The Soils of Elgin County

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THE SOILS OF ELGIN COUNTY

Volume 1

REPORT NO. 63
OF THE
ONTARIO CENTRE FOR
SOIL RESOURCE EVALUATION*

by

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INTRODUCTION

The soil resource information contained in this report and shown on the soil maps was compiled from information gathered during a resurvey of Elgin County. The original soil survey for the County was completed in 1929 and consisted of a single soil map published at a scale of 1:126,720, or 1 centimetre on the map being equal to approximately 1.3 kilometres on the ground (1). There was no accompanying soil report.

The decision to resurvey Elgin County was made as part of an ongoing program in Ontario to provide improved information about the soil resources of the province. The field work required for the resurvey of Elgin County was started in 1982 and completed in 1989. Three preliminary soil maps (2,3,4), and preliminary agricultural capability interpretations (5) were made available during this time period.

The final soil report consists of two volumes. Volume 1 contains an outline of the physiographic setting of the soils, generalized descriptions of the soils, soil interpretations and an appendix which contains generalized analytical information for selected soils. Volume 1 also contains a second appendix which contains information that will assist in identifying the soils at field sites. Volume 2 contains detailed morphological, physical and chemical descriptions of typical soils, and also tables of statistical means and engineering test data. In addition to the soil report, there are three soil maps published at a scale of 1:50,000, or 1 centimetre on the map being equal to approximately 0.5 kilometres on the ground.

The information contained in this report and shown on the soil maps should be used in place of all previously published soil information for the County.

HOW TO USE THE SOIL REPORT AND MAPS

The soil maps and report provide basic soils information for both land management and land use decision makers. Most of the information can be placed into one of two categories: (a) the nature and properties of the soils, and (b) interpretive soil information including general agricultural capability, suitability for selected field and horticultural crops, and erosion potential by water.

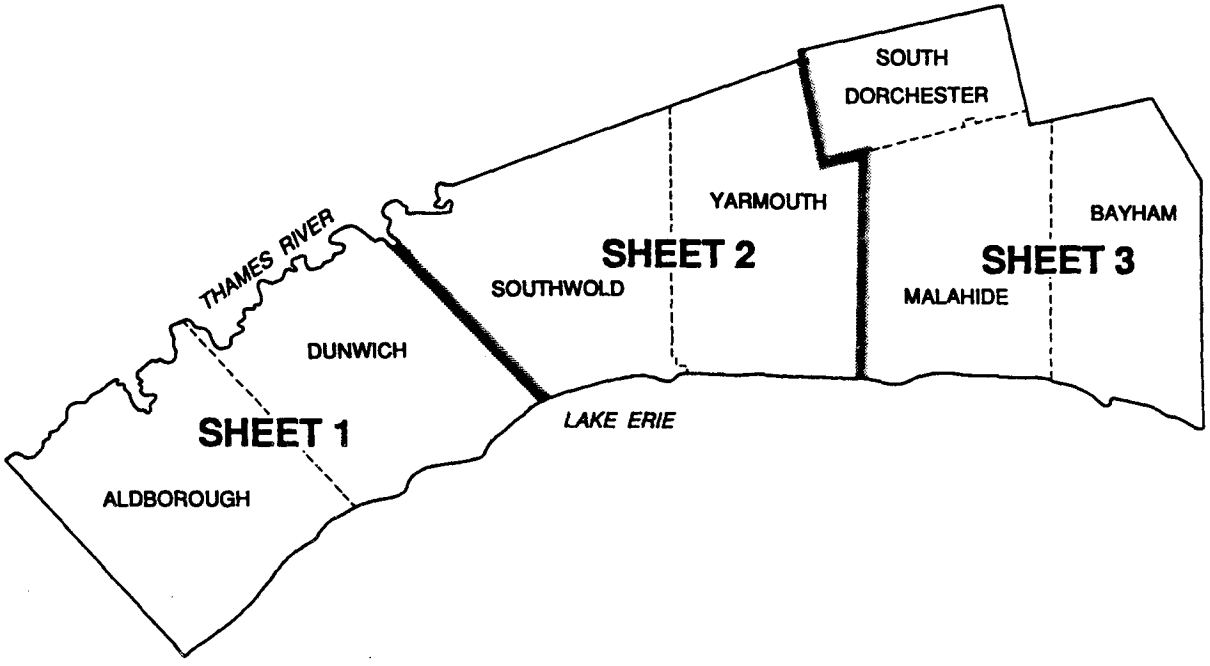
To use the soil maps and report most efficiently, the following steps are suggested:

1. Locate the area of interest in the "Soil Map Index" (Figure 1). Determine the appropriate soil map for the area.
2. Locate your site on the appropriate soil map. Natural and cultural features on the map such as streams, roads, lot and concession numbers, should aid in locating the site.
3. Note the map symbol or symbols shown within the boundaries of the map delineations for your site. An explanation of how to interpret a map symbol appears on the soil maps under the heading "Key to the Map Symbols".
4. Consult the map legend to obtain information for the map symbol. The legend provides information for the soil types, land units, or slopes represented in the symbol.

5. More detailed information for a specific soil type can be obtained from Volume 1 of the soil report, where a generalized description of each soil is presented. Included in these descriptions are comments on soil variability and land use. Generalized statistical information is presented in Appendix 1 of Volume 1.
6. For detailed morphological, physical and chemical descriptions of typical soils, as well as tables of statistical means and engineering test data, refer to Volume 2 of the soil report.
7. For interpretations such as soil capability for common agricultural field crops, soil suitability for various field and horticultural crops, and soil erosion interpretations, refer to Volume 1.
8. If soil information is needed to make land management or land use decisions for areas smaller than 12 ha (30 acres), the information in this report should be used in conjunction with additional on-site investigations. The information in Appendix 2 of Volume 1 will assist in identifying the soils at field sites.

It is important to understand that all soils exhibit a range of properties. Also, because of the map scale and nature of the soil mapping, many soil boundaries may only be approximately located. There could also be inclusions of soil or nonsoil components within any map delineation. Such inclusions could occupy up to 20% of the delineation.

Figure 1. Soil map index for Elgin County



GENERAL DESCRIPTION OF THE AREA

General Information

The location of Elgin County in south-western Ontario is shown in Figure 2. Township boundaries, locations of cities and towns, main roads and highways, and major water courses are shown in Figure 3.

The total area of Elgin County is approximately 185,000 ha. Of this total, approximately 152,000 ha consists of farmland which includes both improved and unimproved land (6). Agriculture is the predominant land use in the County, with approximately 117,000 ha or 63% of the total land area of the County devoted to crop production (6). The crops that are the most extensively grown in the County include grain corn, soybeans, winter wheat, hay, and tobacco.

A summary of some of the most important climatic data for the County is given in Table 1. Some of the more important geologic and physiographic features of Elgin County that influence the nature and location of the soils are shown in Figures 4 and 5. This information has been generalized from detailed descriptions published by Chapman and Putnam (7). Information on the geology of the area is available in publications of the Ontario Geological Survey, Ontario Ministry of Northern Development and Mines. The correlation between the generalized geologic and physiographic information shown in Figures 4 and 5, and the soils described in this report, is given in Table 2. The areal extents of the soils and miscellaneous land units mapped in the county are given in Table 3.

Schematic cross-section diagrams of some typical landscapes in the County are provided in Figures 6 to 9. These diagrams present conceptual relationships of many of the soils in the County with surficial geology and physiographic features.

Climate

Elgin County is situated in the centre of the north shore of Lake Erie. This Lake has the greatest moderating influence on the climate in the County. The influence is largest in spring when warm air coming from the southwest is cooled by the Lake. For example, April daytime high temperatures average more than 12° C in the northern two-thirds of the County and average less than 10° C along the lakeshore (8). At other times of the year, average temperatures increase about 1-2° C from north to south across the County. This change would be larger, if it were not for the close proximity of Lake Huron, which helps to moderate temperatures and increase snowfall because the cold air masses pass over this Lake as they move over the region from the northwest.

As a result of these moderating influences, some of the less hardy horticultural crops such as grapes and tobacco are grown in the County. Areas used for such crops are often found on the warmer south facing slopes of elevated ridges, with the ridge known as the Sparta Moraine having the largest area of horticultural crop land in the County. Local areas that are best suited for such crops are most likely to occur near the shoreline of Lake Erie, unless a rapid spring warm-up of the soil is a necessity.

In a study carried out by Duff et al. (9) to locate the most profitable soils for growing grapes in the areas bordering Lake Erie, it was concluded that there is limited potential for growing grapes on a large scale. The authors of the study recognized, however, that there may be some potential for growing grapes in localized areas of favourable climate on the south facing slopes of some elevated ridges. Two other important findings of the study were: 1) that lake breezes along the western portion of the Lake Erie shoreline have a minor effect on climatic capability for areas which are more than 1 kilometre inland from the Lake; and 2) that killing spring frosts are likely to occur in inland areas adjacent to the western portion of the Lake Erie shoreline during the three weeks after blooming in most years.

The most important climate elements are summarized in Table 1. These were derived from maps in Brown et al. (8) and Brown and Bootsma (10).

Table 1. Climate data for Elgin County[1]

Elements	Range of average conditions from north to south
Mean daily temperature for the year	8 to 9° C
Mean daily temperatures	
minimum for January	-7 to -9° C
maximum for April	<10 to 12° C
maximum for July	<26.5 to 27° C
maximum for October	4.5 to 6.5° C
Frost free season	140 to 160 days
Mean date of	
last occurrence of 0° C	May 7 to May 15
first occurrence of 0° C	Oct. 5 to Oct. 15
Corn heat units	2900 to 3200
Perennial crop growing season	208 to 214 days
start of season[2]	April 8 to April 12
end of season[3]	Nov. 5 to Nov. 12
Mean annual precipitation	840 to 900 mm
Mean May to September precipitation	350 to 380 mm
Mean annual snowfall	120 to 160 cm

[1] *Derived from maps in Brown et al. 1968 and Brown and Bootsma 1991.*
[2] *Average date when mean temperature rises above 5° C*
[3] *Average date when mean temperature falls below 5° C*

Figure 2. General location of Elgin County

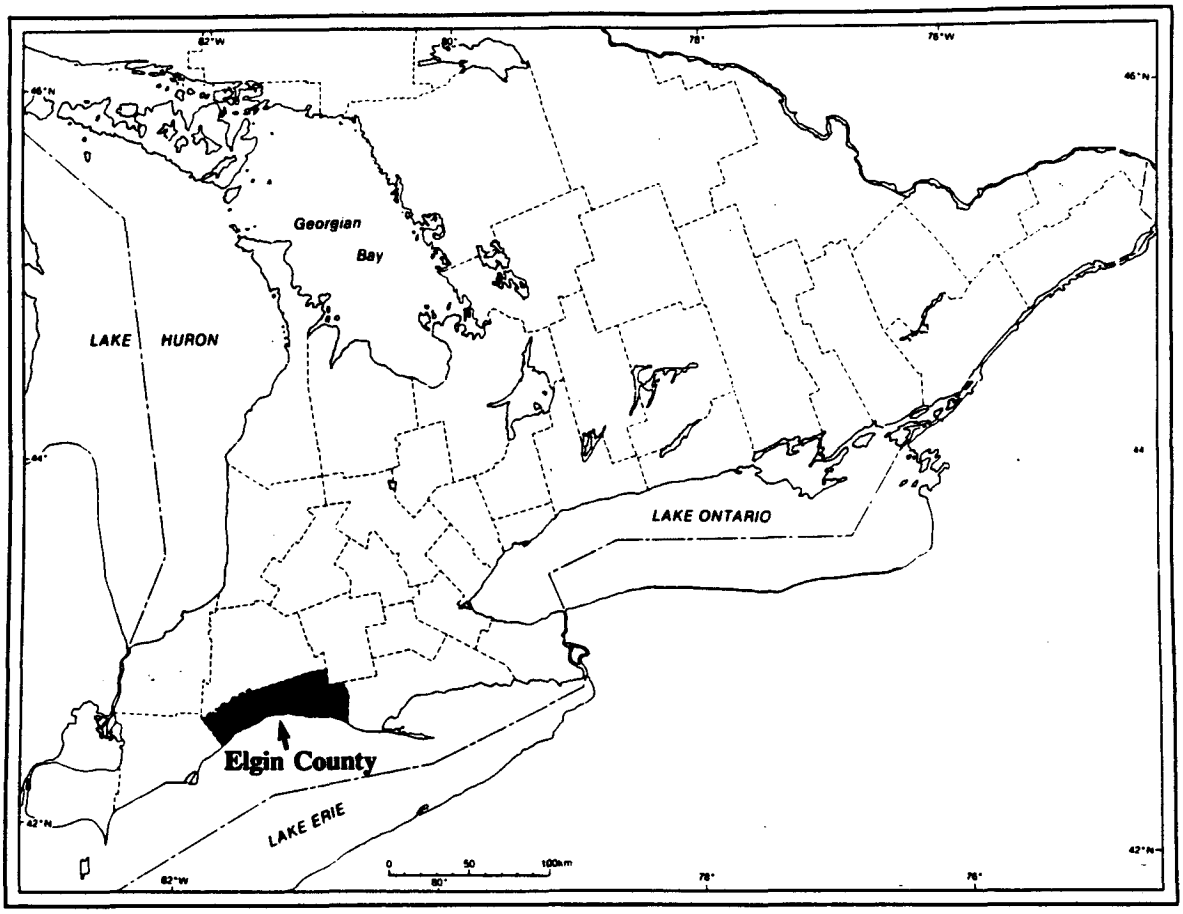


Figure 3. Main built-up areas, roads and municipal boundaries of Elgin County

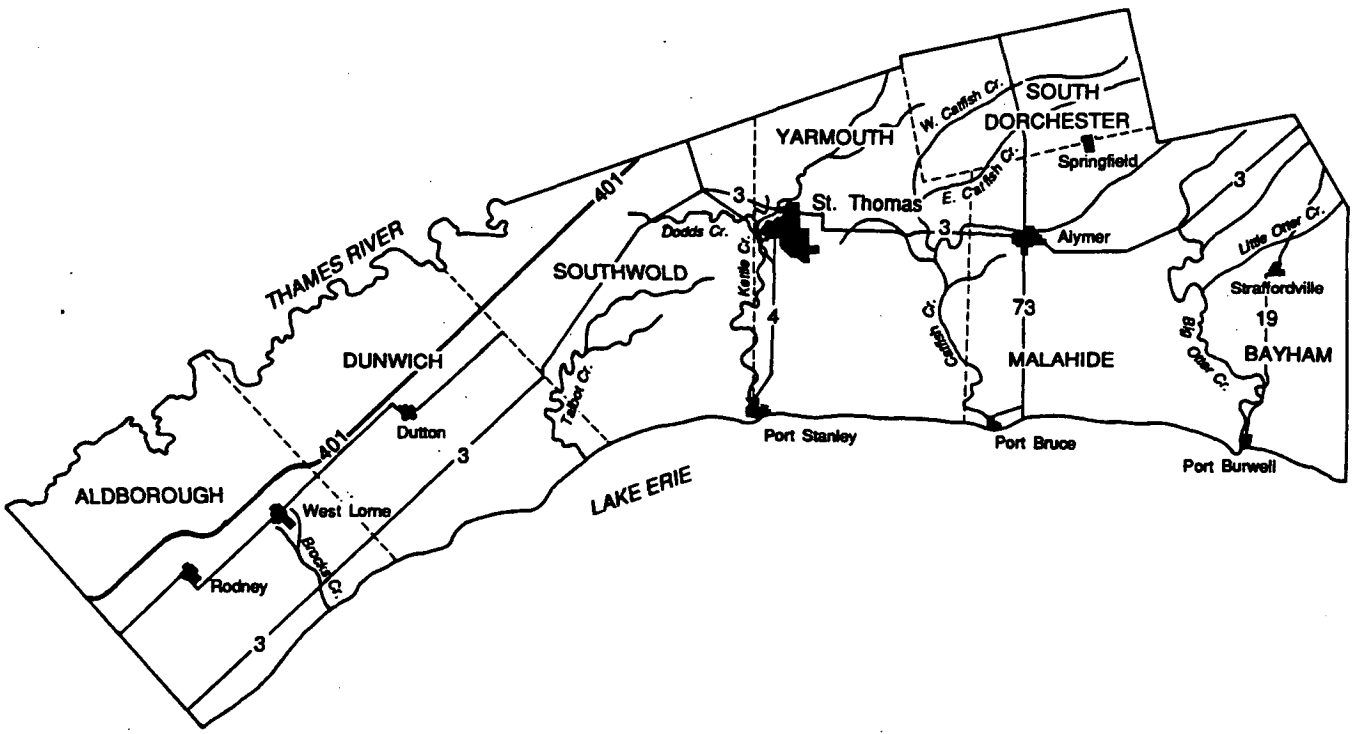


Figure 4. Generalized geologic map of Elgin County

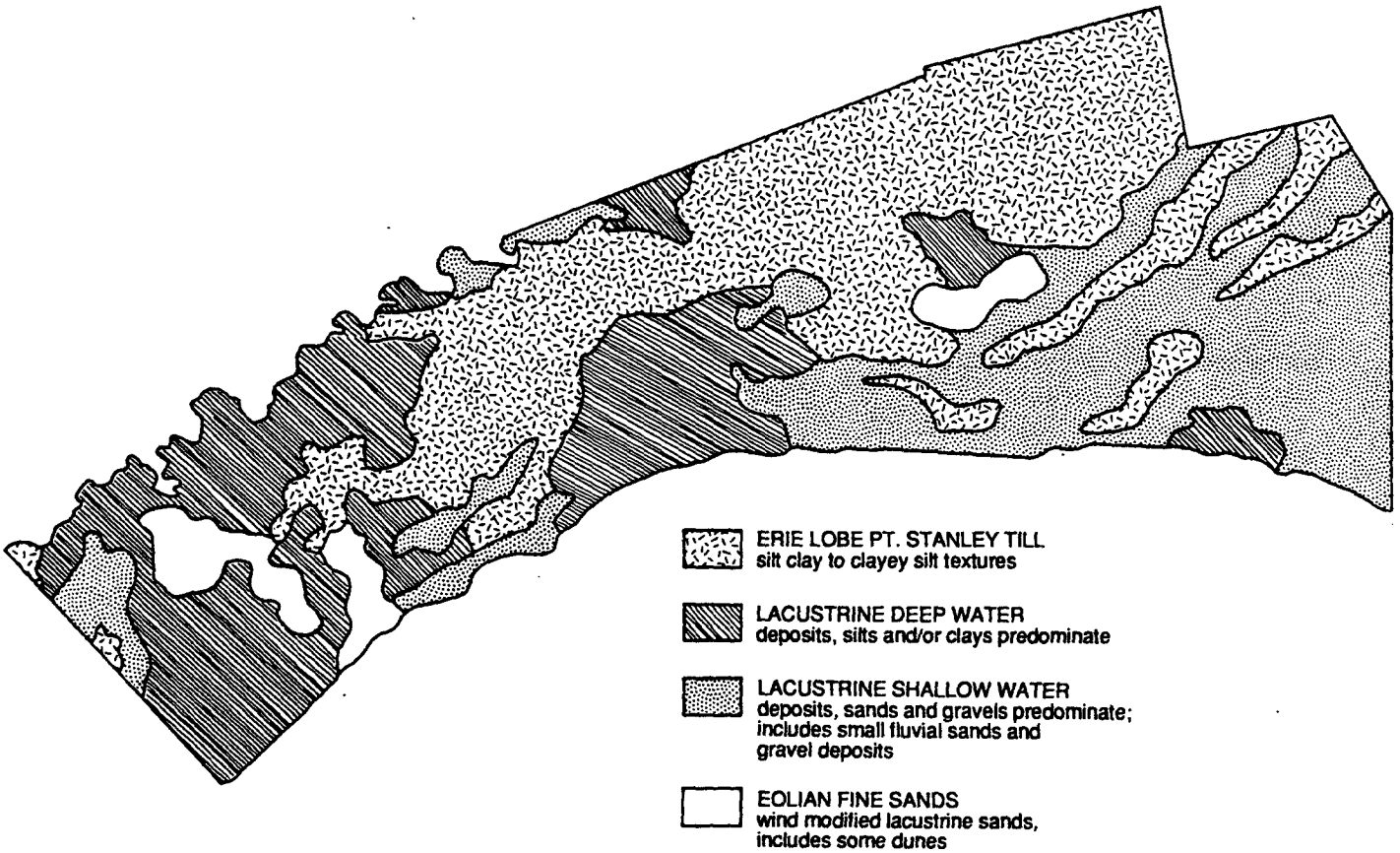


Figure 5. Generalized physiographic map of Elgin County

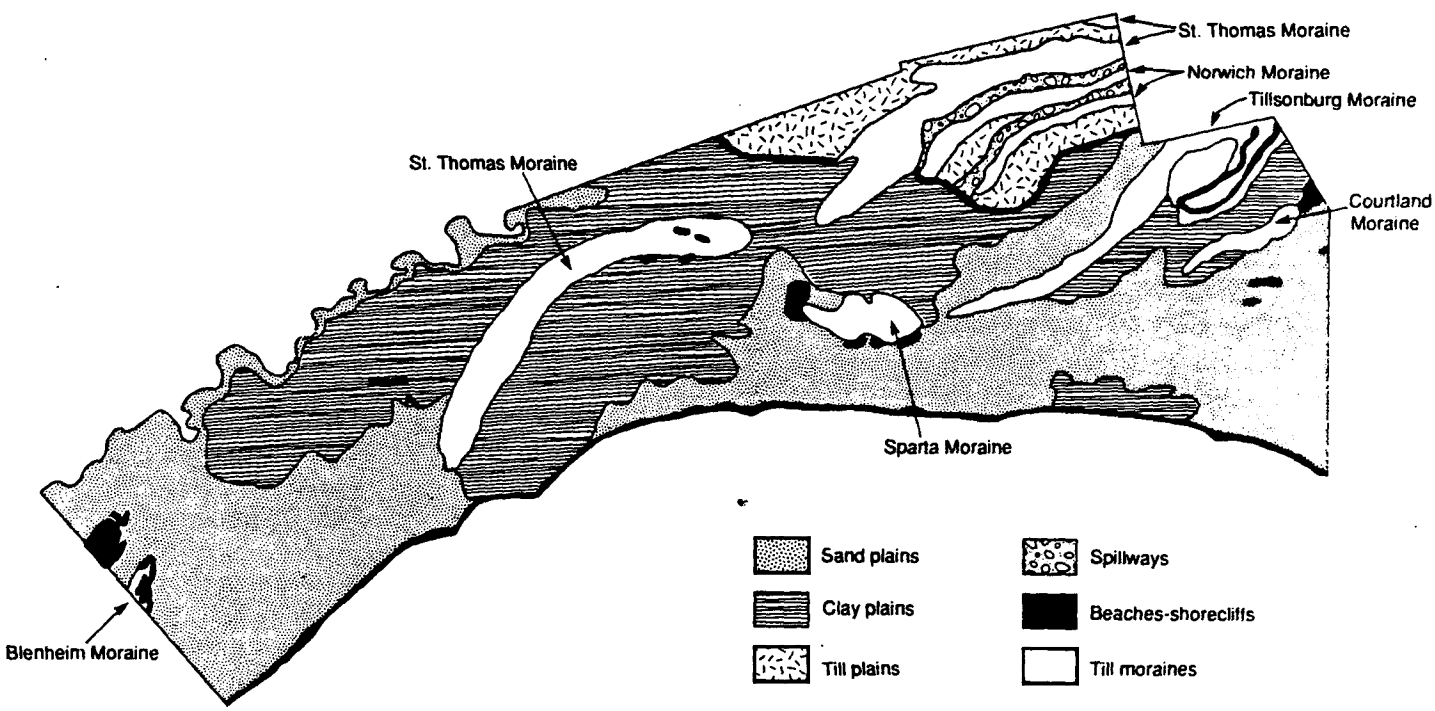


Table 2. Correlation of major soils and land units with physiography and surficial geology in Elgin County

Soil Type or Land Unit	Natural Drainage	Physiography and Usual Topography	Surficial Geology
Glacial Till			
Muriel (MU) Gobles (GO) Kelvin (KE)	Moderately well Imperfect Poor	Till moraines and till plains; nearly level to very strongly sloping topography	Silty clay to clay till on end and ground moraines (Port Stanley Till)
Bennington till phase (BN.T) Tavistock till phase (TA.T) Maplewood till phase (MA.T)	Moderately well Imperfect Poor	Till moraines and till plains; nearly level to gently sloping topography	40 to 100 cm of loamy lacustrine deposits overlying clayey glacial till (Port Stanley Till)
Bookton till phase (BO.T) Berrien till phase (BE.T) Wauseon till phase (WU.T)	Well Imperfect Poor	Sand plains, deltas, and till plains; nearly level to gently sloping topography	40 to 100 cm of sandy lacustrine, fluvial, or eolian deposits overlying clayey glacial till (Port Stanley Till)
Lacustrine Gravels or Gravelly Sands			
Kintyre (KT) Highgate (HI) Muirkirk (MK)	Rapid Imperfect Poor	Beaches and shorecliffs; nearly level to gently sloping topography	Gravelly beach and nearshore deposits, and well to poorly developed raised shorelines
Lacustrine Sands			
Fox (FX) Brady (BY) Granby (GY) Frome (FR)	Rapid Imperfect Poor Very poor	Sand plains, spillways, deltas; nearly level to gently sloping topography	Sandy lacustrine, fluvial, outwash, and deltaic deposits
Wattford (WF) Normandale (NO) St. Williams (SW) Churchville (CH)	Well Imperfect Poor Very poor	Clay and sand plains; nearly level to very gently sloping topography	Lacustrine deposits, fine and very fine sands predominate; surface may be eolian-modified
Lacustrine Silts			
Brant (BT) Tuscola (TU) Colwood (CW)	Well Imperfect Poor	Clay plains; nearly level to gently sloping topography	Lacustrine deposits, silt and very fine sand predominate
Walsher (WA) Vittoria (VI) Silver Hill (SL)	Well Imperfect Poor	Sand and clay plains, deltas; nearly level to very gently sloping topography	40 to 100 cm of sandy lacustrine deposits overlying loamy lacustrine deposits

Table 2. Correlation of major soils and land units with physiography and surficial geology in Elgin County (continued)

Soil Type or Land Unit	Natural Drainage	Physiography and Usual Topography	Surficial Geology
Lacustrine Silty Clays			
Brantford (BF) Beverly (BV) Toledo (TO) Southwold (SO)	Moderately well Imperfect Poor Very poor	Clay plains; nearly level to gently sloping topography, occasionally dissected with strongly sloping topography	Lacustrine deposits, clay and silt predominate
Bennington (BN) Tavistock (TA) Maplewood (MA)	Moderately well Imperfect Poor	Clay plains; nearly level to gently sloping topography	40 to 100 cm of loamy lacustrine deposits overlying clayey lacustrine deposits
Bookton (BO) Berrien (BE) Wauseon (WU)	Well Imperfect Poor	Sand plains, deltas, and clay plains; nearly level to gently sloping topography	40 to 100 cm of sandy lacustrine, fluvial, or eolian deposits overlying clayey lacustrine deposits
Melbourne (ME) Ekfrid (EK) Strathburn (ST)	Moderately well Imperfect Poor	Clay plains; nearly level to gently sloping topography	Lacustrine heavy clay deposits
Fluvial Deposits			
Burford (BU) Brisbane (BI)	Rapid Imperfect	Spillways, deltas, older (higher) terraces along Thames River, creeks and their major drainage channels; nearly level to very gently sloping topography	Gravelly fluvial outwash deposits
Caledon (CA) Camilla (CM) Ayr (AY)	Well Imperfect Poor	Spillways, deltas, older (higher) terraces along Thames River, creeks and their major tributaries; nearly level to very gently sloping topography	40 to 100 cm of sandy deposits over gravelly fluvial outwash deposits and occasionally gravelly ice-contact stratified drift
Eolian Deposits			
Plainfield (PF) Walsingham (WA) Waterin (WN) Springwater (SP)	Rapid Imperfect Poor Very poor	Sand plains, duned sand plains; nearly level to gently sloping topography	Eolian-modified lacustrine sand deposits and eolian duned sand deposits

Table 2. Correlation of major soils and land units with physiography and surficial geology in Elgin County (continued)

Soil Type or Land Unit	Natural Drainage	Physiography and Usual Topography	Surficial Geology
Ice-contact Deposits			
Shedden (SH) Middlemarch (MI)	Rapid Imperfect	Stagnant ice moraine ridges within St. Thomas Moraine; ridges usually aligned roughly north to south; gently to strongly sloping topography	Ice-contact stratified drift; mostly stratified gravels and sands with some silt and clay till; surface may be eolian-modified
Organic Deposits			
Organic land unit (OR)	Very poor	Very poorly drained depressional wetland areas; may include small bodies of standing water; nearly level topography	Organic deposits, often undifferentiated on surficial geology maps
Undifferentiated Deposits			
Alluvium land unit (AL)	Imperfect to poor	Flood plains of creeks and Thames River; nearly level topography	Recent or modern alluvium
Eroded Channel land unit (ER)	Rapid to poor	"V" shaped channels with steeply sloping sides and no significant bottom land	Undifferentiated on surficial geology maps
Scarp land unit (SC)	Rapid to imperfect	Steep to very steep cliffs or bluffs found mainly along Lake Erie shoreline and Thames River	Undifferentiated on surficial geology maps
Valley Complex land unit (VC)	Rapid to poor	"U" shaped channels with moderately to steeply sloping side walls and nearly level to very gently sloping flood plains; includes river and creek courses	Modern or older alluvium

Figure 6. Schematic landscape cross-section showing the relationship of some soils that often occur near major river valleys

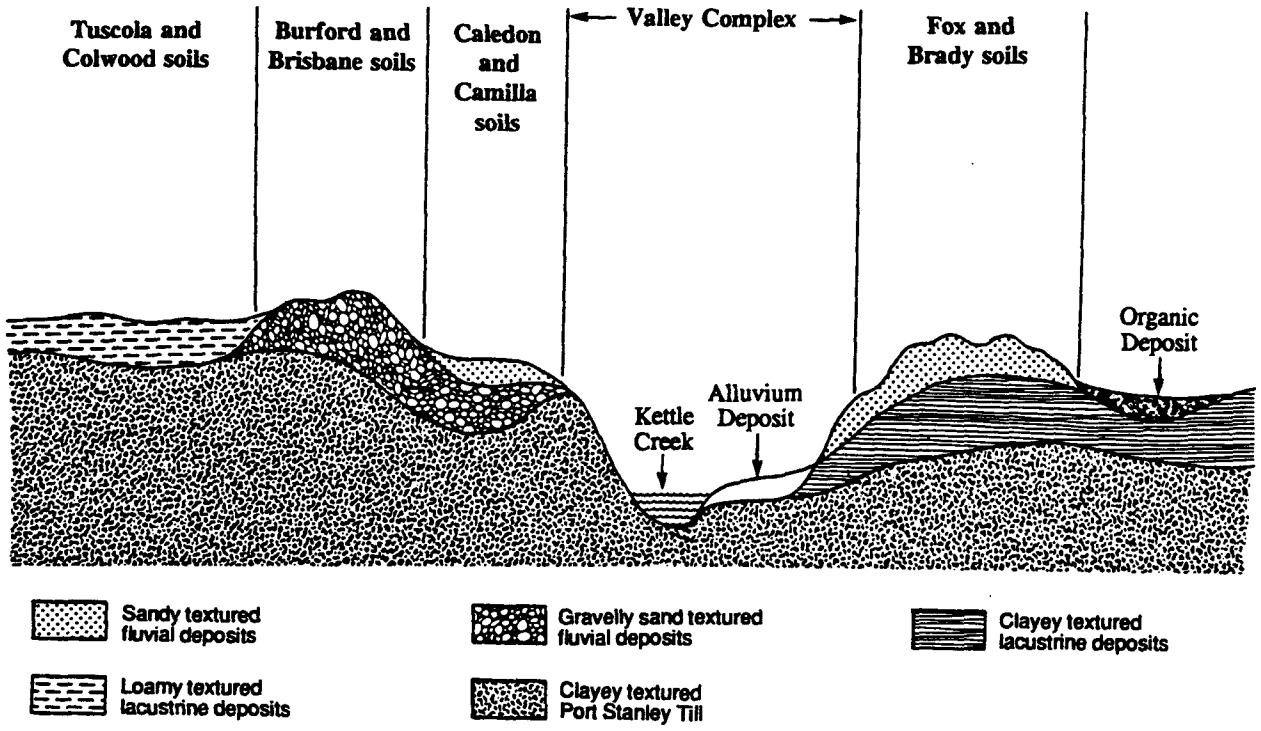


Figure 7. Schematic landscape cross-section showing the relationship of some soils that often occur in transition areas between glacial till and lacustrine geologic materials

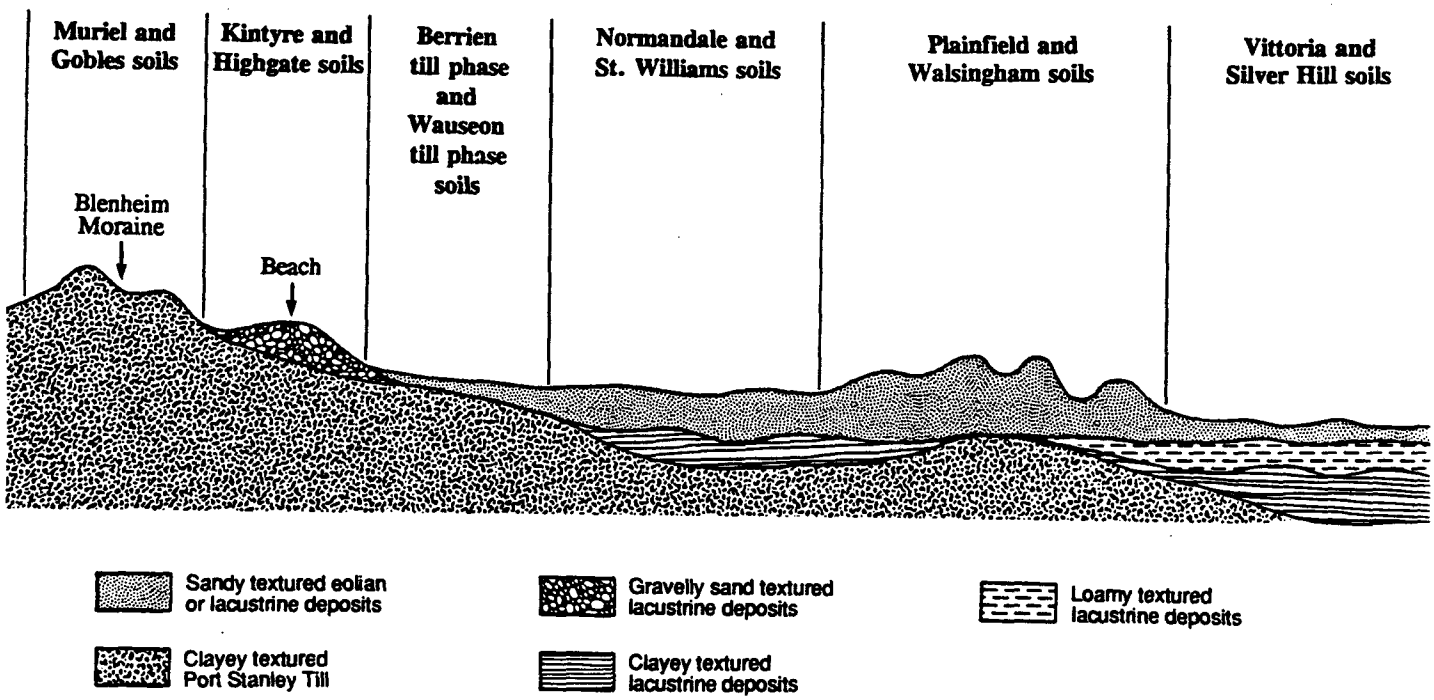


Figure 8. Schematic landscape cross-section showing the relationship of some soils that often occur on materials of lacustrine origin

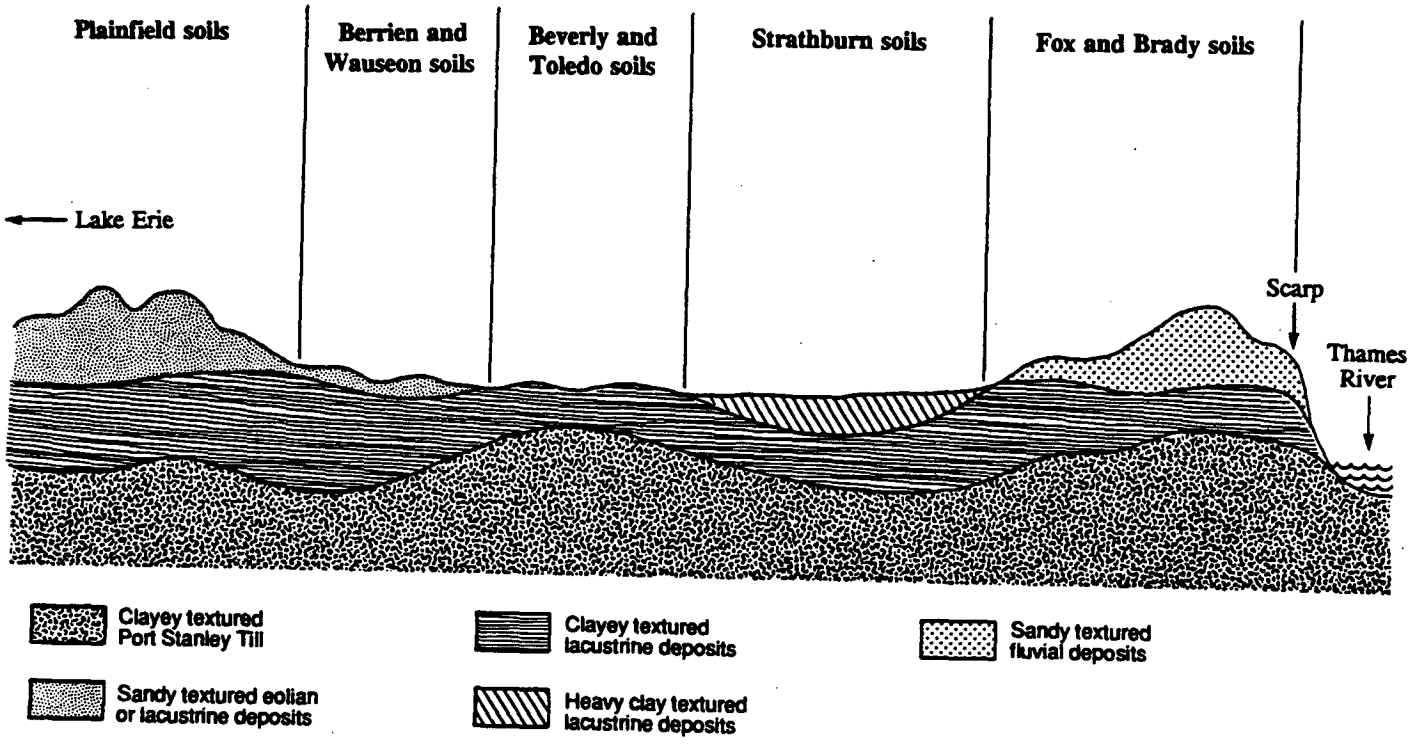
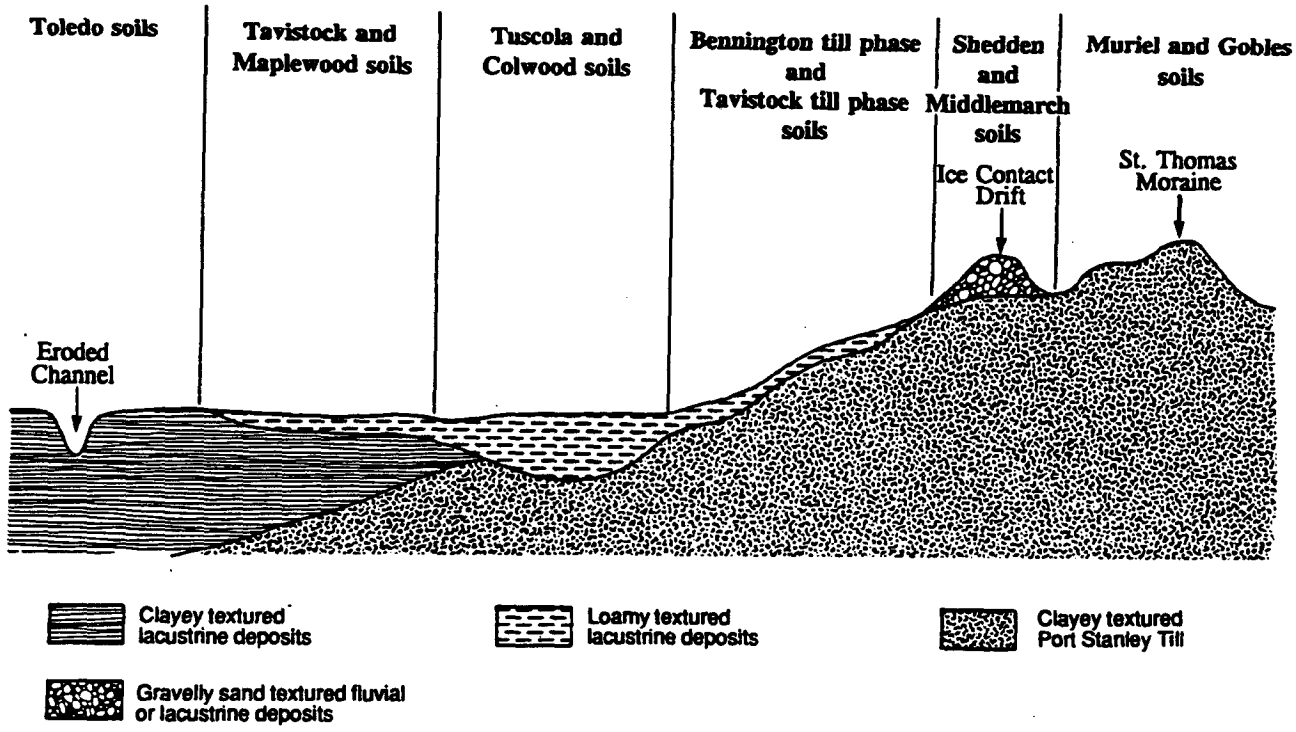


Figure 9. Schematic landscape cross-section showing the relationship of some soils that often occur in transition areas between glacial till and ice-contact drift materials, and lacustrine materials



HOW THE SOILS WERE MAPPED AND CLASSIFIED

Soil Mapping

The resurvey of the soils of Elgin County was undertaken in a series of stages. The first stage consisted of a sampling program in which the soils were described and sampled according to soil types and their spatial distribution as indicated on the old soil map. Data from this sampling program, and information gathered from existing resource publications such as geological reports, was used to build the soil legend which appears on the border of the soil maps.

The second stage of the resurvey involved the determination of tentative soil boundaries through stereoscopic examination of aerial photographs, and field checking of the soils occurring within those boundaries. At each field check, standard soil classification guidelines outlined in "The Canadian System of Soil Classification" (11) and "The Canada Soil Information System (CanSIS) - Manual for describing soils in the field" (12) were applied. The Ontario Institute of Pedology publication "field manual for describing soils" (13) was also used at field checks. These publications defined the limits employed in this survey for slope, texture, and drainage classes. Additional sampling was undertaken at some field checks to expand the soil database.

Field checking was mainly carried out along public roads which generally provided easy access. Site inspections were carried out on a regular basis, especially in areas where stereoscopic interpretations suggested major soil or landscape differences were present. At each site, vertical soil sections were examined through the use of a probe, auger, or shovel. Soil texture and drainage were assessed at each site, as well as surface slope. Most examinations were made to a depth of about one metre below the surface.

The final stage of the resurvey involved the compilation of soil maps from information collected in the field. The information was recorded on site cards and on aerial photographs, and was used to compile a series of maps which were first published in preliminary form (2,3,4). Revisions made to those maps resulted in the final maps which accompany this report. Digitization of the final maps was then undertaken to provide hectarages for each soil type, and to create a digital data base from which future interpretive maps could be produced.

Survey Intensity Level and Map Reliability

The scale of the maps and the amount of precision or the intensity level with which the soils would be described and mapped were both determined before the resurvey began. A "Survey Intensity Level" was therefore assigned to the project. The survey intensity level relates to the number of field checks per unit area mapped, the number of delineations on the map having at least one inspection, the methodology used to establish soil boundaries, and the minimum size area which the map can portray.

Five survey intensity levels have been defined in the publication " A soil mapping system for Canada: Revised" (14). Survey Intensity Level 1 is the highest intensity, having the most detailed procedures and the greatest level of precision. Large scale surveys such as those at a scale of 1:10,000 would have this intensity level. Survey Intensity Level 5 has the lowest intensity, the least detailed procedures, and the lowest level of precision. An example would be small scale surveys such as those at a scale of 1:250,000, which present generalized information.

The Elgin County resurvey was carried out at Survey Intensity Level 3, which is an intermediate level. The map publication scale of 1:50,000 is considered appropriate for that intensity level, and at least one site inspection was carried out in most delineations shown on the maps (14). In areas where the soil landscape was highly variable and therefore less predictable, more site inspections were carried out.

Since the minimum size of delineation which can be shown on the soil maps is 0.5 cm^2, or approximately 12 ha (30 acres) on the ground (14), the maps provide information at a level of detail which is most suited for making general land assessments and management decisions. Their most appropriate use, therefore, is for planning at the county, township or watershed level, or for broad targeting of soil related agricultural programs. For land assessments or decisions related to small areas, additional on-site examinations of soil characteristics are recommended. The soil identification keys provided in Appendix 2 can be used to identify the soils at site examinations.

Soil Classification

Soil Taxonomy

The Canadian System of Soil Classification (11), classifies soils taxonomically according to the type, degree of development, and sequence of soil horizons present in the soil profile. The highest taxonomic category is the order. Based on differences in soil development and horizonation, each order is subdivided into great groups; great groups into subgroups; subgroups into families; and families into series. Soil series may be further subdivided into phases on the basis of physical or chemical features which are present. The soils described in this report are either soil series or phases of soil series. In the legend provided on each soil map, soil series and phases of soil series have been grouped under the heading "soil types".

Soil orders that have been noted in Elgin County are the Luvisolic, Brunisolic, Gleysolic, Regosolic and Organic orders. Most well and imperfectly drained soils in the County have been classified in the Luvisolic order. They are characterized by light coloured eluvial horizons and darker coloured illuvial B horizons in which clay has accumulated. Poorly drained soils in the County were usually classified in the Gleysolic order.

In this report the taxonomic classifications of the soils have been determined at the subgroup level. Examples of some subgroup classifications for well drained soils which occur in the County are Gray Brown Luvisol and Brunisolic Gray Brown Luvisol. Some examples for imperfectly drained soils are Gleyed Gray Brown Luvisol and Gleyed Melanic Brunisol. Poorly drained soils were usually classified as Orthic Humic Gleysols.

Soil Series

The soil series recognizes relatively detailed soil properties related to soil development and horizonation. Examples of some properties which are important when defining a soil series include soil texture, drainage, colour, and thickness of horizon.

Standard classification guidelines (11,12,13) were applied to define the soil series described in this report. According to those guidelines, the determination of soil drainage was based on an examination of soil colours using Munsell Soil Colour Charts (15).

Soil materials which are saturated for short periods, primarily in the spring, develop orange or rust coloured "mottles" which are primarily caused by the oxidation of iron compounds in the soil. Soil materials which are subject to more prolonged periods of saturation exhibit "gley" conditions. This condition is expressed as bluish-gray or gray soil colours, and are mainly caused by the reduction of iron compounds in the soil.

When the depth at which these colours occur in the profile is determined, it is possible to estimate the depth at which the water table occurs and for what portion of the year it is present. Examples of some typical soil profiles and associated soil colours are depicted in Figure 10. Forty-four soil series were identified during the resurvey of the County and are described on the soil maps and in the report. An example is the Muriel soil (MU), which is a moderately well drained, clayey textured glacial till soil.

Soil Phases

Phases were applied to soil series when differences were present in soil properties which were considered significant for plant growth or soil management. For example, the TO.L map symbol represents a Toledo loamy phase soil. It differs from a Toledo soil by having 15 to 40 cm of loamy material overlying clayey lacustrine material. Thirty-three phases of soil series were identified. Descriptions of the phases which were applied to soils mapped in the County are as follows:

C - 15 to 40 cm of sandy textured material over materials with contrasting textures
F - 15 to 40 cm of clayey textured material over materials with contrasting textures
L - 15 to 40 cm of loamy textured material over material with contrasting textures
P - 15 to 40 cm of organic (peaty) material over mineral soil material
T - 40 to 100 cm of lacustrine sediments over clayey textured till material
W - 40 to 100 cm of loamy textured, lacustrine modified glacial till material over clayey textured glacial till material

Soil Profiles and Horizons

A soil profile is a vertical section of the soil through all its horizons and extending into the parent material (16). A soil horizon is "a layer of mineral or organic soil or soil material approximately parallel to the land surface that has characteristics altered by processes of soil formation. It differs from adjacent horizons in properties such as colour, structure, texture and consistence, and in chemical, biological, and mineralogical composition" (11). Some examples

of soil profiles and horizons which commonly occur in the County are shown in Figure 10. Typical soil profiles and horizons for many of the soils which occur in the County are provided in Volume 2.

The major mineral soil horizons are designated as A, B, and C starting with the surface layer and moving downward in the profile. Based on differences in soil properties, subdivisons of these horizons are designated by adding lower case suffixes to them, for example Ah, Ap, Bm, Btgj, Ckg, etc.

The A horizon is most often the surface horizon, and usually exhibits a dark brown colour due to enrichment with organic matter. In Elgin County, the surface horizons usually have been cultivated and are designated as Ap horizons. They generally are non-calcareous and neutral to acid in reaction.

The B horizon underlies the surface A horizon, and is a chemically or physically altered layer resulting from extensive weathering and many years of soil formation. While the B horizon may be slightly enriched with organic matter, it usually does not exhibit the dark brown colour associated with the surface A horizon. In Elgin County, these horizons also are generally non-calcareous and neutral to acid in reaction. Examples of some B horizon designations which commonly occur in the County are clay enriched Bt or Btgj horizons, and gleyed Bg horizons.

The C horizon, which is commonly referred to as the soil parent material, consists of material that has undergone relatively little weathering compared to the overlying A and B horizons. Textures of these horizons in the County range from heavy clays to coarse gravels. They usually are calcareous and mildly alkaline in reaction. Some common C horizon designations in the County are Ck, Ckgj, and Ckg.

Soil Map Symbols

The symbols shown on the soil maps are in effect map units, and represent either 1 or 2 soils, or a miscellaneous land unit, that occur within any area on the soil map enclosed by a boundary. The soils and their respective slopes are identified in the map symbols, and in the legend provided on each soil map, by capitalized or small case letters.

An example of a soil map symbol which contains only one soil type or component is the GO/D map symbol. The soil identified in this symbol is the Gobles soil (GO). The slope associated with this soil is always shown in the denominator, and is a simple D slope of 5 to 9 percent. In some map symbols, the Gobles soil may occur on two slopes, for example GO/D>C. In this instance, Gobles soils occurring on D slopes are dominant (40 to 80 percent of the area), and Gobles soils occurring on C slopes are significant (20 to 40 percent of the area).

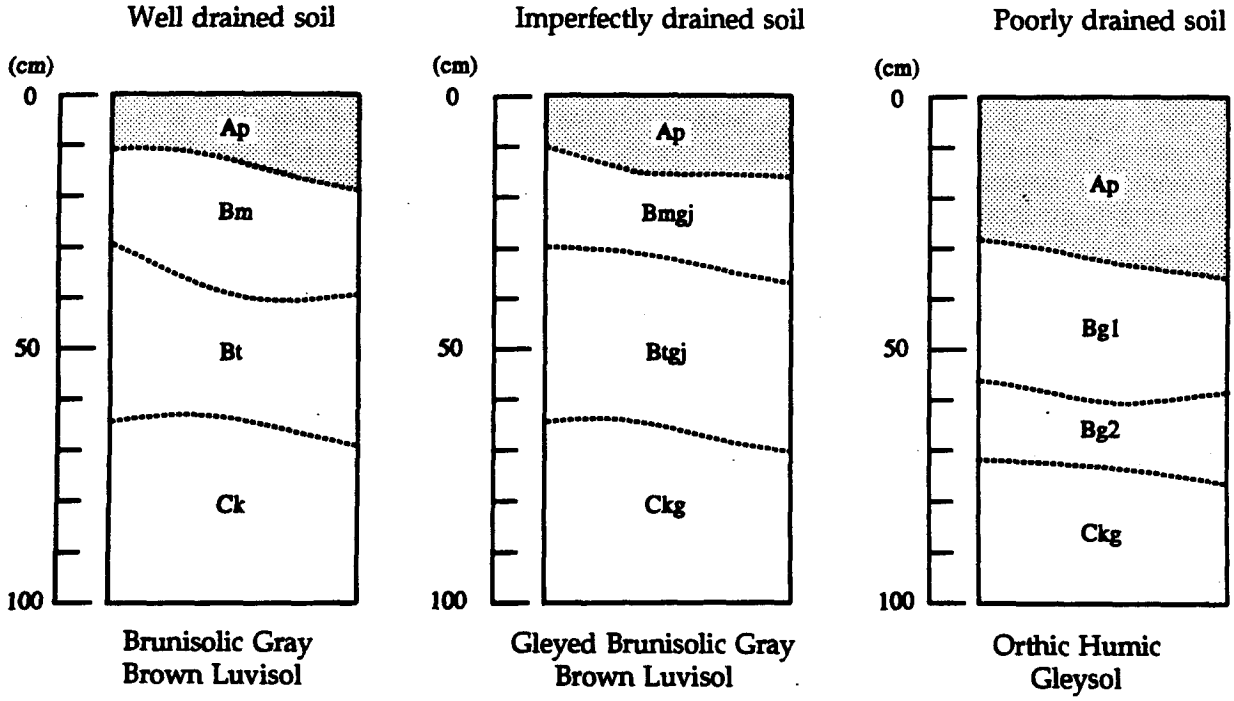
Many symbols shown on the soil maps have two soil types or components. For example, the BV>TO.L/C>b map symbol is composed of two soils, the Beverly soil (BV) and the Toledo loamy phase soil (TO.L). The Beverly soil is dominant (40 to 80 percent of the area), and occurs on a simple C slope of 2 to 5 percent. The Toledo loamy phase soil is significant (20 to 40 percent of the area) and occurs on a complex b slope of 0.5 to 2 percent.

Descriptions of the components which comprise the symbols shown on the soil maps, and their proportions of occurrence, are provided on each map in the section titled "Key to the Map Symbols". Descriptions are also given in the Glossary at the back of this report.

Miscellaneous Land Units

A number of miscellaneous land unit designations were applied to areas in the County. Some areas designated as this type of unit are either too variable or complex to identify individual soil series or phases of soil series. Other types of miscellaneous land units include areas which have been disturbed, modified, or permanently withdrawn from agricultural use. The types of miscellaneous land units applied to land areas are: Alluvium (AL), Eroded Channel (ER), Not Mapped (NM), Organic (OR), Scarp (SC), and Valley Complex (VC).

Figure 10. Diagrammatic soil profiles of typical well drained, imperfectly drained, and poorly drained soils in Elgin County



Horizon Descriptions

Ap very dark grayish brown coloured, mineral, surface horizon enriched with organic matter (p - man modified e.g. plough layer)

Bt dark brown coloured subsurface horizon, enriched with clay that has moved downward

Bm yellowish brown coloured subsurface horizon with only slight addition of clay

Bmgj brownish coloured subsurface horizon with only slight addition of clay; some reddish coloured mottling occurs which is indicative of short periods of saturation

Bg1 and Bg2 horizons with gray gley colour and usually reddish coloured mottling indicative of prolonged periods of saturation

Ck brownish coloured, relatively unweathered material from which the soil profile has developed; contains calcium carbonate that will effervesce with dilute HCl

Ckg grayish or bluish gray coloured, relatively unweathered material from which the soil profile has developed; usually has reddish coloured mottling indicative of prolonged periods of saturation; contains calcium carbonate that will effervesce with dilute HCl

Numbered Horizons: Soil horizons may be vertically subdivided by consecutive numeral suffixes e.g. Bg1, Bg2, Bg3, Bg4, etc. Soil formation processes are similar in these horizons, but they are different in at least one soil characteristic such as colour, texture, or structure.

Roman Numerals: The designations for some soil horizons may be prefixed by roman numerals which indicate a significant change in texture (mode of deposition) within the profile. For example, when sandy loam material overlies silty clay material, the horizons of silty clay are prefixed by the numerals "II". The numerals II, III, and IV have been applied to some soil horizons described in Volume 2 of this report.

GENERAL DESCRIPTIONS OF THE SOILS

Soil Key

A. Soils Developed on Glacial Till Deposits

I. Silty clay loam and silty clay till parent materials
- (a) Moderately well drained
  - Muriel (MU)
  - Muriel loamy phase (MU.L)
  - Muriel washed phase (MU.W)
- (b) Imperfectly drained
  - Gobles (GO)
  - Gobles coarse phase (GO.C)
  - Gobles loamy phase (GO.L)
  - Gobles washed phase (GO.W)
- (c) Poorly drained
  - Kelvin (KE)
  - Kelvin coarse phase (KE.C)
  - Kelvin loamy phase (KE.L)
  - Kelvin washed phase (KE.W)

II. 40 to 100 cm of loamy sediments over silty clay loam or silty clay till parent materials
- (a) Well drained
  - Bennington till phase (BN.T)
- (b) Imperfectly drained
  - Tavistock till phase (TA.T)
- (c) Poorly drained
  - Maplewood till phase (MA.T)

III. 40 to 100 cm of sandy sediments over silty clay loam or silty clay till parent materials
- (a) Well drained
  - Bookton till phase (BO.T)
- (b) Imperfectly drained
  - Berrien till phase (BE.T)
- (c) Poorly drained
  - Wauseon till phase (WU.T)

B. Soils Developed on Lacustrine Deposits

I. Loamy sand and sand parent materials
- (a) Rapidly drained
  - Fox (FX)
- (b) Imperfectly drained
  - Brady (BY)
- (c) Poorly drained
  - Granby (GY)
- (d) Very poorly drained
  - Frome (FR)
  - Frome peaty phase (FR.P)

II. Fine sandy loam, very fine sandy loam, and loamy very fine sand parent materials
- (a) Well drained
  - Wattford (WF)
- (b) Imperfectly drained
  - Normandale (NO)
- (c) Poorly drained
  - St. Williams (SW)
- (d) Very poorly drained
  - Churchville (CH)
  - Churchville peaty phase (CH.P)

III. Silt loam, loam, and very fine sandy loam parent materials
- (a) Well drained
  - Brant (BT)
- (b) Imperfectly drained
  - Tuscola (TU)
  - Tuscola coarse phase (TU.C)
- (c) Poorly drained
  - Colwood (CW)
  - Colwood coarse phase (CW.C)
  - Colwood peaty phase (CW.P)

IV. 40 to 100 cm of sandy sediments over silt loam and very fine sandy loam parent materials
- (a) Well drained
  - Walsher (WA)
- (b) Imperfectly drained
  - Vittoria (VI)
- (c) Poorly drained
  - Silver Hill (SL)

V. Mostly silty clay loam and silty clay parent materials
- (a) Moderately well drained
  - Brantford (BF)
  - Brantford coarse phase (BF.C)
  - Brantford loamy phase (BF.L)
- (b) Imperfectly drained
  - Beverly (BV)
  - Beverly coarse phase (BV.C)
  - Beverly loamy phase (BV.L)
- (c) Poorly drained
  - Toledo (TO)
  - Toledo coarse phase (TO.C)
  - Toledo loamy phase (TO.L)
- (d) Very poorly drained
  - Southwold (SO)

VI. 40 to 100 cm of loamy sediments over silty clay loam and silty clay parent materials
- (a) Well drained
  - Bennington (BN)

(b) Imperfectly drained
Tavistock (TA)
(c) Poorly drained
Maplewood (MA)

VII. 40 to 100 cm of sandy sediments over silty clay loam and silty clay parent materials
(a) Well drained
Bookton (BO)
(b) Imperfectly drained
Berrien (BE)
(c) Poorly drained
Wauseon (WU)

VIII. Silty clay or clay parent materials with one or more layers of heavy clay
(a) Moderately well drained
Melbourne (ME)
(b) Imperfectly drained
Ekfrid (EK)
Ekfrid coarse phase (EK.C)
Ekfrid loamy phase (EK.L)
(c) Poorly drained
Strathburn (ST)
Strathburn coarse phase (ST.C)
Strathburn loamy phase (ST.L)

IX. Sandy sediments over gravelly loamy coarse sand and gravelly coarse sand lacustrine beach parent materials
(a) Rapidly drained
Kintyre (KT)
(b) Imperfectly drained
Highgate (HI)
(c) Poorly drained Muirkirk (MK)

C. Soils Developed on Fluvial Deposits

I. Less than 40 cm of sandy sediments over gravelly fluvial outwash parent materials
(a) Rapidly drained
Burford (BU)
(b) Imperfectly drained
Brisbane (BI)

II. 40 to 100 cm of sandy sediments over gravelly fluvial outwash parent materials
(a) Well drained
Caledon (CA)
Caledon fine phase (CA.F)
(b) Imperfectly drained
Camilla (CM)
Camilla loamy phase (CM.L)
(c) Poorly drained Ayr (AY)
Ayr fine phase (AY.F)
Ayr loamy phase (AY.L)

D. Soils Developed on Eolian Deposits

I. Fine sand eolian parent materials
(a) Rapidly drained
Plainfield (PF)
(b) Imperfectly drained
Walsingham (WM)
(c) Poorly drained
Waterin (WN)
(d) Very poorly drained
Springwater (SP)

E. Soils Developed on Ice-contact Stratified Drift Deposits

I. Sandy sediments over stratified gravelly sand and sand parent materials, with gravel content and sand size of parent materials highly variable
(a) Rapidly drained
Shedden (SH)
(b) Imperfectly drained
Middlemarch (MI)

F. Miscellaneous Land Units

I. Soils developed on modern or recent alluvial deposits
(a) Undifferentiated drainage and texture
Alluvium (AL)

II. Soils developed on steeply sloping side walls of eroded channels
(a) Undifferentiated drainage and texture
Eroded Channel (ER)

III. Areas of land which have been disturbed, modified, or permanently withdrawn from agricultural use
(a) Undifferentiated
Not Mapped (NM)

IV. Soils developed on organic deposits
(a) Undifferentiated organic material and mineral substratum
Organic (OR)

V. Soils developed on steeply sloping cliffs and scarps
(a) Undifferentiated drainage and texture
Scarp (SC)

VI. Soils developed on steeply sloping side walls, and terrace or flood plain alluvial deposits composing creek and river valleys
(a) Undifferentiated drainage and texture
Valley Complex (VC)

Table 3. Soils and land units mapped in Elgin County and their areal extent

Soil or Land Unit Name	Symbol	Total Area (ha)
Alluvium	AL	14365
Ayr	AY	63
Ayr fine phase	AY.F	13
Ayr loamy phase	AY.L	12
Bennington	BN	21
Bennington till phase	BN.T	367
Berrien	BE	4688
Berrien till phase	BE.T	7022
Beverly	BV	5447
Beverly coarse phase	BV.C	373
Beverly loamy phase	BV.L	5094
Bookton	BO	61
Bookton till phase	BO.T	276
Brady	BY	2191
Brant	BT	540
Brantford	BF	409
Brantford coarse phase	BF.C	49
Brantford loamy phase	BF.L	112
Brisbane	BI	127
Burford	BU	99
Caledon	CA	474
Caledon fine phase	CA.F	17
Camilla	CM	284
Camilla loamy phase	CM.L	17
Churchville	CH	57
Churchville peaty phase	CH.P	30
Colwood	CW	1307
Colwood coarse phase	CW.C	17
Colwood peaty phase	CW.P	4
Ekfrid	EK	2472
Ekfrid coarse phase	EK.C	162
Ekfrid loamy phase	EK.L	197
Eroded Channel	ER	11252
Fox	FX	949
Frome	FR	188
Frome peaty phase	FR.P	69
Gobles	GO	20299
Gobles coarse phase	GO.C	409
Gobles loamy phase	GO.L	15902
Gobles washed phase	GO.W	283
Granby	GY	907
Highgate	HI	759
Kelvin	KE	6802
Kelvin coarse phase	KE.C	377
Kelvin loamy phase	KE.L	1658
Kelvin washed phase	KE.W	43
Kintyre	KT	1224
Maplewood	MA	300
Maplewood till phase	MA.T	225
Melbourne	ME	15
Middlemarch	MI	123
Muirkirk	MK	27
Muriel	MU	4184
Muriel loamy phase	MU.L	429
Muriel washed phase	MU.W	86
Normandale	NO	11370
Not Mapped	NM	6098
Organic	OR	355
Plainfield	PF	11561
Scarp	SC	920
Shedden	SH	1936
Silver Hill	SL	640
Southwold	SO	89
Springwater	SP	32
Strathburn	ST	689
Strathburn coarse phase	ST.C	13
Strathburn loamy phase	ST.L	47
St. Williams	SW	3542
Tavistock	TA	3069
Tavistock till phase	TA.T	6455
Toledo	TO	2907
Toledo coarse phase	TO.C	291
Toledo loamy phase	TO.L	1028
Tuscola	TU	6318
Tuscola coarse phase	TU.C	126
Valley Complex	VC	8772
Vittoria	VI	1584
Walsher	WA	247
Walsingham	WM	11652
Waterin	WN	2628
Wattford	WF	1510
Wauseon	WU	510
Wauseon till phase	WU.T	873
TOTAL		**185,210**

Soil Descriptions

This section contains generalized descriptions of the soils which occur in the County. The descriptions are arranged in alphabetical order and include information on landform and topography, soil moisture characteristics, general soil characteristics, soil variability, and land use and management. Guidelines for determining some soil moisture characteristics were obtained from the CanSIS Manual for describing soils in the field (12). Estimates of water holding capacity were extrapolated from water retention data obtained from detailed sampling of selected soils in the County. That data is presented in Volume 2 of the report.

Generalized soil profile descriptions for most soils are provided in Appendix 1 in this volume of the report. This information is presented in table format, and includes mean values for horizon depths, textures, pH, organic matter and $CaCO_3$. Similar tables, along with more detailed morphological, physical and chemical descriptions of typical soil profiles, as well as engineering test data, are presented in Volume 2.

Land use comments are included in the soil descriptions, and pertain to: 1) the capability of the soils for common field crops; 2) the suitability of the soils for special crops; and 3) the suitability of the soils for conservation tillage practices.

Common field crops include grain or silage corn, wheat, oats, barley, and forage crops. They are the crops for which the Canada Land Inventory soil capability ratings for agriculture apply (17). The capability ratings which apply to the soils are given in the descriptions, and also in Table 4 of the report.

Special crops include vegetable, fruit, and nut crops. They also include less commonly grown field crops such as spring canola and winter rapeseed. The types of special crops, and the applicable soil suitability ratings for them, are given in Tables 6, 7, and 8. Examples of some special crops identified in the tables include potatoes, cucumbers, peppers, strawberries, tobacco, and winter rapeseed. Comments on the suitability of the soils for special crops are included in the soil descriptions, and are usually general comments related to the full range of special crops which are identified in the tables. The suitability of the soils for specific crops, therefore, must be determined from the tables.

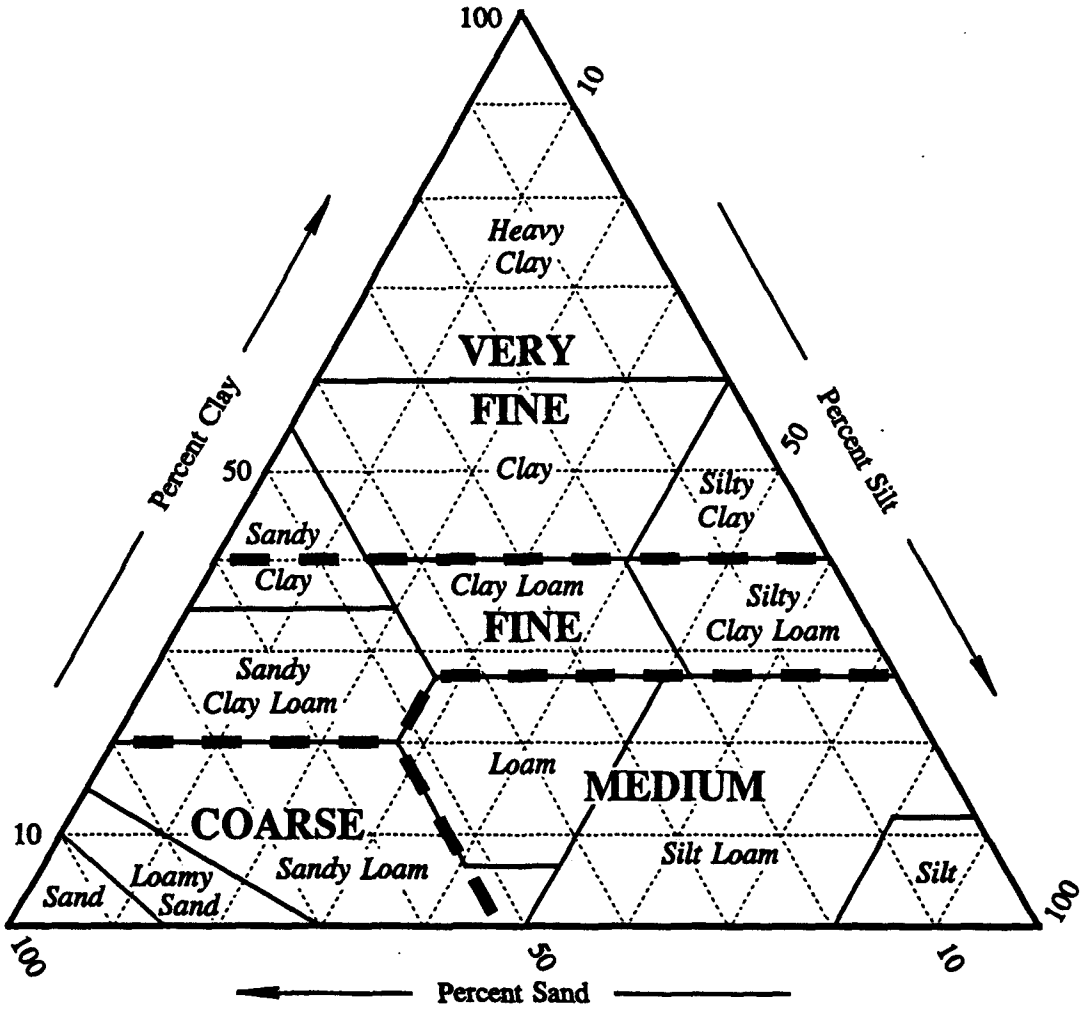
General comments in the soil descriptions on the suitability of the soils for conservation tillage practices are based on personal knowledge of the soils and conservation tillage practices, as well as information provided in the Ontario Ministry of Agriculture and Food factsheet titled " Suitability of Conservation Tillage Systems to Ontario Soil Types" (18).

Four soil textural groups are defined in the factsheet for surface materials. Although slight modifications were necessary, the textural groups have been incorporated into the soil descriptions in order to better relate potential conservation tillage practices to the soils in the County. The definitions of the textural groups are as follows:

1) Coarse - soil materials which contain 52% or more sand, and less than 20% clay. Common soil textures associated with this group include sand, loamy sand, and sandy loam.
2) Medium - soil materials which contain less than 52% sand, and less than 27% clay. Common soil textures associated with this group include loam and silt loam.
3) Fine - soil materials which contain either: 20 to 40% clay if the sand content is more than 45%; or 27 to 40 % clay if the sand content is less than 45%. Common textures associated with this group include silty clay loam and clay loam.
4) Very Fine - soil materials which contain more than 40% clay. Common soil textures associated with this group include silty clay, clay, and heavy clay.

The textural triangle shown in Figure 11 provides information on the soil texture classes which are included in the four textural groups.

Figure 11. Soil textural groups and classes



Ayr Soils (AY)

Landform and Topography

Ayr soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured fluvial outwash materials. They usually occur on lower slope positions in landscapes which have nearly level or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Ayr soils are poorly drained and rapidly permeable. The poor drainage conditions associated with these soils are caused by high water table levels which are near the surface for prolonged periods during the year. Ayr soils have low water holding capacities and slow surface runoff.

General Soil Characteristics

The Ap and Bg horizons usually occur in the upper sandy materials and have sandy loam, loamy sand, or sand textures. The calcareous IICkg horizons generally occur in lower gravelly materials commonly have gravelly coarse sand, gravelly loamy coarse sand, gravelly sand, or gravelly loamy sand textures.

Gray gley colours are dominant in the profile, and prominent dark brown to dark yellowish brown mottles are also present. Soil reaction ranges from neutral in the Ap horizons, to mildly alkaline in the IICkg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

The aerial extent of Ayr soils in the County is limited. Ayr fine phase soils (AY.F) were mapped where 15 to 40 cm of clay loam textured materials overly the sandy and gravelly materials. Ayr loamy phase soils (AY.L) were mapped where 15 to 40 cm of silt loam and loam textured materials overly the sandy and gravelly materials. Ayr soils were mapped in combination with Camilla soils (CM).

Land Use/Management Comments

Ayr soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 2W or 2WT. If they are tile drained, Ayr soils are suitable for growing a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Conservation tillage practices should be considered for Ayr soils. Ayr fine phase (AY.F) soils, however, are better suited for conventional tillage practices.

Bennington Soils (BN)

Landform and Topography

Bennington soils have developed on 40 to 100 cm thick veneers of medium textured lacustrine materials which are underlain by fine to very fine textured lacustrine materials. They occur in landscapes which usually have gently undulating topography, and they commonly occur on mid to upper slope positions. Slopes commonly range from 5 to 9%.

Soil Moisture Characteristics

Bennington soils are well drained. They are usually moderately permeable through the upper medium textured materials, and slowly permeable in the lower fine to very fine textured materials. The water holding capacities of Bennington soils are high. Surface runoff is moderate on very gentle slopes, but can be rapid on steeper slopes.

General Soil Characteristics

The Ap and Bm horizons usually occur in the upper medium textured materials. They typically have silt loam or loam textures. Clay enriched Bt or IIBt horizons commonly occur where the medium textured materials contact the underlying fine textured materials. Textures of those horizons frequently are silt loam, loam, silty clay loam, or silty clay. The calcareous IICk horizons usually have silty clay loam or silty clay textures. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICk horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally very fine sandy loam or fine sandy loam textures occur in the upper materials. Layers of medium textured materials also occur occasionally in the lower fine textured materials. Bennington till phase (BN.T) soils were mapped where 40 to 100 cm of medium textured lacustrine materials were underlain by fine to very fine textured Port Stanley till. The aerial extents of Bennington (BN) and Bennington till phase (BN.T) soils in the County are limited.

Bennington soils were mapped in combination with Tavistock (TA) soils, and Bennington till

phase (BN.T) soils were mapped in combination with Tavistock till phase (TA.T) soils.

Land Use/Management Comments

Bennington and Bennington till phase soils are rated Class 2M for common field crops when topography is not a limitation. This is mainly due to potential moisture deficit conditions which can develop during the growing season. When the surface slopes are greater than 5%, they are rated Class 3T or lower due to topographic limitations. Bennington and Bennington till phase soils are highly suitable for growing a wide range of special crops. They are rated Class S1 or Class S2 for many crops if the surface slopes are not too steep. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Bennington and Bennington till phase soils are susceptible to water erosion. A crop rotation which includes a forage crop, the planting of cover crops, and maintaining high crop residue levels will aid in reducing the risk of erosion by water. Conservation tillage practices should be considered for Bennington and Bennington till phase soils.

Berrien Soils (BE)

Landform and Topography

Berrien soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by fine to very fine textured lacustrine materials. They usually occur on mid to upper slope positions in landscapes which have nearly level or very gently undulating topography. Slopes generally range from 1 to 5%.

Soil Moisture Characteristics

Berrien soils are imperfectly drained. The coarse textured upper materials are rapidly permeable but have low water holding capacities. The lower fine textured materials are moderately to slowly permeable and generally have high water holding capacities. Berrien soils usually have slow surface runoff.

General Soil Characteristics

The Ap, Bmgj, and Btgj horizons usually occur in the upper coarse textured materials. They commonly have fine sandy loam, sandy loam, or loamy fine sand textures. Due to clay enrichment, fine sandy loam and sandy loam textures tend to occur more often in the Btgj horizons. The calcareous IICkgj horizons occur in the lower finer textured materials and usually have silty clay loam clay or silty clay textures.

Distinct to prominent, yellowish brown to dark yellowish brown mottles occur within the profile. Soil reaction is usually medium acid to neutral in the upper coarse textured materials, and mildly alkaline in the lower fine textured materials. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally Berrien soils have layers of gravelly materials which occur above the fine textured IICkgj horizons. Layers of silt loam or loam textured materials also occur occasionally in the lower fine textured materials. Berrien till phase (BE.T) soils were mapped where 40 to 100 cm of coarse textured materials were underlain by fine to very fine textured Port Stanley till.

Berrien soils were often mapped in combination with Wauseon (WU), Beverly (BV), Beverly coarse phase (BV.C), Toledo (TO), and Toledo coarse phase (TO.C) soils. Berrien till phase (BE.T) soils were often mapped in combination with Wauseon till phase (WU.T), Gobles loamy phase (GO.L), Gobles coarse phase (GO.C), Kelvin (KE), and Kelvin coarse phase (KE.C) soils.

Land Use/Management Comments

Berrien and Berrien till phase soils are rated Class 1 for common field crops when topography is not a limitation. They are suitable for a wide range of special crops, and their suitability for many special crops increases if they are tile drained, or if supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Berrien soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and maintaining high crop residue levels will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Beverly Soils (BV)

Landform and Topography

Beverly soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur on mid to upper slope positions in landscapes which have nearly level or very gently undulating topography. Slopes range from 2 to 9%, with slopes of 2 to 5% most common.

Soil Moisture Characteristics

Beverly soils are imperfectly drained. They are moderately to slowly permeable. Saturated conditions occur in the upper horizons for extended periods of time each year. The saturation period is prolonged where compaction has occurred. Beverly soils have medium to high water holding capacities, and moderate to rapid surface runoff.

General Soil Characteristics

Beverly soil materials contain 27% or more clay. The Ap, Btgj, and calcareous Ckgj horizons which commonly occur usually have clay loam, silty clay loam or silty clay textures.

Distinct to prominent, dark yellowish brown to yellowish red mottles occur within the profile. Soil reaction ranges from slightly acid to neutral in the upper Ap and Btgj horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally layers of medium or coarse textured materials occur within the profile. The layers are variable in thickness and usually have silt loam, loam, or fine sandy loam textures. Beverly soils were mapped where thin caps of medium or coarse textured materials overly the fine to very fine textured materials. Beverly coarse phase (BV.C) soils were mapped where the upper materials consisted of 15 to 40 cm of coarse textured materials. Beverly loamy phase (BV.L) soils were mapped where the upper materials consisted of 15 to 40 cm of medium textured materials.

Beverly soils were commonly mapped in combination with Beverly loamy phase (BV.L) and Toledo (TO) soils. Beverly loamy phase (BV.L) soils were often mapped in combination with Tavistock (TA) and Toledo loamy phase (TO.L) soils.

Land Use/Management Comments

Beverly soils are rated Class 2D for common field crops when topography is not a limitation. They are used extensively for growing corn and winter wheat. Beverly soils are suitable for growing a fairly wide range of special crops. They are particularly well suited for special field crops such as soybeans and white beans. Their suitability increases for many special crops if they are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Beverly soils are susceptible to compaction, and care must be taken not to use heavy machinery when they are too wet. A crop rotation which includes a forage crop will aid in maintaining soil structure. Beverly and Beverly loamy phase soils are also susceptible to water erosion due to the erodible nature of their surface materials. Planting cover crops and maintaining high crop residue levels will help to reduce the risk of erosion by water.

Conservation tillage practices should be considered for Beverly coarse phase and Beverly loamy phase soils. Conventional tillage practices, however, may be better on Beverly soils to improve structure and enhance drainage.

Bookton Soils (BO)

Landform and Topography

Bookton soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by fine to very fine textured lacustrine materials. They mainly occur on upper and crest slope positions in landscapes which have gently undulating topography. Slopes generally range from 5 to 9%.

Soil Moisture Characteristics

Bookton soils are well drained. The upper coarse textured materials are rapidly permeable and have low water holding capacities. As a result, these soils tend to be droughty. The lower fine textured materials are moderately to slowly permeable. Surface runoff is slow on nearly level to gentle slopes, but increases on steeper slopes.

General Soil Characteristics

The Ap horizons usually have fine sandy loam or loamy fine sand textures. The Bm horizons usually have fine sandy loam, loamy fine sand, fine sand or sand textures. Clay enriched IIBt horizons often occur at the contact between the upper sandy materials and the lower clayey materials. The IICk horizons are calcareous and usually have silty clay loam or silty clay textures.

Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the IICk horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

The aerial extent of Bookton soils in the County is limited. Occasionally Bookton soils have gravelly layers which occur above the

underlying fine textured materials. Bookton till phase (BO.T) soils were mapped where 40 to 100 cm of coarse textured lacustrine materials were underlain by fine to very fine textured Port Stanley till.

Land Use/Management Comments

Bookton and Bookton till phase soils are rated Class 2M for common field crops when topography is not a limitation. Due to moisture deficit conditions which occur in these soils, management practices should be considered which maintain organic matter levels and improve water holding abilities. When the surface slopes are not too steep, Bookton and Bookton till phase soils are highly suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Bookton and Bookton till phase soils are susceptible to wind erosion. Planting cover crops and establishing windbreaks will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Brady Soils (BY)

Landform and Topography

Brady soils have developed on blankets of coarse textured lacustrine materials. They usually occur on mid to crest slope positions in landscapes which have nearly level or very gently undulating topography. Slopes generally range from 2 to 5%.

Soil Moisture Characteristics

Brady soils are imperfectly drained because of water table levels that rise into subsoil horizons mainly during the winter and early spring. They are usually rapidly permeable and have low water holding capacities. Brady soils have slow surface runoff.

General Soil Characteristics

The Ap horizons usually have sandy loam or loamy sand textures. The Bm and Bmgj horizons are more variable in texture, and commonly have sandy loam, loamy sand, fine sand, or sand textures. Clay enriched Btgj horizons, which frequently have fine sandy loam or loamy fine sand texures, usually occur above the calcareous Ckgj horizons. The Ckgj horizons usually have sand, loamy sand, or fine sand textures.

Distinct to prominent, yellowish brown to strong brown mottles occur within the profile. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Brady soils frequently have Btgj horizons which are weakly developed or discontinuous. Occasionally they do not have Btgj horizons, or the Btgj horizons occur at depths greater than 100 cm from the surface. Brady soils were most often mapped in combination with Fox (FX) and Granby (GY) soils.

Land Use/Management Comments

Brady soils are rated Class 2F or 2FT for common field crops. Due to fertility limitations, management practices should be carried out which maintain organic matter levels. Brady soils are suitable for a range of special crops, especially field crops such as white beans and spring canola. If they are tile drained, and if supplemental irrigation is carried out, the suitability of Brady soils increases for many special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Brady soils are susceptible to wind erosion. A crop rotation which includes a forage crop, planting cover crops, establishing windbreaks, and maintaining high crop residue levels will aid in reducing erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Brant Soils (BT)

Landform and Topography

Brant soils have developed on blankets of medium textured lacustrine materials. They usually occur on upper and crest slope positions in landscapes which have very gently undulating to hummocky topography. Slopes range from 2 to 15%.

Soil Moisture Characteristics

Brant soils are well drained. They are usually moderately permeable, but the permeability decreases in horizons that are compacted or have high clay contents. The water holding capacities of Brant soils are high if permeability is not restricted. Surface runoff ranges from slow to rapid, depending on the steepness of the surface slope.

General Soil Characteristics

The Ap, Bm, Bt, and Ck horizons which occur usually have silt loam, loam or very fine sandy loam textures. The calcareous Ck horizons often occur close to the surface, with the mean depth being 51 cm. The clay enriched Bt horizons, which occur above the calcareous Ck horizons, are usually well developed and easy to identify due to their reddish brown to brown colours.

Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ck horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Layers of clayey materials frequently occur within the profile. The layers are variable in thickness and usually have silty clay loam or silty clay textures. Occasionally, layers of silt or sandy materials occur. When they occur, the sandy materials frequently have sandy loam or fine sandy loam textures. Due to surface erosion which has taken place, the calcareous Ck horizons occur at the surface in portions of some landscapes where Brant soils were mapped. Brant soils were most often mapped in combination with Tuscola (TU) and Tavistock till phase (TA.T) soils.

Land Use/Management Comments

When topography is not a limitation, Brant soils are rated Class 1 for common field crops. They are highly suitable for most special crops when the surface slopes are not too steep. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Due to the highly erodible nature of their surface materials, Brant soils are susceptible to water erosion. Management practices which reduce the risk of erosion should therefore be carried out on these soils. A crop rotation which includes a forage crop, planting cover crops, and maintaining high crop residue levels will aid in this regard. Conservation tillage practices should be considered for these soils.

Brantford Soils (BF)

Landform and Topography

Brantford soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur on upper and crest slope positions in landscapes which have undulating or hummocky topography. Slopes generally range from 5 to 15%.

Soil Moisture Characteristics

Brantford soils are moderately well drained, and moderately to slowly permeable. Water holding capacities are high if there are no compacted layers which restrict water movement downward. Surface runoff is usually rapid due to the steepness of the surface slopes.

General Soil Characteristics

Brantford soil materials contain 27% or more clay. The Ap horizons usually have silty clay loam, clay loam, or silty clay textures. The subsoil B and Ck horizons tend to have higher clay contents and silty clay, clay, or silty clay loam textures. Clay enriched Bt horizons usually occur above the calcareous Ck horizons.

Distinct mottles occur at a depth of 50 to 100 cm. Soil reaction ranges from medium acid to neutral in the Ap horizons, to mildly alkaline in the Ck horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally layers of medium or coarse textured materials occur within the profile. The layers are variable in thickness and usually have silt loam, loam, or fine sandy loam textures.

Brantford soils were mapped where thin caps of medium or coarse textured materials overly the fine to very fine textured materials. Brantford coarse phase (BF.C) soils were mapped where 15 to 40 cm of coarse textured materials were present at the surface. The coarse textured materials commonly have fine sandy loam or sandy loam textures. Brantford loamy phase (BF.L) soils were mapped where 15 to 40 cm of medium textured materials were present at the surface. The medium textured materials commonly have silt loam or loam textures. Severely eroded Brantford soils occupy significant portions of some landscapes.

Brantford soils were most often mapped in combination with Beverly (BV) soils. Brantford coarse phase (BF.C) soils were most often mapped in combination with Beverly coarse phase (BV.C) soils, and Brantford loamy phase (BF.L) soils were most often mapped in combination with Beverly loamy phase (BV.L) soils.

Land Use/Management Comments

If topography is not a limitation, Brantford soils are rated Class 2D for common field crops. When the surface slopes are not too steep, they are suitable for a fairly wide range of special crops including most horticultural crops. Suitability

ratings for selected special crops are given in Tables 6, 7, and 8.

Brantford soils are susceptible to compaction, and care must be taken not to use heavy machinery when they are too wet. A crop rotation which includes a forage crop will aid in maintaining soil structure. Brantford and Brantford loamy phase soils are also susceptible to water erosion. Planting cover crops and maintaining high crop residue levels will aid in reducing the risk of erosion by water. Brantford soils, particularly those with medium or coarse textured surface materials, are suitable for a number of conservation tillage practices.

Brisbane Soils (BI)

Landform and Topography

Brisbane soils have developed on 15 to 40 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured fluvial outwash materials. Brisbane soils most often occur on mid and lower slope positions in landscapes which have nearly level or very gently undulating topography. Slopes range from 1 to 5%.

Soil Moisture Characteristics

Brisbane soils are imperfectly drained and rapidly permeable. The imperfect drainage conditions associated with these soils are due to high water table levels which occur mainly in the winter and early spring. They have low water holding capacities and slow surface runoff.

General Soil Characteristics

The Ap and Bm or Bmgj horizons usually occur in the upper coarse textured lacustrine materials and have sandy loam or loamy sand textures. Clay enriched Btgj or IIBtgj horizons commonly occur above the calcareous IICkgj horizons. The clay enriched B horizons usually have sandy loam textures, while the IICkgj horizons usually have gravelly coarse sand or gravelly sand textures.

Distinct to prominent, strong brown to dark yellowish brown mottles occur within the profile. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the underlying IICkgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Brisbane soils mainly occur in areas which are near or adjacent to the Thames River and large creeks which run through the County. Frequently the upper lacustrine materials contain gravel which may range as high as 20% in some soils. Occasionally the upper materials have loam textures, or the underlying fluvial materials consist of alternating layers of sandy and gravelly materials. Burford (BU) or Camilla (CM) may occur in landscapes where Brisbane soils were mapped.

Land Use/Management Comments

Brisbane soils are rated Class 2F for common field crops when topography is not a limitation. They are suitable for a fairly wide range of special crops, especially field crops such as white beans, spring canola, and winter rapeseed. Their suitability increases for many special crops if they are tile drained or supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Brisbane soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels, will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Burford Soils (BU)

Landform and Topography

Burford soils have developed on 15 to 40 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured fluvial outwash materials. These soils usually occur on upper and crest slope positions in landscapes where the topography is either inclined or undulating. Slopes generally range from 2 to 5%.

Soil Moisture Characteristics

Burford soils are rapidly drained and rapidly permeable. They have low water holding capacities and slow surface runoff, except on slopes greater than 5% where runoff may be moderate.

General Soil Characteristics

The Ap and Bm horizons usually occur in the upper coarse textured lacustrine materials and have sandy loam or loamy sand textures. Clay enriched Bt or IIBt horizons commonly occur

above the calcareous Ck or IICk horizons. The clay enriched B horizons usually have sandy loam textures, while the Ck or IICk horizons usually have gravelly coarse sand or gravelly sand textures.

Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICk horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Burford soils mainly occur in areas which are near or adjacent to the Thames River and large creeks which run through the County. Frequently the upper materials contin gravel which may range as high as 20% in some soils. Occasionally the upper lacustrine materials have loam textures, or the underlying fluvial materials consist of alternating layers of sandy and gravelly materials. Brisbane (BI) or Caledon (CA) soils may occur in landscapes where Burford soils were mapped.

Land Use/Management Comments

Burford soils are rated Class 2FM for common field crops when topography is not a limitation. They tend to be droughty because of their low water holding capacities. Burford soils are suitable for a wide range of special crops if the surface slopes are not too steep. With supplemental irrigation, they are highly suitable for many fruit and vegetable crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Burford soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels, will aid in reducing the risk of wind erosion. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Caledon Soils (CA)

Landform and Topography

Caledon soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured fluvial outwash materials. They usually occur on upper to crest slope positions, especially in landscapes where imperfectly or poorly drained soils also occur. The topography associated with Caledon soils ranges from nearly level to very gently sloping or undulating. Slopes generally range from 1 to 5%.

Soil Moisture Characteristics

Caledon soils are well drained and rapidly permeable. They have low water holding capacities and slow surface runoff, except on slopes greater than 5% where runoff may be moderate.

General Soil Characteristics

The Ap horizons usually have sandy loam or loamy sand textures. The textures of the sandy Bm horizons are usually loamy sand or sand. Clay enriched Bt or IIBt horizons, which usually have sandy loam textures, commonly occur above the calcareous IICk horizons. The IICk horizons frequently have gravelly coarse sand or gravelly sand textures.

Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICk horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Caledon soils mainly occur in areas which are near or adjacent to the Thames River and large creeks which run through the County. Frequently the upper sandy materials have been wind modified. Occasionally Caledon soils have rapid drainage when the Bt or IIBt horizons are weakly developed and the upper materials also contain significant amounts of gravel. The underlying IICk materials of some Caledon soils consist of alternating layers of sandy and gravelly materials.

Fine phase Caledon soils (CA.F) were mapped where 15 to 40 cm of clay loam or silty clay loam textured material overlies the sandy and gravelly materials. Caledon (CA) soils were most often mapped in combination with Camilla (CM) soils. Fox (FX) and Brady (BY) soils may occur in landscapes where Caledon soils were mapped.

Land Use/Management Comments

Caledon soils are rated Class 2FM for common field crops when topography is not a limitation. They have fertility limitations and also tend to be droughty. With supplemental irrigation, they are highly suitable for a wide range of special crops if the surface slopes are not too steep. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Caledon soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels, will aid in reducing the risk of erosion by wind.

Conservation tillage practices, particularly no-till practices, should be be considered for these soils.

Camilla Soils (CM)

Landform and Topography

Camilla soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured fluvial outwash materials. They usually occur in landscapes which have nearly level or very gently undulating topography. Slopes generally range from 1 to 5%.

Soil Moisture Characteristics

Camilla soils are imperfectly drained and rapidly permeable. The imperfect drainage conditions associated with these soils are due to high water table levels which occur mainly in the winter and early spring. Camilla soils have low water holding capacities and slow surface runoff.

General Soil Characteristics

The Ap horizons usually have sandy loam or loamy sand textures. The textures of the Bmgj horizons are usually loamy sand or sand. Clay enriched Btgj or IIBtgj horizons, which usually have sandy loam textures, commonly occur above the calcareous IICkgj horizons. The IICkgj horizons commonly have gravelly coarse sand or gravelly sand textures.

Distinct to prominent, strong brown to dark yellowish brown mottles occur within the profile. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICkgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Camilla soils mainly occur in areas which are near or adjacent to the Thames River and large creeks which run through the County. Frequently the upper sandy materials are wind modified and contain gravel. Occasionally the underlying IICkgj materials consist of alternating layers of sandy and gravelly material. Loamy phase Camilla soils (CM.L) were mapped where 15 to 40 cm of silt loam or loam textured material overlies the gravelly materials. Most often Camilla soils were mapped in combination with Caledon (CA) soils.

Land Use/Management Comments

Camilla soils are rated Class 2F for common field crops when topography is not a limitation. They are suitable for a wide range of special crops, but generally require tile drainage or supplemental irrigation in order to reach their highest potential for those crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Camilla soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels, will aid in reducing the risk of erosion by wind. Camilla loamy phase (CM.L) soils are susceptible to water erosion due to the highly erodible nature of their surface materials. Planting cover crops and maintaining high crop residue levels would benefit those soils. Conservation tillage practices, particularly no-till practices, should be considered for Camilla and Camilla loamy phase soils.

Churchville Soils (CH)

Landform and Topography

Churchville soils have developed on blankets of medium to coarse textured lacustrine materials. They have nearly level topography and occur in depressional positions in the landscape. Slopes are less than 2%.

Soil Moisture Characteristics

Churchville soils are very poorly drained and moderately permeable. The water table occurs at or near the surface for long periods each year. They have moderate water holding capacities and surface runoff is slow.

General Soil Characteristics

The Ah horizons usually have very fine sandy loam, fine sandy loam, or loamy fine sand textures. The Bg and calcareous Ckg horizons are usually coarser textured and have fine sand or loamy fine sand textures.

Bluish gray or gray gley colours are dominant within the profile. Soil reaction ranges from neutral in the surface horizons to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

The aerial extent of Churchville soils in the County is limited. Churchville peaty phase (CH.P) soils were mapped where 15 to 40 cm of organic material occurred at the surface. The extent of Churchville peaty phase soils in the County is also limited.

Land Use/Management Comments

Churchville soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3W. If they are tile drained, Churchville soils are suitable for growing a fairly wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Colwood Soils (CW)

Landform and Topography

Colwood soils have developed on blankets of medium textured lacustrine materials. They occur mainly on lower slopes and in depressions in landscapes which have nearly level topography or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Colwood soils are poorly drained. They are usually moderately permeable, but the permeability decreases in horizons that are clayey or compacted. Because of high water table levels, they tend to remain saturated for prolonged periods of time. The water holding capacities of Colwood soils are high if permeability is not restricted. Surface runoff is slow.

General Soil Characteristics

The Ap, Bg, and Ckg horizons which occur usually have silt loam, loam, or very fine sandy loam textures. The Ckg horizons are calcareous.

Gray gley colours are dominant within the profile, and prominent yellowish brown to strong brown mottles are also present. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Colwood soils frequently contain layers of fine or very fine textured materials. The layers are variable in thickness and usually have silty clay loam or silty clay textures. Occasionally, they also contain layers of coarse textured materials which usually have fine sandy loam textures.

Colwood coarse phase (CW.C) soils were mapped where 15 to 40 cm of coarse textured materials were present at the surface. Colwood peaty phase (CW.P) soils were mapped where 15 to 40 cm of organic materials were present at the surface. Most often Colwood (CW) soils were mapped in combination with Tuscola (TU) soils.

Land Use/Management Comments

Colwood soils require tile drainage in order to reach their potential capability for common field crop production. Colwood and Colwood coarse phase soils are rated Class 2W, and Colwood peaty phase soils are rated Class 4W. If they are tile drained, Colwood and Colwood coarse phase soils are suitable for growing a wide range of special crops. Colwood peaty phase soils are suitable for most vegetable crops if they are tile drained, but they have limited suitability for most special field crops as well as fruit and nut crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Colwood soils are susceptible to compaction and care should be taken not to use heavy machinery when they are too wet. Although conventional tillage practices may be best to improve soil structure and enhance drainage, Colwood soils are suitable for a number of conservation tillage practices.

Ekfrid Soils (EK)

Landform and Topography

Ekfrid soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur on mid to crest slope positions in landscapes which have nearly level or very gently undulating topography. Occasionally the surface slopes are steeper and the topography is gently undulating. Slopes range from 1 to 9%, with slopes of 1 to 5% most common.

Soil Moisture Characteristics

Ekfrid soils are imperfectly drained and slowly permeable. They have high seasonal water table levels, and saturated conditions tend to occur in the upper profile for prolonged periods of time. Ekfrid soils have medium to high water holding capacities, but can be droughty during dry periods because of water retention by the clayey soil materials. Surface runoff is moderate to rapid, depending on the steepness of the surface slope. Soil cracks which may develop during the summer will increase permeability and reduce surface runoff.

General Soil Characteristics

Ekfrid soil materials usually contain at least 40% clay. They also contain one or more layers within the profile which contain more than 60%

clay. The Ap horizons commonly have silty clay or clay textures. The Btgj and calcareous Ckgj horizons frequently have silty clay, clay, or heavy clay textures.

Distinct to prominent, dark yellowish brown to yellowish brown mottles occur within the profile. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Ekfrid soils occur mainly in the northern portions of Dunwich and Aldborough Townships. They are associated with the lacustrine clay plain which occurs north-west of the Tillsonburg Moraine, and extends into Middlesex County. The thickness of the heavy clay textured layers ranges from approximately 10 cm to more than 85 cm.

Ekfrid soils were mapped where thin caps of medium or coarse textured materials overly the fine to very fine textured materials. Ekfrid loamy phase (EK.L) soils were mapped where 15 to 40 cm of loamy materials were present at the surface. Ekfrid coarse phase (EK.C) soils were mapped where 15 to 40 cm of sandy materials were present at the surface. Ekfrid soils were most often mapped in combination with Strathburn (ST) soils.

Land Use/Management Comments

Ekfrid soils are rated Class 3D for common field crops. They are capable of producing acceptable yields of crops such as corn or wheat, but good management practices are necessary. Ekfrid soils are not suitable for growing some vegetable and special field crops. They are, however, suitable for growing field crops such as soybeans, white beans, and spring canola. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Ekfrid soils are susceptible to compaction, and care should be taken not to use heavy machinery when they are too wet. A crop rotation which includes a forage crop will aid in maintaining soil structure. Conventional fall tillage should be carried out on these soils to improve surface structure and enhance drainage.

Fox Soils (FX)

Landform and Topography

Fox soils have developed on blankets of coarse textured lacustrine materials which frequently have been wind modified. They occur mainly in landscapes which have nearly level or very gently undulating topography. Occasionally they occur in duned landscapes which have gently undulating topography. When they occur in the same landscape with imperfectly or poorly drained soils, they usually occur on upper and crest slope positions. Slopes generally range from 1 to 9%, but slopes of 5% or less are most common.

Soil Moisture Characteristics

Fox soils are rapidly drained and rapidly permeable. They have low water holding capacities which frequently results in droughtiness conditions. Surface runoff is slow, but increases on steeper slopes if the soils are saturated.

General Soil Characteristics

The Ap horizons usually have sandy loam or loamy sand textures. The Bm horizons tend to have higher sand contents, and sand or fine sand textures. Clay enriched Bt horizons, which usually have fine sandy loam or sandy loam textures, commonly occur above the calcareous Ck horizons. Texture of the Ck horizons is usually loamy sand, sand, or fine sand.

Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ck horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Fox soil materials generally have high medium or fine sand contents. Those materials which have high fine sand contents usually occur in the upper horizons and tend to be wind modified. The Bt horizons occurring in Fox soils are wavy and variable in thickness and clay content. As a result, the Bt horizons in some Fox soils may be discontinuous, completely absent, or occur at a depth greater than 100 cm from the surface. In other Fox soils the Bt horizons may be so weakly developed that the increase in clay content is not easily recognizable. Fox soils were most often mapped in combination with Brady (BY), Berrien (BE), and Berrien till phase (BE.T) soils.

Land Use/Management Comments

Fox soils are rated Class 2FM for common field crops when topography is not a limitation. They are suitable for a wide range of special crops when the surface slopes are not too steep. Their suitability increases for many special crops if supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Fox soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels, will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Frome Soils (FR)

Landform and Topography

Frome soils have developed on blankets of coarse textured lacustrine materials. They occur in depressional positions in landscapes which have nearly level topography. Slopes are less than 2%.

Soil Moisture Characteristics

Frome soils are very poorly drained and rapidly permeable. Saturated conditions occur at or near the surface for long periods each year due to high water table levels. They have low water holding capacities and surface runoff is slow.

General Soil Characteristics

The Ap horizons usually have sandy loam or loamy sand textures. The Bg and calcareous Ckg horizons tend to have higher sand contents and sand or loamy sand textures.

Bluish gray to gray gley colours are dominant within the profile. Soil reaction ranges from neutral in the surface Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Frome peaty phase (FR.P) soils were mapped where 15 to 40 cm of organic materials overly the sandy materials. The aerial extent of Frome and Frome peaty phase soils in the County is limited.

Land Use/Management Comments

Frome and Frome peaty phase soils require tile drainage in order to reach their potential capability for common field crop production. Frome soils are rated Class 3W, and Frome peaty phase soils are rated Class 4W. Due to the extreme wetness conditions associated with these soils, they are either not suitable or they have limited suitability for special crops. Suitability increases for some special crops, however, if they are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Gobles Soils (GO)

Landform and Topography

Gobles soils have developed on fine to very fine textured morainal materials which are commonly referred to as Port Stanley till. They occur on ground and terminal moraines which commonly have nearly level to gently undulating topography. Occasionally they also occur in landscapes which are hummocky or rolling. Slopes generally range from 1 to 9%, but slopes of 6% or less are most common.

Soil Moisture Characteristics

Gobles soils are imperfectly drained and moderately to slowly permeable. Saturated conditions occur in the upper horizons for brief periods each year. Gobles soils have high water holding capacities, and moderate to rapid surface runoff.

General Soil Characteristics

Gobles soil materials contain 27% or more clay. The Ap horizons frequently have silty clay loam or clay loam textures, but silty clay or clay textures are also common. The Bmgj, Btgj, and calcareous Ckgj horizons which commonly occur usually have silty clay loam or silty clay textures. Occasionally the texture of the subsoil horizons may be clay loam or clay.

Distinct to prominent, yellowish brown to reddish brown mottles occur within the profile. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Localized areas of severely eroded Gobles soils occur in some landscapes, primarily those which have surface slopes that are greater than 5%. Occasionally surface stones occur which may affect tillage or harvesting operations.

Gobles soils frequently occur where thin surface caps of medium or coarse textured materials overly the morainal materials. Gobles loamy phase (GO.L) soils were mapped where 15 to 40 cm of silt loam or loam textured materials occurred at the surface. Gobles coarse phase (GO.C) soils were mapped where 15 to 40 cm of fine sandy loam or sandy loam textured materials occurred at the surface. Gobles washed phase (GO.W) soils were mapped where 40 to 100 cm of silt loam or loam textured, lacustrine modified till materials overly clayey till materials.

Gobles soils were frequently mapped in combination with Kelvin (KE) soils.

Land Use/Management Comments

Gobles soils, including those with loamy or coarse phases, are rated Class 2D for common field crops when topography is not a limitation. Gobles washed phase soils are rated Class 1. Gobles soils in general are suitable for a fairly wide range of special crops if the surface slopes are not too steep. Their suitability increases for many special crops if they are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Gobles soils, especially those with fine textured surface materials, are susceptible to compaction. Care should be taken, therefore, not to use heavy machinery when they are too wet. A crop rotation which includes a forage crop will aid in maintaining soil structure. Gobles soils with fine or medium textured surface materials are also susceptible to water erosion. Planting cover crops and maintaining high crop residue levels will aid in reducing the risk of erosion by water.

Gobles soils with medium or coarse textured surface materials should be considered for conservation tillage practices. Conventional tillage practices, however, are likely best on fine textured Gobles soils to improve structure and enhance drainage.

Granby Soils (GY)

Landform and Topography

Granby soils have developed on blankets of coarse textured lacustrine materials. They usually occur in low-lying or depressional positions in landscapes which have nearly level topography. Slopes are less than 2%.

Soil Moisture Characteristics

Granby soils are poorly drained due to high water table levels which occur in the subsoil horizons for prolonged periods of time each year. They are usually rapidly permeable and have low water holding capacities. Surface runoff is slow.

General Soil Characteristics

The Ap horizons usually have sandy loam or loamy sand textures. The subsoil Bg and calcareous Ckg horizons tend to have higher sand contents and sand or loamy sand textures.

Gray gley colours are dominant within the profile, and prominent dark yellowish brown to strong brown mottles also are present. Soil reaction ranges from neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Granby soils were most often mapped in combination with Brady (BY) soils in landscapes where the blankets of sandy materials tend to be considerably deeper than 100 cm.

Land Use/Management Comments

Granby soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3W. Due mainly to wetness limitations, they have limited suitability for most special crops if they are not tile drained. Their suitability increases for a wide range of special crops, however, if they are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Compaction can occur in Granby soils if they are too wet. Care should be taken, therefore, when using heavy machinery. Conservation tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Highgate Soils (HI)

Landform and Topography

Highgate soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured lacustrine beach materials. The upper sandy materials are often wind modified. They frequently occur on mid and lower slope positions of beach ridges which are located near the flanks of terminal moraines. Slopes are usually less than 5%.

Soil Moisture Characteristics

Highgate soils are imperfectly drained and rapidly permeable. The imperfect drainage conditions associated with these soils are due to high water table levels which occur mainly in the winter and early spring. They have low water holding capacities and slow surface runoff.

General Soil Characteristics

The Ap, Bm, and Bmgj horizons which commonly occur usually have sandy loam, fine sandy loam, or loamy fine sand textures. Clay enriched Btgj horizons, which usually have sandy loam or fine sandy loam textures, frequently occur above the calcareous IICkgj horizons. The IICkgj

horizons usually have gravelly coarse sandy loam, gravelly loamy coarse sand, or gravelly coarse sand textures.

Distinct to prominent, strong brown to dark yellowish brown mottles occur within the profile. Soil reaction ranges from medium acid to neutral in the Ap horizons, to mildly alkaline in the IICkgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally Highgate soils contain alternating layers of sand and gravel materials which range from 10 to 30 cm in thickness. In transition areas between the beach ridges and till moraines, shallow Highgate soils may occur where less than 100 cm of sand and gravel materials overly the clayey till materials. Highgate soils were most often mapped in combination with Kintyre (KT) soils.

Land Use/Management Comments

Highgate soils are rated Class 2F for common field crops when topography is not a limitation. If they are tile drained, or if supplemental irrigation is carried out, they are highly suitable for a fairly wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Highgate soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Kelvin Soils (KE)

Landform and Topography

Kelvin soils have developed on fine to very fine textured morainal materials which are commonly referred to as Port Stanley till. They occur on ground or terminal moraines which most often have nearly level or very gently undulating opography. They occur less frequently in low-lying or depressional areas in landscapes which are hummocky or rolling. Slopes are usually less than 2%.

Soil Moisture Characteristics

Kelvin soils are poorly drained and moderately to slowly permeable. Saturated conditions occur in the upper horizons for prolonged periods of time each year. Kelvin soils have high water holding capacities and slow surface runoff.

General Soil Characteristics

Kelvin soil materials contain 27% or more clay. The Ap horizons most often have silty clay loam or clay loam textures, but silty clay and clay textures are also common. The Bg and calcareous Ckg horizons usually have silty clay loam or silty clay textures. Occasionally the texture of the subsoil horizons may be clay loam or clay.

Grayish brown gley colours are dominant within the profile, and prominent dark yellowish brown to dark brown mottles are also present. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Kelvin soils frequently occur where thin surface caps of medium or coarse textured materials overly the finer textured till material. Kelvin loamy phase (KE.L) soils were mapped where 15 to 40 cm of silt loam or loam textured materials were present at the surface. Kelvin coarse phase (KE.C) soils were mapped where 15 to 40 cm of fine sandy loam or sandy loam textured materials were present at the surface. Kelvin washed phase (KE.W) soils were mapped where 40 to 100 cm of silt loam or loam textured, lacustrine modified till materials were underlain by clayey till materials.

Kelvin soils were frequently mapped in combination with Gobles (GO) soils. In some landscapes where Kelvin soils were mapped, calcareous materials occur at the surface which were deposited by runoff from surrounding soils.

Land Use/Management Comments

Kelvin soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3W. Occasionally surface stones may occur which are large enough to affect tillage or harvesting operations. Due to structure and wetness limitations, Kelvin soils with fine to very fine textured surface materials have limited suitability for special crops. Kevin loamy phase and Kelvin coarse phase soils, however, have higher suitability for a fairly wide range of special crops. Suitability increases for many special crops if these soils are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Kelvin soils are susceptible to compaction, and care should be taken not to use heavy machinery when they are too wet. Conventional fall tillage may be best on Kelvin and Kelvin loamy phase soils to improve soil structure and enhance drainage. A crop rotation which includes a forage crop will also aid in improving soil structure. Conservation tillage practices should be considered for Kelvin coarse phase soils.

Kintyre Soils (KT)

Landform and Topography

Kintyre soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured lacustrine beach materials. The upper sandy materials are often wind modified. They usually occur on upper and crest slope positions of beach ridges which are located near the flanks of terminal moraines. Slopes generally range from 2 to 9%.

Soil Moisture Characteristics

Kintyre soils are rapidly drained and rapidly permeable. They have low water holding capacities and slow surface runoff, but surface runoff increases on slopes which are greater than 5%.

General Soil Characteristics

The Ap and Bm horizons usually have sandy loam, fine sandy loam, or loamy fine sand textures. Clay enriched Bt horizons, which usually have sandy loam or fine sandy loam textures, commonly occur above the calcareous IICk horizons. The IICk horizons are coarser textured and usually have gravelly coarse sand or gravelly loamy coarse sand textures.

Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the IICk horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally the IICk materials consist of alternating layers of sand and gravel. In transition areas between the beach ridges and till moraines, shallow Kintyre soils may occur where less than 100 cm of sand and gravel materials overly the clayey till materials. Kintyre soils were most often mapped in combination with Highgate (HI), Gobles (GO), and Gobles washed phase (GO.W) soils.

Land Use/Management Comments

Kintyre soils are rated Class 2FM for common field crops when topography is not a limitation. They are highly suitable for many special crops if the surface slopes are not too steep, and supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Kintyre soils are susceptible to wind erosion. Management practices which maintain organic matter levels, planting cover crops, and establishing windbreaks, will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Maplewood Soils (MA)

Landform and Topography

Maplewood soils have developed on 40 to 100 cm thick veneers of medium textured lacustrine materials which are underlain by fine to very fine textured lacustrine materials. They usually occur on lower slopes or in depressions in landscapes which have nearly level or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Maplewood soils are poorly drained and usually slowly permeable. High water table levels often are present in these soils in the winter and early spring, and at times may also be present during the growing season. Maplewood soils have high water holding capacities and moderate to slow surface runoff.

General Soil Characteristics

The Ap and Bg horizons, which usually have silt loam or loam textures, generally occur in the upper medium textured materials. The calcareous IICkg horizons occur in the lower fine textured materials and usually have silty clay loam or silty clay textures.

Grayish gley colours are dominant in the profile, and prominent strong brown to dark yellowish brown mottles are also present. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICkg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Maplewood till phase (MA.T) soils were mapped where 40 to 100 cm of medium textured lacustrine materials were underlain by fine to very

fine textured morainal materials consisting of Port Stanley till. The till materials of these soils differ from the usual fine textured lacustrine materials by having coarse fragments within the profile and a tendency to have better structure.

Maplewood and Maplewood till phase soils were most often mapped in combination with Tavistock (TA) and Tavistock till phase (TA.T) soils, respectively.

Land Use/Management Comments

Maplewood and Maplewood till phase soils both require tile drainage in order to reach their potential capabilities for common field crop production. They are rated Class 2W. Due mainly to their wetness limitations, they have limited suitability for most special crops. If they are tile drained, however, their suitability increases for many special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Maplewood and Maplewood till phase soils are susceptible to compaction. Care should be taken, therefore, not to use heavy machinery on these soils when they are too wet. Conventional tillage practices may be best on these soils to improve soil structure and enhance drainage. Consideration should be given, however, to minimum till and no-till conservation tillage practices for fall crops.

Melbourne Soils (ME)

Landform and Topography

Melbourne soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur in landscapes which have undulating to hummocky topography. Slopes generally range from 10 to 15%.

Soil Moisture Characteristics

Melbourne soils are moderately well drained and slowly permeable. Saturated conditions may occur in the upper horizons for short periods of time each year. Melbourne soils have medium to high water holding capacities, but may be droughty during dry periods because of strong water retention by the clayey materials. Surface runoff is rapid. Soil cracks which may develop during the summer will increase permeability and reduce surface runoff.

General Soil Characteristics

Melbourne soil materials usually contain at least 40% clay. They also contain one or more layers within the profile which contain more than 60% clay. The Ap horizons frequently have silty clay or clay textures. Textures of the Bt and calcareous Ckgj horizons are usually silty clay, clay, or heavy clay.

Distinct mottles occur at a depth of 50 to 100 cm from the surface. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

The aerial extent of Melbourne soils in the County is limited. They occur mainly in Aldborough Township on the lacustrine clay plain located north-west of the St. Thomas moraine. Melbourne soils tend to occur only in landscapes which have steep slopes and rapid surface runoff. They were mapped in combination with Ekfrid (EK) soils.

Land Use/Management Comments

Melbourne soils are rated Class 3D for common field crops when topography is not a limitation. They are capable of producing acceptable yields of common field crops, but good management practices are necessary. When the surface slopes are not too steep, they are suitable for a fairly wide range of special crops. They are highly suitable for special field crops such as soybeans and white beans. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Conventional tillage practices may be best on these soils to improve structure and enhance drainage. A crop rotation which includes a forage crop will also aid in improving soil structure. Consideration should be given, however, to no-till conservation tillage practices for fall crops.

Middlemarch Soils (MI)

Landform and Topography

Middlemarch soils have developed on coarse textured ice-contact stratified drift materials. The coarse textured drift materials usually contain layers of gravelly materials. They commonly are found on mid to lower slope positions on isolated sandy ridges or knolls which occur in clayey till morainal landscapes. Slopes generally range from 2 to 9%.

Soil Moisture Characteristics

Middlemarch soils are imperfectly drained and rapidly permeable. High water table levels occur near the surface, mainly during the winter and early spring. They have low water holding capacities and slow to moderate surface runoff.

General Soil Characteristics

The Ap and Bm horizons usually have loamy fine sand, loamy sand, or fine sandy loam textures. Clay enriched Btgj horizons, which usually have fine sandy loam or loamy fine sand textures, usually occur above the calcareous IICkgj horizons. The underlying calcareous materials usually consist of alternating layers of sandy and gravelly materials. The sandy layers commonly have loamy fine sand, fine sand, or sand textures. The gravelly layers frequently have gravelly loamy fine sand, gravelly fine sand, or gravelly sand textures.

Distinct to prominent, strong brown to dark yellowish brown mottles occur within the profile. Soil reaction ranges from medium acid to neutral in the Ap horizons, to mildly alkaline in the IICkgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Middlemarch soils occur mainly in the northern portion of Southwold Township, and the north-east portion of Dunwich Township. In those areas they are underlain by clayey till materials of the St. Thomas Moraine. The sandy layers which occur in the underlying materials are variable in thickness and usually contain some gravel, which may be greater than 10% in some layers. Occasionally, loamy or clayey layers also are present within the profile.

In transition areas between the sandy ridges and the surrounding till moraines, shallow Middlemarch soils may occasionally occur where the underlying clayey till materials occur within 100 cm of the surface. Most often Middlemarch soils were mapped in combination with Shedden (SH) soils.

Land Use/Management Comments

Middlemarch soils are rated Class 2F for common field crops when topography is not a limitation. They are suitable for a wide range of special crops if their surface slopes are not too steep. Suitability increases for many special crops if they are tile drained, or if supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Middlemarch soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and carrying out management practices which maintain organic matter levels will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Muirkirk Soils (MK)

Landform and Topography

Muirkirk soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by gravelly coarse textured lacustrine beach materials. They usually occur in depressions or on the lower slopes of beach ridges which are located near the flanks of terminal moraines. Slopes are usually less than 2%.

Soil Moisture Characteristics

Muirkirk soils are poorly drained and rapidly permeable. The poor drainage conditions associated with these soils are due to high water table levels which occur near the surface for prolonged periods during the year. They have low water holding capacities and slow surface runoff.

General Soil Characteristics

The Ap and Bg horizons usually have sandy loam, fine sandy loam, or loamy fine sand textures. The underlying IIBg and calcareous IICkg horizons, which occur in the underlying beach materials, usually have gravelly coarse sand and gravelly loamy coarse sand textures.

Gray gley colours are dominant in the profile, and prominent strong brown to dark yellowish brown mottles are also present. Soil reaction ranges from neutral in the Ap horizons to mildly alkaline in the underlying IICkg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

The aerial extent of Muirkirk soils in the County is limited. Frequently the underlying beach materials consist of alternating layers of sand and gravel. Muirkirk soils may occur in landscapes where Kintyre (KT) or Highgate (HI) soils were mapped.

Land Use/Management Comments

Muirkirk soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 2W. If they are tile drained, they are suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Conservation tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Muriel Soils (MU)

Landform and Topography

Muriel soils have developed on blankets of fine to very fine textured morainal materials which are commonly referred to as Port Stanley till. The morainal materials usually have been deposited as ground or terminal moraines. Muriel soils generally occur on upper and crest slope positions in landscapes which most often have very gently or gently undulating topography. Occasionally they also occur in landscapes which have hummocky topography. Slopes range from 2 to 20%, with slopes of 2 to 9% being most common.

Soil Moisture Characteristics

Muriel soils are moderately well drained, and moderately to slowly permeable. Saturated conditions may occur in the surface horizons for brief periods during the growing season. Muriel soils have high water holding capacities and moderate to rapid surface runoff. They can be droughty during dry periods due to water retention by the clayey soil materials.

General Soil Characteristics

Muriel soil materials contain 27% or more clay. The Ap horizons most often have silty clay loam or clay loam textures, but silty clay or clay textures are also quite common. Clay enriched Bt horizons usually occur above the calcareous Ck or Ckgj horizons. The subsoil B horizons and Ck or Ckgj horizons usually have higher clay contents and silty clay loam or silty clay textures. The Ck or Ckgj horizons usually occur at depths which are less than 50 cm from the surface.

Distinct yellowish brown mottles occur at a depth of 50 to 100 cm from the surface. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ck or Ckgj horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Severely eroded Muriel soils occupy significant portions of some landscapes. Muriel soils occur where thin caps of medium textured materials overly the fine to very fine textured till materials. Muriel loamy phase (MU.L) soils were mapped where 15 to 40 cm of loam or silt loam textured surface materials overly till materials. Muriel washed phase (MU.W) soils were mapped where 40 to 100 cm of silt loam or loam textured, lacustrine modified till materials overly the clayey till materials. Occasionally surface stones may occur in these soils which are large enough to affect tillage or harvesting operations. Muriel soils often occur in combination with Gobles (GO) soils.

Land Use/Management Comments

Muriel and Muriel loamy phase soils are rated Class 2D for common field crops when topography is not a limitation. Muriel washed phase soils are rated Class 1. Muriel and Muriel loamy phase soils are suitable for a fairly wide range of special crops. Muriel washed phase soils are generally better suited for an even wider range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Muriel, Muriel loamy phase, and Muriel washed phase soils are all susceptible to water erosion. A crop rotation which includes a forage crop, planting cover crops, and maintaining high crop residue levels will aid in reducing the risk of erosion by water.

Muriel loamy phase and Muriel washed phase soils should be considered for conservation tillage practices. Conventional tillage practices, however, may be best on Muriel soils to improve structure and enhance drainage.

Normandale Soils (NO)

Landform and Topography

Normandale soils have developed on blankets of medium to coarse textured lacustrine materials which frequently have been modified by wind. They usually occur on upper and crest slope positions in landscapes which have nearly level or very gently undulating topography. Occasionally they also occur in landscapes which have very gently undulating topography. Slopes range from 2 to 9%, with slopes of 2 to 5% being most common.

Soil Moisture Characteristics

Normandale soils are imperfectly drained and moderately permeable. Water table levels may be near the surface during the early part of the growing season. They have moderate water holding capacities, and surface runoff is slow to moderate depending on the steepness of the surface slopes.

General Soil Characteristics

The Ap and clay enriched Btgj horizons usually have very fine sandy loam, fine sandy loam, or loamy fine sand textures. The Btgj horizons usually occur above the calcareous Ckgj horizons. The textures of the Bmgj and Ckgj horizons are more variable. They commonly have very fine sandy loam, fine sandy loam, loamy fine sand, fine sand, very fine sand, or loamy very fine sand textures.

Distinct or prominent, reddish yellow or yellowish brown mottles occur within the profile. Soil reaction ranges from very strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Normandale soil materials may be uniform throughout the profile, or they may be variable and consist of layers of medium and coarse textured materials. Many Normandale soils which occur in the western portion of the County tend to have uniform fine sand textures, with 30% or more of the sand content being very fine in size.

Normandale soils often occur in combination with Wattford (WF), St. Williams (SW), and Vittoria (VI) soils.

Land Use/Management Comments

Normandale soils are used for growing most common field crops, and also a number of special crops including peppers and tobacco. They are rated Class 1 for common field crops when topography is not a limitation. If they are tile drained, or if supplemental irrigation is carried out, Normandale soils are highly suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Normandale soils are susceptible to both water and wind erosion. Management practices should therefore be considered which reduce the risks of these types of degradation. A crop rotation which includes a forage crop, establishing windbreaks, planting cover crops, and maintaining high crop residue levels, will aid in this regard. Conservation tillage practices, particularly minimum till and no-till practices, should also be considered for these soils.

Plainfield Soils (PF)

Landform and Topography

Plainfield soils have developed on blankets of coarse textured eolian materials. They usually occur on upper and crest slope positions in landscapes which have very gently undulating topography. Occasionally they occur in duned or hummocky landscapes. Slopes range from 2 to 15%, with slopes of 2 to 5% being most common.

Soil Moisture Characteristics

Plainfield soils are rapidly drained and rapidly permeable. They have low water holding capacities. Surface runoff is slow on level areas, but increases as slopes become steeper.

General Soil Characteristics

Plainfield soil materials usually have fine sand or loamy fine sand textures. The Ap and clay enriched Bt horizons tend to have slightly higher clay contents than those which occur in the Bm and calcareous Ck horizons. As a result, loamy fine sand textures tend to occur more often in those horizons.

Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline to neutral in the Ck horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Plainfield soils frequently have weakly developed Bt horizons, or the Bt horizons occur at a depth greater than 100 cm from the surface. Quite often the Bt horizons are completely absent. Occasionally the Ck horizons may occur at a depth greater than 100 cm from the surface.

Plainfield soils were most often mapped in combination with Walsingham (WM), Berrien (BE), and Berrien till phase (BE.T) soils.

Land Use/Management Comments

Plainfield soils are rated Class 3F for common field crops when topography is not a limitation. Low fertility and pH problems are concerns with these soils. With supplemental irrigation, Plainfield soils are suitable for a wide range of special crops if the surface slopes are not too steep. Tobacco is grown extensively on Plainfield

soils which occur in the eastern portion of the County. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Plainfield soils are susceptible to wind erosion. Planting cover crops and establishing windbreaks will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Shedden Soils (SH)

Landform and Topography

Shedden soils have developed on coarse textured ice-contact stratified drift materials. The coarse texured drift materials usually contain layers of gravelly materials. They commonly are found on upper and crest slope positions on isolated sandy ridges or knolls which occur in clayey till morainal landscapes. Slopes range from 2 to 15%, with slopes of 6 to 15% being most common.

Soil Moisture Characteristics

Shedden soils are rapidly drained and rapidly permeable. They have low water holding capacities and slow surface runoff, except on slopes greater than 5% where runoff may be moderate to rapid.

General Soil Characteristics

The Ap and Bm horizons usually have loamy fine sand, loamy sand, or fine sandy loam textures. Clay enriched Bt horizons, which usually have fine sandy loam textures, usually occur above the calcareous Ck or IICk horizons. Textures of the Ck horizons is usually fine sand or loamy fine sand. The coarser textured calcareous materials which occur at depth usually consist of alternating layers of sandy and gravelly materials. The sandy layers commonly have loamy fine sand, fine sand, or sand textures. The gravelly layers frequently have gravelly sand, gravelly coarse sand, or gravelly loamy coarse sand textures.

Soil reaction ranges from medium acid to neutral in the Ap horizons, to mildly alkaline in the underlying calcareous materials. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Shedden soils mainly occur in the northern portion of Southwold Township and in the north-eastern portion of Dunwich Township. In those areas they are underlain by clayey till materials of the St. Thomas Moraine. The layers of coarse textured materials which occur at depth in these soils are variable in thickness. The sandy layers which are present in those materials usually contain some gravel, which may be greater than 10% in some layers. Occasionally loamy or clayey layers also occur within the profile of some Shedden soils.

In transition areas between the sandy ridges and the surrounding till moraines, occasionally shallow Shedden soils may occur where the underlying till materials are present within 100 cm of the surface. Severely eroded Shedden soils occur in small portions of some landscapes.

Shedden soils were most often mapped in combination with Middlemarch (MI) and Gobles (GO) soils.

Land Use/Management Comments

Shedden soils are rated Class 2FM for common field crops when topography is not a limitation. With supplemental irrigation, they are highly suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Shedden soils are susceptible to wind erosion. Planting cover crops, establishing windbreaks, and maintaining high crop residue levels will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Silver Hill Soils (SL)

Landform and Topography

Silver Hill soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by medium textured lacustrine materials. They usually occur on lower slopes and in depressions in landscapes which have nearly level or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Silver Hill soils are poorly drained. They are moderately to rapidly permeable in the upper coarse textured materials, but slowly permeable in the lower medium textured materials. The poor drainage conditions associated with these soils are often caused by high water table levels, which may occur within 50 cm of the surface for prolonged periods of time. Silver Hill soils have medium to high water holding capacities and slow surface runoff.

General Soil Characteristics

The Ap horizons commonly have fine sandy loam, fine sand, or loamy fine sand textures. The Bg and calcareous Ckg horizons usually have fine sand or loamy fine sand textures. The calcareous IICkg horizons generally have higher silt or very fine sand contents and frequently they have silt loam or very fine sandy loam textures.

Gray gley colours are dominant within the profile, and prominent dark yellowish brown to dark brown mottles are also present. A zone of intensive mottling is often present in the sandy materials above the point where they contact the underlying loamy materials. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the IICkg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Occasionally the IICkg horizons have silt textures. They may also contain layers of sandy or clayey materials. Silver Hill soils frequently are found in landscapes where better drained soils also occur.

Land Use/Management Comments

Silver Hill soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 2W. With tile drainage, they are suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Compaction can occur in St. Williams soils if they are too wet. Care should be taken, therefore, when using heavy machinery. Conservation tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Southwold Soils (SO)

Landform and Topography

Southwold soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur in low-lying depressional areas in landscapes which have nearly level topography. Slopes are less than 2%.

Soil Moisture Characteristics

Southwold soils are very poorly drained and slowly permeable. Saturated conditions occur at or near the surface for prolonged periods each year because of high water table levels. Southwold soils have high water holding capacities, and surface runoff is slow.

General Soil Characteristics

Southwold soil materials contain 27% or more clay. The Ap, Bg, and calcareous Ckg horizons which commonly occur usually have silty clay loam or silty clay textures.

Bluish gray or gray gley colours are dominant within the profile. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

The aerial extent of Southwold soils in the County is limited. The clayey subsoil materials may contain layers of medium or coarse textured materials.

Southwold soils may occur in areas where Toledo (TO) soils were mapped.

Land Use/Management Comments

Southwold soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 4W. Due to severe wetness conditions, they are not suitable for growing most vegetable, fruit, and nut crops. If they are tile drained, they have limited suitability for some special field crops including white beans and spring canola.

Springwater Soils (SP)

Landform and Topography

Springwater soils have developed on blankets of coarse textured eolian materials. They occur only in low-lying depressional areas in landscapes which have nearly level topography. Slopes are less than 2%.

Soil Moisture Characteristics

Springwater soils are very poorly drained and rapidly permeable. The very poor drainage conditions associated with these soils are caused by high water table levels which occur at or near the surface for prolonged periods each year. They have moderate water holding capacities in the surface materials which have high organic matter contents, but the water holding capacities of the subsoil materials is low. Surface runoff is slow.

General Soil Characteristics

The Ap horizons usually have fine sand or loamy fine sand textures, and high organic matter contents. The subsoil Bg and calcareous Ckg horizons usually have fine sand textures.

Bluish gray or gray gley colours are dominant within the profile. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

The aerial extent of Springwater soils in the County is limited. Occasionally Springwater soils may occur in areas where Waterin (WN) soils were mapped.

Land Use/Management Comments

Springwater soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3W. Without tile drainage, they are not suitable or have limited suitability for most special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Strathburn Soils (ST)

Landform and Topography

Strathburn soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur on lower slopes and in depressions in landscapes which have nearly level or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Strathburn soils are poorly drained and slowly permeable. High water table levels occur in the upper horizons for prolonged periods each year. Strathburn soils have high water holding capacities, but they can be droughty during dry periods because of strong water retention by the clayey soil materials. Surface runoff is usually slow to moderate. Soil cracks which may develop during the summer will increase permeability.

General Soil Characteristics

Strathburn soil materials usually contain at least 40% clay. They also contain one or more layers within the profile which contain more than 60% clay. The Ap horizons commonly have silty clay or clay textures. The Bg and calcareous Ckg horizons commonly have silty clay, clay, or heavy clay textures.

Gray gley colours are dominant within the profile, and prominent strong brown to dark yellowish brown mottles are also present. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Strathburn soils occur mainly in the northern portions of Dunwich and Aldborough Townships. They are associated with the lacustrine clay pain which occurs north-west of the Tillsonburg Moraine. Occasionally the upper horizons may consist of materials which have silty clay loam or clay loam textures. The thickness of the heavy clay textured materials within the profile is variable, ranging from 20 cm to more than 90 cm thick. Some Strathburn soils are composed entirely of heavy clay textured materials.

Strathburn soils occur where thin caps of medium or coarse textured materials overly the finer textured lacustrine materials. Strathburn loamy phase (ST.L) soils were mapped where 15 to 40 cm of silt loam, loam, or very fine sandy loam textured materials were present at the surface. Strathburn coarse phase (ST.C) soils were mapped where 15 to 40 cm of fine sandy loam or sandy loam textured materials were present at the surface. Strathburn soils were often mapped in combination with Ekfrid (EK) soils.

Land Use/Management Comments

Strathburn soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3WD. If they are tile drained, they are suitable for a number of special crops including cucumbers, tomatoes, soybeans, and white beans. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Strathburn soils are susceptible to compaction, and care should be taken not to use heavy machinery when they are too wet. A crop rotation which includes a forage crop will aid in maintaining soil structure. Conventional fall tillage should be carried out on these soils to improve structure and enhance drainage.

St. Williams Soils (SW)

Landform and Topography

St. Williams soils have developed on blankets of medium to coarse textured lacustrine materials which frequently have been modified by wind. They usually occur on lower slope positions and in depressions in landscapes which have nearly level to very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

St. Williams soils are poorly drained and moderately permeable. Water table levels occur near the surface for prolonged periods each year, but are usually lower in the summer. They have moderate water holding capacities and surface runoff is slow.

General Soil Characteristics

The Ap horizons commonly have very fine sandy loam, fine sandy loam, or loamy fine sand textures. The Bg and calcareous Ckg horizons are more variable. Textures of those horizons are usually very fine sandy loam, fine sandy loam, loamy fine sand, fine sand, very fine sand, or loamy very fine sand.

Gray gley colours are dominant within the profile, and prominent yellowish brown to dark yellowish brown mottles are also present. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

St. Williams soil materials may be uniform throughout the profile, or they may be variable and consist of layers of medium and coarse textured materials. Many St. Williams soils which occur in the western portion of the County tend to have uniform fine sand textures, with 30% or more of the sand content being very fine in size. St. Williams soils were most often mapped in combination with Normandale (NO) soils.

Land Use/Management Comments

St. Williams soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 2W. Due to wetness limitations, they generally have limited suitability for most special crops. Their suitability for many special crops increases, however, if they are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Compaction can occur in St. Williams soils if they are too wet. Care should be taken, therefore, when using heavy machinery. Conservation tillage practices, particularly no-till for fall crops, should be considered for these soils.

Tavistock Soils (TA)

Landform and Topography

Tavistock soils have developed on 40 to 100 cm thick veneers of medium textured lacustrine materials which are underlain by fine to very fine textured lacustrine materials. They usually occur on upper and crest slope positions in landscapes which have nearly level or very gently undulating topography. Occasionally they occur in landscapes which have gently undulating topography. Slopes range from 1 to 9%, with slopes of 5% or less being most common.

Soil Moisture Characteristics

Tavistock soils are imperfectly drained and moderately to slowly permeable. Temporary high water table levels occur in the upper medium textured sediments for periods of time each year. Tavistock soils have high water holding capacities. Surface runoff ranges from moderate to high, depending on the steepness of the surface slope.

General Soil Characteristics

The Ap and Bmgj horizons most often have silt loam and loam textures, but very fine sandy loam textures are also quite common. Clay enriched Btgj horizons, which usually have loam or clay loam textures, usually occur above the calcareous IICkgj horizons. The IICkgj horizons usually have silty clay loam or silty clay textures.

Distinct to prominent, dark brown to dark yellowish brown mottles occur within the profile. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICkgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Tavistock till phase (TA.T) soils were mapped where 40 to 100 cm of medium textured materials were underlain by fine to very fine textured morainal materials consisting of Port Stanley till. The materials of those soils differ from the usual fine textured lacustrine materials by having coarse fragments within the profile and a tendency to have better structure.

Tavistock and Tavistock till phase soils were mapped in combination with a number of different soils. Where the medium textured surface materials tended to be thick over the fine textured lacustrine materials, Tavistock soils were often mapped with Bennington (BN), Maplewood (MA), and Tuscola (TU) soils. Where the surface materials also tended to be thick over Port

Stanley till, Tavistock till phase soils were often mapped with Bennington till phase (BN.T) and Maplewood till phase (MA.T) soils.

Quite often Tavistock and Tavistock till phase soils were also mapped where the medium textured surface materials were thin or discontinuous. In those landscapes, Tavistock soils were often mapped in combination with Beverly (BV) and Beverly loamy phase (BV.L) soils, and Tavistock till phase soils were often mapped in combination with Gobles (GO), Gobles loamy phase (GO.L), and Kelvin loamy phase (KE.L) soils.

Land Use/Management Comments

Tavistock and Tavistock till phase soils are rated Class 1 for common field crops when topography is not a limitation. They are suitable for a wide range of special crops, and suitability increases for many crops if they are tile drained. Irrigation should be considered before growing crops such as potatoes, strawberries, or raspberries. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Tavistock and Tavistock till phase soils are susceptible to water erosion and compaction. A crop rotation which includes a forage crop will aid in maintaining soil structure and also help to reduce the risk of erosion by water. Planting cover crops and maintaining high crop residue levels will also aid in reducing the risk of erosion. Conservation tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Toledo Soils (TO)

Landform and Topography

Toledo soils have developed on blankets of fine to very fine textured lacustrine materials. They usually occur on lower slope positions and in depressions in landscapes which have nearly level or very gently undulating topgraphy. Slopes are less than 2%.

Soil Moisture Characteristics

Toledo soils are poorly drained and slowly permeable. Water table levels occur near the surface for prolonged periods during the year, but usually subside to lower depths during the growing season. Toledo soils have high water holding capacities, and surface runoff is usually moderate.

General Soil Characteristics

Toledo soil materials contain 27% or more clay. The Ap horizons commonly have silty clay loam or silty clay textures. The Bg and calcareous Ckg horizons tend to have higher clay contents, and usually they have silty clay loam or silty clay textures.

Gray gley colours are dominant within the profile, and prominent strong brown to yellowish brown mottles are also present. Soil reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Occasionally layers of medium or coarse textured materials occur within the profile. The layers are variable in thickness and usually have silt loam, loam, or fine sandy loam textures. Toledo soils occur where thin caps of medium or coarse textured materials overly the fine textured materials. Toledo loamy phase (TO.L) soils were mapped where 15 to 40 cm of loamy materials were present at the surface. Toledo coarse phase (TO.C) soils were mapped where the surface materials consisted of 15 to 40 cm of sandy materials.

Toledo and Toledo loamy phase soils were often mapped in combination with Beverly (BV) and Beverly loamy phase (BV.L) soils.

Land Use/Management Comments

Toledo soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3W. If they are tile drained, Toledo soils are suitable for a fairly wide range of special crops. Toledo loamy phase and Toledo coarse phase soils are generally better suited for special crops compared to Toledo soils. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Toledo soils are susceptible to compaction, and care must be taken not to use heavy machinery when they are too wet. A crop rotation which includes a forage crop will aid in maintaining soil structure. Conservation tillage practices should be considered for Toledo coarse phase soils. Conventional tillage practices, however, are best on Toledo and Toledo loamy phase soils in order to improve structure and enhance drainage.

Tuscola Soils (TU)

Landform and Topography

Tuscola soils have developed on blankets of medium textured lacustrine materials. They usually occur on upper and crest slope positions in landscapes which have nearly level to very gently undulating topography. Occasionally they occur in landscapes which have gently undulating topography. Slopes generally range from 2 to 9%, with slopes of 2 to 5% being most common.

Soil Moisture Characteristics

Tuscola soils are imperfectly drained. They are usually moderately permeable, but permeability decreases in horizons that are clayey or compacted. Tuscola soils have high water holding capacities if permeability is not restricted. Surface runoff is moderate to rapid, depending on the steepness of the surface slope.

General Soil Characteristics

The Ap, Bmgj, Btgj, and calcareous Ckgj horizons which usually occur commonly have silt loam, loam, or very fine sandy loam textures. The clay enriched Bt horizons, which occasionally also have silty clay loam textures, are usually well developed and occur above the Ckgj horizons.

Distinct to prominent, yellowish brown to strong brown mottles occur within the profile. Soil reaction ranges from medium acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Tuscola soils frequently contain layers of fine or very fine textured materials. The layers are variable in thickness and usually have silty clay loam or silty clay textures. Occasionally, layers of coarse textured materials are also present which often have fine sandy loam textures.

Tuscola soils occur in landscapes where thin caps of coarse textured materials overly the medium textured materials. Tuscola coarse phase (TU.C) soils were mapped where 15 to 40 cm of coarse textured materials were present at the surface.

Tuscola soils frequently were mapped in combination with Beverly loamy phase (BV.L), Tavistock (TA), and Colwood (CW) soils. Severely eroded Tuscola soils occur in portions of some landscapes.

Land Use/Management Comments

When topography is not a limitation, Tuscola soils are rated Class 1 for common field crops. They are suitable for a wide range of special crops, and their suitability for many special crops increases if they are tile drained. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Tuscola soils are susceptible to water erosion. A crop rotation which includes a forage crop, planting cover crops, and maintaining high crop residue levels will aid in reducing the risk of erosion by water. Conservation tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Vittoria Soils (VI)

Landform and Topography

Vittoria soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by medium textured lacustrine materials. They usually occur on upper and crest slope positions in landscapes which have nearly level or very gently undulating topography. Slopes usually range from 1 to 5%.

Soil Moisture Characteristics

Vittoria soils are imperfectly drained. They are usually rapidly permeable in the upper coarse textured materials, and slowly permeable in the lower medium textured materials. Water table levels often temporarily occur in the zone immediately above the underlying medium textured materials. Vittoria soils have moderate to high water holding capacities. Surface runoff is slow to moderate, depending on the steepness of the surface slope.

General Soil Characteristics

The Ap and Bmgj horizons most often have fine sand or loamy fine sand textures, but fine sandy loam or sandy loam textures are also common. Clay enriched Btgj or IIBtgj horizons, which often are weakly developed, usually have very fine sandy loam or loam textures and occur just above the calcareous IICkgj horizons. The IICkgj horizons have higher silt contents and usually silt loam or very fine sandy loam textures.

Distinct or prominent, dark yellowish brown to dark brown mottles occur within the profile. A zone of intensive mottling often occurs in the lower part of the sandy materials above the loamy materials. Soil reaction ranges from strongly acid

to neutral in the Ap horizons, to mildly alkaline in the IICkgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally the IICkgj horizons have very high silt contents and silt textures. They may also contain layers of sandy or clayey materials. Vittoria soils were mapped in combination with a number of different soils, including Silver Hill (SL), Plainfield (PF), Walsingham (WM), Wattford (WF), and Normandale (NO).

Land Use/Management Comments

Vittoria soils are rated Class 1 for common field crops when topography is not a limitation. They are suitable for a wide range of special crops, and suitability increases for many special crops if they are tile drained, or supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Vittoria soils are susceptible to wind erosion. Planting cover crops and establishing windbreaks will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Walsher Soils (WA)

Landform and Topography

Walsher soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by medium textured lacustrine materials. The upper materials frequently have been modified by wind. They usually occur on upper and crest slope positions in landscapes which have very gently undulating topography. Slopes range from 2 to 5%.

Soil Moisture Characteristics

Walsher soils are well drained. They are usually rapidly permeable in the upper coarse textured materials, and slowly permeable in the lower medium textured materials. Walsher soils have moderate to high water holding capacities. Surface runoff is slow to moderate.

General Soil Characteristics

The Ap and Bm horizons most often have fine sand and loamy fine sand textures, but fine sandy loam and sandy loam textures are also common. Clay enriched Btgj or IIBtgj horizons, which usually have silt loam, loam, or very fine sandy loam textures, occur above the calcareous IICkgj horizons. The IICkgj horizons commonly have silt loam or very fine sandy loam textures.

Distinct mottles occur at a depth of 50 to 100 cm from the surface. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the IICkgj horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Occasionally the IICkgj horizons have very high silt contents and silt textures. They may also contain layers of sandy or clayey materials. Walsher soils may have weakly developed Btgj or IIBtgj horizons, or clay enriched horizons may be absent.Walsher soils commonly occur in combination with Vittoria (VI) and Plainfield (PF) soils.

Land Use/Management Comments

Walsher soils are rated Class 2M for common field crops when topography is not a limitation. If the surface slopes are not too steep, they are highly suitable for a wide range of special crops. Their suitability increases for many special crops if supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Walsher soils are susceptible to wind erosion. Planting cover crops and establishing windbreaks will aid in reducing the risk of erosion by wind. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Walsingham Soils (WM)

Landform and Topography

Walsingham soils have developed on blankets of coarse textured eolian materials. When they occur with poorly drained soils in the same landscape, they usually occur on upper and crest slope positions. When they occur with better drained soils, they usually occur on mid to lower slope positions. Walsingham soils most often occur in landscapes which have nearly level to very gently undulating topography. Occasionally they occur in landscapes which have gently undulating topography. Slopes generally range from 2 to 9%, with slopes of 2 to 5% being most common.

Soil Moisture Characteristics

Walsingham soils are imperfectly drained and rapidly permeable. The imperfect drainage is due to high water table levels which temporarily occur within 100 cm of the surface for periods of time each year. They have low water holding capacities. Surface runoff is slow on level areas, but increases as slopes become steeper.

General Soil Characteristics

Walsingham soil materials usually have fine sand or loamy fine sand textures. The Ap and clay enriched Btgj horizons tend to have slightly higher clay contents than those which occur in the Bmgj and calcareous Ckgj horizons. As a result, loamy fine sand textures tend to occur more often in those horizons.

Distinct to prominent, dark yellowish brown to yellowish brown mottles occur within the profile. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ckgj horizons. Soil classification is typically Gleyed Brunisolic Gray Brown Luvisol.

Soil Variability

Walsingham soils frequently have weakly developed Btgj horizons, or the Btgj horizons occur at a depth greater than 100 cm from the surface. Clay enriched Btgj horizons may also be completely absent. The Ckgj horizons in many Walsingham soils occur at a depth greater than 100 cm from the surface.

Walsingham soils were most often mapped in combination with Plainfield (PF), Waterin (WN), Berrien (BE), Berrien till phase (BE.T), and Wauseon (WU) soils.

Land Use/Management Comments

Walsingham soils are rated Class 3F or 3FT for common field crops. Low fertility and pH problems are concerns with these soils. If they are tile drained, or if supplemental irrigation is carried out, Walsingham soils are highly suitable for many special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Walsingham soils are susceptible to wind erosion. Management practices which maintain organic matter contents will benefit fertility levels and help to reduce the risk of erosion by wind. Planting cover crops, establishing windbreaks, and maintaining high crop residue levels, will also aid in this regard. Conservation tillage practices, particularly no-till practices, should be considered for these soils.

Waterin Soils (WN)

Landform and Topography

Waterin soils have developed on blankets of coarse textured eolian materials. They usually occur on lower slope positions and in depressions in landscapes which have nearly level or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Waterin soils are poorly drained and rapidly permeable. The poor drainage conditions associated with these soils are caused by high water table levels which occur within 50 cm of the surface for prolonged periods of time each year. They generally have low water holding capacities, but water holding capacities increase in the surface materials if they have high organic matter contents. Surface runoff is slow.

General Soil Characteristics

The Ap horizons usually have fine sand or loamy fine sand textures. They also generally have high organic matter contents, with the mean content being almost 5%. The Bg and calcareous Ckg horizons most often have fine sand textures, but loamy fine sand textures are also quite common.

Gray gley colours are dominant within the profile, and prominent strong brown to yellowish brown mottles are also present. Soil reaction ranges from strongly acid to neutral in the Ap horizons, to mildly alkaline in the Ckg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Occasionally the materials which occur at depth have very fine sandy loam or very fine sand textures. Waterin soils were most often mapped in combination with Walsingham (WM) soils.

Land Use/Management Comments

Waterin soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 3W. If they are tile drained, Waterin soils are suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Compaction can occur in Waterin soils if they are too wet. Care should be taken, therefore, when using heavy machinery. Conservation

tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Wattford Soils (WF)

Landform and Topography

Wattford soils have developed on blankets of medium to coarse textured lacustrine materials which frequently have been modified by wind. They usually occur on upper and crest slope positions in landscapes which have nearly level or very gently undulating topography. Occasionally they occur in landscapes which have very gently undulating or hummocky topography. Slopes range from 2 to 15%, with slopes of 2 to 5 % being most common.

Soil Moisture Characteristics

Wattford soils are well drained and moderately permeable. They have moderate water holding capacities, and droughtiness is usually a limitation. Surface runoff is generally moderate to slow, but can be rapid on steeper slopes where the soil materials tend to have high very fine sand or silt contents.

General Soil Characteristics

The Ap and Bm horizons usually have very fine sandy loam, fine sandy loam, or loamy fine sand textures. Clay enriched Bt horizons, which frequently have fine sandy loam or very fine sandy loam texures, commonly occur above the calcareous Ck horizons. The Ck horizons are more variable in texture than the upper horizons. Common textures of those horizons are very fine sandy loam, fine sandy loam, loamy fine sand, loamy very fine sand, very fine sand, and fine sand.

Soil reaction ranges from medium acid to neutral in the Ap horizons, to mildly alkaline in the Ck horizons. Soil classification is typically Brunisolic Gray Brown Luvisol.

Soil Variability

Wattford soil materials may be uniform throughout the profile, or they may be variable and consist of layers of medium and coarse textured materials. Many Wattford soils have uniform fine sand textures, with 30% or more of the sand content being very fine in size.

Wattford soils often occur in combination with Normandale (NO) soils.

Land Use/Management Comments

Wattford soils are rated Class 2M for common field crops when topography is not not a limitation. If the surface slopes are not too steep, they are suitable for a wide range of special crops. Their suitability for many special crops increases if supplemental irrigation is carried out. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Wattford soils are susceptible to both wind and water erosion. A crop rotation which includes a forage crop, planting cover crops, establishing windbreaks, and maintaining high crop residue levels will aid in reducing the risk of erosion. Conservation tillage practices should be considered for these soils.

Wauseon Soils (WU)

Landform and Topography

Wauseon soils have developed on 40 to 100 cm thick veneers of coarse textured lacustrine materials which are underlain by fine to very fine textured lacustrine materials. They usually occur on lower slope positions and in depressions in landscapes which have nearly level or very gently undulating topography. Slopes are less than 2%.

Soil Moisture Characteristics

Wauseon soils are poorly drained. The upper coarse textured materials are rapidly permeable, but permeability is slow in the lower fine to very fine textured materials. The poor drainage conditions associated with these soils if often caused by high water table levels which occur within 50 cm of the surface for prolonged periods each year. Wauseon soils have low water holding capacities in the upper materials, and high water holding capacities in the lower materials. Surface runoff is slow.

General Soil Characteristics

The Ap and Bg horizons occur in the upper coarse textured materials and usually have fine sandy loam, sandy loam, or loamy fine sand textures. Occasionally calcareous Ckg horizons, which frequently have fine sand or loamy fine sand textures, also occur in the upper materials. The lower finer textured materials usually consist of calcareous IICkg horizons which have silty clay or silty clay loam textures.

Gray gley colours are dominant within the profile, and prominent dark yellowish brown to light olive brown mottles are also present. Soil

reaction ranges from slightly acid to neutral in the Ap horizons, to mildly alkaline in the IICkg horizons. Soil classification is typically Orthic Humic Gleysol.

Soil Variability

Occasionally Wauseon soils have gravelly layers which occur above the IICkg horizons. Silt loam or loam textured layers also occur occasionally in the underlying materials. Wauseon till phase (WU.T) soils were mapped where 40 to 100 cm of coarse textured lacustrine materials were underlain by fine to very fine textured Port Stanley till.

Wauseon soils were often mapped in combination with Berrien (BE) and Walsingham (WM) soils. Wauseon till phase soils were often mapped in combination with Berrien till phase (BE.T) soils.

Land Use/Management Comments

Wauseon and Wauseon till phase soils require tile drainage in order to reach their potential capability for common field crop production. They are rated Class 2W. If they are tile drained, they are suitable for a wide range of special crops. Suitability ratings for selected special crops are given in Tables 6, 7, and 8.

Compaction can occur in Wauseon soils if they are too wet. Care should be taken, therefore, when using heavy machinery. Conservation tillage practices, particularly no-till practices for fall crops, should be considered for these soils.

Miscellaneous Land Unit Descriptions

Alluvium (AL)

Areas mapped as Alluvium occur mainly in the floodplains of rivers, creeks, and streams. They are composed of soils which have variable drainage conditions. Due mainly to their generally low-lying or depressional landscape positions and high water table levels, the soils which occur in these land units usually are either imperfectly or poorly drained. Many Alluvium land units remain wet for prolonged periods due to flooding of adjacent water courses, or additions of surface or seepage water from surrounding lands with steep slopes.

The soil materials which compose these land units are variable in texture. They may be fairly uniform in texture throughout the profile, or they may consist of alternating layers of materials which have contrasting textures. When the materials are fairly uniform, they mainly tend to be either medium to coarse textured, or fine textured. Silt loam, loam, fine sandy loam, or very fine sandy loam textures are common in the medium to coarse textured materials. Silty clay loam or clay loam textures are common in the fine textured materials. When the materials are layered, the textures are highly variable and range from gravelly sand to clay. Most often the materials are calcareous to the surface, and soil reaction is mildly alkaline.

Alluvium land units are generally limited in their use for agriculture. They are rated Class 3I to 5I for common field crops, which is the range of soil capability classes which occur. If flooding is temporary and generally occurs in early spring, the risk of growing common field crops is lower. Those areas are therefore rated Class 3I. Grain corn is frequently grown on some of the higher, more extensive floodplains bordering the Thames River and large creeks. Many areas which occur within these land units are subject to prolonged periods of flooding that frequently occur during the growing season. They are rated Class 5I, since they are best suited for forage crops.

Eroded Channel (ER)

These land units consist of deep "V" shaped channels which are the result of past and present erosion. Small creeks and streams, which in some areas may be intermittent, are present in many of these land units. The soils which occur are highly variable in materials and drainage. Texture of the soil materials range from gravelly sand to clay. Soil drainage ranges from rapidly drained on coarse textured materials which may occur on the steep side walls of the channel, to poorly drained on fine to very fine textured materials which may occur in the narrow channel bottoms.

The slopes of the steep side walls generally exceed 30%. Occasionally the slopes may be less steep, especially in channels with short side slopes. Many channels have side wall slopes which are so steep that they have no capability for agriculture. Areas mapped as this land unit are therefore rated Class 6T to 7T for common field crops.

Not Mapped (NM)

Areas of land that were disturbed or modified from their natural condition, or were permanently withdrawn from agricultural use, were designated as Not Mapped on the soil maps. Such areas include golf courses, gravel pits, sewage lagoons, or areas that have been developed for residential, industrial, or commercial uses.

Organic (OR)

Organic land units usually consist of depressional wetlands which often have standing water at the surface for long periods of time each year. The organic soils which occur in these land units are very poorly drained and variable in material composition and thickness. The underlying mineral materials are also variable, ranging from coarse textured fine sand to very fine textured silty clay. These land units occur only in a few small areas in the County, and they were not rated for their capability or suitability for agricultural use.

Scarp (SC)

Areas mapped as Scarp land units consist of strongly to very steeply sloping cliffs along the shoreline of Lake Erie, or they consist of similarly sloping river or creek banks adjacent to the major water courses which traverse the County. The land units which occur along the Lake Erie shoreline generally have slopes which are greater than 30%. They have been formed by wave erosion which in many places is still active. The units which occur along the Thames River and major creeks generally tend to have surface slopes which are also greater than 30%. Occasionally, however, the surface slopes may range from 15 to 30%.

The soils which occur in these land units are highly variable in materials and drainage. Textures of the soil materials range from gravelly sand to clay. Soil drainage ranges from imperfectly drained in the clay textured materials, to rapidly drained in the gravelly sand textured materials. Areas mapped as this land unit are rated Class 6T to 7T for common field crops. These land units frequently were mapped in areas where they occurred adjacent to Alluvium land units which were large enough to delineate separately on the soil maps.

Valley Complex (VC)

These land units consist of "U" shaped valleys that most often are associated with the Thames River and major creeks which traverse the County. The valleys most often consist of strongly to very steeply sloping side walls, and nearly level alluvial terraces or floodplains. The terraces or floodplains often occupy significant portions of the land units. The soils which compose the side walls, terraces, or floodplains are quite variable in materials and drainage. They range from rapidly drained, coarse textured soils which may occur on the valley side walls, to poorly drained, clay textured soils which may occur in the often low-lying floodplains.

The slopes of the steep side walls generally exceed 30%. Occasionally the slopes may be less steep, especially in valleys with short side slopes. The side walls are rated Class 6T to 7T for common field crops. The alluvial terraces and floodplains are generally limited in their use for agriculture due to flooding. They are rated Class 3I to 5I. These land units frequently were mapped where the alluvial terrace or floodplain areas were not large enough to delineate separately on the soil maps.

SOIL INTERPRETATIONS FOR AGRICULTURE

A. Agricultural Capability Classification for Common Field Crops

(1) Capability Classification for Mineral Soils

The agricultural land capability ratings provided in Table 4 are based on the Canada Land Inventory (CLI) soil capability classification system (17). It groups mineral soils into seven classes according to their potential and limitation for agricultural use for common field crops. Common field crops include corn, oats, wheat, barley, and perennial forage crops such as alfalfa, grasses, and bird's foot trefoil.

The best soils, with no significant limitations for growing common field crops, are designated Class 1. Soils designated Classes 2 to 6 have decreasing capability for growing common field crops, and Class 7 soils have no agricultural potential to grow common field crops.

Soil Capability Classes

Descriptions of the classes in the classification system are as follows:

Class 1 - Soils in this class have no significant limitations in use for crops. These soils are level to very gently sloping, deep, well to imperfectly drained, and hold moisture and plant nutrients well. They can be managed and cropped without difficulty. Under good management they are moderately high to high in productivity for common field crops.

Class 2 - Soils in this class have moderate limitations that restrict the range of crops, or require moderate conservation practices. These soils are deep and may not hold moisture and nutrients as well as Class 1 soils. The limitations are moderate and the soils can be managed and cropped with little difficulty. Under good management they are moderately high to high in productivity for a wide range of common field crops.

Class 3 - Soils in this class have moderately severe limitations that restrict the range of crops, or require special conservation practices. The limitations are more severe than for Class 2 soils. They affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. Under good management they are fair to moderately high in productivity for a fairly wide range of common field crops.

Class 4 - Soils in this class have severe limitations that restrict the range of crops, or require special conservation practices, or both. The limitations seriously affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. The soils are low to fair in productivity for a narrow range of common field crops, but may have higher productivity for a specially adapted crop.

Class 5 - Soils in this class have very severe limitations that restrict their capability to the production of perennial forage crops, and improvement practices are feasible. The limitations are so severe that the soils are not capable of use for sustained production of annual field crops. The soils are capable of producing native or tame species of perennial forage plants, and may be improved by the use of farm machinery. The improvement practices may include clearing of bush, cultivation, seeding, fertilizing or water control.

Class 6 - Soils in this class are only capable of producing perennial forage crops, and improvement practices are not feasible. These soils provide some sustained grazing for farm animals, but the limitations are so severe that improvement by the use of farm machinery is impractical. The terrain may be unsuitable for the use of farm machinery, or the soils may not respond to improvement, or the grazing season may be very short.

Class 7 - Soils in this class have no capability for arable culture or permanent pasture. This class includes marsh, rockland and soil on very steep slopes.

Soil Capability Subclasses

Subclasses are divisions within classes that have the same kind of limitations for agricultural use. Thirteen different kinds of limitations have been recognized at the subclass level and are described in the classification system. Eight of the thirteen subclasses were applied when classifying the soils in the County, and they have been described. Guidelines for determining most subclasses were obtained from the previously cited

reference and also Publication No. 89-2 of the Ontario Institute of Pedology (19). Additional assistance in determining subclasses W, M, and D was obtained by using a computer model developed by McBride and Mackintosh (20,21).

The subclasses applied and brief descriptions of the limitations they represent follow:

Subclass D - Undesirable soil structure and/or permeability.

Subclass E - Erosion damage, or potential damage from erosion, results in lower productivity.

Subclass F - Low natural fertility which may or may not be possible to correct by additions of fertilizers or manure.

Subclass I - Inundation by flooding of streams or lakes causing crop damage or restricting agricultural use.

Subclass M - Droughtiness affecting crop growth and mainly caused by low moisture holding capacity.

Subclass S - Adverse soil characteristics. Used when two of the limitations represented by subclasses D, F or M are present and some additional limitation occurs, for example T.

Subclass T - Adverse topography due to steepness or complexity of slopes which: a) increases the cost of farming over that of level land; b) decreases the uniformity of growth and maturity of crops; and c) increases the hazard of erosion damage by water.

Subclass W - Excess water, other than from flooding, limits use for agriculture. The excess water may be due to poor drainage, a high water table, seepage, or runoff from surrounding areas.

Assumptions

The classification system, and the ratings given in Table 4, are based upon the following assumptions:

a) The soils will be well managed and cropped under a largely mechanized system.

b) Land requiring improvements, for example stone removal or artificial drainage, that can be carried out by the farmer himself, is classified according to its limitations or hazards for use after the improvements have been made. The resulting class, therefore, reflects the potential capability of the land in its improved state. Since it is not always feasible to install tile drainage, alternate classes for poorly drained soils are also given in Table 4.

c) The following are not considered: distances to market, kind of roads, location or size of farms, type of ownership, cultural patterns, skills or resources of individual operators, and hazard of crop damage by storm.

d) The classification includes capabilities of soils for common field crops such as forage crops, small grains and corn. It does not include capabilities for special crops such as soybeans or tobacco, or for horticultural crops.

e) Capability classes are subject to change as new information on the properties, behaviour, and responses of soils becomes available. In some cases technological advances may also necessitate changes.

(2) Capability Classification for Organic Soils

Several agricultural capability classification systems have been devised for organic soils which classifies them into seven capability classes (22, 23, 24). Those systems, however, were not used to classify the organic soils which occur in the County for the following reasons: a) the limited occurrence of organic soils in the County; b) the limited use of organic soils for agriculture; and c) the increasing importance of wetlands as hydrologic recharge areas.

(3) How to Determine Capability Ratings for Areas on the Soil Maps

The soils or land units which occur within areas shown on the soil maps are identified in the map symbols for those areas. Explanations of the map symbols and their components are provided on each map in the section titled "Key to the Map Symbols". Similar explanations are also given in the Glossary at the back of this volume of the report. Symbols shown on the maps may represent one of the following: 1) a land unit; 2) a single soil type which occurs on a single slope; 3) a single soil type which occurs on two different slopes; and 4) two different soil types.

When two slopes or two soil types are identified in the map symbol, dominant and significant soils occur for which capability ratings must be determined. Dominant means that 40 to 80% of the area represented by the map symbol consists of that soil type and associated slope class. Significant means that 20 to less than 40% of the area represented by the map symbol consists of that soil type and associated slope class.

Capability ratings for the soils and land units identified in the symbols shown on the soil maps are given in Table 4. The following examples of typical map symbols will demonstrate the procedures that should be followed when using Table 4 to determine the appropriate soil capability rating or ratings for symbols shown on the soil maps.

Example 1. $\frac{BV.L}{C}$

In this example, 80% or more of the area represented by the symbol consists of Beverly loamy phase (BV.L) soils which occur on simple C slopes of 2 to 5%.

Procedure:

1) Locate the symbol "BV.L" in the first column of Table 4 titled "Map Symbol".
2) Determine the appropriate slope class column by locating the slope class "C" which appears under the heading titled "Capability classification by slope classes".
3) Now move horizontally across the line for BV.L soils to the C slope class column, where the capability rating is given. The soil capability rating for BV.L soils which occur on C slopes is 2DE.

Example 2. $\frac{BV.L}{C>b}$

In this example, 40% to 80% of the area represented by the symbol consists of Beverly loamy phase (BV.L) soils which occur on simple C slopes of 2 to 5% (dominant slope), and 20% to less than 40% of the area consists of Beverly loamy phase (BV.L) soils which occur on complex b slopes of 0.5 to 2% (significant slope). Two capability ratings must therefore be determined.

Procedure:

1) Locate the symbol "BV.L" in the first column of Table 4 titled "Map Symbol".
2) Determine the appropriate slope class columns by locating slope class "C" and slope class "b" which appear under the heading titled "Capability classification by slope classes".
3) Now move horizontally across the BV.L line to the C slope class column, where the capability rating of 2DE is shown. This is the rating for BV.L soils which occur on C slopes. On the same line, now move to the b slope class column where the capability rating of 2D is shown. This is the rating for BV.L soils which occur on b slopes.
4) The soil capability rating for the map symbol is 2DE>2D.

Example 3. $\frac{BV>TO.C}{b}$

In this example, 40% to 80% of the area prepresented by the symbol consists of Beverly (BV) soils which occur on complex b slopes of 0.5 to 2%, and 20% to less than 40% of the area consists of Toledo coarse phase (TO.C) soils which also occur on complex b slopes.

Procedure:

1) Locate the symbols "BV" and "TO.C" in the first column of Table 4 titled "Map Symbol".
2) Determine the appropriate slope class column by locating slope class "b" which appears under the heading titled "Capability classification by slope classes".
3) Now go to the BV line and move horizontally across the line to the b slope class column, where the capability rating of 2D is shown. This is the rating for BV soils which occur on b slopes.
4) Now go to the TO.C line and move horizontally across the line to the b slope class column. The capability rating of 3W is shown in the b slope class column, which is the appropriate rating if tile drainage is feasible or in place. If tile drainage is not feasible for the TO.C soils, the capability rating is 5W, which is the rating shown in brackets. In Table 4, where tile drainage is not feasible for poorly and very poorly drained soils, the non-drained capability rating is given in brackets.
5) The soil capability rating for the map symbol, therefore, is 2D>3W if tile drainage is feasible or in place for the TO.C soils. However, if tile drainage is not feasible for the TO.C soils, the capability rating would then be 2D>5W.

Example 4. $\frac{BV>TA}{b>c}$

In this example, 40% to 80% of the area represented by the symbol consists of Beverly (BV) soils which occur on complex b slopes of 0.5 to 2% (dominant slope), and 20% to less than 40% of the area consists of Tavistock soils (TA) which occur on complex c slopes of 2 to 5% (significant slope).

Procedure:

1) Locate the symbols "BV" and "TA" in the first column of Table 4 titled "Map Symbol".
2) Determine the appropriate slope class columns by locating slope class "b" and slope class "c" which appear under the heading titled "Capability classification by slope classes".
3) The soil capability ratings for the soils identified in the symbol are shown where the horizontal lines and vertical columns intersect. Therefore, the capability rating for BV soils which occur on b slopes is 2D, and the capability rating for TA soils which occur on c slopes is 2T.
4) The soil capability rating for the map symbol is 2D>2T.

Example 5. AL, ER, SC, or VC

These symbols represent miscellaneous land units. In Table 4, a capability rating is given for each of these units which is the range of soil capabilities that generally occur in all areas where these land units were identified. The capabilities of the soils within individual areas mapped as these land units, therefore, may vary. For example, two areas may be identified on one of the soil maps as Alluvium (AL), and both are rated Class 3I to 5I in Table 4. One of the areas, however, may be composed entirely of soils which have a capability of Class 3I. The other area may be composed entirely of soils which have a capability of Class 5I.

Table 4. Agricultural land capability ratings for common field crops in Elgin County

Map Symbol	Soil or Misc. Land Unit	Capability classification by slope classes								
		B,b	C	c	D	d	E	e	F,f	G,g
AL	Alluvium	(3I-5I)**								
AY	Ayr	2W	2W	2WT			(4W)*			
AY.F	Ayr fine phase	2W	2W	2WT			(4W)*			
AY.L	Ayr loamy phase	2W	2W	2WT			(4W)*			
BE	Berrien	1	1	2T	2T	3T	3T			
BE.T	Berrien till phase	1	1	2T	2T	3T	3T			
BF	Brantford	2D	2DE	2DT	3T	3T	4T	4T	5T	6T
BF.C	Brantford coarse phase	2D	2DE	2DT	3T	3T	4T	4T	5T	6T
BF.L	Brantford loamy phase	2D	2DE	2DT	3T	3T	4T	4T	5T	6T
BI	Brisbane	2F	2F	2FT	2FT					
BN	Bennington	2M	2ME	2MT	3T	3T	4T	4T	5T	6T
BN.T	Bennington till phase	2M	2ME	2MT	3T	3T	4T	4T	5T	6T
BO	Bookton	2M	2M	2MT	2MT	3T	3T	4T	5T	6T
BO.T	Bookton.Till phase	2M	2M	2MT	2MT	3T	3T	4T	5T	6T
BT	Brant	1	2E	2T	3T	3T	4T	4T	5T	6T
BU	Burford	2FM	2FM	2ST	2ST	3T	3T	4T	5T	6T
BV	Beverly	2D	2DE	2DT	3T	3T	4T	4T		
BV.C	Beverly coarse phase	2D	2DE	2DT	3T	3T				
BV.L	Beverly loamy phase	2D	2DE	2DT	3T	3T				
BY	Brady	2F	2F	2FT	2FT					
CA	Caledon	2FM	2FM	2ST	2ST	3T	3T	4T	5T	6T
CA.F	Caledon fine phase	2M	2ME	2MT	3T	3T	4T	4T	5T	6T
CH	Churchville	3W	3W	3W			(5W)*			
CH.P	Churchville peaty phase	4W	4W	4W			(5W)*			
CM	Camilla	2F	2F	2FT	2FT					
CM.L	Camilla loamy phase	2F	2F	2FT	2FT					
CW	Colwood	2W	2WE	2WT			(4W)*			
CW.C	Colwood coarse phase	2W	2WE	2WT			(4W)*			
CW.P	Colwood peaty phase	4W	4W	4W			(5W)*			
ER	Eroded Channel	(6T-7T)**								
EK	Ekfrid	3D	3D	3DT	3DT	3DT				
EK.C	Ekfrid coarse phase	3D	3D	3DT	3DT	3DT				
EK.L	Ekfrid loamy phase	3D	3D	3DT	3DT	3DT				
FR	Frome	3W	3W	3W			(5W)*			
FR.P	Frome peaty phase	4W	4W	4W			(5W)*			
FX	Fox	2FM	2FM	2ST	2ST	3T	3T	4T	5T	6T
GO	Gobles	2D	2DE	2DT	3T	3T				
GO.C	Gobles coarse phase	2D	2DE	2DT	3T	3T				
GO.L	Gobles loamy phase	2D	2DE	2DT	3T	3T				
GO.W	Gobles washed phase	1	2E	2T	3T	3T				
GY	Granby	2W	2W	2WT			(4W)*			
HI	Highgate	2F	2F	2FT	2FT	3T				

* *Appropriate capability ratings of poorly or very poorly drained soils without drainage improvements. These ratings apply to all slope classes.*

** *The range of capability ratings which are appropriate for the miscellaneous land unit.*

Table 4. Agricultural alnd capability ratings for common field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Capability classification by slope classes								
		B,b	C	c	D	d	E	e	F,f	G,g
KE	Kelvin	3W	3W	3W			(5W)*			
KE.C	Kelvin coarse phase	3W	3W	3W			(5W)*			
KE.L	Kelvin loamy phase	3W	3W	3W			(5W)*			
KE.W	Kelvin washed phase	2W	2WE	2WT			(4W)*			
KT	Kintyre	2FM	2FM	2ST	2ST	3T	3T	4T	5T	6T
MA	Maplewood	2W	2WE	2WT			(4W)*			
MA.T	Maplewood till phase	2W	2WE	2WT			(4W)*			
ME	Melbourne	3D	3D	3DT	3DT	3DT	4T	4T	5T	6T
MI	Middlemarch	2F	2F	2FT	2FT	3T				
MK	Muirkirk	2W	2W	2W			(4W)*			
MU	Muriel	2D	2DE	2DT	3T	3T	4T	4T	5T	6T
MU.L	Muriel loamy phase	2D	2DE	2DT	3T	3T	4T	4T	5T	6T
MU.W	Muriel washed phase	1	2E	2T	3T	3T	4T	4T	5T	6T
NM	Not Mapped	Not Rated								
NO	Normandale	1	2E	2T	3T	3T				
OR	Organic	Not Rated								
PF	Plainfield	3F	3F	3F	3F	3FT	3FT	4T	5T	6T
SC	Scarp	(6T-7T)**								
SH	Shedden	2FM	2FM	2ST	2ST	3T	3T	4T	5T	6T
SL	Silver Hill	2W	2W	2WT			(4W)*			
SO	Southwold	4W	4W	4W			(5W)*			
SP	Springwater	3W	3W	3W			(5W)*			
ST	Strathburn	3WD	3WD	3WD			(5W)*			
ST.C	Strathburn coarse phase	3WD	3WD	3WD			(5W)*			
ST.L	Strathburn loamy phase	3WD	3WD	3WD			(5W)*			
SW	St. Williams	2W	2WE	2WT			(4W)*			
TA	Tavistock	1	2E	2T	3T	3T				
TA.T	Tavistock till phase	1	2E	2T	3T	3T				
TO	Toledo	3W	3W	3W			(5W)*			
TO.C	Toledo coarse phase	3W	3W	3W			(5W)*			
TO.L	Toledo loamy phase	3W	3W	3W			(5W)*			
TU	Tuscola	1	2E	2T	3T	3T				
TU.C	Tuscola coarse phase	1	2E	2T	3T	3T				
VC	Valley Complex	(Valley walls: 6T-7T; flood plains: 3I-5I)**								
VI	Vittoria	1	1	2T	2T	3T				
WA	Walsher	2M	2M	2MT	2MT	3T	3T	4T	5T	6T
WF	Wattford	2M	2ME	2MT	3T	3T	4T	4T	5T	6T
WM	Walsingham	3F	3F	3F	3F	3FT				
WN	Waterin	3W	3W	3W			(4W-5W)*			
WU	Wauseon	2W	2W	2WT			(4W)*			
WU.T	Wauseon till phase	2W	2W	2WT			(4W)*			

* *Appropriate capability ratings of poorly or very poorly drained soils without drainage improvements. These ratings apply to all slope classes.*

** *The range of capability ratings which are appropriate for the miscellaneous land unit.*

B. Agricultural Suitability Classification for Special Crops

The Canada Land Inventory (CLI) soil capability classification system for agriculture (17) is designed for common field crops including forages, small grains and corn. It is not designed, however, to classify land according to its suitability for growing other field crops as well as horticultural crops. Fruit and vegetable crops, and field crops such as soybeans or tobacco, are not included in the classification system. Crops which fall into these categories and are dealt with further in this section will henceforth be referred to as "special crops".

Since a large portion of Elgin County is used for growing special crops, a suitability rating system for a number of important agricultural crops was devised for the soils of the County. The ratings are based on information obtained from field observations, agricultural research and extension personnel, and from review of relevant literature. The publications "Climate and soil requirements for economically important crops in Canada" (25), and "A Compilation of Soil, Water and Climatic Requirements for Selected Horticultural Crops in Southern Ontario" (26), were especially helpful.

(1) Suitability Classification for Special Crops

The classification system used to determine soil suitability ratings is based on a system developed by the Food and Agriculture Organization (FAO) of the United Nations, which is outlined in the FAO bulletin titled "A Framework For Land Evaluation" (27). Some modifications of the FAO system, however, were necessary to suit local conditions and the purpose for which the system was being applied. The resulting modified system consists of five classes which is the same number as in the FAO system. The most suitable soils, with no significant limitations for crop growth and yields, are designated Class S1. Soils designated Classes S2 to S4 have decreasing suitability, and soils designated Class N are not suitable.

The suitability ratings of soils mapped in the County for a number of selected special crops are given in Tables 6, 7 and 8. Each table provides ratings for individual crops based on the response of the crop to various soil conditions, the surface features of the soil, and management practices which may be carried out. Some crops were grouped in the tables, however, if they were similar or had only subtle differences in regards to these considerations. The crop groups identified in each table, and the individual crops which compose them, are shown in Table 5.

Table 5. Special crop groups in Elgin County

Crop groups	Vegetable crops (see Table 6)	Special field crops (see Table 7)	Fruit crops (see Table 8)
1	Asparagus	Tobacco	Raspberries, strawberries
2	Sweet potatoes	Peanuts	Apples, walnuts
3	Irish potatoes	Rutabagas	Pears, plums, heart nuts, filbert nuts
4	Cucumbers	Soybeans	
5	Tomatoes	White beans	
6	Peppers	Spring canola	
7	Sweet corn	Winter rapeseed	
8	Brussels sprouts, cauliflower, cabbage		

Soil Suitability Classes

Descriptions of each of the classes in the classification system are as follows:

Class S1 - Soils in this class have no significant limitations for crop growth and yields; soil limitations, if present, range from slight to moderate.

Class S2 - Soils in this class have moderate to severe limitations for crop growth and yields.

Class S3 - Soils in this class have severe limitations for crop growth and yields; management practices such as tile drainage or irrigation will result in increased suitability for some crops.

Class S4 - Soils in this class have very severe limitations for crop growth and yields; management practices such as tile drainage or irrigation will result in increased suitability for some crops.

Class N - Soils in this class have limitations which are so severe that they are not suitable for special crops; management practices such as tile drainage or irrigation do not increase suitability.

Management Factors Which May Affect the Ratings

The soil suitability ratings given in Tables 6, 7, and 8 are based on inherent soil conditions and surface features. Management factors such as the installation of tile drainage or irrigation, however, will increase the suitability of many soils for a range of crops. The means to revise the ratings for these management factors, therefore, has been incorporated into each of the rating tables.

When tile drainage or irrigation results in a significant improvement in the soil suitability rating for a particular crop, the number of classes the rating should be upgraded to is given in the table. A numeric indicator of +1, +2, or +3, is shown in the table beside the appropriate management factor. When the factors are not expected to improve the rating, a dash is shown in the table. For example, in Table 6 an Ayr soil on a simple B slope of 0.5 to 2% is rated Class S4 for asparagus. However, tile drainage would increase the suitability of that soil for asparagus by two classes to Class S2. This is indicated in the table by a +2 beside "Drainage". Irrigation is not expected to increase the suitability of that soil for asparagus, and this is indicated by a dash beside "Irrigation".

Climatic Considerations

Climatic variables such as rainfall or temperature were not considered to be limiting factors in determining the soil suitability ratings for the identified crop groups. The micro-climate of a specific area, however, can have a direct influence on crop growth and yields. Although these conditions are important, they were not factored into the ratings since they are difficult to define at the scale of mapping.

Assumptions

The classification system, and the ratings given in Tables 6, 7, and 8, are based upon the following assumptions:

(a) Good soil management practices that are feasible and practical under a largely mechanized system of agriculture are assumed. These practices include a proper fertility program, management practices that result in good soil structure and crop growth, and management programs which result in minimum damage or risk of damage to the soil;

(b) Distance to markets, accessibility to transport, location, size of farm, field shape and accessibilty to machinery, type of ownership, cultural patterns, skill or resources of individual operators, or hazards of crop damage by storms are not considered in this classification system;

(c) Soil suitability ratings are subject to change if new technology or management practices such as tile drainage or irrigation are widely adopted, or as new information about crop yields or the behaviour and responses of the soils becomes available.

(2) How to Determine Special Crop Suitability Ratings for Areas on the Soil Maps

The soils or land units which occur within areas shown on the soil maps are identified in the map symbols for those areas. Explanations for the map symbols and their components are provided on each map in the section titled "Key to the Map Symbols". Similar explanations are also given in the Glossary at the back of this volume of the report. Symbols shown on the maps may represent one of the following: 1) a land unit; 2) a single soil type which occurs on a single slope; 3) a single soil type which occurs on two different slopes; and 4) two different soil types.

When two slopes or two soil types are identified in the map symbol, dominant and significant soils occur for which suitability ratings must be determined. Dominant means that 40 to

80% of the area represented by the map symbol consists of that soil type or slope class. Significant means that 20 to less than 40% of the area represented by the map symbol consists of that soil type or slope class.

Suitability ratings for the soils identified in the symbols shown on the soil maps are given in Tables 6, 7, and 8. Ratings are not given in the tables for miscellaneous land units. The following examples of typical map symbols will demonstrate the procedures that should be followed when using the tables to determine the appropriate soil suitability rating or ratings for symbols shown on the soil maps. For the purpose of these examples, the suitability rating for cucumbers will be determined.

Example 1. $\frac{BV}{C}$

In this example, 80% or more of the area represented by the symbol consists of Beverly (BV) soils which occur on simple C slopes of 2 to 5%.

Procedure:

1) Locate the symbol "BV" in the first column of Table 6 titled "Map Symbol".
2) Now move horizontally across the line for BV soils and locate slope class "C" in the column titled "Slope classes/Management factors". The soil suitability rating for BV soils which occur on C slopes will be found on this line.
3) Now move horizontally across the C slope class line to Crop Group column #4 (Cucumbers), where the suitability rating of Class S3 is given.
4) After determining the suitability rating, move down vertically in the same column in the table to the lines which indicate whether the ratings should change if management factors, such as drainage or irrigation, are carried out. In the line titled "Drainage" a +1 is shown, and in the line titled "Irrigation" a dash is shown. These indicate that drainage would improve the rating by one class, and irrigation does not affect the rating.
5) Therefore, the suitability rating for the map symbol is Class S2 for cucumbers if the soils are tile drained. If the soils are not tile drained, however, the rating for the map symbol is Class S3.

Example 2. $\frac{BV}{C>b}$

In this example, 40 to 80% of the area represented by the symbol consists of Beverly (BV) soils which occur on simple C slopes of 2 to 5% (dominant slope), and 20% to less than 40% of the area consists of Beverly (BV) soils which occur on complex b slopes of 0.5 to 2% (significant slope). Two suitability ratings must therefore be determined.

Procedure:

1) Locate the symbol "BV" in the first column of Table 6 titled "Map Symbol".
2) Now move horizontally across the line for BV soils and locate slope class "C" and slope class "b" in the column titled "Slope classes/ Management factors". The soil suitability ratings for BV soils which occur on these slopes will be found on these lines.
3) Now move horizontally across the C slope class line to Crop Group column #4 (Cucumbers), where the suitability rating of Class S3 is given. After determining that rating, now move up Column #4 to the b slope class line where the suitability rating of Class S3 is given.
4) After determining both suitability ratings, move down vertically in the same column in the table to the lines which indicate whether the ratings should change if management factors, such as drainage or irrigation, are carried out. In the line titled "Drainage" a +1 is shown, and in the line titled "Irrigation" a dash is shown. These indicate that drainage would improve both ratings by one class, and irrigation does not affect either rating.
5) Since the ratings are the same for both slopes, the suitability rating for the map symbol for cucumbers is Class S2 if the soils are tile drained. If the soils are not tile drained, the rating is Class S3.

Example 3. $\frac{BV>TO}{b}$

In this example, 40 to 80% of the area represented by the symbol consists of Beverly (BV) soils which are the dominant soils. They occur on complex b slopes of 0.5 to 2%. In addition, 20% to less than 40% of the area consists of Toledo (TO) soils which are the significant soils. They also occur on b slopes.

Procedure:

1) Locate the symbols "BV" and "TO" in the first column of Table 6 titled "Map Symbol".
2) Determine the suitability rating for BV soils by moving horizontally across the line for BV soils and locating slope class "b" in the column titled "Slope classes/Management factors". On that line, move horizontally to Crop Group column #4 (Cucumbers), where the suitability rating of Class S3 is given. Now move down the column to see if the rating should be upgraded because of management factors. Since there is a +1 beside "Drainage", the rating would be Class S2 if the BV soils are tile drained.
3) Now determine the suitability rating for TO soils by moving horizontally across the line for TO soils and locating slope class "b" in the column titled "Slope classes/Management factors". On that line, move horizontally to Crop Group column #4 (Cucumbers), where the suitability rating of Class S4 is given. Now move down the column to see if the rating should be upgraded because of management factors. Since there is a +2 beside "Drainage", the rating would be Class S2 if the TO soils are tile drained.
4) The soil suitability rating for the map symbol for cucumbers is Class S3>S4 if the soils are not tile drained. If the soils are tile drained, the rating is Class S2 since both soils have the same rating.

Example 4. $\frac{\text{BV>TA}}{\text{b>c}}$

In this example, 40 to 80% of the area represented by the symbol consists of Beverly (BV) soils which are the dominant soils. They occur on complex b slopes of 0.5 to 2%. In addition, 20% to less than 40% of the area consists of Tavistock (TA) soils which are the significant soils. They occur on complex c slopes of 2 to 5%.

Procedure:

1) Locate the symbols "BV" and "TA" in the first column of Table 6 titled "Map Symbol".
2) Determine the suitability rating for BV soils by moving horizontally across the line for BV soils and locating slope class "b" in the column titled "Slope classes/Management factors". On that line, move horizontally to Crop Group column #4 (Cucumbers), where the suitability rating of Class S3 is given. Now move down the column to see if the rating should be upgraded because of management factors. Since there is a +1 beside "Drainage", the rating would be Class S2 if the BV soils are tile drained.
3) Now determine the suitability rating for TA soils by moving horizontally across the line for TA soils and locating slope class "c" in the column titled "Slope classes/Management factors". On that line, move horizontally to Crop Group column #4 (Cucumbers), where the suitability rating of Class S2 is given. Now move down the column to see if the rating should be upgraded because of management factors. Since there is a +1 beside "Drainage", the rating would be Class S1 if the TA soils are tile drained.
4) The soil suitability rating for the map symbol for cucumbers is Class S3>S2 if the soils are not tile drained. If the soils are tile drained, the rating is Class S2>S1.

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
AL	Alluvium	Variable		Not Rated							
AY	Ayr	Poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+3	+3	+2	+2	+3	+3	+2
			Irrigation	-	-	-	-	-	-	-	-
AY.F	Ayr fine phase	Poor	B,b	N	N	S4	S4	S4	S4	S4	S4
			C,c	N	N	S4	S4	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
AY.L	Ayr loamy phase	Poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+3	+3	+2	+2	+3	+3	+2
			Irrigation	-	-	-	-	-	-	-	-
BE	Berrien	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			E,e	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	-	+1
BE.T	Berrien till phase	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			E,e	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	-	+1
BF	Brantford	Moderately well	B,b	N	S4	S3	S2	S1	S2	S2	S1
			C,c	N	S4	S3	S2	S2	S2	S2	S2
			D,d	N	N	N	S2	S2	S2	S2	S2
			E,e	N	N	N	S3	S2	S3	S3	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. Asparagus
2. Sweet potatoes
3. Irish potatoes
4. Cucumbers
5. Tomatoes
6. Peppers
7. Sweet corn
8. Brussel sprouts, Cauliflower, Cabbage

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
BF.C	Brantford coarse phase	Moderately well	B,b	S3	S2	S2	S1	S1	S1	S1	S1
			C,c	S3	S2	S2	S1	S2	S2	S2	S1
			D,d	S4	N	N	S2	S2	S2	S2	S1
			E,e	N	N	N	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
BF.L	Brantford loamy phase	Moderately well	B,b	S3	S3	S3	S1	S1	S2	S1	S1
			C,c	S3	S3	S3	S1	S1	S2	S2	S1
			D,d	S4	N	N	S2	S1	S2	S2	S1
			E,e	N	N	N	S2	S2	S3	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
BI	Brisbane	Imperfect	B,b	S3	S3	S3	S3	S3	S3	S3	S3
			C,c	S3	S3	S3	S3	S3	S3	S3	S3
			D,d	S3	S4	S4	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	-	+1	-	+1
BN	Bennington	Well	B,b	S2	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S1	S1	S2	S1	S1
			D,d	S3	S2	S2	S1	S1	S2	S1	S1
			E,e	S4	S3	S3	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	+1	+1	-	-	+1	-	-
BN.T	Bennington till phase	Well	B,b	S2	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S1	S1	S2	S1	S1
			D,d	S3	S2	S2	S1	S1	S2	S1	S1
			E,e	S4	S3	S3	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	+1	+1	-	-	+1	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
BO	Bookton	Well	B,b	S2	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S1	S1	S1	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S3	S3	S3	S3	S3	S3	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	-	+1
BO.T	Bookton till phase	Well	B,b	S2	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S1	S1	S1	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S3	S3	S3	S3	S3	S3	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	-	+1
BT	Brant	Well	B,b	S1	S2	S2	S1	S1	S1	S1	S1
			C,c	S1	S2	S2	S1	S1	S2	S1	S1
			D,d	S2	S2	S2	S1	S1	S2	S1	S1
			E,e	S2	S3	S3	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	+1	+1	-	-	-	-	-
BU	Burford	Rapid	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S3	S3	S2	S2	S2	S2	S2
			E,e	S3	S4	S4	S3	S3	S3	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	-	+1	-	+1
BV	Beverly	Imperfect	B,b	N	S4	S4	S3	S2	S3	S3	S2
			C,c	N	S4	S4	S3	S3	S3	S3	S3
			D,d	N	N	N	S3	S3	S3	S3	S3
			E,e	N	N	N	S3	S3	S3	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
BV.C	Beverly coarse phase	Imperfect	B,b	S4	S3	S3	S2	S2	S2	S2	S1
			C,c	S4	S3	S3	S2	S2	S2	S2	S2
			D,d	N	S4	S4	S2	S2	S3	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
BV.L	Beverly loamy phase	Imperfect	B,b	S4	S4	S4	S2	S2	S2	S2	S1
			C,c	S4	S4	S4	S2	S2	S3	S2	S2
			D,d	N	N	N	S2	S2	S4	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
BY	Brady	Imperfect	B,b	S3	S3	S3	S3	S3	S3	S3	S3
			C,c	S3	S3	S3	S3	S3	S3	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	-	+1
CA	Caledon	Well	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S2	S2	S2	S2	S3	S2	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
CA.F	Caledon fine phase	Well	B,b	N	S4	S3	S2	S1	S2	S2	S1
			C,c	N	S4	S3	S2	S2	S2	S2	S2
			D,d	N	N	N	S2	S2	S2	S2	S2
			E,e	N	N	N	S3	S2	S3	S3	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
CH	Churchville	Very poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Asparagus*
2. Sweet potatoes
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
CH.P	Churchville peaty phase	Very poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
CM	Camilla	Imperfect	B,b	S3	S3	S3	S3	S3	S3	S3	S3
			C,c	S3	S3	S3	S3	S3	S3	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
CM.L	Camilla loamy phase	Imperfect	B,b	S3	S3	S3	S3	S3	S3	S3	S3
			C,c	S3	S3	S3	S3	S3	S3	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
CW	Colwood	Poor	B,b	S4	S4	S4	S3	S3	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
CW.C	Colwood coarse phase	Poor	B,b	S3	S3	S3	S3	S2	S3	S3	S2
			C,c	S3	S3	S3	S4	S3	S4	S4	S3
			Drainage	+1	+1	+1	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
CW.P	Colwood peaty phase	Poor	B,b	N	S2	S2	S4	S4	N	S4	S4
			C,c	N	S2	S2	S4	S4	N	S4	S4
			Drainage	-	+1	+1	+2	+2	-	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
EK	Ekfrid	Imperfect	B,b	N	N	N	S3	S3	N	S3	S3
			C,c	N	N	N	S3	S3	N	S4	S3
			D,d	N	N	N	S4	S3	N	S4	S3
			Drainage	-	-	-	-	+1	-	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
EK.C	Ekfrid coarse phase	Imperfect	B,b	N	N	N	S2	S2	N	S2	S2
			C,c	N	N	N	S2	S2	N	S3	S2
			D,d	N	N	N	S3	S2	N	S3	S2
			Drainage	-	-	-	+1	+1	-	+1	+1
			Irrigation	-	-	-	-	-	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
EK.L	Ekfrid loamy phase	Imperfect	B,b	N	N	N	S2	S2	N	S2	S2
			C,c	N	N	N	S2	S2	N	S3	S2
			D,d	N	N	N	S3	S2	N	S3	S2
			Drainage	-	-	-	+1	+1	-	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
ER	Eroded Channel	Rapid to poor				Not Rated					
FR	Frome	Very poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
FR.P	Frome peaty phase	Very poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
FX	Fox	Rapid	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S3	S3	S3	S3	S3	S3	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1 +1	+1	+1	+1	+1	-	+1	
GO	Gobles	Imperfect	B,b	N	S4	S4	S3	S2	S2	S3	S2
			C,c	N	S4	S4	S3	S3	S3	S3	S3
			D,d	N	N	N	S3	S3	S3	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
GO.C	Gobles coarse phase	Imperfect	B,b	S4	S3	S3	S2	S1	S1	S2	S2
			C,c	S4	S3	S3	S2	S2	S2	S2	S2
			D,d	N	S4	S4	S2	S2	S2	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
GO.L	Gobles loamy phase	Imperfect	B,b	S4	S3	S3	S2	S1	S1	S2	S1
			C,c	S4	S3	S3	S2	S2	S2	S2	S2
			D,d	N	S4	S4	S2	S2	S2	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
GO.W	Gobles washed phase	Imperfect	B,b	S2	S3	S3	S2	S2	S2	S2	S2
			C,c	S2	S3	S3	S2	S2	S3	S2	S2
			D,d	S3	S3	S3	S2	S2	S3	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	-	-	-
GY	Granby	Poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+3	+3	+3	+2	+2	+3	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
HI	Highgate	Imperfect	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S3	S3	S2	S3	S2	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	+1	-	-
KE	Kelvin	Poor	B,b	N	N	S4	S4	S4	S4	S4	S4
			C,c	N	N	S4	S4	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
KE.C	Kelvin coarse phase	Poor	B,b	S4	S4	S4	S3	S2	S3	S2	S2
			C,c	S4	S4	S4	S3	S3	S4	S3	S3
			Drainage	+1	+2	+2	+1	+1	+2	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
KE.L	Kelvin loamy phase	Poor	B,b	N	S4	S4	S3	S2	S3	S2	S2
			C,c	N	S4	S4	S3	S3	S4	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
KE.W	Kelvin washed phase	Poor	B,b	S4	S4	S4	S3	S3	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
KT	Kintyre	Rapid	B,b	S1	S1	S1	S1	S2	S1	S2	S2
			C,c	S1	S1	S1	S1	S2	S1	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S2	S2	S2	S2	S3	S2	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
MA	Maplewood	Poor	B,b	S4	S4	S4	S4	S3	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
MA.T	Maplewood till phase	Poor	B,b	S4	S4	S4	S4	S3	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
ME	Melbourne	Moderately well	B,b	N	N	N	S2	S2	N	S2	S2
			C,c	N	N	N	S2	S2	N	S3	S2
			D,d	N	N	N	S3	S2	N	S3	S2
			E,e	N	N	N	N	S3	N	N	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
MI	Middlemarch	Imperfect	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S3	S3	S2	S3	S2	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	+1	-	-
MK	Muirkirk	Poor	B,b	S4	S3	S3	S3	S3	S3	S3	S3
			C,c	S4	S3	S3	S3	S3	S3	S3	S4
			Drainage	+2	+2	+2	+1	+1	+2	+1	+1
			Irrigation	-	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. Asparagus
2. Sweet potatoes
3. Irish potatoes
4. Cucumbers
5. Tomatoes
6. Peppers
7. Sweet corn
8. Brussel sprouts, Cauliflower, Cabbage

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
MU	Muriel	Moderately well	B,b	N	S4	S3	S2	S1	S1	S2	S1
			C,c	N	S4	S3	S2	S2	S2	S2	S2
			D,d	N	N	N	S2	S2	S2	S2	S2
			E,e	N	N	N	S3	S2	S2	S3	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
MU.L	Muriel loamy phase	Moderately well	B,b	S3	S3	S3	S1	S1	S1	S1	S1
			C,c	S3	S3	S3	S1	S1	S2	S2	S1
			D,d	S4	S3	S3	S2	S1	S2	S2	S1
			E,e	N	N	N	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
MU.W	Muriel washed phase	Moderately well	B,b	S1	S2	S2	S1	S1	S1	S1	S1
			C,c	S1	S2	S2	S1	S1	S2	S1	S1
			D,d	S2	S2	S2	S1	S1	S2	S1	S1
			E,e	S2	S3	S3	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	+1	+1	-	-	-	-	-
NM	Not Mapped					Not Rated					
NO	Normandale	Imperfect	B,b	S3	S3	S3	S3	S3	S3	S3	S3
			C,c	S3	S3	S3	S3	S3	S3	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	-	+1	+1	-	+1
OR	Organic	Very poor				Not Rated					

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
PF	Plainfield	Rapid	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S2	S3	S3	S3	S3	S3	S3
			E,e	S3	N	N	N	N	N	N	N
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
SC	Scarp	Rapid to imperfect		Not Rated							
SH	Shedden	Rapid	B,b	S1	S1	S1	S1	S2	S1	S2	S2
			C,c	S1	S1	S1	S1	S2	S1	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S2	S2	S2	S2	S3	S2	S3	S3
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
SL	Silver Hill	Poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+3	+2	+2	+2	+2	+3	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
SO	Southwold	Very poor	B,b	N	N	N	N	N	N	N	N
			C,c	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-	-
SP	Springwater	Very poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
ST	Strathburn	Poor	B,b	N	N	N	S4	S4	N	S4	S4
			C,c	N	N	N	S4	S4	N	S4	S4
			Drainage	-	-	-	+2	+2	-	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
ST.C	Strathburn coarse phase	Poor	B,b	N	N	N	S3	S3	N	S3	S2
			C,c	N	N	N	S3	S3	N	S3	S3
			Drainage	-	-	-	+1	+1	-	+1	+1
			Irrigation	-	-	-	-	-	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. Sweet potatoes
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
ST.L	Strathburn loamy phase	Poor	B,b	N	N	N	S3	S3	N	S3	S2
			C,c	N	N	N	S3	S3	N	S3	S3
			Drainage	-	-	-	+1	+1	-	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
SW	St. Williams	Poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+3	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
TA	Tavistock	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S3	S2	S2
			D,d	S4	S3	S3	S2	S2	S3	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	+1	-	-
TA.T	Tavistock till phase	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S3	S2	S2
			D,d	S4	S3	S3	S2	S2	S3	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	+1	-	-
TO	Toledo	Poor	B,b	N	N	S4	S4	S4	S4	S4	S4
			C,c	N	N	S4	S4	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
TO.C	Toledo coarse phase	Poor	B,b	S4	S3	S3	S3	S2	S2	S2	S2
			C,c	S4	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
TO.L	Toledo loamy phase	Poor	B,b	N	S4	S4	S3	S2	S3	S2	S2
			C,c	N	S4	S4	S3	S3	S4	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-	-
TU	Tuscola	Imperfect	B,b	S2	S3	S2	S2	S2	S2	S2	S2
			C,c	S2	S3	S2	S2	S2	S3	S2	S2
			D,d	S3	S3	S2	S2	S2	S3	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
TU.C	Tuscola coarse phase	Imperfect	B,b	S2	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S1	S2	S2	S2	S2
			D,d	S2	S3	S3	S2	S2	S2	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	+1	+1	-	-	-	-	-
VC	Valley Complex	Rapid to poor		Not Rated							
VI	Vittoria	Imperfect	B,b	S3	S2	S2	S2	S2	S2	S2	S2
			C,c	S3	S2	S2	S2	S3	S3	S3	S3
			D,d	S3	S3	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	-	-
WA	Walsher	Well	B,b	S2	S1	S1	S1	S1	S1	S1	S1
			C,c	S2	S1	S1	S1	S2	S2	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S3	S2	S2	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	+1	+1	+1	-	-
WF	Wattford	Well	B,b	S2	S2	S2	S2	S2	S2	S2	S2
			C,c	S2	S2	S2	S2	S2	S2	S2	S2
			D,d	S2	S2	S2	S2	S2	S2	S2	S2
			E,e	S2	S2	S2	S2	S2	S2	S2	S2
			F,f	N	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	+1	+1	-	+1
WM	Walsingham	Imperfect	B,b	S3	S3	S3	S3	S3	S3	S3	S3
			C,c	S3	S3	S3	S3	S3	S3	S3	S3
			D,d	S3	S3	N	S4	S4	S4	S4	S4
			Drainage	+1	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	+1	+1	+1	+1	+1	+1	+1
WN	Waterin	Poor	B,b	S4	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 6. Agricultural land suitability ratings for some vegetable crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management factors *	Crop Groups ** 1	2	3	4	5	6	7	8
WU	Wauseon	Poor	B,b	S4	S4	S4	S4	S4	S3	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-
WU.T	Wauseon till phase	Poor	B,b	S4	S4	S4	S4	S4	S3	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4	S4
			Drainage	+2	+2	+2	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. *Asparagus*
2. *Sweet potatoes*
3. *Irish potatoes*
4. *Cucumbers*
5. *Tomatoes*
6. *Peppers*
7. *Sweet corn*
8. *Brussel sprouts, Cauliflower, Cabbage*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
AL	Alluvium	Variable					Not Rated			
AY	Ayr	Poor	B,b	S4	S4	S3	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
AY.F	Ayr fine phase	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	N	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
AY.L	Ayr loamy phase	Poor	B,b	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
BE	Berrien	Imperfect	B,b	S3	S3	S2	S2	S2	S2	S2
			C,c	S3	S3	S3	S3	S3	S2	S2
			D,d	S4	S3	S3	S3	S4	S3	S3
			E,e	S4	S3	N	S3	N	S3	S4
			Drainage	+1	+1	+1	+1	+1	-	-
			Irrigation	+1	+1	+1	-	-	-	-
BE.T	Berrien till phase	Imperfect	B,b	S3	S3	S2	S2	S2	S2	S2
			C,c	S3	S3	S3	S3	S3	S2	S2
			D,d	S4	S3	S3	S3	S4	S3	S3
			E,e	S4	S3	N	S3	N	S3	S4
			Drainage	+1	+1	+1	+1	+1	-	-
			Irrigation	+1	+1	+1	-	-	-	-
BF	Brantford	Moderately well	B,b	N	S3	S2	S1	S1	S1	S2
			C,c	N	S3	S3	S1	S1	S2	S2
			D,d	N	S3	S3	S2	S2	S2	S3
			E,e	N	N	N	S2	N	S3	N
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
BF.C	Brantford coarse phase	Moderately well	B,b	S4	S2	S2	S1	S1	S1	S1
			C,c	S4	S2	S3	S1	S1	S2	S2
			D,d	N	S3	S3	S2	S2	S2	S2
			E,e	N	N	N	S2	S2	S3	N
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	-	-	-	-	-	-
BF.L	Brantford loamy phase	Moderately well	B,b	N	S2	S2	S1	S1	S2	S2
			C,c	N	S2	S3	S1	S1	S2	S2
			D,d	N	S3	S3	S2	S2	S3	S3
			E,e	N	N	N	S2	S2	S3	N
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
BI	Brisbane	Imperfect	B,b	S3	N	S3	S2	S2	S2	S2
			C,c	S3	N	S4	S2	S2	S2	S2
			D,d	S4	N	S4	S3	N	S2	S2
			Drainage	+1	-	+1	-	-	-	-
			Irrigation	+1	-	+1	-	-	-	-
BN	Bennington	Well	B,b	N	S2	S2	S1	S1	S1	S1
			C,c	N	S2	S2	S1	S1	S1	S2
			D,d	N	S2	S3	S2	S2	S2	S2
			E,e	N	S3	N	S3	N	S3	S3
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
BN.T	Bennington till phase	Well	B,b	N	S2	S2	S1	S1	S1	S1
			C,c	N	S2	S2	S1	S1	S1	S2
			D,d	N	S2	S3	S2	S2	S2	S2
			E,e	N	S3	N	S3	N	S3	S3
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
BO	Bookton	Well	B,b	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S2	S2	S1	S1
			D,d	S3	S2	S3	S2	S3	S2	S2
			E,e	S4	S3	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-
BO.T	Bookton till phase	Well	B,b	S2	S2	S1	S1	S1	S1	S1
			C,c	S2	S2	S2	S2	S2	S1	S1
			D,d	S3	S2	S3	S2	S3	S2	S2
			E,e	S4	S3	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-
BT	Brant	Well	B,b	S1	S1	S1	S1	S1	S1	S1
			C,c	S2	S1	S2	S1	S1	S1	S2
			D,d	S3	S2	S2	S2	S2	S2	S2
			E,e	S4	S2	N	S2	N	S2	S3
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	-	-	-	-	-	-
BU	Burford	Rapid	B,b	S2	S4	S3	S2	S2	S2	S1
			C,c	S2	S4	S3	S2	S2	S2	S1
			D,d	S3	N	S4	S3	S3	S2	S1
			E,e	S4	N	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	-	+1	-	-	-	-
BV	Beverly	Imperfect	B,b	N	S4	S3	S2	S2	S2	S3
			C,c	N	S4	S4	S2	S2	S3	S3
			D,d	N	S4	S4	S3	S3	S3	S4
			E,e	N	N	N	S3	N	S3	N
			Drainage	-	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. Peanuts
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
BV.C	Beverly coarse phase	Imperfect	B,b	S4	S3	S2	S1	S1	S2	S2
			C,c	S4	S3	S3	S1	S1	S2	S2
			D,d	N	S4	S3	S2	S2	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
BV.L	Beverly loamy phase	Imperfect	B,b	S4	S3	S3	S1	S1	S2	S2
			C,c	S4	S3	S4	S2	S2	S2	S3
			D,d	N	S4	S4	S2	S2	S3	S4
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
BY	Brady	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S2
			D,d	S3	S3	S3	S3	S3	S2	S2
			Drainage	+1	+1	+1	-	-	-	+1
			Irrigation	+1	+1	+1	-	-	-	-
CA	Caledon	Well	B,b	S2	S2	S2	S2	S2	S2	S1
			C,c	S2	S2	S2	S2	S2	S2	S1
			D,d	S2	S2	S2	S3	S3	S2	S1
			E,e	S3	S2	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-
CA.F	Caledon fine phase	Well	B,b	N	S3	S2	S1	S1	S1	S2
			C,c	N	S3	S3	S1	S1	S2	S2
			D,d	N	S3	S3	S2	S2	S2	S3
			E,e	N	N	N	S4	N	S3	N
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
CH	Churchville	Very poor	B,b	N	S4	S4	N	N	N	N
			C,c	N	S4	S4	N	N	N	N
			Drainage	-	+2	+2	-	-	-	-
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
CH.P	Churchville peaty phase	Very poor	B,b	N	N	S4	N	N	N	N
			c,c	N	N	S4	N	N	N	N
			Drainage	-	-	+2	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
CM	Camilla	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S2
			D,d	S3	S3	S3	S3	S3	S2	S2
			Drainage	+1	+1	+1	-	-	-	+1
			Irrigation	+1	+1	+1	-	-	-	-
CM.L	Camilla loamy phase	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S2
			D,d	S3	S3	S3	S3	S3	S2	S2
			Drainage	+1	+1	+1	-	-	-	+1
			Irrigation	+1	+1	+1	-	-	-	-
CW	Colwood	Poor	B,b	S4	S4	S4	S4	S4	S4	S4
			C,c	S4	S4	S4	S4	S4	S4	S4
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
CW.C	Colwood coarse phase	Poor	B,b	S3	S2	S3	S2	S2	S2	S2
			C,c	S3	S2	S4	S3	S3	S3	S3
			Drainage	+1	+1	+2	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
CW.P	Colwood peaty phase	Poor	B,b	N	N	S4	N	N	N	N
			C,c	N	N	S4	N	N	N	N
			Drainage	-	-	+2	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
EK	Ekfrid	Imperfect	B,b	N	N	S4	S2	S2	S3	S3
			C,c	N	N	S4	S3	S3	S3	S4
			D,d	N	N	N	S3	S4	N	N
			Drainage	-	-	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
EK.C	Ekfrid coarse phase	Imperfect	B,b	N	N	S4	S1	S1	S2	S2
			C,c	N	N	S4	S2	S2	S2	S3
			D,d	N	N	N	S2	S2	S4	S4
			Drainage	-	-	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
EK.L	Ekfrid loamy phase	Imperfect	B,b	N	N	S4	S2	S2	S2	S3
			C,c	N	N	S4	S2	S2	S3	S4
			D,d	N	N	N	S3	S4	N	N
			Drainage	-	-	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
ER	Eroded Channel	Variable					Not Rated			
FR	Frome	Very poor	B,b	N	S4	S4	N	N	N	N
			C,c	N	S4	S4	N	N	N	N
			Drainage	-	+2	+1	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
FR.P	Frome peaty phase	Very poor	B,b	N	S4	S4	N	N	N	N
			C,c	N	S4	S4	N	N	N	N
			Drainage	-	+2	+1	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
FX	Fox	Rapid	B,b	S2	S2	S2	S2	S2	S2	S1
			C,c	S2	S2	S2	S2	S2	S2	S1
			D,d	S2	S2	S2	S3	S3	S2	S1
			E,e	S3	S3	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-
GO	Gobles	Imperfect	B,b	N	N	S3	S2	S2	S2	S3
			C,c	N	N	S4	S2	S2	S2	S3
			D,d	N	N	S4	S3	S3	S3	S3
			Drainage	-	-	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
GO.C	Gobles coarse phase	Imperfect	B,b	S4	S4	S3	S1	S1	S1	S2
			C,c	S4	S4	S4	S1	S1	S2	S2
			D,d	N	N	S4	S2	S2	S2	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
GO.L	Gobles loamy phase	Imperfect	B,b	N	S4	S2	S1	S1	S2	S2
			C,c	N	S4	S3	S2	S2	S2	S2
			D,d	N	N	S4	S2	S2	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
GO.W	Gobles washed phase	Imperfect	B,b	S3	S2	S2	S2	S2	S2	S2
			C,c	S3	S2	S3	S2	S2	S2	S3
			D,d	S4	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
GY	Granby	Poor	B,b	S4	S4	S3	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
HI	Highgate	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S2
			D,d	S3	S3	S3	S3	S3	S2	S2
			Drainage	+1	+1	+1	-	-	-	+1
			Irrigation	+1	+1	+1	-	-	-	-
KE	Kelvin	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	N	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
KE.C	Kelvin coarse phase	Poor	B,b	S4	S4	S2	S2	S2	S2	S3
			C,c	S4	S4	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
KE.L	Kelvin loamy phase	Poor	B,b	N	N	S3	S3	S3	S3	S4
			C,c	N	N	S4	S4	S4	S4	S4
			Drainage	-	-	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
KE.W	Kelvin washed phase	Poor	B,b	S4	S3	S3	S3	S3	S3	S3
			C,c	S4	S3	S4	S4	S4	S4	S4
			Drainage	+2	+1	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
KT	Kintyre	Rapid	B,b	S2	S1	S2	S2	S2	S2	S1
			C,c	S2	S1	S2	S2	S2	S2	S1
			D,d	S2	S2	S2	S3	S3	S2	S1
			E,e	S3	S2	N	S3	S3	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
MA	Maplewood	Poor	B,b	N	S4	S3	S4	S4	S4	S4
			C,c	N	S4	S3	S4	S4	S4	S4
			Drainage	-	+2	+1	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
MA.T	Maplewood till phase	Poor	B,b	N	S4	S3	S4	S4	S4	S4
			C,c	N	S4	S3	S4	S4	S4	S4
			Drainage	-	+2	+1	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
ME	Melbourne	Moderately well	B,b	N	N	S3	S1	S1	S2	S2
			C,c	N	N	S3	S2	S2	S2	S3
			D,d	N	N	N	S2	S3	S3	N
			E,e	N	N	N	S2	N	S3	N
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
MI	Middlemarch	Imperfect	B,b	S2	S2	S2	S2	S2	S2	S1
			C,c	S2	S2	S2	S2	S2	S2	S1
			D,d	S2	S2	S3	S3	S3	S3	S2
			Drainage	+1	+1	+1	-	-	-	+1
			Irrigation	+1	-	-	-	-	-	-
MK	Muirkirk	Poor	B,b	S4	S4	S3	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
MU	Muriel	Moderately well	B,b	N	N	S2	S1	S1	S1	S2
			C,c	N	N	S3	S1	S1	S1	S2
			D,d	N	N	S3	S2	S2	S2	S2
			E,e	N	N	N	S2	N	S3	S3
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
MU.L	Muriel loamy phase	Moderately well	B,b	N	S3	S1	S1	S1	S1	S2
			C,c	N	S3	S2	S1	S1	S2	S2
			D,d	N	S4	S2	S2	S2	S2	S3
			E,e	N	N	N	S2	N	S3	N
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
MU.W	Muriel washed phase	Moderately well	B,b	S2	S1	S1	S1	S1	S1	S1
			C,c	S2	S1	S2	S1	S1	S1	S2
			D,d	S3	S2	S2	S2	S2	S2	S2
			E,e	S4	S2	N	S2	N	S2	S3
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	-	-	-	-	-	-
NM	Not mapped					Not Rated				
NO	Normandale	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S3	S3	S2
			D,d	S4	S3	S3	S3	S4	S3	S3
			Drainage	+1	+1	+1	-	-	-	+2
			Irrigation	+1	-	+1	-	-	-	-
OR	Organic	Very poor				Not Rated				
PF	Plainfield	Rapid	B,b	S2	S2	S2	S2	S2	S2	S1
			C,c	S2	S2	S2	S2	S2	S2	S1
			D,d	S2	S3	S3	S3	N	S2	S2
			E,e	S3	N	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-
SC	Scarp	Rapid to imperfect				Not Rated				

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
SH	Shedden	Rapid	B,b	S2	S1	S2	S2	S2	S2	S1
			C,c	S2	S1	S2	S2	S2	S2	S1
			D,d	S2	S2	S2	S3	S3	S2	S1
			E,e	S3	S2	N	S3	S3	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	+1	+1	-	-	-	-
SO	Southwold	Very poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	N	S4	S4	S4	S4
			Drainage	-	-	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
SL	Silver Hill	Poor	B,b	S4	S4	S4	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+2	+3	+2	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
SP	Springwater	Very poor	B,b	N	S4	S4	N	N	N	N
			C,c	N	S4	S4	N	N	N	N
			Drainage	-	+2	+2	-	-	-	-
			Irrigation	-	-	-	-	-	-	-
ST	Strathburn	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	N	S4	S4	S4	S4
			Drainage	-	-	-	+1	+1	+1	+1
			Irrigation							
ST.C	Strathburn coarse phase	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	S4	S4	S4	S4	S4
			Drainage	-	-	+2	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
ST.L	Strathburn loamy phase	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	S4	S4	S4	S4	S4
			Drainage	-	-	+2	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
SW	St. Williams	Poor	B,b	S4	S4	S3	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+2	+3	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
TA	Tavistock	Imperfect	B,b	N	S3	S3	S2	S2	S2	S2
			C,c	N	S3	S3	S2	S2	S2	S3
			D,d	N	S3	S4	S3	S3	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
TA.T	Tavistock till phase	Imperfect	B,b	N	S3	S3	S2	S2	S2	S2
			C,c	N	S3	S3	S2	S2	S2	S3
			D,d	N	S3	S4	S3	S3	S3	S3
			Drainage	-	+1	+1	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
TO	Toledo	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	N	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
TO.C	Toledo coarse phase	Poor	B,b	S4	S4	S2	S2	S2	S2	S3
			C,c	S4	S4	S3	S3	S3	S3	S3
			Drainage	+1	+1	+2	+1	+1	+1	+1
			Irrigation	-	-	-	-	-	-	-
TO.L	Toledo loamy phase	Poor	B,b	N	N	S4	S4	S4	S4	S4
			C,c	N	N	N	S4	S4	S4	S4
			Drainage	-	-	+1	+2	+2	+2	+2
			Irrigation	-	-	-	-	-	-	-
TU	Tuscola	Imperfect	B,b	S3	S2	S2	S2	S2	S2	S2
			C,c	S3	S2	S3	S2	S2	S2	S3
			D,d	S4	S3	S3	S3	S3	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
TU.C	Tuscola coarse phase	Imperfect	B,b	S3	S2	S1	S1	S1	S1	S1
			C,c	S3	S2	S2	S2	S2	S2	S2
			D,d	N	S2	S2	S2	S2	S2	S2
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	-	-	-	-	-
VC	Valley Complex	Rapid to poor					Not Rated			

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. Tobacco
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 7. Agricultural land suitability ratings for special field crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope classes/ Management Factors	Crop Groups ** 1	2	3	4	5	6	7
VI	Vittoria	Imperfect	B,b	S3	S2	S2	S2	S2	S2	S2
			C,c	S3	S2	S3	S3	S3	S2	S2
			D,d	S4	S3	S3	S4	S4	S3	S3
			Drainage	+1	+1	+1	+1	+1	+1	+1
			Irrigation	+1	-	+1	-	-	-	-
WA	Walsher	Well	B,b	S2	S1	S1	S1	S1	S1	S1
			C,c	S2	S1	S2	S2	S2	S1	S1
			D,d	S2	S2	S2	S3	S3	S2	S2
			E,e	S3	S2	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	-	+1	-	-	-	-
WF	Wattford	Well	B,b	S1	S2	S2	S1	S1	S1	S1
			C,c	S1	S2	S2	S2	S2	S2	S1
			D,d	S2	S2	S2	S2	S2	S2	S2
			E,e	S2	S2	N	S3	N	S3	S2
			F,f	N	N	N	N	N	N	N
			G,g	N	N	N	N	N	N	N
			Drainage	-	-	-	-	-	-	-
			Irrigation	+1	-	+1	-	-	-	-
WM	Walsingham	Imperfect	B,b	S3	S3	S3	S2	S2	S2	S2
			C,c	S3	S3	S3	S2	S2	S2	S2
			D,d	S3	S4	S4	S3	N	S2	S3
			Drainage	+1	+1	+1	-	-	-	+1
			Irrigation	+1	+1	+1	-	-	-	-
WN	Waterin	Poor	B,b	S4	S4	S4	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+1	+3	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
WU	Wauseon	Poor	B,b	S4	S4	S4	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-
WU.T	Wauseon till phase	Poor	B,b	S4	S4	S4	S4	S4	S4	S3
			C,c	S4	S4	S4	S4	S4	S4	S3
			Drainage	+1	+2	+2	+2	+2	+2	+2
			Irrigation	+1	-	-	-	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Tobacco*
2. *Peanuts*
3. *Rutabagas*
4. *Soybeans*
5. *White beans*
6. *Spring canola*
7. *Winter rapeseed*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
AL	Alluvium	Variable			Not Rated	
AY	Ayr	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
AY.F	Ayr fine phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+1	+2	+2
			Irrigation	-	-	-
AY.L	Ayr loamy phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
BE	Berrien	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S2	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	+1	-
BE.T	Berrien till phase	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S2	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	+1	-
BF	Brantford	Moderately well	B,b	S2	S2	S1
			C,c	S2	S2	S1
			D,d	S3	S2	S1
			E,e	S3	S2	S2
			F,f	N	S3	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
BF.C	Brantford coarse phase	Moderately well	B,b	S2	S2	S1
			C,c	S2	S2	S1
			D,d	S3	S2	S1
			E,e	S3	S2	S2
			F,f	N	S3	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
BF.L	Brantford loamy phase	Moderately well	B,b	S2	S2	S1
			C,c	S2	S2	S1
			D,d	S3	S2	S1
			E,e	S3	S2	S2
			F,f	N	S3	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
BI	Brisbane	Imperfect	B,b	S3	S3	S3
			C,c	S3	S3	S3
			D,d	S3	S3	S3
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
BN	Bennington	Well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	-	-
BN.T	Bennington till phase	Well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
BO	Bookton	Well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	-
BO.T	Bookton till phase	Well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	-
BT	Brant	Well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	-	S2
BU	Burford	Rapid	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S3	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
BV	Beverly	Imperfect	B,b	S3	S3	S2
			C,c	S3	S3	S2
			D,d	S4	S3	S2
			E,e	S4	S3	S3
			Drainage	+1	+1	+1
			Irrigation	-	-	-
BV.C	Beverly coarse phase	Imperfect	B,b	S2	S3	S2
			C,c	S2	S3	S2
			D,d	S2	S3	S2
			Drainage	+1	+1	+1
			Irrigation	-	-	-
BV.L	Beverly loamy phase	Imperfect	B,b	S3	S3	S2
			C,c	S3	S3	S2
			D,d	S4	S3	S2
			Drainage	+1	+1	+1
			Irrigation	-	-	-
BY	Brady	Imperfect	B,b	S3	S3	S3
			C,c	S3	S3	S3
			D,d	S3	S3	S3
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
CA	Caledon	Well	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S3	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1
CA.F	Caledon fine phase	Well	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			E,e	S3	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
CH	Churchville	Very poor	B,b	S4	N	N
			C,c	S4	N	N
			Drainage	+2	-	-
			Irrigation	-	-	-
CH.P	Churchville peaty phase	Very poor	B,b	S4	N	N
			C,c	S4	N	N
			Drainage	+2		-
			Irrigation	-	-	-
CM	Camilla	Imperfect	B,b	S3	S3	S3
			C,c	S3	S3	S3
			D,d	S3	S3	S3
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
CM.L	Camilla loamy phase	Imperfect	B,b	S3	S3	S3
			C,c	S3	S3	S3
			D,d	S3	S3	S3
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
CW	Colwood	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
CW.C	Colwood coarse phase	Poor	B,b	S3	S4	S4
			C,c	S3	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
CW.P	Colwood peaty phase	Poor	B,b	N	N	S4
			C,c	N	N	S4
			Drainage	-	-	+1
			Irrigation	-	-	-
EK	Ekfrid	Imperfect	B,b	S4	S3	S3
			C,c	S4	S3	S3
			D,d	S4	S3	S3
			Drainage	+1	+1	+1
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. Raspberries, Strawberries *2. Apples, Carpathian or Black Walnuts* *3. Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
EK.C	Ekfrid coarse phase	Imperfect	B,b	S4	S3	S3
			C,c	S4	S3	S3
			D,d	S4	S3	S3
			Drainage	+1	+1	+1
			Irrigation	-	-	-
EK.L	Ekfrid loamy phase	Imperfect	B,b	S4	S3	S3
			C,c	S4	S3	S3
			D,d	S4	S3	S3
			Drainage	+1	+1	+1
			Irrigation	-	-	-
ER	Eroded Channel	Rapid to poor			Not Rated	
FR	Frome	Very poor	B,b	S4	N	N
			C,c	S4	N	N
			Drainage	+2	-	-
			Irrigation	-	-	-
FR.P	Frome peaty phase	Very poor	B,b	N	N	N
			C,c	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
FX	Fox	Rapid	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S3	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1
GO	Gobles	Imperfect	B,b	S3	S2	S2
			C,c	S3	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
GO.C	Gobles coarse phase	Imperfect	B,b	S3	S2	S2
			C,c	S3	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	-	-	-
GO.L	Gobles loamy phase	Imperfect	B,b	S3	S2	S2
			C,c	S3	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	-	-	-
GO.W	Gobles washed phase	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	-	-
GY	Granby	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
HI	Highgate	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
KE	Kelvin	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
KE.C	Kelvin coarse phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
KE.L	Kelvin loamy phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
KE.W	Kelvin washed phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
KT	Kintyre	Rapid	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S3	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1
MA	Maplewood	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
MA.T	Maplewood till phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
ME	Melbourne	Moderately well	B,b	S3	S2	S2
			C,c	S3	S2	S2
			D,d	S3	S2	S2
			E,e	N	S3	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
MI	Middlemarch	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
MK	Muirkirk	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
MU	Muriel	Moderately well	B,b	S2	S1	S1
			C,c	S2	S1	S1
			D,d	S2	S1	S1
			E,e	S3	S2	S1
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
MU.L	Muriel loamy phase	Moderately well	B,b	S2	S1	S1
			C,c	S2	S1	S1
			D,d	S2	S1	S1
			E,e	S3	S2	S1
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
MU.W	Muriel washed phase	Moderately well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	-	-
NM	Not Mapped				Not Rated	
NO	Normandale	Imperfect	B,b	S3	S3	S3
			C,c	S3	S3	S3
			D,d	S3	S3	S3
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
OR	Organic	Very poor			Not Rated	

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. Raspberries, Strawberries *2. Apples, Carpathian or Black Walnuts* *3. Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
PF	Plainfield	Rapid	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			E,e	S3	S3	S3
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1
SC	Scarp	Rapid to imperfect			Not Rated	
SH	Shedden	Rapid	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S3	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1
SL	Silver Hill	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
SO	Southwold	Very poor	B,b	N	N	N
			C,c	N	N	N
			Drainage	-	-	-
			Irrigation	-	-	-
SP	Springwater	Very poor	B,b	S4	N	N
			C,c	S4	N	N
			Drainage	+2	-	-
			Irrigation	-	-	-
ST	Strathburn	Poor	B,b	N	S4	S4
			C,c	N	S4	S4
			Drainage	-	+1	+1
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
ST.C	Strathburn coarse phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+1	+1	+1
			Irrigation	-	-	-
ST.L	Strathburn loamy phase	Poor	B,b	N	S4	S4
			C,c	N	S4	S4
			Drainage	-	+1	+1
			Irrigation	-	-	-
SW	St. Williams	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
TA	Tavistock	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	-	-
TA.T	Tavistock till phase	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	-	-
TO	Toledo	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+1	+2	+2
			Irrigation	-	-	-
TO.C	Toledo coarse phase	Poor	B,b	S3	S4	S4
			C,c	S3	S4	S4
			Drainage	+1	+2	+2
			Irrigation	-	-	-
TO.L	Toledo loamy phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+1	+2	+2
			Irrigation	-	-	-

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. *Raspberries, Strawberries*
2. *Apples, Carpathian or Black Walnuts*
3. *Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
TU	Tuscola	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	-	-
TU.C	Tuscola coarse phase	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	-	-
VC	Valley Complex	Rapid to poor			Not Rated	
VI	Vittoria	Imperfect	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S3	S2	S2
			Drainage	+1	+1	+1
			Irrigation	+1	-	-
WA	Walsher	Well	B,b	S1	S1	S1
			C,c	S1	S1	S1
			D,d	S2	S1	S1
			E,e	S2	S2	S2
			F,f	N	S2	S2
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	-
WF	Wattford	Well	B,b	S2	S2	S2
			C,c	S2	S2	S2
			D,d	S2	S2	S2
			E,e	S2	S2	S2
			F,f	N	S3	S3
			G,g	N	N	N
			Drainage	-	-	-
			Irrigation	+1	+1	+1

* *A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

** *Crop Groups*

1. Raspberries, Strawberries *2. Apples, Carpathian or Black Walnuts* *3. Pears, Plums, Heartnuts, Filbert nuts*

Table 8. Agricultural land suitability ratings for some fruit and nut crops in Elgin County (continued)

Map Symbol	Soil or Misc. Land Unit	Natural Drainage	Slope/classes Management factors	Crop Groups ** 1	2	3
WM	Walsingham	Imperfect	B,b	S3	S3	S3
			C,c	S3	S3	S3
			D,d	S4	S3	S3
			Drainage	+1	+1	+1
			Irrigation	+1	+1	+1
WN	Waterin	Poor	B,b	S4	S4	S3
			C,c	S4	S4	S3
			Drainage	+2	+2	+1
			Irrigation	-	-	-
WU	Wauseon	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-
WU.T	Wauseon till phase	Poor	B,b	S4	S4	S4
			C,c	S4	S4	S4
			Drainage	+2	+2	+2
			Irrigation	-	-	-

** A significant improvement in the ratings as a result of drainage or irrigation is indicated by a +1, +2, etc. Where drainage or irrigation would not affect the ratings, a dash (-) is shown.*

*** Crop Groups*

1. Raspberries, Strawberries

2. Apples, Carpathian or Black Walnuts

3. Pears, Plums, Heartnuts, Filbert nuts

C. Soil Interpretations for Water Erosion

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(1) Introduction

Soil erosion by water is a naturally occurring process that can be greatly accelerated by man's activity. Any practice that accelerates surface runoff, or reduces the natural protection afforded by vegetative cover, will generally lead to increasing erosion levels. Uncontrolled soil erosion can reduce production potential, deplete nutrients, and degrade soil quality. Sediment, fertilizers, and pesticides can adversely affect downstream water quality after they have been removed from the land by water erosion.

A widely accepted water erosion relationship, A = R x K x LS x C x P, used to predict average annual soil loss through sheet and rill erosion, is called the Universal Soil Loss Equation or U.S.L.E. (28), where:

A is the average annual soil loss;
R is the rainfall erosivity factor;
K is the soil erodibility factor;
L is the slope length factor;
S is the slope gradient factor;
C is the crop cover factor; and
P is the conservation or management practice factor.

This section of the report provides basic information on the factors of the U.S.L.E. relevant to Elgin County. It also includes a brief description of the methodology needed to apply the U.S.L.E. to the soils in the County. For more detailed information on the factors, and background information on the methodology, refer to Shelton and Wall (29).

In order to apply the U.S.L.E., values must be determined for the factors which compose it. For Elgin County the "R" value is 90 (30). Soil erodibility or "K" values, and associated potential soil erosion classes for each soil type, are reported in Table 9. Slope length and gradient values, or "LS" values, for combinations of slope length and gradient and for representative map symbol slope classes, are given in Tables 10 and 11, respectively. A quick reference table for determining potential soil losses for given K values and slope conditions in the County is provided in Table 12. The soil losses provided in Table 12 are metric unit values. Crop cover values, or "C" values, for a variety of crops and rotations found in the County are given in Tables 13, 14, 15, and 16. Management practice factor "P" values are provided in Table 17. The guidelines used to assess potential soil erosion classes are included in Table 18. Information from these tables can be used to make site specific or map symbol assessments of soil erosion potential by water.

(2) Potential Soil Erosion Classes

The average annual soil loss, or "A", which is determined using the U.S.L.E. is an estimate of the potential soil loss that can be expected for that soil. When the crop cover factor (C) and management practice factor (P) are not included in the equation, the calculated soil loss (A = R x K x LS) is an estimate of the potential soil loss that can be expected under bare field conditions. Based on this calculation, the soil can then be placed in to one of five potential soil erosion classes. Descriptions of the classes are as follows:

Class 1 - Negligible - Soils in this class have very slight to no erosion potential. Minimal erosion problems should occur if good soil management practices are used. The soils in this class should be able to maintain sustainable productivity under average managememt practices. The tolerable soil loss limit may be exceeded for soils that are shallow, low in organic matter, of poor structure or previously eroded. Potential soil erosion loss is less than 6 tonnes/hectare/year (3 tons/acre/year). This amount represents the tolerable soil loss for most Ontario soils.

Class 2 - Low - Without the use of crop rotations and cross slope farming, low to moderate soil losses will occur. Potential soil erosion losses range from 6-11 tonnes/hectare/year (3-5 tons/acre/year). This amount exceeds the tolerable soil loss limit for all but the deepest Ontario soils.

Class 3 - Moderate - Unless conservation measures such as conservation tillage, contour cropping and grass waterways are used, moderate to high soil erosion losses will occur. Potential soil erosion losses range from 11-22 tonnes/hectare/year (5-10 tons/acre/year).

Class 4 - High - Unless measures such as conservation tillage, forage-based rotations, terraces, cross-slope or contour strip cropping are employed, high erosion losses will occur. Potential soil erosion losses range from 22-33 tonnes/hectare/year (10-15 tons/acre/year).

Class 5 - Severe - Unless a soil cover of permanent vegetation is maintained, severe

erosion losses will occur. Potential soil erosion losses are greater than 33 tonnes/hectare/year (>15 tons/acre/year).

Potential soil erosion classes have been determined for the soils identified on the soil maps for the County. Some soils shown on the maps occur on a number of surface slopes or slope classes, and a range of erosion classes was therefore determined for those soils. The potential soil erosion class, or the range of classes, for each soil are given in Table 9.

(3) Assumptions

1. The amount and monthly distribution of rainfall is assumed to be relatively constant throughout the County.
2. Representative slope lengths for each slope class were used to calculate the LS values appropriate for Elgin County landscapes.
3. Average levels of management are assumed. These would include good soil management practices that are feasible and practical under a largely mechanized system of agriculture.
4. The average annual soil losses calculated for each map symbol are based on representative rainfall, soil, slope and possible crop and management conditions. The results give a general indication of the erosion potential of the soils represented in a map symbol, relative to those in other symbols. Since variations in soil conditions do occur within areas delineated on the soil maps, estimations for specific sites require detailed information collected on the site and a separate calculation for each unique combination of conditions.

(4) How to Determine Average Annual Soil Loss from the Soil Maps

The average annual soil loss, or "A", for each soil identified in the symbols on the soil maps can be determined under various crop or management conditions. The soil loss under bare field conditions can be determined by multiplying together the rainfall (R), soil erodibility (K), and slope factors (LS). The soil loss which occurs when specific crops are grown, or when specific management practices are employed, can be determined by multiplying together all of the factors which compose the equation. The descriptions which follow explain how the two types of interpretations are made.

(a) Determining average annual soil loss under bare field conditions

In order to determine the average annual soil loss (A = R x K x LS) for the symbols shown on the soil maps of the County, the U.S.L.E. must be applied to each of the soil types identified in the symbols. Since the U.S.L.E. results in imperial unit values (tons/acre/year) for soil losses, the losses which are calculated using the equation must be multiplied by 2.24 to convert to metric units (tonnes/hectare/year). The steps outlined in Method 1 indicate how to determine the average annual soil loss using the R, K, and LS factors.

A simplified means of determining the average annual soil loss can also be used. Average annual soil losses are given in Table 12 for selected K values and slope classes mapped in the County. The procedure for determining the average annual soil loss from Table 12 is outlined in Method 2. For K values not shown in the table, the soil loss can still be estimated by interpolating between appropriate K values which are given. Soil loss values arrived at using Table 12 are in metric units (t/ha/y). When using Table 12, it is important to remember that the table has been compiled specifically for Elgin County, and the soil loss values are based on estimated slope lengths for each slope class appropriate for Elgin County landscapes. The use of the table in areas other than Elgin County, therefore, is not appropriate.

When the average annual soil loss has been determined for a particular soil using either of these methods, the potential erosion class for that soil can then be determined using Table 18.

Method 1

The U.S.L.E. can be applied to soil types identified in the map symbols to determine the potential average annual soil loss. Under bare field conditions, the equation is A = R x K x LS. An example is as follows:

1) Take any map symbol designation from an Elgin County soil map.

   e.g. $\frac{\text{BV>TA}}{\text{b>c}}$

   Based on the "Key to the Map Symbols" and "Legend" descriptions provided on each soil map, 40% to 80% of the area represented by the symbol consists of Beverly (BV) soils which occur on complex b slopes of 0.5 to 2%, and 20% to less than 40% of the area consists of Tavistock (TA) soils which occur on complex c slopes of 2 to 5%. A potential average annual soil loss for each of these soils must therefore be determined.

2) To determine the average annual soil loss, or A, values for the R, K, and LS factors are needed. When adjusted for snowmelt conditions, the R factor value for Elgin County is always 90.

3) K factor values for all of the soil types mapped in the County are given in Table 9. Using that table, find the symbols "BV" and "TA" in the first column titled "Map Symbol". Now move horizontally across each line to the column titled "Mean K value", where the K values for each soil type are given. The K value for the BV soil type is 0.29, and the K value for the TA soil type is 0.27.

4) LS factor values for slope classes mapped in the County are given in Table 11. Using that table, refer to the column titled "Complex slope". Move down the column and find slope classes "b" and "c", then move horizontally across each line to determine the LS value for each slope class. The LS value for the b slope class is 0.20, and the LS value for the c slope class is 0.39.

5) Calculate the average annual soil loss, A, for each soil type by multiplying the values for the R, K and LS factors. To convert the average annual soil loss, A, from tons/acre/year to tonnes/hectare/year, multiply by 2.24.

   The average annual soil loss for Beverly (BV) soils on b slopes, assuming bare soil conditions, is:

   $$A = R \times K \times LS$$
   $$= 90 \times 0.29 \times 0.20 \times 2.24$$
   $$= 5.2 \text{ t/ha/y}$$

   The average annual soil loss for Tavistock (TA) soils on c slopes, assuming bare soil conditions, is:

   $$A = R \times K \times LS$$
   $$= 90 \times 0.27 \times 0.39 \times 2.24$$
   $$= 9.5 \text{ t/ha/y}$$

6) The results indicate that the Beverly soils, which are the dominant soils in the area, have a lower potential erosion than the Tavistock soils.

Method 2

The potential average annual soil loss for soil types identified in the map symbols can be determined from Table 12. The average annual soil loss values given in Table 12 are in metric units, and are based on an R value of 90 and estimated slope lengths for each slope class. An example is as follows:

1) Take any map symbol designation from an Elgin County soil map.

   e.g. $\frac{\text{BV.L>TO.L}}{\text{d>b}}$

   Based on the "Key to the Map Symbols" and "Legend" descriptions provided on each soil map, 40 to 80% of the area represented by the symbol consists of Beverly loamy phase (BV.L) soils which occur on complex d slopes of 5 to 9%, and 20% to less than 40% of the area consists of Toledo loamy phase (TO.L) soils which occur on complex b slopes of 0.5 to 2%. A potential average annual soil loss for each of these soils must therefore be determined.

2) Using Table 9, find the symbols "BV.L" and "TO.L" in the first column titled "Map Symbol".

3) Now move horizontally across each line to the column titled "Mean K value", where the K values for each soil type are given. The K value for the BV.L soil type is 0.32, and the K value for the TO.L soil type is 0.23.

4) Proceed to Table 12 and find the 0.32 K value in the left hand column. Now move horizontally across the line to the "d" slope class column. The annual soil loss for the BV.L soil is 53.5 t/ha/y and is shown where the line and column intersect.

5) Still using Table 12, find the 0.23 K value in the left hand column, and then move horizontally across the line to the "b" slope class column. The annual soil loss for the TO.L soil is 9.3 t/ha/y and is shown where the line and column intersect.

6) The results indicate that the Beverly loamy phase (BV.L) soil, which is the dominant soil, has a higher potential erosion than the Toledo loamy phase (TO.L) soil, mainly because of the steeper slopes associated with that soil.

(b) Determining average annual soil loss under known crop covers and management practices

The preceding methods for determining the average annual soil loss do not take into account vegetative cover or conservation management practices which may be employed. To determine the average annual soil loss under these conditions, the R, K, and LS values for the soil must be multiplied by the appropriate C and P values from Tables 13, 14, 15, 16, and 17. The example which follows demonstrates the procedure which should be followed to determine

the average annual soil loss using all of the U.S.L.E. factors:

1) Take any map symbol designation from an Elgin County soil map.

   e.g. $\frac{BE}{c}$

   Based on the "Key to the Map Symbols" and "Legend" descriptions provided on each soil map, this map symbol represents a Berrien (BE) soil which occurs on a complex c slope of 2 to 5%. For the purpose of this example, the crop/vegetation cover for the soil is fall ploughed silage corn, with the previous year's crop being winter wheat. No conservation practices have been employed.

2) Select the appropriate R, K, LS, C and P factor values for the soil and slope components of the symbol from the tables provided.

   R value for Elgin County = 90
   K value for Berrien (BE) soil = 0.18 (Table 9)
   LS value for c slope = 0.39 (Table 11)
   C value for fall ploughed silage corn (previous year winter wheat) = 0.48 (Table 13)
   P value for no conservation practices = 1.00 (Table 17)

3) Using the Universal Soil Loss Equation and the metric conversion factor of 2.24, calculate the potential average annual soil loss (A) by water:

   $A = R \times K \times LS \times C \times P$
   $= 90 \times 0.18 \times 0.39 \times 0.48 \times 1.00$
   $= 3.0$ t/ac/y $\times 2.24$
   $= 6.7$ t/ha/y

4) The potential average annual soil loss for the map symbol is 6.7 t/ha/y.

(5) How to Determine Potential Soil Loss at Field Sites

Site or field specific interpretations are useful for on-farm management purposes because they provide farm managers or extension personnel with a general indication of the erosion-reducing effectiveness of various crop and management systems. The example which follows outlines the procedure which should be used to estimate the average annual soil loss for a particular field site. The potential soil erosion class for the soil at that site can then be determined using Table 18.

Example - A particular farm field is thought to have an ongoing water erosion problem, and the farm manager would like to know if this is so. The field is in a corn-corn-soybeans (3yr.) rotation, and is fall moldboard ploughed. As a conservation measure, contour farming is carried out as a standard management practice.

Procedure:

1) First determine the soil conditions for the field. For the purpose of this example, soil investigations indicate that the field is composed of Tavistock soils (TA) which have a slope gradient of 5%, and slope lengths of 200 metres.

2) Now determine all of the U.S.L.E. factor values for the field. For this example they are:

   R value for Elgin County = 90
   K value for Tavistock soil (TA) = 0.27 (Table 9)
   LS value = 1.37 (for combination of slope length = 200 metres, and slope gradient = 5%; Table 10)
   C value = 0.39 * see below
   P value = 0.50 (contour farming; Table 17)

* C values for a variety of crops and rotations are given in Tables 13, 14, 15, and 16. The C value for this particular rotation, however, is not given in those tables and is determined as follows:

   The C value for corn following soybeans, with fall moldboard ploughing (FMP), is 0.47 (Table 13)

   The C value for corn following corn, with fall moldboard ploughing (FMP), is 0.35 (Table 13)

   The C value for soybeans following corn, with fall moldboard ploughing (FMP), is 0.36 (Table 13)

   Therefore, the rotational C value is
   $C = \frac{0.47 + 0.35 + 0.36}{3 \text{ (years)}} = 0.39$

3) Using the metric conversion factor of 2.24, calculate the average annual soil loss (A) by water:

   $A = R \times K \times LS \times C \times P$
   $= 90 \times 0.27 \times 1.37 \times 0.39 \times 0.50$
   $= 6.5$ t/ac/y $\times 2.24$
   $= 14.6$ t/ha/y
   = Moderate (Soil Erosion Potential Class 3; Table 18)

4) Since the tolerable "A" value for deep agricultural soils is 6.0 t/ha/yr (3.0 t/ac/y) or less, the results indicate that the potential erosion for the farm field is above the tolerable level. Therefore, a change in cropping or conservation practices are needed to reduce the average annual soil loss to a more acceptable rate.

To reduce the soil losses on the field in the example to a more acceptable level, using a change in cropping practices, rearrange the equation to solve for the crop cover factor (C). Since the U.S.L.E. is calculated in imperial units, the A value which should be used is 3.0 t/ac/yr. The C value needed to achieve a 3 t/ac/y soil loss would be:

$$C = A/R \times K \times LS \times P \text{ (where } A = 3.0 \text{ and } R \times K \times LS \times P = 16.6)$$
$$= 3.0 / 16.6$$
$$= 0.18$$

The farm operator would therefore have to choose a crop or crop rotation with an average annual C value of 0.18 or less. Some alternatives are: 1) a spring disced or cultivated small grain crop (C value = 0.18; Table 13); 2) a no-till grain corn crop (C value = 0.16; Table 13); or 3) one of three crop rotations which include a forage crop (Table 16).

Table 9. Mean K values, K ranges and potential erosion classes of surface materials for soils of Elgin County

Map Symbol	Soil or Land Unit Name	Number of Sites	Mean K Values	K Ranges	Potential Erosion Classes **
AL	Alluvium	0		Not Determined	
AY	Ayr	0	0.15 *		1
AY.F	Ayr fine phase	0	0.24 *		2-3
AY.L	Ayr loamy phase	0	0.31 *		2-3
BE	Berrien	13	0.18	0.08-0.31	1-4
BE.T	Berrien till phase	33	0.17	0.02-0.42	1-3
BF	Brantford	0	0.30 *		4-5
BF.C	Brantford coarse phase	0	0.15 *		5
BF.L	Brantford loamy phase	0	0.34 *		3-5
BI	Brisbane	1	0.14		1
BN	Bennington	0	0.35 *		3-5
BN.T	Bennington till phase	3	0.39	0.36-0.44	3-5
BO	Bookton	1	0.21		3-5
BO.T	Bookton till phase	5	0.16	0.07-0.24	3-5
BT	Brant	5	0.42	0.32-0.49	3-5
BU	Burford	4	0.17	0.14-0.20	1-3
BV	Beverly	12	0.29	0.21-0.35	2-5
BV.C	Beverly coarse phase	0	0.16 *		2-3
BV.L	Beverly loamy phase	16	0.32	0.19-0.44	2-5
BY	Brady	8	0.10	0.01-0.22	1-2
CA	Caledon	2	0.21	0.01-0.41	2-3
CA.F	Caledon fine phase	0	0.29 *		5
CH	Churchville	0	0.21 *		2
CH.P	Churchville peaty phase	0	0.23 *		2
CM	Camilla	7	0.18	0.09-0.30	1-3
CM.L	Camilla loamy phase	0	0.31 *		3
CW	Colwood	9	0.35	0.21-0.48	3
CW.C	Colwood coarse phase	0	0.16 *		2
CW.P	Colwood peaty phase	0	0.23 *		2
EK	Ekfrid	14	0.20	0.16-0.24	2-5
EK.C	Ekfrid coarse phase	0	0.14 *		1-3
EK.L	Ekfrid loamy phase	2	0.20	0.16-0.24	2-3
ER	Eroded Channel	0		Not Determined	
FR	Frome	1	0.07		1
FR.P	Frome peaty phase	0	0.23 *		2
FX	Fox	5	0.09	0.02-0.15	1-5
GO	Gobles	53	0.26	0.18-0.40	2-5
GO.C	Gobles coarse phase	5	0.19	0.10-0.32	2-4
GO.L	Gobles loamy phase	35	0.35	0.15-0.50	3-5
GO.W	Gobles washed phase	0	0.34 *		3-5
GY	Granby	5	0.10	0.02-0.16	1
HI	Highgate	19	0.20	0.01-0.54	2-5

* *Estimated values*

** Based on A = R x K x LS *for range of slope classes identified on the soil maps*

Table 9. Mean K values, K ranges and potential erosion classes of surface materials for soils of Elgin County (continued)

Map Symbol	Soil or Land Unit Name	Number of Sites	Mean K Values	K Ranges	Potential Erosion Classes **
KE	Kelvin	41	0.22	0.15-0.29	2-3
KE.C	Kelvin coarse phase	3	0.13	0.10-0.15	1
KE.L	Kelvin loamy phase	4	0.30	0.22-0.39	2-4
KE.W	Kelvin washed phase	3	0.33	0.26-0.43	3
KT	Kintyre	21	0.15	0.01-0.42	3-5
MA	Maplewood	3	0.28	0.25-0.30	2-3
MA.T	Maplewood till phase	6	0.38	0.18-0.54	3
ME	Melbourne	0	0.28 *		5
MI	Middlemarch	6	0.17	0.08-0.32	3
MK	Muirkirk	1	0.17		2
MU	Muriel	7	0.29	0.25-0.33	4-5
MU.L	Muriel loamy phase	5	0.34	0.26-0.41	4-5
MU.W	Muriel washed phase	1	0.35		5
NM	Not Mapped	0		Not Determined	
NO	Normandale	50	0.25	0.04-0.50	2-5
OR	Organic	0		Not Determined	
PF	Plainfield	44	0.11	0.03-0.24	1-5
SC	Scarp	0		Not Determined	
SH	Shedden	14	0.15	0.02-0.29	2-5
SL	Silver Hill	5	0.10	0.06-0.16	1
SO	Southwold	0	0.19 *		2
SP	Springwater	3	0.11	0.02-0.19	1
ST	Strathburn	12	0.16	0.09-0.22	1-2
ST.C	Strathburn coarse phase	3	0.15	0.11-0.21	2
ST.L	Strathburn loamy phase	0	0.28 *		2-3
SW	St. Williams	15	0.21	0.12-0.37	2-3
TA	Tavistock	7	0.27	0.23-0.34	2-5
TA.T	Tavistock till phase	40	0.39	0.16-0.50	3-5
TO	Toledo	20	0.19	0.10-0.31	2-3
TO.C	Toledo coarse phase	0	0.15 *		1-2
TO.L	Toledo loamy phase	6	0.23	0.09-0.32	2
TU	Tuscola	47	0.41	0.18-0.60	3-5
TU.C	Tuscola coarse phase	0	0.14 *		1-2
VC	Valley Complex	0		Not Determined	
VI	Vittoria	27	0.19	0.02-0.45	2-4
WA	Walsher	6	0.13	0.04-0.30	1-3
WF	Wattford	6	0.38	0.21-0.49	3-5
WM	Walsingham	44	0.10	0.01-0.41	1-2
WN	Waterin	12	0.10	0.05-0.17	1
WU	Wauseon	2	0.22	0.22-0.22	2
WU.T	Wauseon till phase	2	0.10	0.05-0.15	1

* *Estimated values*

** *Based on A = R x K x LS for range of slope classes identified on the soil maps*

Table 10. LS values for different combinations of slope length and slope gradient

Slope gradient %	Slope length (m)														
	10	15	20	25	30	40	50	60	75	100	125	150	200	250	300
0.2	.063	.069	.073	.076	.080	.084	.088	.091	.095	.101	.105	.109	.111	.120	.125
0.5	.076	.083	.088	.092	.095	.101	.105	.109	.114	.121	.126	.131	.139	.145	.151
0.8	.090	.098	.104	.108	.112	.119	.124	.129	.135	.143	.149	.155	.164	.172	.178
2	.144	.162	.177	.189	.200	.218	.233	.246	.263	.287	.307	.324	.353	.377	.399
3	.205	.232	.253	.270	.285	.311	.333	.351	.376	.410	.438	.463	.504	.539	.570
4	.256	.301	.338	.369	.397	.446	.487	.524	.573	.643	.703	.756	.849	.928	.998
5	.306	.375	.433	.485	.531	.613	.685	.751	.839	.970	1.08	1.19	1.37	1.53	1.69
6	.385	.472	.545	.609	.667	.770	.861	.940	1.05	1.22	1.36	1.49	1.72	1.93	2.11
8	.568	.695	.803	.898	.980	1.14	1.27	1.39	1.56	1.80	2.01	2.20	2.54	2.84	3.11
10	.780	.960	1.11	1.24	1.36	1.57	1.75	1.92	2.15	2.48	2.77	3.04	3.51	3.92	4.29
12	1.03	1.27	1.46	1.63	1.79	2.07	2.31	2.53	2.83	3.27	3.65	4.00	4.62	5.17	5.66
14	1.13	1.61	1.86	2.08	2.28	2.63	2.94	3.22	3.60	4.16	4.65	5.09	5.88	6.57	7.20
16	1.63	1.99	2.30	2.57	2.82	3.25	3.63	3.98	4.45	5.14	5.75	6.30	7.27	8.13	8.90
18	1.97	2.41	2.78	3.11	3.41	3.93	4.40	4.82	5.39	6.22	6.95	7.62	8.80	9.83	10.80
20	2.34	2.86	3.30	3.69	4.05	4.67	5.22	5.72	6.40	7.39	8.26	9.05	10.40	11.70	12.80
25	3.40	4.20	5.80	5.30	5.80	6.75	7.50	8.25	9.25	10.75	12.00	13.00	15.00	17.00	18.50
30	4.60	5.60	6.50	7.25	8.00	9.20	10.25	11.20	12.50	14.50	16.00	18.50	19.00	21.00	-
40	8.25	11.00	10.25	11.50	12.50	14.50	16.25	18.00	20.00	-	-	-	-	-	-

Table 11. Generalized LS values for Elgin County

Slope %	Simple Slope	Slope length (m)	LS value	Complex slope	Slope length (m)	LS value
0-2	B	100	0.16	b	30	0.20
2-5	C	75	0.57	c	30	0.39
5-9	D	65	1.20	d	30	0.83
9-15	E	60	2.53	e	30	1.79
15-30	F	75	6.40	f	50	5.22
>30	G	50	10.25	g	50	10.25

Table 12. Potential soil erosion losses for given K values and slope conditions in Elgin County (t/ha/y)

K Value	Slope classes											
	B	b	C	c	D	d	E	e	F	f	G	g
0.02	0.7	0.8	2.3	1.6	4.8	3.4	10.2	7.2	25.8	21.1	41.3	41.3
0.04	1.3	1.6	4.6	3.1	9.7	6.7	20.4	14.4	51.6	42.1	82.7	82.7
0.06	1.9	2.4	6.9	4.7	14.5	10.0	30.6	21.7	77.4	63.1	124.0	124.0
0.08	2.6	3.2	9.2	6.3	19.4	13.4	40.8	28.9	103.2	84.2	165.3	165.3
0.10	3.2	4.0	11.5	7.9	24.2	16.7	51.0	36.1	129.0	105.2	206.6	206.6
0.12	3.9	4.8	13.8	9.4	29.0	20.1	61.2	43.3	154.8	126.3	248.0	248.0
0.14	4.5	5.6	16.1	11.0	33.9	23.4	71.4	50.5	180.6	147.3	289.3	289.3
0.16	5.2	6.5	18.4	12.6	38.7	26.8	81.6	57.7	206.4	168.4	330.6	330.6
0.18	5.8	7.3	20.7	14.2	43.6	30.1	91.8	65.0	232.2	189.4	372.0	372.0
0.20	6.5	8.1	23.0	15.7	48.4	33.5	102.0	72.2	258.1	210.5	413.3	413.3
0.21	6.8	8.5	24.1	16.5	50.8	35.1	107.1	75.8	271.0	221.0	433.9	433.9
0.22	7.1	8.9	25.3	17.3	53.2	36.8	112.2	79.4	283.9	231.5	454.6	454.6
0.23	7.4	9.3	26.4	18.1	55.6	38.5	117.3	83.0	296.8	242.0	475.3	475.3
0.24	7.7	9.7	27.6	18.9	58.1	40.2	122.4	86.6	309.7	252.6	495.9	495.9
0.25	8.1	10.1	28.7	19.7	60.5	41.8	127.5	90.2	322.6	263.1	516.6	516.6
0.26	8.4	10.5	29.9	20.4	62.9	43.5	132.6	93.8	335.5	273.6	537.3	537.3
0.27	8.7	10.9	31.0	21.2	65.3	45.2	137.7	97.4	348.4	284.1	557.9	557.9
0.28	9.0	11.3	32.2	22.0	67.7	46.9	142.8	101.0	361.3	294.7	578.6	578.6
0.29	9.4	11.7	33.3	22.8	70.2	48.5	147.9	104.7	374.2	305.2	599.3	599.3
0.30	9.7	12.1	34.5	23.6	72.6	50.2	153.0	108.3	387.1	315.7	619.9	619.9
0.31	10.0	12.5	35.6	24.4	75.0	51.9	158.1	111.9	400.0	326.2	640.6	640.6
0.32	10.3	12.9	36.8	25.2	77.4	53.5	163.2	115.5	412.9	336.8	661.3	661.3
0.34	11.0	13.7	39.1	26.7	82.3	56.9	173.4	122.7	438.7	357.8	702.6	702.6
0.35	11.3	14.1	40.2	27.5	84.7	58.6	178.5	126.3	451.6	368.3	723.2	723.2
0.36	11.6	14.5	41.4	28.3	87.1	60.2	183.6	129.9	464.5	378.9	743.9	743.9
0.37	11.9	14.9	42.5	29.1	89.5	61.9	188.7	133.5	477.4	389.4	764.6	764.6
0.38	12.3	15.3	43.7	29.9	91.9	63.6	193.8	137.1	490.3	399.9	785.2	785.2
0.40	12.9	16.1	46.0	31.5	96.8	66.9	204.0	144.4	516.1	420.9	826.6	826.6
0.42	13.6	16.9	48.3	33.0	101.6	70.3	214.2	151.6	541.9	442.0	867.9	867.9
0.43	13.9	17.3	49.4	33.8	104.0	72.0	219.3	155.2	554.8	452.5	888.6	888.6
0.44	14.2	17.7	50.6	34.6	106.4	73.6	224.4	158.8	567.7	463.0	909.2	909.2
0.46	14.8	18.6	52.9	36.2	111.3	77.0	234.6	166.0	593.5	484.1	950.5	950.5
0.48	15.5	19.4	55.2	37.7	116.1	80.3	244.8	173.2	619.3	505.1	991.9	991.9
0.50	16.1	20.2	57.5	39.3	121.0	83.7	255.0	180.4	645.1	526.2	1033.2	1033.2
0.52	16.8	21.0	59.8	40.9	125.8	87.0	265.2	187.7	670.9	547.2	1074.5	1074.5
0.54	17.4	21.8	62.1	42.5	130.6	90.4	275.4	194.9	696.7	568.3	1115.9	1115.9
0.56	18.1	22.6	64.4	44.0	135.5	93.7	285.6	202.1	722.5	589.3	1157.2	1157.2
0.58	18.7	23.4	66.7	45.6	140.3	97.1	295.8	209.3	748.3	610.4	1198.5	1198.5
0.59	19.0	23.8	67.8	46.4	142.7	98.7	300.9	212.9	761.2	620.9	1219.2	1219.2
0.60	19.4	24.2	69.0	47.2	145.2	100.4	306.0	216.5	774.1	631.4	1239.8	1239.8
0.62	20.0	25.0	71.3	48.8	150.0	103.7	316.2	223.7	800.0	652.5	1281.2	1281.2
0.64	20.6	25.8	73.5	50.3	154.8	107.1	326.4	231.0	825.8	673.5	1322.5	1322.5
0.66	21.3	26.6	75.8	51.9	159.7	110.4	336.6	238.2	851.6	694.6	1363.8	1363.8
0.68	21.9	27.4	78.1	53.5	164.5	113.8	346.8	245.4	877.4	715.6	1405.2	1405.2
0.70	22.6	28.2	80.4	55.0	169.3	117.1	357.0	252.6	903.2	736.7	1446.5	1446.5
0.72	23.2	29.0	82.7	56.6	174.2	120.5	367.2	259.8	929.0	757.7	1487.8	1487.8
0.74	23.9	29.8	85.0	58.2	179.0	123.8	377.4	267.0	954.8	778.7	1529.1	1529.1
0.76	24.5	30.6	87.3	59.8	183.9	127.2	387.6	274.3	980.6	799.8	1570.5	1570.5
0.78	25.2	31.5	89.6	61.3	188.7	130.5	397.8	281.5	1006.4	820.8	1611.8	1611.8
0.80	25.8	32.3	91.9	62.9	193.5	133.9	408.0	288.7	1032.2	841.9	1653.1	1653.1

Table 13. C values for common field crops in Elgin County

Field Crop	Previous Crop	Management before crop *	C Value Range **	C Value Mean
Corn (grain)	soybeans	F MP		0.47
	soybeans	S MP		0.39
	winter wheat	F MP	0.33-0.35	0.34
	corn (grain)	F MP	0.34-0.35	0.35
	corn (grain) (2nd year after hay)	F MP		0.34
	soybeans before winter wheat	F Ch	0.32-0.33	0.33
	corn (grain)	S MP	0.29-0.31	0.30
	corn (grain) (2nd year after hay)	S MP	0.27-0.28	0.28
	soybeans	S D/C	0.27-0.28	0.28
	corn (grain)	F Ch		0.23
	soybeans	NT	0.23-0.25	0.24
	hay	F MP		0.21
	hay	S MP		0.16
	corn (grain)	NT	0.12-0.15	0.16
Corn (silage)	winter wheat	F MP	0.46-0.52	0.48
	corn (grain)	F MP	0.46-0.51	0.49
	corn (grain) (2nd year after hay)	F MP	0.44-0.49	0.47
	corn (grain)	S MP	0.41-0.44	0.43
	corn (grain) (2nd year after hay)	S MP	0.38-0.41	0.40
	soybeans	S D/C	0.31-0.33	0.32
	hay	F MP	0.27-0.28	0.28
	hay	S MP	0.22-0.24	0.24
	soybeans	NT	0.24-0.25	0.25
Hay (grass, legume mix)	establishing year			
	- corn (grain)	F MP		0.22
	- spring grain	F Ch		0.15
	- corn (grain)	S MP		0.08
	- spring grain	US		0.04
	established meadow			0.006
Soybeans	soybeans	F MP		0.48
	soybeans before winter wheat	F MP		0.44
	winter wheat	F MP		0.41
	corn (grain)	F MP	0.32-0.39	0.36
	corn (grain)	S MP	0.36-0.40	0.37
	soybeans	F&S Ch	0.36-0.40	0.37
	soybeans	S D/C		0.33
	soybeans	NT	0.32-0.34	0.33
	corn (grain)	S Ch/D	0.31-0.33	0.32

Table 13. C values for common field crops in Elgin County (continued)

Field Crop	Previous Crop	Management before crop *	C Value Range **	C Value Mean
Spring grain (barley, oats, mixed)	corn (grain)	F MP		0.38
	corn (grain)	S MP		0.34
	corn (silage)	F MP		0.31
	corn (grain) (2nd year after hay)	S MP		0.26
	corn (grain)	S D/C		0.18
	corn (grain) (2nd year after hay)	S D/C		0.15
Winter wheat	corn, spring grain, or soybeans	F MP	0.29-0.30	0.29
	soybeans	F Ch		0.24
	soybeans	C	0.14-0.18	0.16
	hay	F MP		0.15

* *F MP - fall moldboard plough or conventional tillage (plough, disc/cultivate twice, then plant)*
S MP - spring moldboard plough or conventional tillage (plough, disc/cultivate twice, then plant);
S D/C - spring disc (D) or cultivate (C) before planting
F Ch - fall chisel plough
S Ch/D - spring chisel plough (Ch) or disc (D)
NT - no till
US - underseeded;
F & S Ch - fall and spring chisel plough
C - cultivate

** *For the C value ranges given, the higher values for each crop type and management practice are appropriate for situations where the soil is exposed for a long period of time, for example:*
(1) early fall ploughing; or (2) when spring planting is delayed after seedbed preparation due to poor climatic conditions, and/or fine textured or poorly drained soils. The lower values are appropriate for situations where optimum management and/or climatic conditions prevail, and they are also appropriate for sandy or well drained soils that can be worked early in the planting season.

The mean C values given in the table should be used for general conditions, and also when the management history is not known.

Some crops or management practices in the County may not be represented in this table due to insufficient data.

Table 14. C values for some field crops followed by a winter cover crop

Field Crop	Winter cover crop	Management before field crop *	C value **
Grain corn or sweet corn	Grass and/or legume cover crop ploughed down in the spring (e.g. red clover, sweet clover, rye grass, etc.)	S MP	0.24
	Broadleaf cover crop (e.g. oilseed radish, buckwheat)	S MP	0.30
Silage corn	Grass and/or legume cover crop	S MP	0.28
	Broadleaf cover crop	S MP	0.36
Soybeans following a corn or small grain crop	Grass and/or legume	S MP	0.24
	Grass and/or legume	F & S Ch	0.24
	Grass and/or legume cover crop	S D/C	0.22
Soybeans following soybeans	Grass and/or legume cover crop	S D/C	0.19

* *S MP - spring moldboard plough or conventional tillage (plough, disc/cultivate twice, then plant)*
S D/C - spring disc (D) or cultivate (C) before planting
F & S Ch - fall and spring chisel plough

** *The C values given are one year averages*

Table 15. C values for some speciality crops in Elgin County

Specialty Crop	Management	C value
Asparagus	15-20 years continuous	0.55
Cauliflower	fall or spring disc	0.55
Cucumbers	spring tillage or cultivation	0.20
Orchard	1) cultivated, bare soil	0.40
	2) 100% ground cover	0.003
Peanuts	1) fall tillage or cultivation	0.55
	2) spring tillage or cultivation	0.30
Peas	1) spring moldboard ploughed following a corn or small grain crop, and then peas followed by grass and/or legume cover crop	0.24
	2) fall and spring chisel ploughed following a corn or small grain crop, and then peas followed by a grass and/or legume cover crop	0.24
	3) spring cultivation following a corn or small grain crop, then peas followed by a grass and/or legume cover crop	0.22
	4) spring cultivation following soybeans or peas, then peas followed by a grass and/or legume cover crop	0.19
Peppers	1) fall tillage or cultivation	0.50
	2) spring tillage or cultivation	0.45
Potatoes	1) fall tillage or cultivation	0.45
	2) rotation with winter cover crop (average c-value)	0.25
Raspberries	1) 10-15 years continuous, bare soil	0.25
	2) 10-15 years continuous, 75% ground cover	0.10
Rutabagas	fall tillage or cultivation	0.50
Strawberries	4-5 years continuous, straw cover in winter	0.30
Tobacco with rye or winter wheat	1) spring moldboard ploughed before tobacco and rye or winter wheat	0.31
	2) spring moldboard ploughed before tobacco, disced before rye or winter wheat	0.28
Tomatoes	1) fall tillage or cultivation	0.50
	2) spring tillage or cultivation	0.35

Table 16. C values for some common crop rotations in Elgin County

Rotation *	C value **
Silage corn (2; FMP), Soybeans (1; F chisel), Winter wheat (1; FMP)	0.40
Silage corn (2; FMP), Soybeans (1; cultivate), Winter wheat (1; FMP)	0.38
Silage corn (2; FMP), Spring grain (1; FMP), Hay (1)	0.33
Silage corn (2; FMP), Spring grain (1; F chisel), Hay (1)	0.31
Silage corn (2; FMP), Spring grain (1; FMP, underseeded with hay), Hay (1)	0.28
Silage corn (2; FMP), Hay (3)	0.20
Silage corn (3; FMP), Winter wheat (1; FMP)	0.43
Grain corn (1; FMP), Soybeans (1; FMP), Winter wheat (1; FMP)	0.33
Grain corn (1; FMP), soybeans (1; FMP)	0.42
Grain corn (2; FMP), Soybeans (1; F chisel), Winter wheat (1; FMP)	0.33
Grain corn (2; FMP), Soybeans (1; cultivate), Winter wheat (1: FMP)	0.31
Grain corn (2; FMP), Spring grain (1; FMP), Hay (1)	0.29
Grain corn (2; FMP), Spring grain (1; F chisel), Hay (1)	0.27
Grain corn (2; FMP), Spring grain (1; FMP, underseeded with hay), Hay (1)	0.24
Grain corn (2; FMP), Spring grain (1; FMP), Hay (3)	0.19
Grain corn (2; FMP), Spring grain (1; F chisel), Hay (3)	0.18
Grain corn (2; FMP), Spring grain (1; FMP, underseeded with hay), Hay (3)	0.16
Grain corn (2; FMP), Hay (3)	0.15
Grain corn (3; FMP), Winter wheat (1; FMP)	0.33
Grain corn (3; F. chisel), Winter wheat (1; FMP)	0.28
Soybeans (3; FMP), Winter wheat (1; FMP)	0.39
Soybeans (1; FMP), Winter wheat (1; FMP)	0.36
Tobacco (SMP), Rye (grain), Rye (winter cover) -2 yr. total C value for 1 yr. average	0.31
Tobacco (SMP), Rye (SMP)	0.31
Tobacco (SMP), Rye (D)	0.28

* *Numbers in parentheses indicate the number of years that the crop is grown consecutively.*
The abbreviations in parentheses are:
FMP - fall moldboard plough;
SMP - spring moldboard plough;
F chisel - fall chisel plough;
D - disc.

** *The C values given are averages that were determined by summing the individual C values of all crops in the rotation and dividing that number by the number of years in the rotation.*

Table 17. P values for conservation or management practices in Elgin County

Practice	P value
Up and down slop farming (cultivation and planting)	1.00
Cross-slope farming	0.75
Contour farming (2-7 percent slopes)	0.50
Strip-cropping, cross slope	0.37
Strip-cropping, on contour	0.25

Table 18. Guidelines for assessing potential soil erosion classes

Potential soil erosion loss classes	Potential soil erosion loss	
	t/ha/y	t/ac/y
1 Negligible	<6	<3
2 Low	6-11	3-5
3 Moderate	11-22	5-10
4 High	22-33	10-15
5 Severe	>33	>15

GLOSSARY *

Alluvium material	refers to materials deposited by rivers and streams, usually on riverbeds and floodplains.
Blanket	a mantle of unconsolidated materials thick enough to mask minor irregularities in the underlying unit but still conforming to the general underlying topography.
Calcareous	refers to materials containing sufficient calcium carbonate to effervesce with 0.1 N hydrochloric acid.
Coarse fragments	rock or mineral particles greater than 2.0 mm in diameter.
Coarse textured	a term applied to soil materials which fall within the coarse textural group. The coarse textural group is a group of soil textures which contain 52% or more sand, and less than 20% clay. Common soil textures associated with this group include sand, loamy sand, and sandy loam (see Figure 11).
Colluvial	describes soil material that has moved downhill and accumulated on lower slopes and/or at the base of slopes.
Consistence	the degree of cohesion or adhesion of the soil mass.
Control section	the vertical section of soil upon which classification is based (usually 1 metre).
Distinct mottles	spots of colour in soil horizons, caused by impeded drainage, whose contrast with the basic horizon is low.
Dominant and Significant	terms which refer to the relative proportions of components which constitute the symbols shown on the soil maps. Dominant means that 40-80% of the area represented by the map symbol consists of that soil type or slope class. Significant means that 20 to less than 40% of the area represented by the map symbol consists of that soil type or slope class. When only a single soil type is shown in a map symbol, or only a single slope class in shown in a map symbol, 80% or more of the area represented by the map symbol consists of that soil type or slope class.
Eluvial horizon	a soil horizon formed by the process of leaching of carbonates, iron, humus, etc. by soil solutions.
Eolian	sediments transported and deposited by wind.
Fine textured	a term applied to soil materials which fall within the fine textural group. The fine textural group is a group of soil textures which contain either: 1) 20-40% clay if the sand content is more than 45%; or 2) 27-40% clay if the sand content is less than 45%. Common soil textures associated with this group include silty clay loam and clay loam (see Figure 11).
Fluvial	river sediments laid down directly in front of, or in contact with, glacial ice. Stratified sands and gravels predominate.

Glacial till	a heterogeneous mixture of sand, silt, clay, gravels and stones deposited directly by glacial ice. In Elgin County, only Port Stanley till occurs which is a silty clay till, usually with less than 5% coarse fragments.
Gley colours	gray, greenish gray, or bluish gray colours caused by the reduction of iron and other elements under poor drainage conditions.
Ice-contact stratified drift	poorly stratified sands and gravels laid down in crevice fillings in stratified drift stagnant ice. May include modified till layers. In Elgin County this material usually occurs as short ridges with local relief to 10 m (see also "Moraine, stagnant").
Illuvial horizon	a soil horizon in which material, such as iron or clay, has accumulated and has been leached from overlying soil horizons.
Inclusions	minor proportions of soils or nonsoils within a map delineation, that occur in unmappable amounts (usually less than 20 percent of the total area).
Lacustrine material	material deposited in lake water, and later exposed, either by lowering of the water level, or by uplifting of the land. Nearshore, shallow water deposited lacustrine material usually consists of sand and silt, while silt and clay predominate in offshore, deep water deposited material.
Map Delineation	a single area on the soil map, bounded by a continuous line and containing a map symbol. Also called a map polygon.
Medium textured	a term applied to soil materials which fall within the medium textural group. The medium textural group is a group of soil textures which contain less than 52% and and less than 27% clay. Common soil textures associated with this group include loam and silt loam (see Figure 11).
Moraine, end	an accumulation of earth deposited as a ridge or ridges in front of a receding glacier as it temporarily paused.
Moraine, ground	an accumulation of earth in the form of undulating plains, and deposited predominantly under glacial ice.
Moraine, stagnant	a portion of an end moraine characterized by rapid down-melting of ice cut off from a glacier.
Organic soil	a soil composed primarily of plant and animal materials, and containing more than 17% organic carbon, or more than 30% organic matter by weight.
Outwash	sediments washed out by melt water flowing from or through glacial ice and laid down as stratified sands, gravels or cobbles.
Parent material	the unconsolidated and more or less chemically weathered mineral or organic matter from which the solum of the soil has developed by pedogenic processes.
Physiography	a description of nature or natural phenomema in general e.g. the publication titled "The Physiography of Southern Ontario" (7) describes the major surface features of Southern Ontario, with special emphasis on the local landforms composed of unconsolidated materials.

Prominent mottles	spots of colour in soil horizons, caused by impeded drainage, whose contrast with the basic horizon colour is high.
Raised shoreline	wave-cut side slopes of glacial till or hummocky ridges of mainly stratified sands and gravels, deposited at the shore of an ancient glacial lake.
Soil horizon	a distinct layer of soil, approximately parallel to the ground surface. Usually two to six horizons occur within one metre of the ground surface.
Soil morphology	the constitution of the soil, including the texture, structure, consistence, colour and other physical, chemical, and biological properties of the various soil horizons that make up the soil profile.
Soil permeability	the ease with which gases or liquids penetrate or pass through the soil. The soil permeability classes used to describe the soils in this report are based on those described in the publication "CanSIS Manual for describing soils in the field" (12).
Soil profile	a vertical section of the soil through all its horizons, and extending in to the parent material
Soil reaction	the degree of acidity or alkalinity of a soil, usually expressed as a pH value. Descriptive terms commonly associated with certain ranges in pH are: extremely acid, 4.5 or less; very strongly acid, 4.6-5.0; strongly acid, 5.1-5.5; medium acid, 5.6-6.0; slightly acid, 6.1-6.5; neutral, 6.6-7.3; slightly alkaline, 7.4-7.8, moderately alkaline, 7.9-8.4; and strongly alkaline, 8.5 or more. These descriptions are contained in the publication "CanSIS Manual for describing soils" (12).
Soil structure	the combination or arrangement of primary soil particles into secondary particles, units or peds.
Soil texture	the relative proportions of the various particle size fractions in a soil, as described by the soil texture classes shown in Figure 12. The sand portion of the triangle may be further subdivided into coarse sand, sand, fine sand and very fine sand, based on the proportions of various sand sizes within the sand fraction. Likewise, loamy sand may be divided into loamy coarse sand, loamy sand, loamy fine sand and loamy very fine sand. When the gravel percentage is between 20 and 50 percent, the textural class is modified by "gravelly", e.g. gravelly sandy loam. When the gravel percentage is greater than 50 percent, the textural class name is modified by "very gravelly", e.g. very gravelly sandy loam.

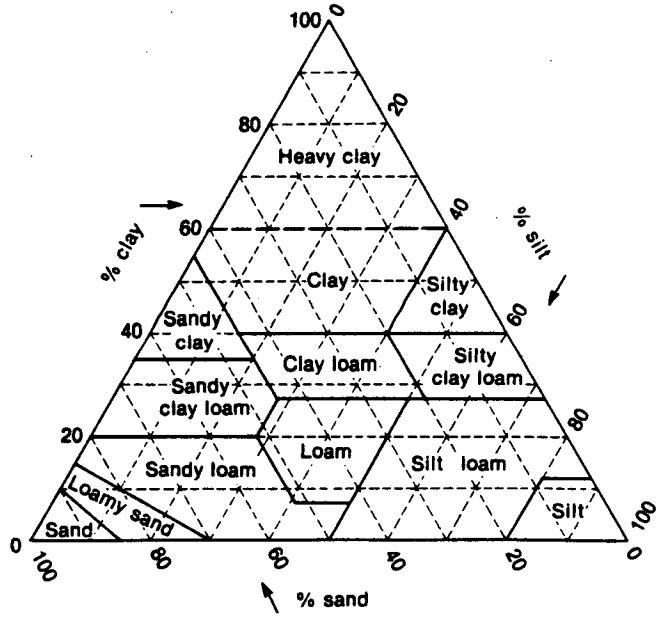

Figure 12. Soil Texture Classes

Soil type	the primary soil unit in this report for which all descriptive and interpretive information applies.
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 A and B horizons.
Spillway	an abandoned channel formed by flowing glacial meltwater.
Stereoscope	an optical instrument used to obtain a three-dimensional image of the land surface from aerial photographs.
Surficial geology	that branch of geology dealing with surface landforms and the unconsolidated materials that comprise them.
Tolerable soil loss	the rate at which soil can be removed before the agricultural productivity of the land is adversely affected.
Veneer	a layer of unconsolidated material up to one metre thick deposited on the surface of some other contrasting deposit.
Very fine textured	a term applied to soil materials which fall within the very fine textural group. The very fine textural group is a group of soil textures which contain more than 40% clay. Common soil textures associated with this group include silty clay and clay (see Figure 11).

* Most definitions for this glossary were based on the following sources:

Agriculture Canada, Research Branch. Revised 1976. Glossary of Terms in Soil Science. Publication 1459, 44 pp.

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APPENDIX 1

Generalized Soil Information for Selected Soils in Elgin County

ALLUVIUM (AL) - clayey

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Mainly fine to very fine (clayey) textured alluvial material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Apk	11	22	5	30	14	46	24	L	3.8	7.3	7.6
Bmgjk1	11	47	2	26	13	45	29	CL	1.8	7.4	7.1
Bmgjk2	6	76	1	21	8	44	35	CL	1.9	7.3	4.5
Ckg	5		6	22	2	35	43	C		7.5	26.6

ALLUVIUM (AL) - loamy

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Mainly medium (loamy) textured alluvial material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Apk	17	20	1	39	17	43	18	L	3.0	7.3	8.9
Bmgjk1	13	66	1	43	17	41	17	L	1.3	7.4	9.3
Bmgjk2	8	84	1	45	16	37	18	L	0.9	7.4	5.9
Ckg	7		11	58	13	30	11	SL	0.1	7.5	19.1

BERRIEN SOIL (BE)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	17	24	1	71	15	18	11	SL	3.2	6.5	0.3
Bmgj	11	51	2	81	19	13	6	LS	0.8	6.7	0.1
Btgj	8	54	3	69	15	16	15	SL	0.6	6.8	0.6
IICkgj	14		1	10	1	50	40	SIC		7.5	20.3

BERRIEN SOIL -TILL PHASE (BE.T)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	36	24	2	71	15	18	11	FSL	3.0	6.6	0.6
Bmgj	37	53	2	78	18	13	9	FSL	0.6	6.6	0.3
Btgj	17	61	4	71	11	11	18	FSL	0.5	6.9	0.3
IICkgj	24		2	16	4	44	40	SIC		7.6	20.4

BRISBANE SOIL (BI)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse textured fluvial sand and gravel material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	1	23	5	72	7	20	8	SL	2.7	5.3	
Bm	1	32	3	71	8	21	7	SL	1.6	6.2	
Bmgj1	1	55	18	76	6	16	8	SL	0.7	6.9	
Bmgj2	1	96	15	82	4	10	8	LS	0.3	7.0	
Bmgj3	1	110	7	91	3	5	4	S	0.3	6.8	
Ckgj	1		9	92	3	6	2	S		7.4	8.5

BENNINGTON SOIL - TILL PHASE (BN.T)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	23	1	42	22	44	15	L	7.2	6.0	
Bm	5	62	1	54	27	37	10	VFSL	0.6	6.6	
IIBt	2	92	1	21	8	45	34	CL	0.5	6.4	
IICk	3		3	18	6	48	34	SICL		7.4	12.9

BOOKTON SOIL (BO)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	28	3	87	9	9	4	S	1.0	7.1	0.8
Bm	3	57	0	85	7	6	9	LS	0.7	7.0	0.2
IIBt	2	74	0	48	8	21	31	SCL	0.7	6.8	0.4
IICk	2		1	14	8	40	47	SIC		7.6	19.8

BOOKTON SOIL - TILL PHASE (BO.T)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	6	24	2	78	14	15	7	LFS	2.3	5.9	0.1
Bm1	6	51	6	83	14	13	4	LFS	0.7	6.2	
Bm2	5	68	3	87	13	8	4	FS	0.3	6.8	0.4
IIBt	3	94	2	34	9	36	30	CL	0.5	6.9	0.1
IICk	3		4	26	7	41	33	CL		7.5	11.0

BRANT SOIL (BT)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Medium (loamy) textured lacustrine materials which most often have silt loam textures

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	5	22	1	35	20	50	15	SIL	3.7	6.8	0.3
Bm	4	50	0	38	29	55	8	SIL	1.3	6.9	0.3
Bt	4	51	0	29	22	48	23	L	0.5	6.9	1.4
Ck	7		1	19	14	66	14	SIL		7.6	27.5

BURFORD SOIL (BU)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse textured fluvial sand and gravel material

DRAINAGE Rapid

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	4	24	13	69	11	20	11	SL	2.5	7.2	3.1
Bm	3	54	18	74	13	18	8	SL	0.9	7.1	0.9
Bt	2	74	20	72	8	13	16	GSL	0.7	7.1	0.5
Ck	2		22	86	7	9	6	GLS		7.6	18.7

BEVERLY SOIL (BV)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Stratified, fine to very fine (clayey) textured lacustrine materials which most often have silty clay loam or silty clay textures

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	17	23	0	15	5	54	31	SICL	3.3	6.6	.2
Btgj	12	46	0	8	2	50	43	SIC	0.9	7.0	.7
Ckgj	20		0	4	0	56	40	SIC		7.5	21.9

BEVERLY SOIL - COARSE PHASE (BV.C)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of coarse (sandy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	1	21	0	65	19	21	14	FSL	2.4	7.3	1.9
Aegj	1	34	0	74	14	17	9	FSL	1.7	7.1	0.5
IIBtgj	1	45	0	12	4	45	43	SIC	0.8	7.3	0.8
IICkgj	1		0	6	0	52	42	SIC	0.0	7.6	19.0

BEVERLY SOIL - LOAMY PHASE (BV.L)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of medium (loamy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	22	23	0	42	19	39	19	L	2.9	6.6	0.8
IIBtgj	13	50	0	14	4	46	41	SIC	1.0	7.0	0.5
IICkgj	19	92	0	9	3	52	39	SICL		7.6	18.5

BRADY SOIL (BY)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured lacustrine or fluvial material, occasionally having a veneer of eolian material having fine sand or loamy fine sand textures

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	10	24	1	80	10	14	7	LS	3.9	6.2	0.1
Bm	9	62	0	86	9	11	3	LS	1.0	6.1	
Bmgj	7	67	1	89	7	8	3	S	0.7	6.1	
Btgj	9	89	1	79	9	10	11	SL	0.4	6.4	1.7
Ckgj	8		3	93	11	5	3	S	0.1	7.4	17.6

CALEDON SOIL (CA)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured lacustrine or fluvial material over coarse textured fluvial sand and gravel material

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	2	22	3	66	17	25	9	SL	3.0	6.6	
Bm	2	47	3	71	17	24	6	SL	0.8	6.8	
Bt	2	64	4	38	11	38	25	L	0.5	5.8	
IIBt	1	75	24	61	5	14	25	GSCL	0.6	6.4	
IICk	2		33	80	3	12	9	GLS	0.2	7.3	20.5

CAMILLA SOIL (CM)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured lacustrine or fluvial material over fluvial gravel and sand material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	8	25	3	70	11	21	8	SL	3.0	6.5	0.6
Bmgj	4	47	7	72	8	18	10	SL	0.9	6.8	1.2
Btgj	6	63	14	64	9	22	15	SL	0.7	6.8	0.6
IICkgj	9		34	84	6	12	5	GLS	0.1	7.5	25.6

COLWOOD SOIL (CW)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Stratified, medium (loamy) textured lacustrine materials which most often have silt loam textures

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	10	31	1	31	15	48	20	L	3.9	6.8	0.4
Bg1	10	59	2	28	17	52	20	SIL	0.8	7.0	0.5
Bg2	6	82	1	30	18	50	20	SIL	0.8	7.0	1.2
Ckg	5		0	20	16	67	14	SIL		7.5	6.0

EKFRID SOIL (EK)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Mainly very fine (heavy clay) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	15	19	0	17	4	39	43	C	3.4	6.8	0.5
Btgj	10	38	0	6	1	34	60	HC	1.4	7.0	0.6
Ckgj1	13	63	0	3	0	38	60	HC		7.6	19.7
Ckgj2	8		0	2	0	39	60	HC		7.7	26.8

EKFRID SOIL - LOAMY PHASE (EK.L)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of medium (loamy) textured material over mainly very fine (heavy clay) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	18	0	50	9	28	22	L	4.4	7.1	0.3
IIBtgj	2	38	0	15	4	33	53	C	1.2	7.5	2.4
IICkgj1	3	88	0	4	0	36	60	HC		7.6	22.3
IICkgj2	2		0	1	0	36	63	HC		7.5	27.0

FROME SOIL (FR)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured lacustrine or fluvial material

DRAINAGE Very poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	27	1	79	5	12	9	LS	4.7	6.6	
Bg	3	62	2	85	7	9	5	LS	1.0	7.0	1.5
Ckg	3		6	92	3	6	2	S	0.3	7.4	21.5

FOX SOIL (FX)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured lacustrine or fluvial material, occasionally having a veneer of eolian material

DRAINAGE Rapid

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	9	29	1	85	8	10	5	LS	2.0	6.9	0.5
Bm1	7	55	1	88	8	8	4	S	0.5	7.0	0.4
Bm2	6	92	1	89	8	7	4	S	0.3	6.9	0.4
Bt	4	97	1	77	11	12	11	FSL	0.3	6.8	0.3
Ck	5		1	89	8	7	4	FS	0.1	7.5	9.5

GOBLES SOIL (GO)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Fine to very fine (clayey) textured glacial till

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	41	20	1	20	7	45	35	CL	3.6	7.1	1.1
Bmgj	12	39	3	17	7	43	40	SIC	1.4	7.1	1.1
Btgj	30	44	1	13	4	41	47	SIC	1.0	7.2	0.9
Ckgj	56		2	10	2	45	44	SIC	0.1	7.5	20.5

GOBLES SOIL - COARSE PHASE (GO.C)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of coarse (sandy) textured material over fine to very fine (clayey) textured glacial till

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	6	22	3	72	13	19	10	FSL	2.6	6.7	0.2
Bmgj	2	30	1	76	29	17	8	FSL	0.8	6.5	0.2
IIBtgj	5	45	1	27	11	35	38	CL	0.8	7.0	0.5
IICkgj	5		1	10	2	48	41	SIC		7.5	11.5

GOBLES SOIL - LOAMY PHASE (GO.L)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of medium (loamy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	38	23	1	32	14	48	20	L	3.1	6.9	0.7
Bmgj	5	34	2	46	19	38	16	L	1.1	6.8	0.3
IIBtgj	31	46	1	19	8	44	36	SICL	0.8	7.1	0.7
IICkgj	37		3	16	5	48	35	SICL	0.1	7.6	19.4

GOBLES SOIL - WASHED PHASE (GO.W)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured lacustrine modified glacial till material over fine to very fine (clayey) textured glacial till material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	13	23	5	39	13	42	19	L	3.5	6.9	1.0
Bmgj	9	46	6	41	13	45	15	L	1.2	6.8	0.4
Btgj	4	51	1	36	12	41	24	L	0.8	7.2	0.8
Ckgj	8		10	38	10	44	18	L		7.5	14.7

GRANBY SOIL (GY)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured lacustrine or fluvial material, occasionally having a veneer of sandy textured eolian material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	5	28	0	70	7	18	12	SL	6.7	6.8	0.3
Bg1	4	60	1	79	7	15	7	LS	1.5	7.0	0.9
Bg2	2	79	1	92	3	5	3	S	0.9	6.7	
Ckg	6		2	82	3	11	7	LS		7.5	20.0

HIGHGATE SOIL (HI)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured eolian or lacustrine material over coarse textured gravelly sand and sand lacustrine beach material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	19	23	6	69	15	22	9	FSL	2.7	6.6	0.2
Bm	12	46	7	78	12	17	5	LFS	0.6	6.5	
Bmgj	14	59	6	76	18	17	7	FSL	0.6	6.6	0.2
Btgj	14	67	8	68	11	18	14	FSL	0.6	6.7	0.5
IICkgj	5		21	71	12	21	8	GCSL		7.5	17.2

KELVIN SOIL (KE)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Fine to very fine (clayey) textured glacial till material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	44	24	1	22	7	40	38	CL	4.8	6.7	0.5
Bg1	33	51	0	18	6	38	44	C	1.4	6.9	0.2
Bg2	20	84	1	18	5	39	43	C	0.8	6.8	0.2
Ckg	40		2	12	3	43	46	SIC	0.1	7.5	17.0

KELVIN SOIL - COARSE PHASE (KE.C)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of coarse (sandy) textured material over clayey textured glacial till material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	4	25	1	69	9	16	15	FSL	4.70	6.8	0.8
IICkg	5		0	27	3	32	41	C		7.6	17.1

KELVIN SOIL - LOAMY PHASE (KE.L)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of medium (loamy) textured material over clayey textured glacial till material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	4	21	0	41	16	36	23	L	2.9	7.0	0.8
IIBg	2	42	0	37	19	32	31	CL	0.7	7.2	0.3
IICkg	4		2	15	5	45	40	SIC	0.2	7.5	16.4

KELVIN SOIL - WASHED PHASE (KE.W)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured lacustrine modified glacial till material overfine to very fine (clayey) textured glacial till material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	27	0	16	9	59	25	SIL	4.2	6.7	0.1
Bg	4	61	2	22	11	55	23	SIL	1.1	7.0	0.6
Ckg	3		12	30	11	49	20	L		7.5	20.8

KINTYRE SOIL (KT)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured eolian or lacustrine material over stratified coarse textured gravelly sand and sand lacustrine beach material

DRAINAGE Rapid

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	22	23	6	75	13	17	8	FSL	2.4	6.7	0.7
Bm	26	51	7	78	14	16	6	LFS	0.6	6.7	0.9
Bt	12	70	10	72	12	13	15	SL	0.7	7.1	0.6
IICk	17		38	84	5	10	6	GLCS		7.5	24.3

MAPLEWOOD SOIL (MA)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	37	0	34	14	42	24	L	4.0	6.1	
Bg	3	68	0	28	12	46	26	L	1.4	6.6	
IIBg	3	102	0	10	3	56	34	SICL	1.4	6.7	
IICkg	1		0	2	0	62	36	SICL		7.5	25.9

MAPLEWOOD SOIL - TILL PHASE (MA.T)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	6	24	0	54	33	30	16	VFSL	3.1	7.1	0.7
Bg	5	46	2	61	33	21	18	VFSL	1.0	6.9	1.9
Ckg	6	68	0	36	28	52	13	SIL	7.6	20.8	
IICkg	5		2	8	1	55	37	SICL		7.7	21.6

MIDDLEMARCH SOIL (MI)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Ice-contact stratified drift material consisting mainly of coarse (sandy) textured material over stratified coarse textured gravelly sand and sand material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	6	22	6	73	17	17	10	FSL	2.8	6.8	1.0
Bm	7	52	4	73	15	19	8	FSL	1.0	6.5	0.3
Btgj	4	79	2	76	18	12	13	FSL	0.4	7.0	2.5
IICkgj	4	96	18	69	15	19	13	FSL		7.6	22.7
IIICkgj	2		3	84	41	14	3	LFS		7.7	23.1

MUIRKIRK SOIL (MK)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse (sandy) textured eolian or lacustrine material over stratified coarse textured gravelly sand and sand lacustrine beach material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	1	25	13	60	14	25	15	FSL	10.0	6.8	
IIBg	1	51	21	80	5	14	5	GLCS	2.2	6.9	
IICkg	4		42	82	6	14	5	GLCS		7.4	18.2

MURIEL SOIL (MU)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Fine to very fine (clayey) textured glacial till material

DRAINAGE Moderately well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	7	20	2	18	8	48	34	SICL	2.0	7.2	2.8
Bt	1	30	7	14	9	35	52	C	1.8	7.0	0.2
Ck	7		1	11	4	50	39	SICL		7.6	15.4

MURIEL SOIL - LOAMY PHASE (MU.L)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of medium (loamy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Moderately well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	5	15	4	34	11	45	21	L	2.3	7.1	0.4
IIBt	4	34	1	15	5	43	42	SIC	0.8	7.3	4.3
IICk	5		2	10	2	48	41	SIC		7.6	15.5

MURIEL SOIL - WASHED PHASE (MU.W)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured lacustrine modified glacial till material over fine to very fine (clayey) textured glacial till material

DRAINAGE Moderately well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	1	23	11	43	14	42	14	L	2.3	7.1	1.4
Bm	1	62	1	28	17	59	12	SIL	0.8	7.3	0.8
Ck1	1	69	3	32	11	56	12	SIL	0.4	7.5	16.6
Ck2	1		3	26	14	61	13	SIL		7.6	23.7

NORMANDALE SOIL (NO)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse to medium (sandy to loamy) textured lacustrine material with very fine sand content often exceeding 30%

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	50	25	1	76	29	16	7	FSL	2.8	6.3	0.5
Bmgj1	41	53	1	79	35	15	6	LFS	0.8	6.4	0.3
Bmgj2	13	70	0	79	36	15	6	LFS	0.3	6.0	0.1
Btgj	23	74	1	74	30	14	12	VFSL	0.4	6.5	0.1
Ckgj	28		1	77	42	18	6	LFS	0.1	7.5	15.0

PLAINFIELD SOIL (PF)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse textured eolian fine sand or eolian modified lacustrine fine sand material

DRAINAGE Rapid

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	28	22	0	88	15	8	4	FS	1.7	6.3	0.5
Bm1	27	52	0	92	14	6	2	FS	0.6	6.0	0.1
Bm2	22	88	1	94	13	4	2	FS	0.2	6.1	0.1
Bt	8	90	0	82	18	10	8	LFS	0.2	6.3	0.2
Ck	15		0	93	.16	5	3	FS		7.5	18.1

SHEDDEN SOIL (SH)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Ice-contact stratified drift material consisting mainly of coarse (sandy) textured material over stratified coarse textured gravelly sand and sand material

DRAINAGE Rapid

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	15	20	3	74	18	16	10	FSL	3.0	6.7	1.0
Bm	11	48	4	84	18	11	4	LFS	0.8	6.6	0.3
Bt	11	68	4	74	19	10	17	FSL	0.5	6.9	0.4
Ck	17	90	9	78	19	13	8	LFS		7.6	18.1
IICk	9	104	21	81	10	9	10	GLCS		7.6	18.4
IIICk	4		1	73	35	20	7	VFSL		7.5	13.7

SILVER HILL SOIL (SL)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured eolian or lacustrine material over medium (loamy) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	5	27	0	76	12	15	9	FSL	4.1	6.5	0.8
Bg	5	62	1	82	14	13	6	LFS	0.8	6.7	0.6
Ckg	3	82	1	80	11	15	4	LS		7.5	16.4
IICkg	6		0	38	16	53	9	SIL		7.6	24.5

SPRINGWATER SOIL (SP)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse textured eolian fine sand or eolian modified lacustrine fine sand material

DRAINAGE Very poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	30	0	81	17	11	7	LFS	6.5	6.2	
Bg1	3	67	0	89	16	7	4	FS	1.1	6.2	0.9
Bg2	1	100	0	95	4	3	2	FS	0.5	0.0	
Ckg	3		0	97	20	2	2	FS		7.5	18.3

STRATHBURN SOIL (ST)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Mainly very fine (heavy clay) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	12	24	0	8	1	36	55	C	4.9	6.9	1.1
Bg1	11	44	0	4	0	31	65	HC	1.6	7.0	0.6
Bg2	8	72	0	3	0	31	66	HC	0.9	7.2	0.4
Ckg	8		0	3	1	35	62	HC	0.2	7.5	12.4

STRATHBURN SOIL - COARSE PHASE (ST.C)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of coarse (sandy) textured material over mainly very fine (heavy clay) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	4	19	1	71	7	15	14	FSL	2.1	7.2	0.9
Bmgj	2	29	0	81	5	10	9	LS	0.8	7.2	1.0
IICkg	4		0	2	0	32	66	HC		7.7	27.5

ST. WILLIAMS SOIL (SW)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse to medium (sandy to loamy) textured lacustrine materials with very fine sand content often exceeding 30%

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	16	26	0	70	23	19	11	FSL	4.5	6.5	0.5
Bg1	14	55	1	72	33	18	9	VFSL	1.0	6.6	0.4
Bg2	7	88	0	75	32	15	10	VFSL	0.5	6.5	0.7
Ckg	17		0	77	35	18	5	LFS		7.5	16.0

TAVISTOCK SOIL (TA)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	13	27	0	40	19	39	20	L	3.3	6.9	0.4
Bmgj	12	52	1	41	20	39	20	L	0.7	7.0	0.7
Btgj	4	53	2	38	16	32	30	CL	0.9	7.0	0.5
IICkgj	8		0	8	2	52	40	SIC		7.6	25.0

TAVISTOCK SOIL - TILL PHASE (TA.T)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of medium (loamy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	26	26	1	29	16	52	18	SIL	3.0	7.0	0.7
Bmgj	25	49	1	34	19	50	16	SIL	1.2	7.1	0.5
Btgj	12	54	1	31	14	45	23	L	0.7	7.2	1.0
IICkgj	23		2	15	6	46	34	SICL		7.3	19.4

TOLEDO SOIL (TO)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Stratified fine to very fine (clayey) textured lacustrine materials which most often have silty clay loam or silty clay textures

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	21	21	0	21	4	39	40	C	4.9	6.8	0.4
Bg1	19	47	0	15	3	41	45	SIC	1.4	6.9	0.3
Bg2	19	76	0	13	3	39	47	C	0.7	6.9	0.3
Ckg	23		0	8	2	42	50	SIC		7.6	16.7

TOLEDO SOIL - COARSE PHASE (TO.C)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of coarse (sandy) textured material over fine to very (clayey) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	1	25	0	72	10	15	14	SL	3.4	7.4	3.1
Ckg	1	38	1	89	9	7	4	S	0.5	7.6	19.9
IICkg1	1	62	0	0	1	49	49	SIC		7.6	26.8
IICkg2	1		0	0	1	43	56	SIC		7.6	24.1

TOLEDO SOIL - LOAMY PHASE (TO.L)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 15 to 40 cm of medium (loamy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	7	27	0	45	17	32	23	L	3.7	6.5	0.3
IIBg	5	64	0	34	15	33	34	CL	0.7	6.7	0.2
IICkg	7		1	10	4	47	43	SIC		7.6	21.6

TUSCOLA SOIL (TU)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Stratified medium (loamy) textured lacustrine materials which most often have silt loam and loam textures

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Tex-ture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	55	24	1	33	19	51	16	SIL	2.8	6.9	0.6
Bmgj	23	48	0	32	22	52	16	SIL	0.6	7.0	0.6
Btgj	26	52	0	21	15	54	24	SIL	0.6	7.0	0.5
Ckgj	68		0	17	12	67	15	SIL		7.6	19.5

VITTORIA SOIL (VI)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured eolian or lacustrine material over medium (loamy) textured lacustrine material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	28	24	2	76	21	17	8	FSL	3.0	6.4	0.4
Bmgj1	20	49	3	85	21	11	4	LFS	0.7	6.5	0.3
Bmgj2	13	71	1	90	27	7	3	FS	0.3	6.5	0.5
IIBtgj	8	93	0	48	31	38	13	L	0.3	6.2	
IICkgj	16		0	25	16	61	14	SIL		7.5	23.6

WALSHER SOIL (WA)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured eolian or lacustrine material over medium (loamy) textured lacustrine material

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	6	22	2	79	15	15	5	LFS	2.2	6.0	
Bm1	5	50	1	86	13	11	3	LFS	0.8	5.8	
Bm2	3	66	0	78	13	18	5	LFS	0.4	5.7	
IIBtgj	2	105	1	33	22	52	16	SIL	0.4	6.3	
IICkgj	4		0	32	23	58	10	SIL		7.4	15.0

WATTFORD SOIL (WF)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse to medium (sandy to loamy) textured lacustrine material with very fine sand content often exceeding 30%

DRAINAGE Well

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	6	23	1	73	36	20	7	VFSL	2.4	6.3	0.2
Bm1	6	39	1	79	32	17	4	LFS	0.5	6.3	0.1
Bm2	3	76	0	74	36	20	6	VFSL	0.2	6.2	
Bt	5	78	0	74	28	15	11	FSL	0.2	6.6	
Ck	5		0	75	29	18	7	FSL	0.3	7.5	18.2

WALSINGHAM SOIL (WM)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse textured eolian fine sand or eolian modified lacustrine fine sand material

DRAINAGE Imperfect

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	44	22	1	86	18	9	5	LFS	2.70	6.30	0.40
Bmgj1	44	64	0	92	19	6	2	FS	0.50	6.20	0.20
Bmgj2	20	76	0	95	18	4	2	FS	0.30	6.20	0.10
Btgj	18	83	0	81	20	7	6	LFS	0.40	6.00	0.20
Ckgj	37		0	94	23	4	2	FS	0.00	7.50	14.0

WATERIN SOIL (WN)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS Coarse textured eolian fine sand or eolian modified lacustrine fine sand material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	13	28	0	79	17	12	8	LFS	4.8	6.6	0.3
Bg1	12	58	0	86	18	9	5	LFS	1.1	6.6	0.4
Bg2	11	94	0	88	19	8	4	FS	0.6	6.5	0.2
Ckg	9		5	93	16	5	3	FS	0.1	7.4	14.1

WAUSEON SOIL (WU)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured material over fine to very fine (clayey) textured lacustrine material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	2	23	1	57	19	25	20	FSL	5.4	6.6	0.3
Bg1	2	42	0	77	25	16	8	FSL	0.7	6.9	0.4
Bg2	2	62	2	81	23	11	9	FS	0.6	6.9	0.1
IICkg	2		0	5	0	44	52	SIC		7.4	10.0

WAUSEON SOIL - TILL PHASE (WU.T)

GENERALIZED PROFILE CHARACTERISTICS

PARENT MATERIALS 40 to 100 cm of coarse (sandy) textured material over fine to very fine (clayey) textured glacial till material

DRAINAGE Poor

MEAN HORIZON VALUES

Horizon	No. of Samples	Depth to Horizon Base (cm)	Gravel %	Sand %	VF Sand %	Silt %	Clay %	Texture	Organic Matter %	pH in $CaCl_2$	$CaCO_3$ %
Ap	3	34	1	67	8	20	13	FSL	6.2	7.1	1.5
Bg	3	65	1	74	6	17	9	FSL	0.6	7.0	0.4
Ckg	4	86	1	91	41	7	2	FS		7.5	18.7
IICkg	3		2	13	4	45	41	SIC		7.5	23.6

APPENDIX 2

Field Identification of Soils

Field Identification of Soils

(1) Introduction

Guidelines for identifying soils at field sites are provided in this appendix. The purpose of including these guidelines as part of the report was to ensure that future data collection on the soils of Elgin County can be correlated with the published descriptions and interpretations. The guidelines are based on the soil drainage groupings and mapping methodology used in the compilation of the 1:50,000 scale soil maps.

Flow charts are provided in Figures 13, 14, 15 and 16 which will assist extension personnel, consultants and others in identifying soil types at field sites. Some knowledge of the geology, physiography, and the soils of Elgin County would be useful when using the charts. In addition, it is important to have an understanding of the mapping system used in the survey. Since background information on these subjects is contained in preceding sections of the report, it is recommended that the soil report be thoroughly reviewed before conducting field investigations.

In order to use the flow charts effectively, it is necessary to be familiar with the techniques for assessing soil properties such as drainage and texture. Guidelines and descriptions which will assist in the determination of these properties are provided in the Agriculture Canada publication "CanSIS Manual for Describing Soils in the Field" (12), and also in the Ontario Institute of Pedology publication "field manual for describing soils" (13).

It is possible to identify the soil type at most sites using Figures 13, 14, 15 and 16. At sites where it is difficult to determine the soil type, it may be necessary to consult the soil descriptions in Volume 1 and the analytical data in Volume 2, before assigning the soil type designation.

Field identification of soils should be considered under the following conditions:

1. The areal extent of the site under investigation is approaching or less than 12 hectares, which is the minimum size area that can be delineated on the 1:50,000 scale soil maps.
2. The site under investigation occurs in an area where the soils and topography are quite variable. Since the map symbols on the 1:50,000 scale soil maps only identify a maximum of two soil types and slope classes, additional soil types or slope classes may occur which are not identified in the symbol. These additional soil types or slope classes are referred to as inclusions. Although their areal extent is usually limited, they can occupy up to 20% of a delineation. Areas where soil and topographic variability may be high can be inferred from the soil map by looking at the number of soil types and slope classes mapped in the general vicinity of the site under investigation. In addition, there is a discussion on the variability of each soil type identified on the soil maps in the Soil Description section of this report.
3. The site under investigation covers only a portion of a delineated area. Although the map symbol indicates the relative proportion of the soil types and slope classes within a delineation, it does not identify their spatial distribution. It is important to understand that the soil types and slope classes identified in a map symbol do not necessarily occur in a uniform pattern across the delineation. Since the area of investigation covers only a portion of the area, it is possible that only one of the soil types or slope classes identified in the map symbol occurs in the area. It is also possible that the site may be comprised of inclusions.

(2) How to Identify the Soil at a Field Site

To identify the soil at a field site, it is recommended that the following procedure be followed:

1. Locate the site under investigation on the 1:50,000 soil maps. Using the "Key to the Map Symbols" description on the border of the map, determine the soil types and slope classes identified in the map symbol for the area. It may also be useful to examine the symbols in the surrounding delineations, and determine the soil types and slope classes identified in those symbols.
2. Refer to the appropriate soil and profile descriptions in Volume 1 and 2 for background information on soil properties. This awareness will facilitate correlation of the data collected on-site with the published information.
3. Determine the slope class at the site.
4. Expose the soil profile at the site using a Dutch auger, soil probe, or shovel. If possible, the soil should be examined to a depth of one metre.

5. Proceed to Figure 13 and determine the appropriate drainage class for the site. Guidelines for determining soil drainage classes are provided in the Ontario Institute of Pedology (OIP) publication "field manual for describing soils" (13). Soil colours should be determined using Munsell soil colour charts (15).

6. Proceed to Figure 14 to begin keying the site to the appropriate soil type or land unit. Figure 14 directs the user to the appropriate land unit if the site falls into one of those categories, or it directs the user to more detailed soil identification keys in Figures 15 and 16. When using Figure 14, it is necessary to determine if the materials comprising the soil profile are similar or contrasting. Materials are considered to be contrasting within the soil profile if there are significant differences in the gravel and stone content. They are also considered to be contrasting if the soil texture of adjacent soil horizons is different by two or more textural classes. These differences often are the result of a change in the mode of deposition of the materials e.g. lacustrine, morainal, or fluvial deposition.

7. If the materials are similar throughout the soil profile, use Figure 15 to determine the soil type for the site. Guidelines for determining soil texture classes are provided in the OIP publication "field manual for describing soils" (13).

8. If the materials at the site are contrasting, use Figure 16 to determine the soil type for the site. Use the OIP publication "field manual for describing soils" (13) if assistance is needed in determining soil texture classes.

The following example provides further explanation of the procedures which should be followed to determine the soil type and slope class at a field site.

Example

1. Locate the field site on the appropriate soil map for the area, and determine the map symbol for the delineated area on the map in which the field site is found. For the purpose of this example, the symbol is:

   $$\frac{BE}{C}$$

   The symbol indicates that the area where the field site is found consists of imperfectly drained Berrien (BE) soils which occur on simple C slopes of 2 to 5%.

2. Go to the Soil Descriptions section of the soil report and read the description of Berrien soils. Now go to the soil profile descriptions in Volume 2 of the report and review the descriptions for Berrien soils.

3. Now measure the slope gradient and length at the site. For the purpose of this example, the slope gradient is 4%, and the slope length is 75 m. Using the slope classes in the OIP publication "field manual for describing soils" (13), this is a simple C slope.

4. Using a Dutch auger, soil probe, or shovel, expose the soil to a depth of 1 m.

5. Now determine the drainage class for the soil at the site. For the purpose of this example, the Munsell soil colour charts (15) indicate that the soil colour is 10YR5/3 throughout the profile, the mottle colour is 10YR5/8, and the depth to mottles is 60 cm. Using the soil drainage chart in the OIP publication "field manual for describing soils" (13), the soil is imperfectly drained.

6. Proceed to Figure 14 and begin to key the site to the appropriate soil type or land unit. For this example, the materials exposed at the site consist of 0 to 55 cm of sandy (sandy loam) textured materials which overly 55 to 100 cm of clayey (silty clay) textured materials which do not contain coarse fragments of any size. These materials are contrasting according to the guidelines given in the descriptions box in Figure 14.

7. Since the materials are contrasting, proceed to Figure 16 to key the site to the appropriate soil type. Based on the soil information determined at the site, the soil type is a Berrien (BE) soil.

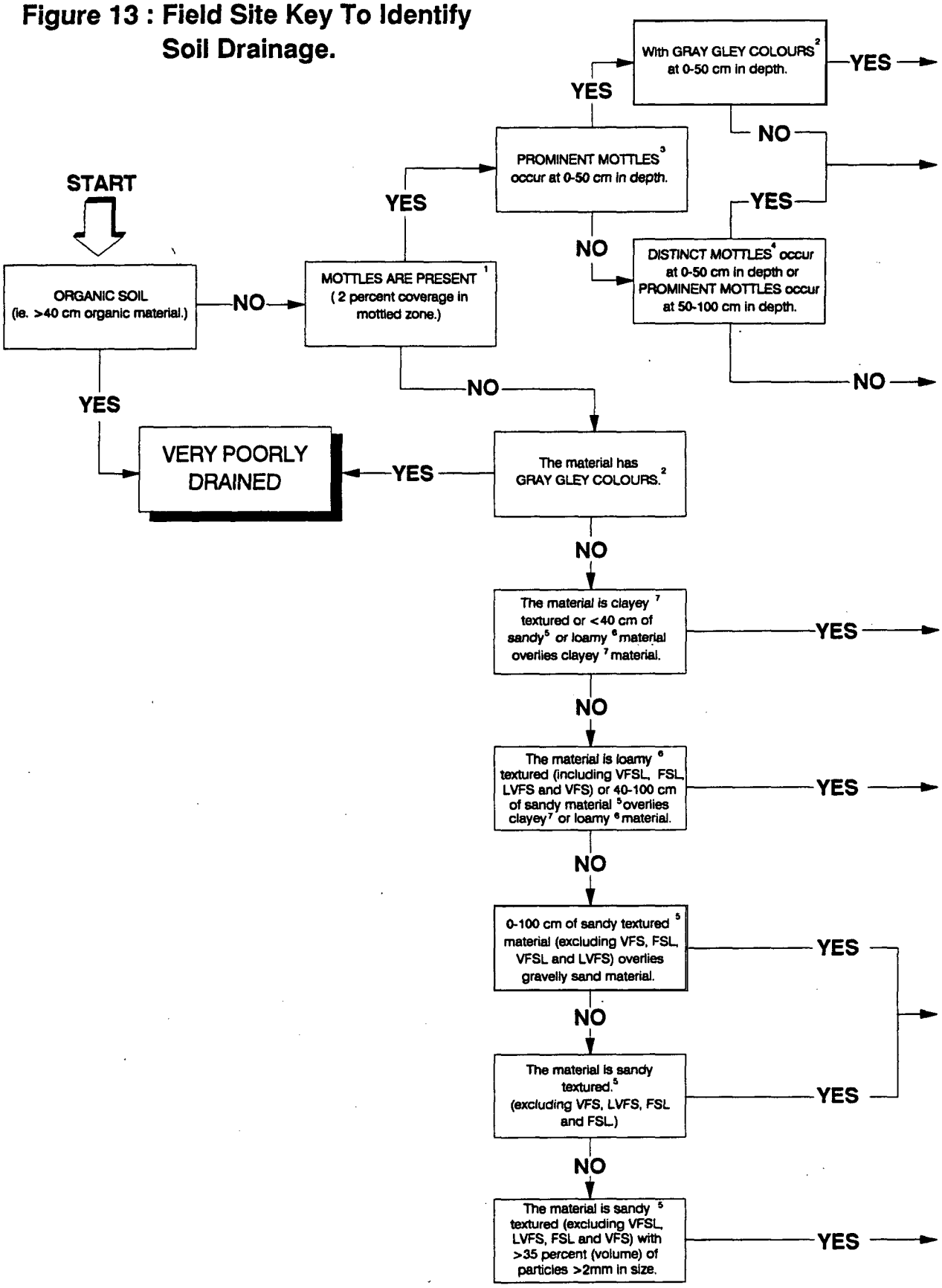
8. The soil type and slope class determined for the site, therefore, supports the soil type and slope class identified in the map symbol for the area. The agricultural capability rating for imperfectly drained Berrien soils which occur on simple C slopes can now be determined from Table 4. If suitability ratings for special crops are needed, refer to Tables 6, 7 and 8. If the potential erosion class is needed, it can be calculated using the soil erodibility (K) factor value from Table 9, and the slope length and gradient (LS) factor value from Table 10.

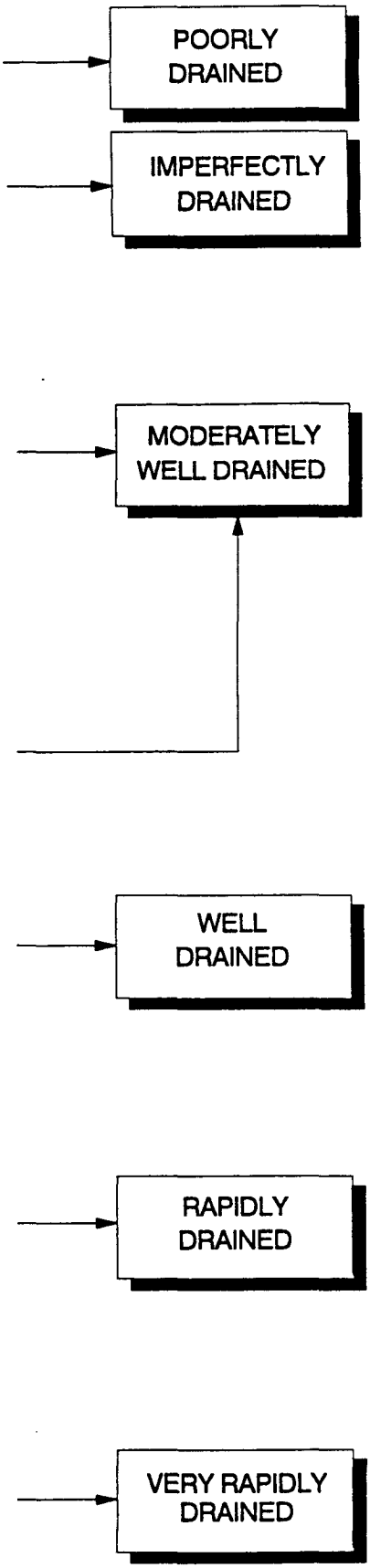
(3) Use of the Soil Information Collected at Field Sites

As shown in the previous example, soil information determined at field sites can be used to verify the soil information given in the map symbol for an area. This will ensure that the appropriate interpretive information contained in the report is applied to that area. Interpretive information contained in the report includes agricultural capability ratings for common field crops (Table 4), suitability ratings for selected special crops (Tables 6, 7, and 8), and potential soil erosion loss classes (Table 9). Methods to determine the average annual soil loss for specific cropping and management conditions are also provided in the section of the report titled "Soil Interpretations for Water Erosion".

If the soil information determined at field sites is significantly different from the information given in the map symbol for the area, remapping of the area at a more appropriate scale should be considered before applying the interpretive information contained in the report. The information collected at a series of field sites carried out in the area can be used for this purpose.

Figure 13 : Field Site Key To Identify Soil Drainage.





FOOTNOTES

(1) Readily visible orange or reddish coloured areas which most often are 5 mm or less in diameter.

(2) Gley colours are usually bluish gray, greenish gray or gray.

(3) Bright orange or reddish coloured areas that contrast strongly with the surrounding soil material.

(4) Readily seen orange or reddish coloured areas that do not contrast strongly with the surrounding soil material.

(5) Usually loose, non-aggregated material having <20% clay and >52% sand content.

(6) Moderately packed, weakly to moderately aggregated material having <27% clay and <52% sand content.

(7) Tightly packed, often strongly aggregated material having >27% clay content.

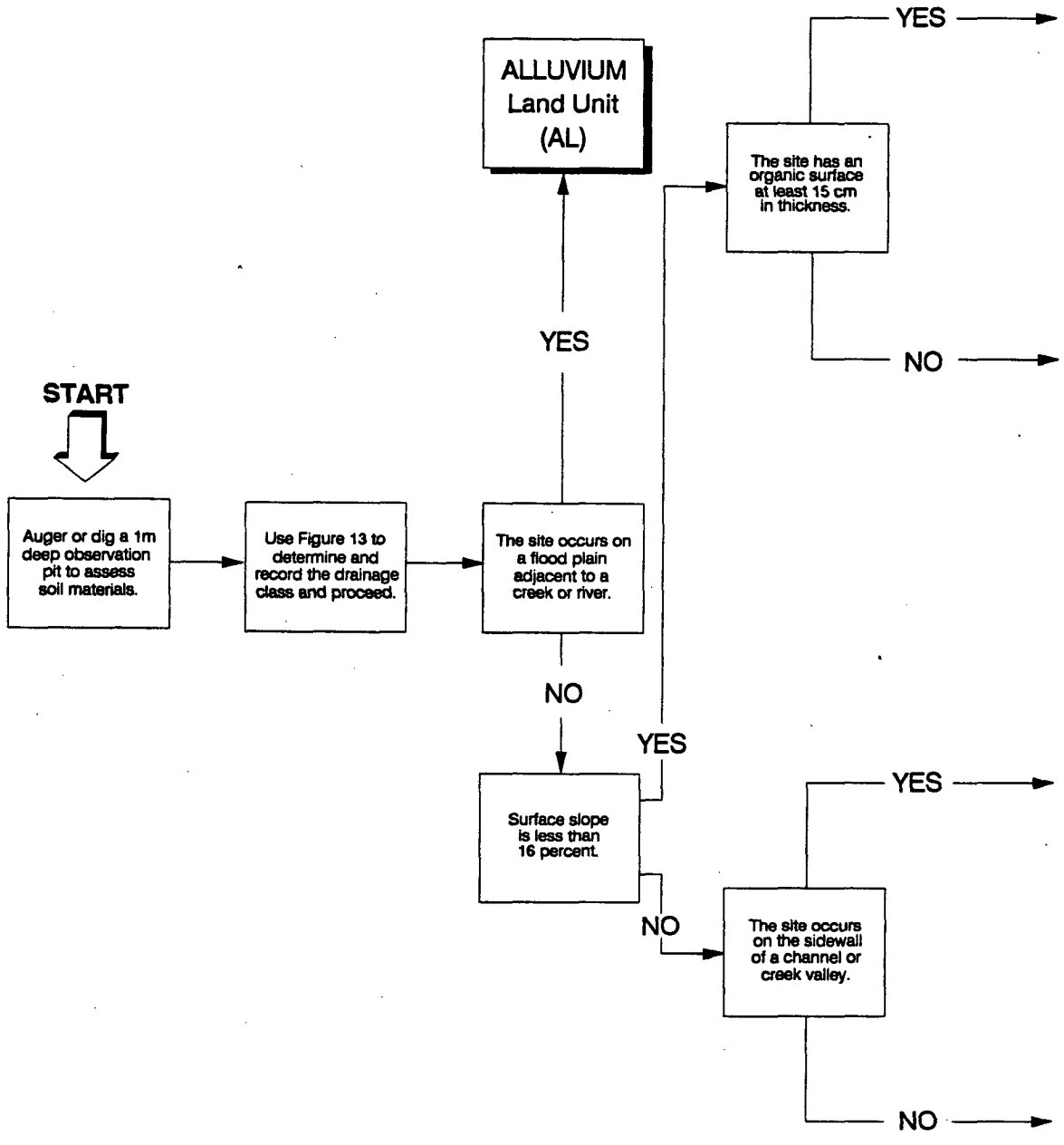
For specific descriptions of Gley Colours and Mottles refer to:

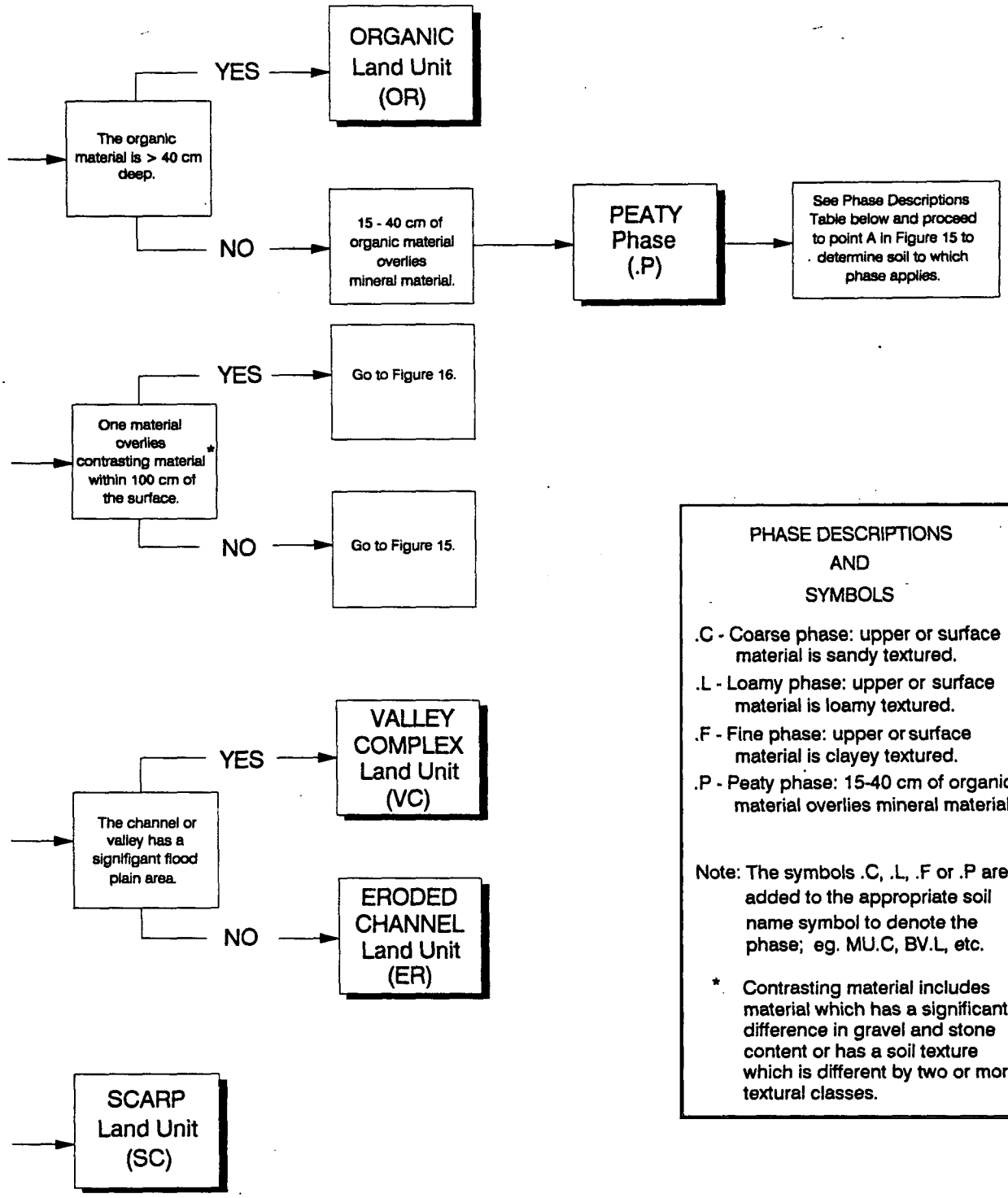
Agriculture Canada Expert Committee on Soil Survey. 1987.The Canadian System of Soil Classification. 2nd Edition. Agriculture Canada Publication 1646. 164pp.

ABBREVIATIONS

VFS - Very Fine Sand.
FSL - Fine Sandy Loam
VFSL - Very Fine Sandy Loam
LVFS - Loamy Very Fine Sand

Figure 14 : Field Site Key To Identify The Appropriate Soil Type Or Land Unit.





PHASE DESCRIPTIONS
AND
SYMBOLS

.C - Coarse phase: upper or surface material is sandy textured.

.L - Loamy phase: upper or surface material is loamy textured.

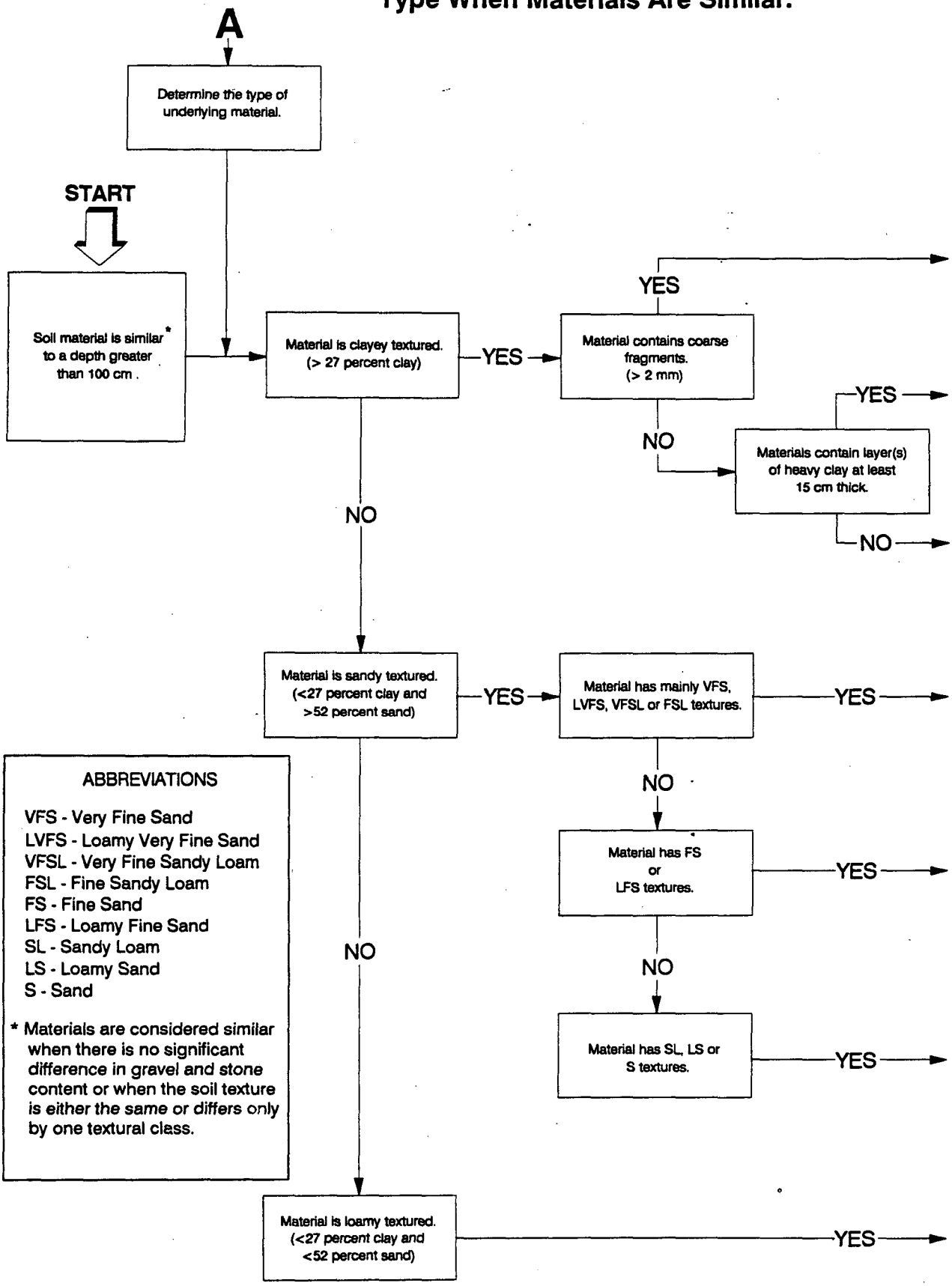
.F - Fine phase: upper or surface material is clayey textured.

.P - Peaty phase: 15-40 cm of organic material overlies mineral material.

Note: The symbols .C, .L, .F or .P are added to the appropriate soil name symbol to denote the phase; eg. MU.C, BV.L, etc.

* Contrasting material includes material which has a significant difference in gravel and stone content or has a soil texture which is different by two or more textural classes.

Figure 15 : Field Site Key To Identify The Appropriate Soil Type When Materials Are Similar. *



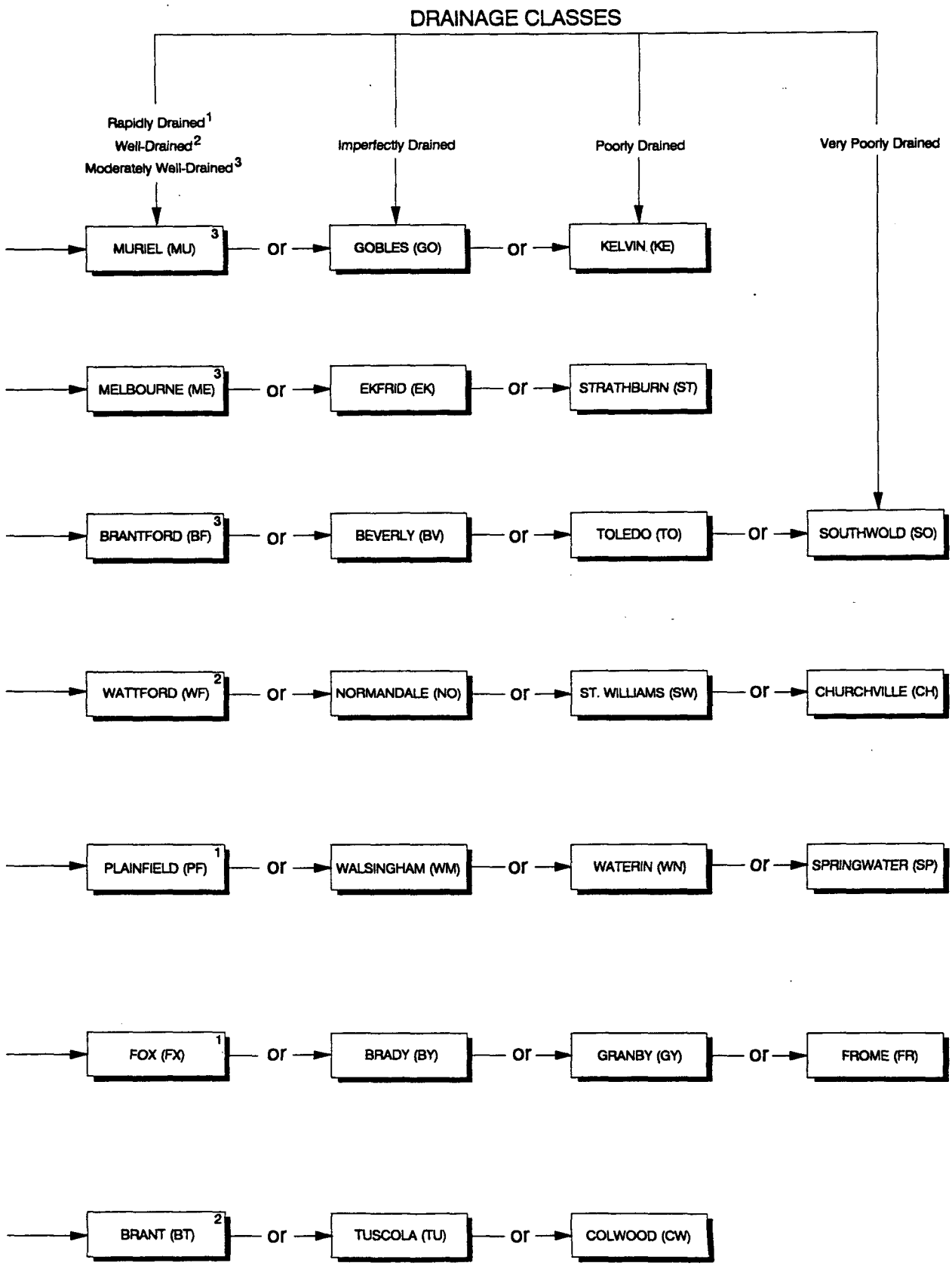
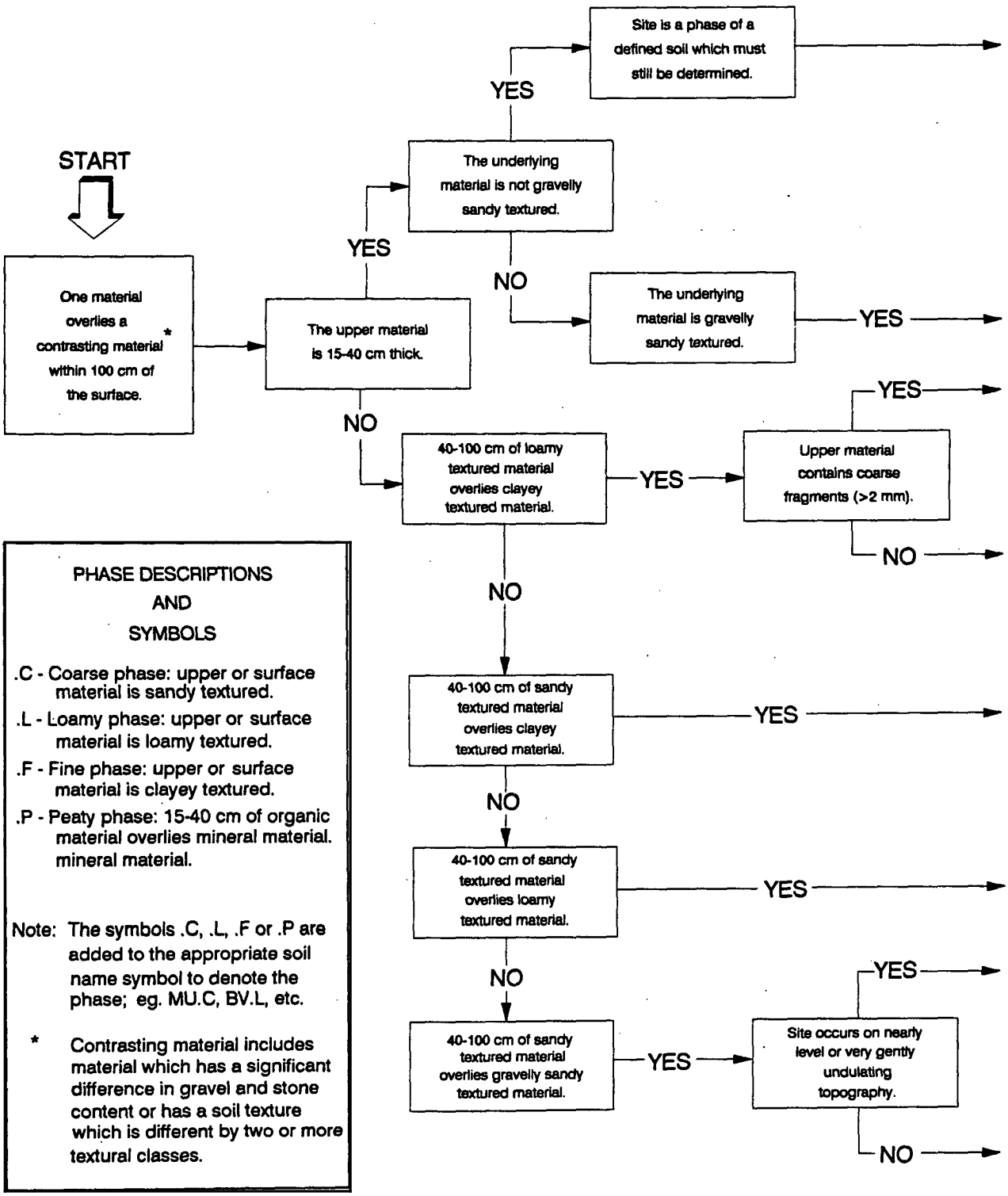
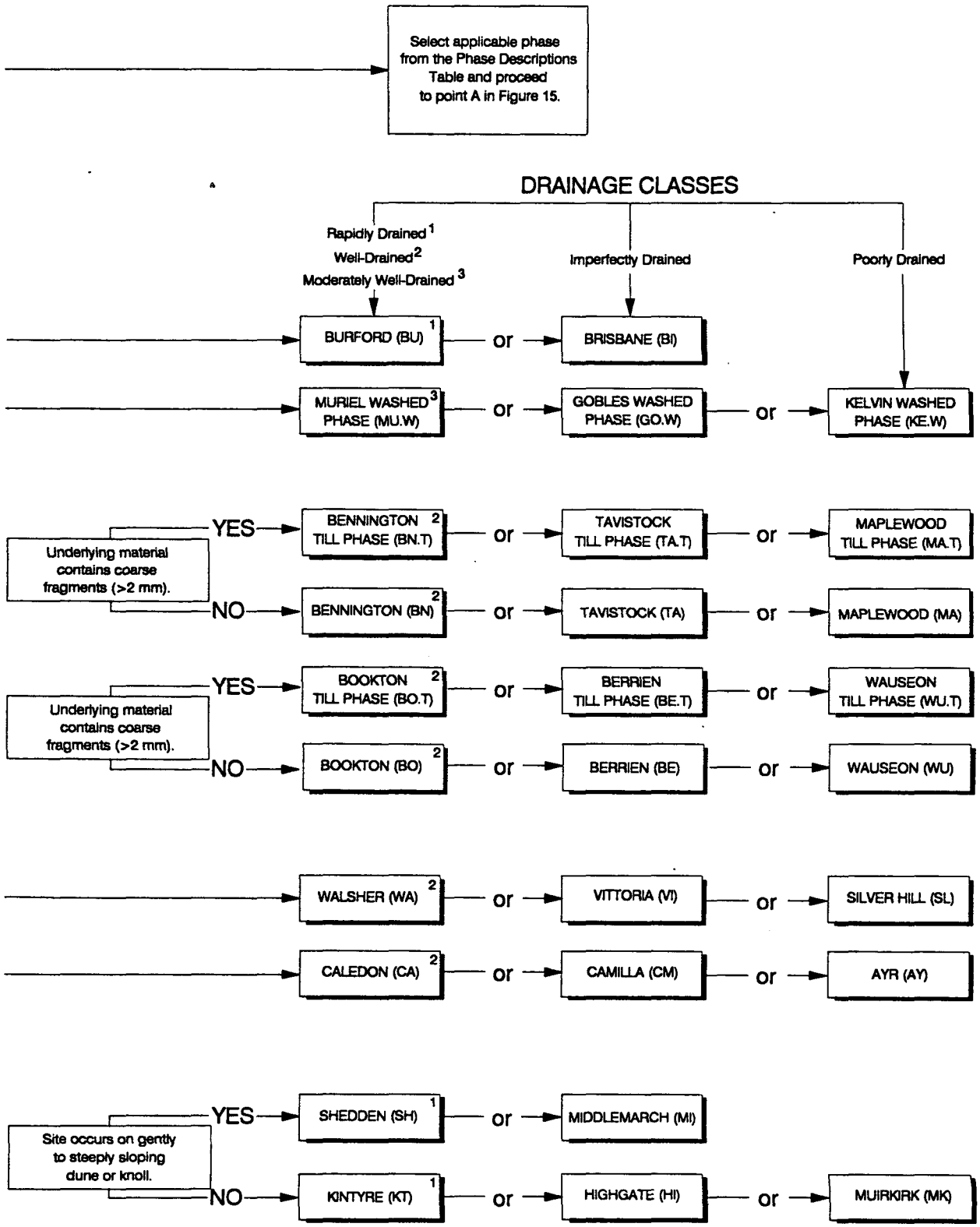

DRAINAGE CLASSES
Rapidly Drained[1]
Well-Drained[2]
Moderately Well-Drained[3]
Imperfectly Drained
Poorly Drained
Very Poorly Drained
MURIEL (MU) 3
or
GOBLES (GO)
or
KELVIN (KE)
MELBOURNE (ME) 3
or
EKFRID (EK)
or
STRATHBURN (ST)
BRANTFORD (BF) 3
or
BEVERLY (BV)
or
TOLEDO (TO)
or
SOUTHWOLD (SO)
WATTFORD (WF) 2
or
NORMANDALE (NO)
or
ST. WILLIAMS (SW)
or
CHURCHVILLE (CH)
PLAINFIELD (PF) 1
or
WALSINGHAM (WM)
or
WATERIN (WN)
or
SPRINGWATER (SP)
FOX (FX) 1
or
BRADY (BY)
or
GRANBY (GY)
or
FROME (FR)
BRANT (BT) 2
or
TUSCOLA (TU)
or
COLWOOD (CW)

Figure 16 : Field Site Key To Identify The Appropriate Soil Type When Materials Are Contrasting.*




Select applicable phase from the Phase Descriptions Table and proceed to point A in Figure 15.
DRAINAGE CLASSES
Rapidly Drained 1
Well-Drained 2
Moderately Well-Drained 3
Imperfectly Drained
Poorly Drained
BURFORD (BU) 1
or
BRISBANE (BI)
MURIEL WASHED PHASE (MU.W) 3
or
GOBLES WASHED PHASE (GO.W)
or
KELVIN WASHED PHASE (KE.W)
Underlying material contains coarse fragments (>2 mm).
YES
NO
BENNINGTON TILL PHASE (BN.T) 2
or
TAVISTOCK TILL PHASE (TA.T)
or
MAPLEWOOD TILL PHASE (MA.T)
BENNINGTON (BN) 2
or
TAVISTOCK (TA)
or
MAPLEWOOD (MA)
Underlying material contains coarse fragments (>2 mm).
YES
NO
BOOKTON TILL PHASE (BO.T) 2
or
BERRIEN TILL PHASE (BE.T)
or
WAUSEON TILL PHASE (WU.T)
BOOKTON (BO) 2
or
BERRIEN (BE)
or
WAUSEON (WU)
WALSHER (WA) 2
or
VITTORIA (VI)
or
SILVER HILL (SL)
CALEDON (CA) 2
or
CAMILLA (CM)
or
AYR (AY)
Site occurs on gently to steeply sloping dune or knoll.
YES
NO
SHEDDEN (SH) 1
or
MIDDLEMARCH (MI)
KINTYRE (KT) 1
or
HIGHGATE (HI)
or
MUIRKIRK (MK)