

Appendix J: Soil Horizon Designation Nomenclature
 (“*Illustrated Guide*,” 2015, p. 2-5-2-7)

Illustrated Guide to Soil Taxonomy

Table 1.—Master Soil Horizons and the Nomenclature (Capital Letters) Used to Designate Them in Soil Profile Descriptions

Horizon Symbol	General Description
A	Surface mineral soil horizon, generally darkened by accumulating humus. May be buried by newer deposits or underlie an organic horizon.
B	Subsoil mineral horizon, generally characterized by accumulation, removal, or redistribution of constituents such as iron, aluminum, silica, clay, humus, calcium carbonate, calcium sulfate, or sesquioxides. May be at the surface in a truncated soil.
C	Relatively unaltered mineral soil layer underlying the pedogenically developed soil profile. Generally unconsolidated, but includes soft bedrock.
E	Subsurface mineral soil horizon characterized by a loss of iron, aluminum, clay, or organic matter. Generally has lighter color and coarser texture compared to horizon above.
L	Soil horizon composed of organically derived limnic material that was deposited in water by chemical precipitation or aquatic organisms or came from plants (as modified by organisms). Examples include coprogenous earth, diatomaceous earth, and marl.
M	Root-limiting, human-manufactured layer. Examples include a buried layer of continuous asphalt, landfill liner, and geotextile fabric.
O	Soil horizon composed dominantly of organic soil materials (but not limnic materials). Has relatively low bulk density compared to mineral soil. May be at the surface or buried.
R	Consolidated hard, continuous bedrock.
V	Mineral horizon formed at the soil surface or below a layer of rock fragments (e.g., desert pavement), a physical or biological crust, or recently deposited eolian material. Characterized by the predominance of vesicular pores and having platy, prismatic, or columnar structure.
W	Layer of water within or under the soil (not at the surface). Examples include floating bogs and segregated ice layers.

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Table 2A.—Subordinate Lowercase Suffixes Describing Physical Characteristics of the Soil

Suffix	General Description
a	Highly decomposed organic matter. Has < 17%, by volume, rubbed fiber. Used only with master horizon O.
b	Buried genetic horizon. Exhibits past soil-forming development.
c	Presence of cemented concretions or nodules.
d	Physically root-restrictive layer due to high bulk density. May have natural or human-induced compaction. Examples include dense basal till and plow pans.
e	Moderately decomposed organic matter. Has 17 to < 40%, by volume, rubbed fiber. Used only with master horizon O.
f	Permanently frozen layer that contains ice (permafrost).
ff	Dry permafrost. Permanently frozen layer, not cemented by ice.
i	Slightly decomposed organic matter. Has \geq 40%, by volume, rubbed fiber. Used only with master horizon O.
jj	Evidence of cryoturbation in the active layer above permafrost. Examples include broken or irregular horizons boundaries, organic bodies within mineral horizons, and sorted rock fragments.
m	Root-restrictive, pedogenically cemented horizon. More than 90% of layer is cemented by agents such as calcium carbonate, iron, silica, gypsum, or other salts.
p	Disturbance of the surface layer, commonly by plowing, cattle trampling, vehicle traffic, or other mechanical means. Used with master horizon A.
r	Weathered or soft bedrock. Although cemented, it can be dug with hand tools, such as a spade or pick. Used with master horizon C.
ss	Presence of slickensides formed by shear movement in clayey soils as a result of shrinking and swelling.
t	Illuvial accumulation of clay as evidenced by the presence of clay films, clay bridges, or lamellae.
u	Presence of human-manufactured material (artifacts) such as bricks, metal, coal ash, fabric, rubber, plastic, glass, and garbage.
w	Weakly expressed color or structural development or minimal accumulation of pedogenic constituents. Used with master horizon B, but not with transitional horizons.
x	Genetically developed horizon that is firm, brittle, and physically root restrictive, at least in part.

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Table 2B.—Subordinate Lowercase Suffixes Describing Chemical or Mineralogical Characteristics of the Soil

Suffix	General Description
co	Limnic layer composed primarily of coprogenous earth (fecal material from aquatic animals). Used only with master horizon L.
di	Limnic layer composed primarily of diatomaceous earth (sedimentary siliceous diatom remains). Used only with master horizon L.
g	Strong gleying (iron reduction and loss due to saturation and anaerobic conditions). Chroma is 2 or less.
h	Illuvial accumulation of amorphous, dispersible, organic matter and aluminum-dominated sesquioxides coating sand and silt particles and sometimes filling pores. Used with master horizon B.*
j	Accumulation of jarosite (iron hydroxy sulfate mineral with yellow hue produced in acid-sulfate soils).
k	Accumulation of visible pedogenic calcium carbonate (< 50%, by volume). Forms include filaments, soft masses, nodules, pendants, and finely disseminated carbonates.
kk	Engulfment of the horizon by pedogenic calcium carbonate (\geq 50%, by volume). Carbonates coat particles and fill pores, effectively plugging the soil fabric.
ma	Limnic layer composed primarily of marl (soft, muddy deposit of sedimentary calcium carbonate and clay). Reacts with dilute HCl. Used only with master horizon L.
n	Accumulation of exchangeable sodium.
o	Residual accumulation of sesquioxides (iron- and aluminum-oxides).
q	Accumulation of secondary silica as concretions, durinodes, opal, etc.
s	Illuvial accumulation of amorphous, dispersible sesquioxides (iron- and aluminum-oxides) and organic matter. Used with master horizon B.*
se	Presence of sulfides in mineral or organic layers. Often associated with sulfurous odor (rotten-egg smell). Typically dark in color (value \leq 4 and chroma \leq 2).
v	Presence of plinthite (firm, iron-rich, humus-poor, red concentration in association with clay, quartz, and other minerals). Irreversibly hardens with repeated wet/dry cycles (as in a road cut).

- y Accumulation of gypsum (or rarely, anhydrite). Because amounts are sufficiently low (< 50%, by volume) the gypsum does not disrupt or obscure other features of the horizon.
 - yy Dominance of the horizon by accumulated gypsum (or rarely, anhydrite). Amounts are sufficiently high (> 50%, by volume) for the growth of gypsum crystals to disrupt or obscure other features of the horizon. Color is typically white (value ≥ 7 and chroma ≤ 2).
 - z Accumulation of salts more soluble than gypsum, such as sodium chloride.
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* Suffixes h and s are combined, as in Bhs, where the sesquioxide component is significant but the color has both moist value and chroma of 3 or less.