG0	C7	2	2	W1K	25
0270	VAHR 9	3	U	3SA	SIL-L	4Dsv	4(7)M 5(3)NW	S2	B3	SG0	C7	2	2	W1K	47

8. SOIL INTERPRETATIONS

DELIN-EATION	MAPUNIT	SLOPE CLASS	SURFACE FORM	SALINITY SYMBOL	SURFACE TEXTURE	IRRIG ATION	AGRICULTURAL CAPABILITY	STONE CLASS	WETLAND DRAIN	SAND+ GRAVEL	pH	EROSION WIND	EROSION WATER	PAST EROS	AREA IN ACRES
0271	HRVA 4	4	HD	1MA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C5	3	2D	W2KG	10
0272	HRVA 4	4	HD	1MA	L-SIL	2Cst2	4(10)MT	S2	A1	SG0	C5	3	2D	W2KG	770
0273	HRVA 4	3-4	UD	1MA	L-SIL	2Bst1v	4(10)M	S2	A1	SG0	C7	2	2D	W2G	47
0274	FX 6	3	UID	4MPA	SIL	4Bst1	4(10)M	S0	A1	SG0	C5	2	2D	W1G	11
0275	HTHR 1	3	U	1MA	SL-L	2Cmsv	5(7)M 4(3)M	S0	B1	S3	C5	4	2	W2B	160

9. Further Information

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

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