Field Handbook for the Soils of Western Canada

Section 5: Taxonomic Key for Canadian Soils

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This field guide is one section of a Field Guide for the Soils of Western Canada, which is currently under development by the three authors. Our intent for the field guide is two-fold: 1) to simplify the use of the Canadian System of Soil Classification in the field and 2) to allow field testing of a new soil order for Anthroposolic soils, which has been proposed for inclusion in the Canadian System of Soil Classification. Other than the inclusion of the provisional Anthroposolic order there is no other (intentional) revision to the 3rd Edition of the Canadian System of Soil Classification.

This section draws very heavily on material from the following:


This is available on-line at http://sis.agr.gc.ca/cansis/taxa/cssc3/index.html.

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CONTENTS

HOW DO I CLASSIFY MY SOIL? USING THE KEY TO THE CANADIAN SYSTEM OF SOIL CLASSIFICATION: ................................................................. 5

KEY TO SOIL ORDERS ........................................................................ 6
Podzolic B horizon ................................................................................. 6
Chernozemic A horizon: ................................................................. 7

Key to Great Groups........................................................................... 9
A. Great Groups of the Anthroposolic Order ........................................ 9
B. Great Groups of the Cryosolic order ................................................ 9
C. Great Groups of the Organic order ................................................. 9
D. Great Groups of the Vertisolic order ............................................ 9
E. Great Groups of the Podzolic order ............................................... 9
F. Great Groups of the Gleysolic order ............................................. 9
G. Great Groups of the Solonetzic order .......................................... 10
H. Great Groups of the Chernozemic order ................................... 10
I. Great Groups of the Luvisolic order ............................................ 10
J. Great Groups of the Brunisolic order .......................................... 10
K. Great Groups of the Regosolic order ........................................ 10

Key to Subgroups ............................................................................... 11
A. Subgroups of the Anthroposolic Order ........................................ 11
BA Organic Crysol ........................................................................... 12
BB Turbic Crysol ........................................................................... 12
BC. Static Crysol ........................................................................... 12
CA. Folisol .................................................................................. 13
CB. Fibrisol ................................................................................ 13
CC Mesisol ................................................................................ 14
CD. Humisol .............................................................................. 14
DA. Vertisol ................................................................................ 14
CB. Humic Vertisol ...................................................................... 15
DA. Humic Podzol ...................................................................... 15
DB. Ferro-Humic Podzol ........................................................... 15
DC. Humo-Ferric Podzol .......................................................... 16
EA. Luvic Gleysol ........................................................................ 16
EB. Humic Gleysol .................................................................... 16
EC. Gleysol .............................................................................. 17
FA. Vertic Solonetz .................................................................... 17
FB. Solod .................................................................................. 17
FC. Solodized Solonetz .............................................................. 18
FD. Solonetz ............................................................................. 18
GA. Brown Chernozem ............................................................... 19
GB. Dark Brown Chernozem ....................................................... 19
GC. Black Chernozem ................................................................. 20
GD. Dark Gray Chernozem ......................................................... 21
HA. Gray Brown Luvisol .............................................................. 21
HB. Gray Luvisol ........................................................................ 22
IA. Melanic Brunisol ................................................................. 23
IB. Eutric Brunisol ..................................................................... 23
IC. Sombric Brunisol ................................................................. 23
ID. Dystric Brunisol ................................................................... 23
JA. Humic Regosol ................................................................. 24
JB. Regosol............................................................................... 24

Common Phases for Canadian Soils ........................................... 25
Mineral soils ............................................................................... 25
Anthropic Soils ........................................................................... 25
HOW DO I CLASSIFY MY SOIL? USING THE KEY TO THE CANADIAN SYSTEM OF SOIL CLASSIFICATION:

1) Describe each layer in the pedon and assign each layer a complete horizon designation using the Visual Horizon keys.

2) Begin with the Key to Soil Orders. Begin with the first Order (Anthroposolic) and consider each order in sequence until you reach the first one that includes the diagnostic horizon that you have described. Go immediately to the page indicated (i.e., DO NOT CONTINUE TO USE THE SOIL ORDER KEY).

3) Consider each Great Group in sequence for the Order you have selected until you reach a great Group that includes the diagnostic horizons you have described. Go immediately to the page indicated (i.e., DO NOT CONTINUE TO USE THE GREAT GROUP KEY).

4) Consider each Subgroup in sequence for the Great Group that you have selected until you reach a subgroup that includes the diagnostic horizons that you have described.

5) Some features (e.g. salinity, secondary carbonate deposition, thin peat layers) are not identified at the subgroup level yet are important to highlight. These can be identified as phases in the CSSC (e.g. Orthic Black Chernozem, saline phase; Orthic Gleysol, peaty phase). Therefore you should check to see if the assignment of a specific phase is appropriate for your profile.

In some cases you will need the results of specific laboratory tests to be completed before a definitive taxonomic placement can be made. These tests are detailed in the Canadian System of Soil Classification 3rd Ed.
KEY TO SOIL ORDERS

A. Soils that have been visibly disturbed by human activity and that have a D horizon ≥ 10 cm thick OR have had natural soil horizons removed (scalped) **ANTHROPOSOLIC ORDER Go to p. 9**

B . Other soils that have permafrost (z suffix) within 1 m of the surface or within 2 m if strongly cryoturbated (y suffix). **CRYOSOLIC ORDER Go to p. 9**

C. Other soils that either have organic horizons (peat; more than 17% organic C by weight) that extend from the surface to one of the following:
   1. A depth of 60 cm or more if the surface layer is fibric material (Of).
      ..................**ORGANIC ORDER Go to p. 9**
   2. A depth of 40 cm or more if the surface layer consists of mesic or humic material (Om or Oh) ..................**ORGANIC ORDER Go to p. 9**
   3. A depth of more than 40 cm if composed of folic materials (L, F, and H), or at least 10 cm if a lithic contact or fragmental materials are present. Folic materials must be more than twice the thickness of a mineral soil layer if the mineral layer is less than 20 cm thick.
      ..................**ORGANIC ORDER Go to p. 9**

OR

Have one or more mineral horizons or layers within 40 cm of the surface in addition to the organic horizons (O) as follows:
   1. If a mineral horizon or layer thinner than 40 cm occurs at the surface, the underlying organic horizon or horizons must have a total thickness of at least 40 cm.
      ..................**ORGANIC ORDER Go to p. 9**
   2. If one or more mineral horizons or layers occur within 40 cm of the surface, the organic material must occupy more than 40 cm of the upper 80 cm of the control section
      ..................**ORGANIC ORDER Go to p. 9**

D . Other soils that have both a vertic (v) horizon and a slickenside (ss) horizon, the top of which occurs within 1 m of the mineral surface. ..................**VERTISOLIC ORDER Go to p. 9**

E. Other soils that have a podzolic B horizon (i.e., a Bf, Bh, Bfh, Bhf horizon that meets the additional criteria shown below) and do not have a Bt horizon within 50 cm of the mineral surface.................................**PODZOLIC ORDER Go to p. 9**

**PODZOLIC B HORIZON:** A Bf, Bh, Bfh, or Bhf horizon that meets the following criteria:
   1. It is at least 10 cm thick.
   2. Color criteria for the horizon:
      a. Bf: Hues of 7.5YR or redder, or its hue must be 10YR near the upper boundary and become yellower with depth. When moist the chroma is higher than 3 or the value is 3 or less. It has 0.5-5% organic C.
      b. Bhf – Black colour due to more than 5% organic C. The black color of the organic matter can mask the red colour of the f horizon if present.
      c. Bh - Black colour due to more than 5% organic C.
   3. The accumulation of amorphous material is indicated by brown to black coatings on some mineral grains or brown to black microaggregates.
4. There is a silty feel when the material is rubbed wet, unless it is cemented.

_Podzolic B horizons also must meet specific laboratory criteria_

F. Other soils that are saturated with water and under reducing conditions either continuously or during some period of the year as indicated by either:

1. The presence of a horizon with a g suffix (e.g. Aeg, Bg, Btg, Cg, Cgk and others) within 50 cm of the mineral surface except if the Ah or Ap is greater than 50 cm thick; in this case the mineral horizon immediately beneath the A horizon has a g suffix.  
   ..............................GLEYSOLIC ORDER Go to p. 9

   OR

2. By direct measurements of the water table and the oxidation-reduction status  
   ..............................GLEYSOLIC ORDER Go to p. 9

G. Other soils that have a solonetzic B horizon (i.e., a Bn or Bnt that meets the morphological criteria for a Bn or Bnt horizon plus additional laboratory criteria).  
   ..............................SOLONETZIC ORDER Go to p. 10

H. Other soils that have a chernozemic A horizon (i.e., an Ah, Ap, or Ahe horizon that meet the additional criteria shown below) AND do not have a well-developed Ae horizon. All of the criteria for the Chernozemic A horizon must be met AND ONE of the criteria pertaining to Ae horizons must be met.

**CHERNOZEMIC A HORIZON:** A horizons (Ah, Ahe, Ap) that meet additional criteria:

A Chernozemic A horizon must meet ALL of the following morphological characteristics:

1. It is at least 10 cm thick. If the A horizon is thinner than 10 cm, it must be dark enough to provide 10 cm of surface material that meets the color criteria given in 2 and 3 when mixed with the underlying horizon (e.g. by mixing a 6-cm Ap with 4 cm of the underlying horizon).

2. It has a color value darker than 5.5 dry and 3.5 moist, and its chroma is less than 3.5 moist.

3. It has a color value at least one Munsell unit darker than that of the IC horizon.

4. Uncultivated Ah horizons typically have a granular structure. Characteristically it has neither massive structure and hard consistence nor single- grained structure, when dry.

5. It is restricted to soils having a mean annual soil temperature of 0°C or higher and a soil moisture regime subclass of subhumid and drier. Because of these restrictions, Chernozems are only found in Western Canada, specifically in the Great Plains, Peace River area, and the interior of British Columbia (see the overview of the Chernozemic order for more information).

6. There are two additional chemical criteria that must be met as well.

As well as meeting all of the above, the profile must meet one of the following criterion to be classified as a Chernozemic soils:

7. No Ae horizon  
   ..............................CHERNOZEMIC ORDER Go to p. 10
8. A weakly expressed Ae horizon (Aej) with a dry color value lower than 5

.......................................................... CHERNOZEMIC ORDER Go to p. 10

9. An Ae horizon thinner than an overlying Ah OR an overlying Ap horizon that does not appear to be eluviated ........................................ CHERNOZEMIC ORDER Go to p. 10

10. An Ae horizon not more than 5 cm thick if the chernozemic A is an Ahe horizon.

.......................................................... CHERNOZEMIC ORDER Go to p. 10

I. Other soils that have a Bt horizon. .................................................. LUVISOLIC ORDER Go to p. 10

J. Other soils that have either Bm, Btj, or Bfj horizons at least 5 cm thick OR a Bf horizon less than 10 cm in thickness. ........................................ BRUNISOLIC ORDER Go to p. 10

K. Other soils. ........................................................................ REGOSOLIC ORDER Go to p. 10
KEY TO GREAT GROUPS

A. GREAT GROUPS OF THE ANTHROPOSOLIC ORDER

(see page Error! Bookmark not defined. for an explanation of the dominant material (layers) for Anthroposols)

AA. Soil material contains 10% or greater artifacts (Dw) throughout the dominant material (layers) of the profile. .................................................................Technic Anthroposol, p. 11.

AB. Soil material contains more than 17% organic carbon (Do) in the dominant material (layers) of the profile .................................................................Carbic Anthroposol, p. 11.

AC. Other Anthroposolic soils. .................................................................Spolic Anthroposol, p. 11.

B. GREAT GROUPS OF THE CRYOSOLIC ORDER

BA. Cryosolic soils that are formed primarily in organic materials and have permafrost within 1 m of the surface. .................................................................Organic Cryosol, p. 12

BB. Other Cryosolic soils that are formed in mineral materials, have marked evidence of cryoturbation, and have permafrost within 2 m of the surface .......... Turbic Cryosol, p. 12

BC. Other Cryosolic soils that are formed in mineral materials, do not have marked evidence of cryoturbation, and have permafrost within 1 m of the surface .......... Static Cryosol, p. 12

C. GREAT GROUPS OF THE ORGANIC ORDER

CA. Organic soils that are formed primarily in upland organic (L,F,H) materials, generally of forest origin, and are rarely saturated with water .................... Folisol, p. 13

CB. Other Organic soils that have a dominantly fibric middle tier (i.e., formed in relatively undecomposed organic materials) ..................... Fibrisol, p. 13

CC. Other Organic soils that have a dominantly mesic middle tier (i.e., formed in organic materials, in an intermediate stage of decomposition) .................. Mesisol, p. 14

CD. Other Organic soils that have a dominantly humic middle tier (i.e., formed in organic materials, in an advanced stage of decomposition) ............. Humisol, p. 14

D. GREAT GROUPS OF THE VERTISOLIC ORDER

DA. Vertisolic soils that have either a surface color value of ≥ 3.5 dry if well to imperfectly drained or an Ah horizon <10 cm in thickness if poorly drained ......................... Vertisol, p. 14

DB. Other Vertisolic soils that have either a surface color value of <3.5 dry if well to imperfectly drained or an Ah horizon ≥10 cm in thickness if poorly drained ................. Humic Vertisol, p. 15

E. GREAT GROUPS OF THE PODZOLIC ORDER

EA. Podzolic soils that have a Bh horizon ≥10 cm in thickness .......... Humic Podzol, p. 15

EB. Other Podzolic soils that have a Bhf horizon ≥10 cm in thickness . Ferro-Humic Podzol, p. 15

EC. Other Podzolic soils ................................................................. Humo-Ferric Podzol, p. 16

F. GREAT GROUPS OF THE GLEYSOLEC ORDER

FA. Gleysolec soils that have a Btg horizon and usually have an eluvial (Ae, Aeg, Aegj) horizon. Luvic Gleysolec, p. 16

FB. Other Gleysolec soils that have either an Ah horizon ≥10 cm in thickness or an Ap horizon ≥15 cm in thickness and have at least 2.0% organic C in the surface horizon ....... Humic Gleysolec, p. 16
FC. Other Gleysolic soils ................................................................. Gleysol, p. 17

G. GREAT GROUPS OF THE SOLONETZIC ORDER
GA. Solonetzic soils that have a slickenside horizon within 1 m of the mineral surface ..... Vertic Solonetz, p. 17
GB. Other Solonetzic soils that have an Ae horizon ≥2 cm in thickness with a distinct AB or BA horizon (disintegrating Bnt) ................................................................. Solod, p. 17
GC. Other Solonetzic soils that have an Ae horizon ≥2 cm in thickness .. Solodized Solonetz, p. 18
GD. Other Solonetzic soils ................................................................. Solonetz, p. 18

H. GREAT GROUPS OF THE CHERNOZEMIC ORDER
HA. Chernozemic soils that have a surface color value of 4.5-5.5 dry and a chroma usually ≥1.5 dry ................................................................. Brown Chernozem, p. 19
HB. Other Chernozemic soils that have a surface color value of 3.5-4.5 dry and a chroma usually >1.5 dry ................................................................. Dark Brown Chernozem, p. 19
HC. Other Chernozemic soils that have a surface color value of <3.5 dry and a chroma usually ≤1.5 dry ................................................................. Black Chernozem, p. 20
HD. Other Chernozemic soils that have a surface color value of 3.5-4.5 (3.5-5.0 for Ap) dry, a chroma usually ≤1.5 dry, and characteristics indicating eluviation (e.g. Ahe, Aej, thin Ae) associated with soils formed under forest vegetation ....................Dark Gray Chernozem, p. 21

I. GREAT GROUPS OF THE LUVISOLIC ORDER
IA. Luvisolic soils that have a forest mull Ah horizon and a mean annual soil temperature ≥8°C (i.e., mesic temperature class found in southern Ontario, southern Quebec, Fraser delta in B.C. and eastern Vancouver Island) ................................................................. Gray Brown Luvisol, p. 21
IB. Other Luvisolic soils ................................................................. Gray Luvisol, p. 22

J. GREAT GROUPS OF THE BRUNISOLIC ORDER
Note: Brunisolic soils with pH of ≥5.5 are most frequent in landscapes underlain by sedimentary rocks and those with pH of <5.5 are most frequent in landscapes underlain by igneous rocks.

JA. Brunisolic soils that have an Ah or Ap horizon ≥10 cm in thickness and pH of ≥5.5 (0.01 M CaCl₂) ................................................................. Melanic Brunisol, p. 23
JB. Other Brunisolic soils that have either no Ah horizon or an Ah (or Ap) horizon <10 cm in thickness and pH of ≥5.5 (0.01 M CaCl₂) ................................................................. Eutric Brunisol, p. 23
JC. Brunisolic soils that have an Ah or Ap horizon ≥10 cm in thickness and pH of <5.5 (0.01 M CaCl₂) ................................................................. Sombric Brunisol, p. 23
JD. Other Brunisolic soils that have no Ah horizon or an Ah (or Ap) <10 cm in thickness and pH of <5.5 (0.01 M CaCl₂) ................................................................. Dystric Brunisol, p. 23

K. GREAT GROUPS OF THE REGOSOLIC ORDER
KA. Regosolic soils that have an Ah or Ap horizon ≥10 cm in thickness .... Humic Regosol, p. 24
KB. Other Regosolic soils ................................................................. Regosol, p. 24
KEY TO SUBGROUPS

A. SUBGROUPS OF THE ANTHROPOSOLIC ORDER
Soils of the Anthroposolic order are unique in the Canadian System of Soil Classification insofar as successive subgroups are added to account for all layers described in the control section (see p. Error! Bookmark not defined. for the definition of the control section). It is (theoretically) possible to have a Terro Aquo Cryo Egeo Carbo Techno Spolo Cryo Spolic Anthroposol

Ordering conventions: Terro and Aquo are written first (if present); then the surface horizon subgroup (Egeo, Albo, or Fusco) is added, followed by any appropriate sub-surface layers in the sequence shown below.

Step 1) Select one of the following three subgroups for surface horizon
Soils with a distinguishable surface layer that is < 10 cm thick, regardless of its organic carbon content, over another layer(s) of disturbed material ............................................................ Egeo
Soils with a surface layer that is ≥ 10 cm thick and has < 2% organic carbon. This low amount of organic carbon would normally account for its light colour......................................................... Albo
Soils with a surface layer that is ≥ 10 cm thick and has 2 to 17% organic carbon. This higher amount of organic carbon would normally account for its darker colour relative to the Albo subgroup ....................................................................................................................... Fusco

Step 2) Select as many of the following subgroups that are appropriate for layers contained in the control section (see Section 4 for the definition of the control section):
Soils with a Do horizon ≥ 10 cm thick and which is not the dominant layer [not used with Carbic great group]. ......................................................................................................................... Carbo
Soils with a technic layer (i.e., a Dw horizon) present ≥ 10 cm thick and which is not the dominant layer [not used with Technic great group]................................................................. Techno
Soils with a spolic layer (i.e., a D horizon with less than < 10% artifacts by volume and < 17% organic carbon by volume) that is ≥ 10 cm thick............................................................................. Spolo
Soils with ≥10 cm of original parent material present within the 120-cm control section indicating shallow disturbance................................................................................................................................. Terro
Soils with evidence of prolonged wetness in the soil profile, such as a water table or saturated soil in a layer, hydrophilic vegetation and particle size discontinuities that may result in perched water tables (Mottles and gleying are not necessarily diagnostic in the anthropogenically disturbed environment as they may be legacies of the undisturbed soil). ........................................ Aquo
Soils with the presence of permafrost

Step 3) The assignment of a phase is important in Anthroposols (see Visual Soil Key in Section 4 for more information)

**BA ORGANIC CRYOSOL**

BAA Organic Cryosols that have an ice layer >30 cm in thickness with the upper boundary within 1 m of the surface ......................................................... Glacic Organic Cryosol
BAB Other Organic Cryosols that have a mineral contact within 1 m of the surface and mainly fibric organic material above the contact .................................. Terric Fibric Organic Cryosol
BAC Other Organic Cryosols that have a mineral contact within 1 m of the surface and mainly mesic organic material above the contact .................................. Terric Mesic Organic Cryosol
BAD Other Organic Cryosols that have a mineral contact within 1 m of the surface and mainly humic organic material above the contact........................................ ...Terric Humic Organic Cryosol
BAE Other Organic Cryosols in which the organic material is dominantly fibric below a depth of 40 cm ................................................................. Fibric Organic Cryosol
BAF Other Organic Cryosols in which the organic material is dominantly mesic below a depth of 40 cm ................................................................. Mesic Organic Cryosol
BAG Other Organic Cryosols in which the organic material is dominantly humic below a depth of 40 cm ................................................................. Humic Organic Cryosol

**BB TURBIC CRYOSOL**

BBATurbic Cryosols that have a gleyed layer similar to soils of the Gleysolic order .................
........................................................................................................... Gleysolic Turbic Cryosol
BBB Other Turbic Cryosols that are >15 cm in thickness, have at least one O horizon within 1 m, and have a pH ≥5.5 in some or all of the B horizons ............... Histic Eutric Turbic Cryosol
BBC Other Turbic Cryosols that are >15 cm in thickness, have at least one O horizon within 1 m, and have a pH <5.5 in some or all of the B horizons ............... Histic Dystric Turbic Cryosol
BBD Other Turbic Cryosols that are >15 cm in thickness, have at least one O horizon within 1 m, and have no B horizons ...................................................... Histic Regosolic Turbic Cryosol
BBE Other Turbic Cryosols that have a Bm horizon ≥10 cm in thickness and a pH ≥5.5 in some or all of the B horizons .............................................. Brunisolic Eutric Turbic Cryosol
BBF Other Turbic Cryosols that have a Bm horizon ≥10 cm in thickness and a pH <5.5 in some or all of the B horizons .............................................. Brunisolic Dystric Turbic Cryosol
BBG Other Turbic Cryosols that have a Bm horizon <10 cm in thickness and a pH ≥5.5 in some or all of the B horizons .............................................. Orthic Eutric Turbic Cryosol
BBH Other Turbic Cryosols that have a Bm horizon <10 cm in thickness and a pH <5.5 in some or all of the B horizons .............................................. Orthic Dystric Turbic Cryosol
BBG Other Turbic Cryosols ................................................................. Regosolic Turbic Cryosol

**BC. STATIC CRYOSOL**
BCA. Static Cryosols that have a gleyed layer similar to soils of the Gleysolic order
.............................................................................................................. Gleysolic Static Cryosol

BCB. Other Static Cryosols that are >15 cm thick, have at least one O horizon in the upper 1 m, and have a pH ≥5.5 in some or all of the B horizons ...................................... Histic Eutric Static Cryosol

BCC. Other Static Cryosols that are >15 cm thick, have at least one O horizon in the upper 1 m, and have a pH <5.5 in some or all of the B horizons........................................... Histic Dystric Static Cryosol

BCD. Other Static Cryosols that are >15 cm in thickness, and have at least one O horizon in the upper 1 m, and have no B horizons.................................................... Histic Regosolic Static Cryosol

BCE. Other Static Cryosols that have an eluvial horizon and a Bt horizon ≥10 cm in thickness
......................................................................................................................... Luvisolic Static Cryosol

BCF. Other Static Cryosols that have a Bm horizon ≥10 cm in thickness and a pH ≥5.5 in some or all of the B horizons ................................................................. Brunisolic Eutric Static Cryosol

BCG. Other Static Cryosols that have a Bm horizon ≥10 cm in thickness and a pH <5.5 in some or all of the B horizons ................................................................. Brunisolic Dystric Static Cryosol

BCH. Other Static Cryosols that have a Bm horizon <10 cm in thickness and a pH ≥5.5 in some or all of the B horizons ................................................................. Orthic Eutric Static Cryosol

BCI. Other Static Cryosols that have a Bm horizon <10 cm in thickness and a pH <5.5 in some or all of the B horizons ................................................................. Orthic Dystric Static Cryosol

BCJ. Other Static Cryosols  ........................................................................................................... Regosolic Static Cryosol

CA. FOLISOL

CAA. Folisols that have an O horizon >10 cm in thickness below the F or H horizons .
.......................................................................................................................................................... Histic Folisol

CAB. Other Folisols that have F or H horizons composed primarily of Woody materials
.......................................................................................................................................................... Lignic Folisol

CAC. Other Folisols that are composed primarily of moderately decomposed F horizon within the control section .................................................................................. Hemic Folisol

CAD. Other Folisols that are composed primarily of well-decomposed H horizon within the control section ...................................................................................... Humic Folisol

CB. FIBRISOL

CBA. Fibrisols that have a hydric layer .......................................................................................... Hydric Fibrisol

CBB. Other Fibrisols that have a terric layer at least 30 cm in thickness beneath the surface tier and a humic layer >12 cm in thickness within the control section ........ Terric Humic Fibrisol

CBC Other Fibrisols that have a terric layer at least 30 cm in thickness beneath the surface tier and a mesic layer >25 cm in thickness within the control section........ Terric Mesic Fibrisol

CBD Other Fibrisols that have a terric layer at least 30 cm in thickness beneath the surface tier .................................................................................................................. Terric Fibrisol

CBE Other Fibrisols that have a limnic layer >5 cm in thickness beneath the surface tier
.......................................................................................................................................................... Limnic Fibrisol

CBF Other Fibrisols that have more than 5 cm combined thickness of cumulic layer or layers beneath the surface tier ........................................................................... Cumulic Fibrisol

CBG Other Fibrisols that have a humic layer >12 cm in thickness in the middle or bottom tier
.......................................................................................................................................................... Humic Fibrisol
CBH Other Fibrisols that have a mesic layer >25 cm thick in the middle or bottom tier
.................................................................................................................................Mesic Fibrisol
CBI Other Fibrisols .........................................................................................................Typic Fibrisol

CC. MESISOL
CCA Mesisols that have a hydric layer .................................................................Hydric Mesisol
CCB Other Mesisols that have a terric layer at least 30 cm in thickness beneath the surface tier and a humic layer >25 cm in thickness within the control section ......................Terric Humic Mesisol
CCC Other Mesisols that have a terric layer at least 30 cm in thickness beneath the surface tier and a fibric layer >25 cm in thickness within the control section ....................................Terric Fibric Mesisol
 CCD Other Mesisols that have a terric layer at least 30 cm in thickness beneath the surface tier ........................................................................................................................... Terric Mesisol
CCE Other Mesisols that have a limnic layer >5 cm in thickness beneath the surface tier ............................................................................................................................... Limnic Mesisol
CCF Other Mesisols that have more than 5 cm combined thickness of cumulic layer or layers beneath the surface tier ... .................................................................Cumulic Mesisol
CCG Other Mesisols that have a humic layer >25 cm in thickness in the middle or bottom tier .............................................................................................................................. Humic Mesisol
CCH Other Mesisols that have a fibric layer >25 cm in thickness in the middle or bottom tier .............................................................................................................................. Fibric Mesisol
CCI Other Mesisols ........................................................................................................Typic Mesisol

CD. HUMISOL
CDA. Humisols that have a hydric layer .................................................................Hydric Humisol
CDB. Other Humisols that have a terric layer at least 30 cm in thickness beneath the surface tier and a fibric layer >12 cm in thickness within the control section ......................................................................................... Terric Fibric Humisol
CDC. Other Humisols that have a terric layer at least 30 cm in thickness beneath the surface tier and a mesic layer >25 cm in thickness within the control section ........................................ Mesic Humisol
CDD. Other Humisols that have a terric layer at least 30 cm in thickness beneath the surface tier .......................................................................................................................... Terric Humisol
CDE. Other Humisols that have a limnic layer >5 cm in thickness beneath the surface tier ............................................................................................................................... Limnic Humisol
CDF. Other Humisols that have more than 5 cm combined thickness of cumulic layer or layers beneath the surface tier ................................................................. ...Cumulic Humisol
CDG. Other Humisols that have a fibric layer >12 cm in thickness in the middle or bottom tier .............................................................................................................................. ...Fibric Humisol
CDH. Other Humisols that have a mesic layer >25 cm in thickness in the middle or bottom tier ................................................................................................................................. Mesic Humisol
CDI. Other Humisols ........................................................................................................Typic Humisol

DA. VERTISOL
DAA. Vertisols that have a horizon with a g suffix within 50 cm of the mineral soil surface .................................................................................................................................Gleysolic Vertisol
DAB. Other Vertisols that have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................................................. Gleyed Vertisol
DAC. Other Vertisols ......................................................................................... Orthic Vertisol

CB. HUMIC VERTISOL
CBA. Humic Vertisols that have a horizon with a g suffix within 50 cm of the mineral soil surface ......................................................................................................................... Gleysolic Humic Vertisol
CBB. Other Humic Vertisols that have a horizon with a gj suffix within 50 cm of the mineral soil surface ......................................................................................................................... Gleyed Humic Vertisol
CBC. Other Humic Vertisols ......................................................................................... Orthic Humic Vertisol

DA. HUMIC PODZOL
DAA. Humic Podzols that have an ortstein horizon at least 3 cm in thickness ................................................................. Ortstein Humic Podzol
DAB. Other Humic Podzols that have a placic horizon within the control section ................................................................. Placic Humic Podzol
DAC. Other Humic Podzols that have a duric horizon within the control section ................................................................. Duric Humic Podzol
DAD. Other Humic Podzols that have a fragipan within the control section Fragic Humic Podzol
DAE. Other Humic Podzols ......................................................................................... Orthic Humic Podzol

DB. FERRO-HUMIC PODZOL
DBA. Ferro-Humic Podzols that have an ortstein horizon at least 3 cm in thickness and have a horizon with a gj suffix within 1 m of the mineral soil surface .......................................................................................................................... Gleyed Ortstein Ferro-Humic Podzol
DBB. Other Ferro-Humic Podzols that have an ortstein horizon at least 3 cm in thickness .......................................................................................................................... Ortstein Ferro-Humic Podzol
DBC. Other Ferro-Humic Podzols that have a placic horizon within the control section ................................................................. Placic Ferro-Humic Podzol
DBD. Other Ferro-Humic Podzols that have a duric horizon within the control section ................................................................. Duric Ferro-Humic Podzol
DBE. Other Ferro-Humic Podzols that have a fragipan within the control section ................................................................. Fragic Ferro-Humic Podzol
DBF. Other Ferro-Humic Podzols that have a Bt horizon with its upper boundary more than 50 cm from the mineral soil surface ......................................................................................................................... Luvisolic Ferro-Humic Podzol
DBG. Other Ferro-Humic Podzols that have an Ah horizon ≥10 cm in thickness and have a horizon with a gj suffix within 1 m of the mineral soil surface .......................................................................................................................... Gleyed Sombric Ferro-Humic Podzol
DBH. Other Ferro-Humic Podzols that have an Ah horizon ≥10 cm in thickness .......................................................................................................................... Sombric Ferro-Humic Podzol
DBI. Other Ferro-Humic Podzols that have a horizon with a gj suffix within 1 m of the mineral soil surface .......................................................................................................................... Gleyed Ferro-Humic Podzol
DBJ. Other Ferro-Humic Podzols ......................................................................................... Orthic Ferro-Humic Podzol
DC. HUMO-FERRIC PODZOL
DCA. Humo-Ferric Podzols that have an ortstein horizon at least 3 cm in thickness and have distinct to prominent mottles within 1 m of the mineral soil surface .......................................................... Gleyed Ortstein Humo-Ferric Podzol
DCB. Other Humo-Ferric Podzols that have an ortstein horizon at least 3 cm in thickness .......................................................... Ortstein Humo-Ferric Podzol
DCC. Other Humo-Ferric Podzols that have a placic horizon within the control section .......................................................... Placic Humo-Ferric Podzol
DCD. Other Humo-Ferric Podzols that have a duric horizon within the control section .......................................................... Duric Humo-Ferric Podzol
DCF. Other Humo-Ferric Podzols that have a Bt horizon with its upper boundary more than 50 cm from the mineral soil surface .......................................................... Luvisolic Humo-Ferric Podzol
DCG. Other Humo-Ferric Podzols that have an Ah horizon ≥10 cm in thickness and distinct to prominent mottles within 1 m of the mineral soil surface .......................................................... Gleyed Sombric Humo-Ferric Podzol
DCH. Other Humo-Ferric Podzols that have an Ah horizon ≥10 cm in thickness .......................................................... Sombric Humo-Ferric Podzol
DCI. Other Humo-Ferric Podzols that have distinct to prominent mottles within 1 m of the mineral soil surface .......................................................... Gleyed Humo-Ferric Podzol
DCJ. Other Humo-Ferric Podzols .......................................................... Orthic Humo-Ferric Podzol

EA. LUVIC GLEYSOl
EAA. Luvic Gleysoils that have a slickenside horizon within 1 m of the mineral soil surface .......................................................... Vertic Luvic Gleysoil
EAB. Other Luvic Gleysoils that have a solonetzic B horizon .......................................................... Solonetzic Luvic Gleysoil
EAC. Other Luvic Gleysoils that have a fragipan within or below the Btg horizon .......................................................... Fragic Luvic Gleysoil
EAD. Other Luvic Gleysoils that have a mineral-organic surface horizon that meets the requirements of the Ah or Ap horizon of Humic Gleysoils .......................................................... Humic Luvic Gleysoil
EAE. Other Luvic Gleysoils that have either a Bgf horizon ≥10 cm in thickness, as well as a Btg horizon .......................................................... Fera Luvic Gleysoil
EAF. Other Luvic Gleysoils .......................................................... Orthic Luvic Gleysoil

EB. HUMIC GLEYSOl
EBA. Humic Gleysoils that have a slickenside horizon within 1 m of the mineral soil surface .......................................................... Vertic Humic Gleysoil
EBB. Other Humic Gleysoils that have a solonetzic B horizon .......................................................... Solonetzic Humic Gleysoil
EBC. Other Humic Gleysoils that have a Bgf horizon ≥10 cm in thickness .......................................................... Fera Humic Gleysoil
EBD. Other Humic Gleysoils that lack a B horizon ≥10 cm in thickness .......................................................... Rego Humic Gleysoil
EBE. Other Humic Gleysoils .......................................................... Orthic Humic Gleysoil
EC. GLEY SOL
ECA. Gley sols that have a slickenside horizon within 1 m of the mineral soil surface.

ECB. Other Gley sols that have a solonetzic B horizon .............................................. Solonetzic Gley sol
ECC. Other Gley sols that have a Bgf horizon ≥10 cm in thickness ......................... Fera Gley sol
ECD. Other Gley sols that lack a B horizon ≥10 cm in thickness .............................. Rego Gley sol
ECE. Other Gley sols ...................................................................................................... Orthic Gley sol

FA. VERTIC SOLONETZ
FAA. Vertic Solonets that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry, a chroma usually >1.5 dry, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .......................................................... Gleyed Brown Vertic Solonetz
FAB. Other Vertic Solonets that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually >1.5 dry ................................................................. Brown Vertic Solonetz
FAC. Other Vertic Solonets that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry, a chroma usually >1.5 dry, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Dark Brown Vertic Solonetz
FAD. Other Vertic Solonets that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually >1.5 dry ................................................................. Dark Brown Vertic Solonetz
FAE. Other Vertic Solonets that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry, a chroma usually <1.5 dry, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Black Vertic Solonetz
FAF. Other Vertic Solonets that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1.5 dry ................................................................. Black Vertic Solonetz

FB. SOLOD
FBA. Solods that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .......................................................... Gleyed Brown Solod
FBB. Other Solods that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually >1.5 .............................................................................. Brown Solod
FBC. Other Solods that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Dark Brown Solod
FBD. Other Solods that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually >1.5 .............................................................................. Dark Brown Solod
FBE. Other Solods that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Black Solod
FBF. Other Solods that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1.5 .............................................................................. Black Solod
FBG. Other Solods that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry, a chroma usually <2, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Dark Gray Solod
FBH. Other Solods that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually <2. .............................................................. Dark Gray Solod
FBI. Other Solods that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry, a chroma usually <2, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Gray Solod
FBJ. Other Solods that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually <2. .............................................................. Gray Solod

**FC. SOLODIZED SOLONETZ**

FCA. Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface. .............................................................. Gleyed Brown Sololedized Solonetz
FCB. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually >1.5 .............................................................. Brown Sololedized Solonetz
FCC. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Dark Brown Sololedized Solonetz
FCD. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Black Sololedized Solonetz
FCF. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1 .............................................................. Black Sololedized Solonetz
FCG. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry, a chroma usually <2, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Dark Gray Sololedized Solonetz
FCH. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually <2 .............................................................. Dark Gray Sololedized Solonetz
FCI. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry, a chroma usually <2, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Gray Sololedized Solonetz
FCJ. Other Sololedized Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually <2 .............................................................. Gray Sololedized Solonetz

**FD. SOLONETZ**

FDA. Solonetz that have a strongly alkaline A horizon with pH (H₂O) ~8.5........ Alkaline Solonetz
FDB. Other Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Brown Sololedized Solonetz
FDC. Other Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually >1.5 or an exposed solonetizc B horizon .............................................................. Brown Sololedized Solonetz
FDD. Other Solonetz that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .............................................................. Gleyed Dark Brown Sololedized Solonetz
FDE. Other Solonetzs that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually >1.5 or an exposed solonetzic B horizon ................. Dark Brown Solonetz

FDF. Other Solonetzs that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry, a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................. Dark Gleyed Solonetz

FDG. Other Solonetzs that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1.5, and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Black Solonetz

GA. BROWN CHERNOZEM

GAA. Brown Chernozems that have a slickenside horizon (ss) within 1 m of the mineral soil surface and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Vertic Brown Chernozem

GAB. Other Brown Chernozems that have a slickenside horizon (ss) within 1 m of the mineral soil surface ................................................................................................................................. Vertic Brown Chernozem

GAC. Other Brown Chernozems that have a Bnj, Bnjt, or Btng horizon and have a horizon with a gj suffix within 50 cm of the mineral soil surface .................. Gleyed Solonetzic Brown Chernozem

GAD. Other Brown Chernozems that have a Bnj, Bnjt, or Btnj horizon .................................. Solonetzic Brown Chernozem

GAE. Other Brown Chernozems that have an eluvial horizon or horizons (Ahe, Aei, or Aej) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .................................. Gleyed Eluviated Brown Chernozem

GAF. Other Brown Chernozems that have an eluvial horizon or horizons (Ahe, Aei, or Aej) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon .................. Eluviated Brown Chernozem

GAG. Other Brown Chernozems that have a Bmk horizon at least 5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................................................................................. Gleyed Calcereous Brown Chernozem

GAI. Other Brown Chernozems that either lack a B horizon or have a B horizon <5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Rego Brown Chernozem

GAI. Other Brown Chernozems that either lack a B horizon or have a B horizon <5 cm in thickness ................................................................................................................................. Rego Brown Chernozem

GAK. Other Brown Chernozems that have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................................................................................. Gleyed Brown Chernozem

GAL. Other Brown Chernozems .................................................................................. Orthic Brown Chernozem

GB. DARK BROWN CHERNOZEM

GBA. Dark Brown Chernozems that have a slickenside horizon within 1 m of the mineral soil surface and have a horizon with a gj suffix within 50 cm of the mineral soil surface ............... Gleyed Vertic Dark Brown Chernozem

GBB. Other Dark Brown Chernozems that have a slickenside horizon within 1 m of the mineral soil surface ................................................................................................................................. Vertic Dark Brown Chernozem
GBC. Other Dark Brown Chernozems that have a Bnj, Bnjtj, or Btnj horizon and have a horizon with a gj suffix within 50 cm of the mineral soil surface .................................................................

GBD. Other Dark Brown Chernozems that have a Bnj, Bnjtj, or Btnj horizon .................................................................Solonetzic Dark Brown Chernozem

GBE. Other Dark Brown Chernozems that have an eluvial horizon or horizons (Ahe, Ae, or Aej) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon, and have a horizon with a gj suffix within 50 cm of the mineral soil surface. ....... Gleyed Eluviated Dark Brown Chernozem

GBF. Other Dark Brown Chernozems that have an eluvial horizon or horizons (Ahe, Ae, or Aej) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon ............ Eluviated Dark Brown Chernozem

GBG. Other Dark Brown Chernozems that have a Bmk horizon at least 5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface.

GBH. Other Dark Brown Chernozems that have a Bmk horizon at least 5 cm in thickness. ...........

GBI. Other Dark Brown Chernozems that either lack a B horizon or have a B horizon <5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface. ...........

GBJ. Other Dark Brown Chernozems that either lack a B horizon or have a B horizon <5 cm in thickness ................................................................. Gleyed Rego Dark Brown Chernozem

GBK. Other Dark Brown Chernozems that have a horizon with a gj suffix mottles within 50 cm of the mineral soil surface ................................................................. Gleyed Dark Brown Chernozem

GBL. Other Dark Brown Chernozems ............................................. ..... Orthic Dark Brown Chernozem

GC. BLACK CHERNOZEM

GCA. Black Chernozems that have a slickenside (ss) horizon within 1 m of the mineral soil surface and have a horizon with a gj suffix within 50 cm of the mineral soil surface

GCB. Other Black Chernozems that have a slickenside horizon within 1 m of the mineral soil surface ................................................................. Vertic Black Chernozem

GCC. Other Black Chernozems that have a Bnj, Bnjtj, or Btnj horizon and have a horizon with a gj suffix within 50 cm of the mineral soil surface. .................... Gleyed Solonetzic Black Chernozem

GCD. Other Black Chernozems that have a Bnj, Bnjtj, or Btnj horizon .................................................................Solonetzic Black Chernozem

GCE. Other Black Chernozems that have an eluvial horizon or horizons (Ahe, Ae, or Aej) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon, and have a horizon with a gj suffix within 50 cm of the mineral soil surface .........Gleyed Eluviated Black Chernozem

GCF. Other Black Chernozems that have an eluvial horizon or horizons (Ahe, Ae, or Aej) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon............... Eluviated Black Chernozem

GGC. Other Black Chernozems that have a Bmk horizon at least 5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface .......................................

GCG. Other Black Chernozems that have a Bmk horizon at least 5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface .......................................

GCH. Other Black Chernozems that have a Bmk horizon at least 5 cm in thickness .......................... . .................................................................Calcareous Black Chernozem
GCI. Other Black Chernozems that lack a B horizon or have a B horizon < 5 cm in thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface .................................................................
GCJ. Other Black Chernozems that lack a B horizon or have a B horizon < 5 cm in thickness ...........
GCK. Other Black Chernozems that have a horizon with a gj suffix within 50 cm of the mineral
soil surface ................................................................. Gleyed Black Chernozem
GCL. Other Black Chernozems ................................................................. Gleyed Black Chernozem

GD. DARK GRAY CHERNOZEM
GDA. Dark Gray Chernozems that have a slickenside horizon within 1 m of the mineral soil
surface and have a horizon with a gj suffix within 50 cm of the mineral soil surface
................................................................. Gleyed Vertic Dark Gray Chernozem
GDB. Other Dark Gray Chernozems that have a slickenside horizon within 1 m of the mineral soil
surface ................................................................. Vertic Dark Gray Chernozem
GDC. Other Dark Gray Chernozems that have a Bnj, Bnjtj, or Btnj horizon and have a horizon
with a gj suffix within 50 cm of the mineral soil surface...Gleyed Solonetzic Dark Gray Chernozem
GDD. Other Dark Gray Chernozems that have a Bnj, Bnjtj, or Btnj horizon
................................................................. Solonetzic Dark Gray Chernozem
GDE. Other Dark Gray Chernozems that have a Bmk horizon at least 5 cm in thickness and have a
horizon with a gj suffix within 50 cm of the mineral soil surface
................................................................. Gleyed Calcereous Dark Gray Chernozem
GDF. Other Dark Gray Chernozems that have a Bmk horizon at least 5 cm in thickness
................................................................. Calcereous Dark Gray Chernozem
GDG. Other Dark Gray Chernozems that either lack a B horizon or have a B horizon < 5 cm in
thickness and have a horizon with a gj suffix within 50 cm of the mineral soil surface
................................................................. Gleyed Rego Dark Gray Chernozem
GDH. Other Dark Gray Chernozems that either lack a B horizon or have a B horizon < 5 cm in
thickness ................................................................. Rego Dark Gray Chernozem
GDI. Other Dark Gray Chernozems that have a horizon with a gj suffix within 50 cm of the
mineral soil surface ................................................................. Gleyed Dark Gray Chernozem
GDJ. Other Dark Gray Chernozems ................................................................. Orthic Dark Gray Chernozem

HA. GRAY BROWN LUVISOL
HAA. Gray Brown Luvisols that have a slickenside horizon within 1 m of the mineral soil surface
and have a horizon with a gj suffix within 50 cm of the mineral soil surface
................................................................. Gleyed Vertic Gray Brown Luvisol
HAB. Other Gray Brown Luvisols that have a slickenside horizon within 1 m of the mineral soil
surface ................................................................. Vertic Gray Brown Luvisol
HAC. Other Gray Brown Luvisols that have a Podzolic B horizon ≥ 10 cm in thickness in the upper
solum, a Bt horizon with its upper boundary within 50 cm from the mineral soil surface, and
either have a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a
g suffix at depths of 50-100 cm .............................................. Gleyed Podzolic Gray Brown Luvisol
HB. GRAY LUVISOL

HBA. Gray Luvisols that have a slickenside horizon within 1 m of the mineral soil surface and have a horizon with a gj suffix within 50 cm of the mineral soil surface

HBB. Other Gray Luvisols that have a slickenside horizon within 1 m of the mineral soil surface

HBC. Other Gray Luvisols that have a fragipan either within or below the Bt horizon and have either distinct mottles within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm

HBD. Other Gray Luvisols that have a fragipan either within or below the Bt horizon

HBE. Other Gray Luvisols that have a Podzolic B horizon ≥10 cm in thickness in the upper solum, a Bt horizon with its upper boundary within 50 cm of the mineral soil surface, and either distinct mottles within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm

HBF. Other Gray Luvisols that have a Podzolic B horizon ≥10 cm in thickness in the upper solum and a Bt horizon with its upper boundary within 50 cm of the mineral soil surface

HBG. Other Gray Luvisols that have an Ah or Ahe horizon 25 cm in thickness and have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm

HBH. Other Gray Luvisols that have either an Ah or Ahe horizon ≥5 cm in thickness

HBI. Other Gray Luvisols that have a Bt horizon and either distinct mottles within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm

HBJ. Other Gray Luvisols that have a Bt horizon

HBK. Other Gray Luvisols that have in the upper solum either a Bm horizon ≥5 cm in thickness with a chroma ≥3, or a Bf horizon <10 cm in thickness that does not extend below 15 cm of the mineral soil surface, and have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm
HBL. Other Gray Luvisols that have in the upper solum either a Bm horizon ≥5 cm in thickness with a chroma ≥3, or a Bf horizon <10 cm in thickness that does not extend below 15 cm of the mineral soil surface ......................................................... Brunisolic Gray Luvisol
HBM. Other Gray Luvisols that have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm............................. Gleyed Gray Luvisol
HBN. Other Gray Luvisols ................................................................. Orthic Gray Luvisol

IA. MELANIC BRUNISOL
IAA. Melanic Brunisols that have an Ae or Aej horizon ≥2 cm in thickness and have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm ......................................................... Gleyed Eluviated Melanic Brunisol
IAB. Other Melanic Brunisols that have an Ae or Aej horizon ≥2 cm in thickness .............................................. Eluviated Melanic Brunisol
IAC. Other Melanic Brunisols that have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm............................................................. Gleyed Melanic Brunisol
IAD. Other Melanic Brunisols ........................................................... Orthic Melanic Brunisol

IB. EUTRIC BRUNISOL
IBA. Eutric Brunisols that have an Ae or Aej horizon ≥2 cm in thickness and have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm......................................................... Gleyed Eluviated Eutric Brunisol
Cra. Other Eutric Brunisols that have an Ae or Aej horizon ≥2 cm in thickness .............................................. Eluviated Eutric Brunisol
IBC. Other Eutric Brunisols that have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm............................. Gleyed Eutric Brunisol
IBD. Other Eutric Brunisols ........................................................... Orthic Eutric Brunisol

IC. SOMBRIC BRUNISOL
ICA. Sombric Brunisols that have a duric horizon within the control section ........................................................... Duric Sombric Brunisol
ICB. Other Sombric Brunisols that have an Ae or Aej horizon ≥2 cm in thickness and have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm......................................................... Gleyed Eluviated Sombric Brunisol
ICB. Other Sombric Brunisols that have an Ae or Aej horizon ≥2 cm in thickness .............................................. Eluviated Sombric Brunisol
ICC. Other Sombric Brunisols that have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm............................................................. Gleyed Sombric Brunisol
ICD. Other Sombric Brunisols ........................................................... Orthic Sombric Brunisol

ID. DYSTRIC BRUNISOL
IDA. Dystric Brunisols that have a duric horizon within the control section . Duric Dystric Brunisol
IDB. Other Dystric Brunisols that have an Ae or Aej horizon ≥2 cm in thickness and have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm................................................................. Gleyed Eluviated Dystric Brunisol
IDC. Other Dystric Brunisols that have an Ae or Aej horizon ≥2 cm in thickness ......................................................... Eluviated Dystric Brunisol
IDD. Other Dystric Brunisols that have either a horizon with a gj suffix within 50 cm of the mineral soil surface or a horizon with a g suffix at depths of 50-100 cm................................................................. Gleyed Dystric Brunisol
IDE. Other Dystric Brunisols ........................................................................................................................................... Orthic Dystric Brunisol

JA. HUMIC REGOSOL
JAA. Humic Regosols that either have layers below the Ah horizon and vary in color value by one or more units, or have organic matter contents that vary irregularly with depth and have a horizon with a gj suffix within 50 cm of the mineral soil surface... Gleyed Cumulic Humic Regosol
JAB. Other Humic Regosols that either have layers below the Ah horizon and vary in color value by one or more units, or have organic matter contents that vary irregularly with depth ................................................................. Cumulic Humic Regosol
JAC. Other Humic Regosols that have a horizon with a gj suffix within 50 cm of the mineral soil surface ........................................................................................................ Gleyed Humic Regosol
JAD. Other Humic Regosols ........................................................................................................................................... Orthic Humic Regosol

JB. REGOSOLS
JBA. Regosols that either have layers below the Ah horizon and vary in color value by one or more units, or have organic matter contents that vary irregularly with depth and a horizon with a gj suffix within 50 cm of the mineral soil surface .... ................. Gleyed Cumulic Regosol
JBB. Other Regosols that either have layers below the Ah horizon and vary in color value by one or more units, or have organic matter contents that vary irregularly with depth ................................................................. Cumulic Regosol
JBC. Other Regosols that have a horizon with a gj suffix within 50 cm of the mineral soil surface ................................................................. Gleyed Regosol
JBD. Other Regosols ........................................................................................................................................... Orthic Regosol
COMMON PHASES FOR CANADIAN SOILS

MINERAL SOILS
Secondary carbonates in A or B horizon (e.g. Ahca, Bca).................................Carbonated phase
Primary or secondary salts in A, B, or C horizons (e.g. Ahsa, Bms, Cks)..................Saline phase
Physical disruption (u suffix) in A, B, or C horizon .........................................Turbic phase
Volcanic ash layer present ....................................................................................Andic phase
Surface horizon of 15—40 cm of folic material present.......................................Folic phase
Surface horizon of 15—60 cm of fibric organic material or 15—40 cm of mesic or humic material present..............................................................Peaty phase
A non-permafrost soil with one or more cryoturbated layers............................Cryoturbated phase
Any non-cryoturbated mineral or organic soil with permafrost below 1 m depth or a cryoturbated mineral soil with permafrost below 2 m depth.................................Cryic phase

ANTHROPIC SOILS
The assignment of phases for Anthroposols can provide important information to end users. See the Visual Soil Key for Anthropic horizons for more detail.