

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:

Soil Classification Working Group. 1998. The Canadian System of Soil Classification. 3rd Ed. Research Branch, Agriculture and Agri-Food Canada. Publication 1646. NRC Research Press, Ottawa, Ontario.

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

The material on Anthroposolic soils is drawn from:

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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 \geq 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 Anthrosols)

- AA. Soil material contains 10% or greater artifacts (Dw) throughout the dominant material (layers) of the profile.Technic Anthrosol, p. 11.
 AB. Soil material contains more than 17% organic carbon (Do) in the dominant material (layers) of the profileCarbic Anthrosol, p. 11.
 AC. Other Anthrosolic soils.Spolic Anthrosol, 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 surfaceTurbic 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 surfaceStatic 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 drainedVertisol, 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 thicknessHumic 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 GLEYSOLIC ORDER

- FA. Gleysolic soils that have a Btg horizon and usually have an eluvial (Ae, Aeg, Aegj) horizon. Luvic Gleysol, p. 16
 FB. Other Gleysolic 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 Gleysol, p. 16

FC. Other Gleysolic soilsGleysol, 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, Ae_j, thin Ae) associated with soils formed under forest vegetationDark 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 $\geq 8^{\circ}\text{C}$ (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 Anthoposol

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 subgroupFusco

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..... Cryo

Step 3) The assignment of a phase is important in Anthrospols (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 orderGleysolic Turbic Cryosol
 BBB Other Turbic Cryosols that are >15 cm in thickness, 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 Turbic Cryosol
 BBC Other Turbic Cryosols that are >15 cm in thickness, 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 Turbic Cryosol
 BBD Other Turbic Cryosols that are >15 cm in thickness, have at least one O horizon in the upper 1 m, and have no B horizonsHistic 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 horizonsOrthic 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 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 horizonsHistic 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 Bty 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 horizonsOrthic 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 sectionHumic Folisol

CB. FIBRISOL

- CBA. Fibrisols that have a hydric layerHydric 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 sectionTerric 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 tierCumulic 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 sectionMesic 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 tierCumulic 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 surfaceGleyed 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
- DCE. Other Humo-Ferric Podzols that have a fragipan within the control section Fragic 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 Gleysols that have a slickenside horizon within 1 m of the mineral soil surface Vertic Luvic Gleysol
- EAB. Other Luvic Gleysols that have a solonetzic B horizon .. Solonetzic Luvic Gleysol
- EAC. Other Luvic Gleysols that have a fragipan within or below the Btg horizon Fragic Luvic Gleysol
- EAD. Other Luvic Gleysols that have a mineral-organic surface horizon that meets the requirements of the Ah or Ap horizon of Humic Gleysols Humic Luvic Gleysol
- EAE. Other Luvic Gleysols that have either a Bgf horizon ≥ 10 cm in thickness, as well as a Btg horizon, or a Btgf horizon Fera Luvic Gleysol
- EAF. Other Luvic Gleysols Orthic Luvic Gleysol

EB. HUMIC GLEYSOL

- EBA. Humic Gleysols that have a slickenside horizon within 1 m of the mineral soil surface Vertic Humic Gleysol
- EBB. Other Humic Gleysols that have a solonetzic B horizon Solonetzic Humic Gleysol
- EBC. Other Humic Gleysols that have a Bgf horizon ≥ 10 cm in thickness Fera Humic Gleysol
- EBD. Other Humic Gleysols that lack a B horizon ≥ 10 cm in thickness Rego Humic Gleysol
- EBE. Other Humic Gleysols Orthic Humic Gleysol

EC. GLEYSOL

- ECA. Gleysols that have a slickenside horizon within 1 m of the mineral soil surface .
 Vertic Gleysol
- ECB. Other Gleysols that have a solonetzic B horizon Solonetzic Gleysol
- ECC. Other Gleysols that have a Bgf horizon ≥ 10 cm in thickness..... Fera Gleysol
- ECD. Other Gleysols that lack a B horizon ≥ 10 cm in thickness Rego Gleysol
- ECE. Other GleysolsOrthic Gleysol

FA. VERTIC SOLONETZ

- FAA. Vertic Solonetzts 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 Solonetzts that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually >1.5 dryBrown Vertic Solonetz
- FAC. Other Vertic Solonetzts 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 Solonetzts that have an Ah, Ahe, or Ap horizon with a color value of 3.5-4.5 dry and a chroma usually > 1.5 dryDark Brown Vertic Solonetz
- FAE. Other Vertic Solonetzts 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 surfaceGleyed Black Vertic Solonetz
- FAF. Other Vertic Solonetzts that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1.5 dryBlack 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. Solodized 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 Solodized Solonetz
 FCB. Other Solodized Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually >1.5Brown Solodized Solonetz
 FCC. Other Solodized 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 surfaceGleyed Dark Brown Solodized Solonetz
 FCD. Other Solodized 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 Dark Brown Solodized Solonetz
 FCE. Other Solodized Solonetz 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 Solodized Solonetz
 FCF. Other Solodized Solonetz that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1..... Black Solodized Solonetz
 FCG. Other Solodized 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 Solodized Solonetz
 FCH. Other Solodized 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 Solodized Solonetz
 FCI. Other Solodized 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 Solodized Solonetz
 FCJ. Other Solodized Solonetz that have an Ah, Ahe, or Ap horizon with a color value >4.5 dry and a chroma usually <2..... Gray Solodized 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 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 solonetzic B horizon Brown 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 Solonetz

FDE. Other Solonetzts 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 Solonetzts 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 Solonetz
 FDG. Other Solonetzts that have an Ah, Ahe, or Ap horizon with a color value <3.5 dry and a chroma usually >1.5 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, Bnjtj, or Btnj 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, Bnjtj, or Btnj Horizon.....
Solonetzic Brown Chernozem
 GAE. Other 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 Brown Chernozem
 GAF. Other 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 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 Calcareous Brown Chernozem
 GAH. Other Brown Chernozems that have a Bmk horizon at least 5 cm in thickness . .
 Calcareous 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
 GAJ. 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 Gleyed Solonetzic Dark Brown Chernozem
- 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 Ae_j) 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 Ae_j) 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 Gleyed Calcareous Dark Brown Chernozem
- GBH. Other Dark Brown Chernozems that have a Bmk horizon at least 5 cm in thickness Calcareous Dark Brown Chernozem
- 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 Gleyed Rego Dark Brown Chernozem
- GBJ. Other Dark Brown Chernozems that either lack a B horizon or have a B horizon <5 cm in thickness 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 Gleyed Vertic Black Chernozem
- 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 Ae_j) 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 Ae_j) at least 2 cm in thickness, usually underlain by a Btj or Bt horizon..... Eluviated Black Chernozem
- 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 Gleyed Calcareous Black Chernozem
- 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 Gleyed Rego Black Chernozem
 GCI. Other Black Chernozems that lack a B horizon or have a B horizon <5 cm in thickness Rego Black Chernozem
 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 Orthic 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 Calcareous Dark Gray Chernozem
 GDF. Other Dark Gray Chernozems that have a Bmk horizon at least 5 cm in thickness Calcareous 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

HAD. Other Gray Brown 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

..... Podzolic Gray Brown Luvisol

HAE. Other Gray Brown Luvisols that have in the upper solum either a Bm horizon 25 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 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 Brunisolic Gray Brown Luvisol

HAF. Other Gray Brown 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 Brown Luvisol

HAG. Other Gray Brown Luvisols that have 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 Gray Brown Luvisol

HAH. Other Gray Brown Luvisols Orthic 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

..... Gleyed Vertic Gray Luvisol

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

..... Vertic Gray Luvisol

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

..... Gleyed Fragic Gray Luvisol

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

..... Fragic Gray Luvisol

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

..... Gleyed Podzolic Gray Luvisol

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

..... Podzolic Gray Luvisol

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

..... Gleyed Dark Gray Luvisol

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

..... Dark Gray Luvisol

HBI. Other Gray Luvisols that have a Btnj 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

..... Gleyed Solonetzic Gray Luvisol

HBJ. Other Gray Luvisols that have a Btnj horizon..... Solonetzic Gray Luvisol

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..... Gleyed Brunisolic Gray Luvisol

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 Ae_j 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 Ae_j 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 Ae_j 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
 IBB. Other Eutric Brunisols that have an Ae or Ae_j 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 sectionDuric Sombric Brunisol
 ICB. Other Sombric Brunisols that have an Ae or Ae_j 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 Ae_j 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. REGOSOL

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 horizonTurbic phase

Volcanic ash layer presentAndic 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 Anthrosols can provide important information to end users. See the Visual Soil Key for Anthropic horizons for more detail.