Appendix B: Definition of soil data elements

Element	Tables	Long name	Description
aashind	layer	AASHTO Group Index	AASHTO (American Assoc. of State Highway and Transportation Officials) group index. A modification to AASHTO group classification of a soil.
aashto	layer	AASHTO Group Classification	AASHTO (American Assoc. of State Highway and Transportation Officials) group classification. A code for AASHTO group classification for a soil.
anflobeg	comp	Annual Flooding Month Begin	Month in which annual flooding (flooding likely to occur during the year) begins in a normal year.
anflodur	comp	Flood Duration Class	The duration of annual flooding in a normal year.
anfloend	comp	Annual Flooding Month End	Month in which annual flooding (flooding likely to occur during the year) ends in a normal year.
anflood	comp	Annual Flooding Frequency	Descriptive term used to describe the frequency of annual flooding (flooding likely to occur during the year) that is likely to occur. Frequent (FREQ) - > 50% chance of flooding; Occasional (OCCAS) - 5-50% chance of flooding; Rare (RARE) - 0-5% chance of flooding.
awch	layer	Available Water Capacity	Maximum value for the range of available water capacity for the soil layer or horizon, expressed as inches/inch.
awcl	layer	Available Water Capacity	Minimum value for the range of available water capacity for the soil layer or horizon, expressed as inches/inch.
bdh	layer	Bulk Density	Maximum value for the range in moist bulk density of the soil layer or horizon, expressed as grams per cubic centimeter.
bd	llayer	Bulk Density	Minimum value for the range in moist bulk density of the soil layer or horizon, expressed as grams per cubic centimeter.
caco3h	layer	Carbonate as $CaCO_3$	Maximum value for the range of calcium carbonate ($CaCO_3$) in the soil layer or horizon, expressed as a percent.

Element	Tables	Long name	Description
caco3l	layer	Carbonate as $CaCO_3$	Minimum value for the range of calcium carbonate ($CaCO_3$) in the soil layer or horizon, expressed as a percent.
cech	layer	Cation Exchange Capacity	Maximum value for the range in cation exchange capacity for the soil layer or horizon.
cecl	layer	Cation Exchange Capacity	Minimum value for the range in cation exchange capacity for the soil layer or horizon.
clascode	comp taxclass	Taxonomic Classification code	Code for the taxonomic classification for the soil. Definition of codes are in the taxclass table.
class	taxclass	Taxonomic Classification	The taxonomic classification (name) of the soil.
clayh	layer	Clay	Maximum value for the range in clay content of the soil layer or horizon, expressed as a percentage of the material less than 2 mm in size.
clayl	layer	Clay	Minimum value for the range in clay content of the soil layer or horizon, expressed as a percentage of the material less than 2 mm in size.
clirr	comp	Irrigated Capability Class	Irrigated Capability Class. A rating of the soil for irrigated agricultural use. The number indicates progressively greater limitations and narrower choices for use.
clnirr	comp	Nonirrigated Capability Class	A rating of the soil for nonirrigated agricultural use. The number indicates progressively greater limitations and narrower choices for use.
code	codes	Data base Code	A listing of codes used in the specified data base.
codedesc	codes	Code Description or Meaning	Narrative description or explanation of a codes used in the data base.
codename	codes	Code Name	The long name (unabbreviated) for the code.
col	element tblelt valrange	Column Name	Column name used in data base.
comname	plantnm	Plant Common Name	The common name for the plant most widely used by the state.
compacre	comp	Component Acres	The acreage of the component of a soil mapunit. Component acres are normalized to 100 percent to exclude inclusions. The sum of all the component acres for a mapunit will equal 100 percent.
compkind	comp	Kind of Component	Code identifying the kind of component of the mapunit. Example: Series (S); Family (F); Variant (V); Taxadjunct (T); Taxon above family (G) Miscellaneous area (M).

Element	Tables	Long name	Description
compname	comp	Component Name	The name of the component (series, taxonomic unit or miscellaneous area) of the mapunit.
comppct	comp	Component Percent	The percentage of the component of the mapunit.
corcon	comp	Corrosion - Concrete	An interpretation rating of the susceptibility of concrete to corrosion when in contact with the soil.
corsteel	comp	Corrosion - Uncoated Steel	An interpretation rating of the susceptibility of uncoated steel to corrosion when in contact with the soil.
cropname	compyld yldunits	Crop Name	The common name for the crop for which a yield is given.
domid	codes element	Domain ID	A code identifing the domain for the data element. Domain contains the broad definition and codes used for all data elements within its domain.
drainage	comp	Soil Drainage Class	Code identifying the natural drainage condition of the soil and refers to the frequency and duration of periods when the soil is free of saturation. Example: Well Drained (W); Excessive (E); Moderately Well (MW); Poorly (P); Somewhat Excessively (SE); Somewhat Poorly (SP).
eldesc	element	Element Description	
ellable	element	Element Label - long name	
frostact	comp	Potential Frost Action	An interpretation rating of the susceptibility of the soil to frost heaving.
grpcode	interp	Interpretative Group Code	Code identifying the interpretative group or category for the interpretation specified. Examples of interpretative groups are septic tank absorption fields and shallow excavations.
grtgroup	taxclass	Great Group	Code for the taxonomic GREAT GROUP category.
gsflobeg	comp	Growing Season Flooding Begins	Month in which growing season (season for common field crops in the area) flooding begins in a normal year.
gsflodur	comp	Growing Season Duration	The duration of flooding during the growing season (season for common field crops in the area).
gsfloend	comp	Growing Season Flooding Ends	Month in which growing season (season for common field crops in the area) flooding ends in a normal year.
gsflood	comp	Growing Season Flooding Frequency	Descriptive term describing the frequency of flooding during the growing season (season for the common field crops in the area). Frequent (FREQ); Occasional (OCCAS); Rare (RARE).

Element	Tables	Long name	Description
gypsumh	layer	Gypsum	Maximum value for the range in sulfates reported as gypsum ($CaSO_4$) in the soil layer or horizon, expressed as a percent.
gypsuml	layer	Gypsum	Minimum value for the range in sulfates reported as gypsum ($CaSO_4$) in the soil layer or horizon, expressed as a percent.
hydgrp	comp	Hydrologic Group	The hydrologic group for the soil. Example: A, A/D.
hydric	comp	Hydric Soil Rating	The symbol (Y/N) identifying hydric soils.
inch10h	layer	Weight Percent Greater than 10 inches	The maximum value for the range in percent by weight of the rock fragments greater than 10 inches size in the soil layer or horizon.
inch10l	layer	Weight Percent Greater than 10 inches	The minimum value for the range in percent by weight of the rock fragments greater than 10 inches size in the soil layer or horizon.
inch3h	layer	Weight Percent 3 to 10 inches	The maximum value for the range in percent by weight of the rock fragments 3 to 10 inches size in the soil layer or horizon.
inch3l	layer	Weight Percent 3 to 10 inches	The minimum value for the range in percent by weight of the rock fragments 3 to 10 inches size in the soil layer or horizon.
irryld	compyld	Irrigated Crop Yield	The expected yield of the specific crop with irrigation. Defined as the yield expected in an average year under a high level of management.
kfact	layer	Soil Erodibility Factor, includes rock fragments	An erodibility factor which is adjusted for the effect of rock fragments.
kffact	layer	Soil Erodibility Factor, rock fragments free	An erodibility factor which quantifies the susceptibility of soil particles to detachment and movement by water. This factor is used in the Universal Soil Loss Equation to calculate soil loss by water.
laydeph	layer	Layer Depth	The depth to the lower boundary of the soil layer or horizon, expressed in inches.
laydepl	layer	Layer Depth	Depth to the upper boundary of the soil layer or horizon, expressed in inches.
layerid	layer	Layer Identification Number	A convention to identify the original layers on the SOI-5 record. Example: layerid 11 for the first surface of a multisurface record, 12 for the second surface layer, 2 thru 9 for subsurface layers.

Element	Tables	Long name	Description
layernum	layer	Layer Number	The sequence number identifying layers in the soil profile. A layer number of 1 would indicate the layer is the surface layer.
len	valrange	Column Length	The maximum length of a column.
llh	layer	Liquid Limit	The maximum value for the range in liquid limit of the soil layer or horizon, expressed as percent moisture by weight.
lll	layer	Liquid Limit	The minimum value for the range in liquid limit of the soil layer or horizon, expressed as percent moisture by weight.
minalogy	taxclass	Mineralogy	Code for the MINERALOGY class of the Family category of taxonomic classification.
mlra	mapunit	Major Land Resource Area	The code used to identify the dominant Major Land Resource Area (MLRA) within which the soil mapunit is mapped.
muacres	mapunit	Mapunit Acres	The acreage of the soil mapunit in the soil survey area.
muid	comp compyld forest interp layer mapunit plantcom rsprod windbrk wlhabit woodland woodmgt	Mapunit Identification	A symbol that consists of the state alpha Symbol FIPS code and a three digit Arabic number. It uniquely identifies a mapunit within a state. For example, KS001. The muid is used as a key for linking information in the MUIR tables.
mukind	mapunit	Mapunit Kind	Code identifying the kind of mapunit: Consociation (C); Association (A); Undifferentiated Group (U); Complex (X).
muname	mapunit	Mapunit Name	Correlated name of the mapunit (recommended name or field name for surveys in progress).
musym	mapunit comp	Mapunit Symbol	The symbol used to identify the soil mapunit on the soil map.
nirryld	compyld	Nonirrigated Crop Yield	The expected yield of the specific crop without supplemental irrigation. Defined as the yield expected in an average year under a high level of management.
no10h	layer	Percent Passing Sieve Number 10	The maximum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 10 sieve.

Element	Tables	Long name	Description
no10l	layer	Percent Passing Sieve Number 10	The minimum value for the range in percent by weight of the soil material in a layer or horizon which is less than three inches in size and passes a no. 10 sieve.
no200h	layer	Percent Passing Sieve Number 200	The maximum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 200 sieve.
no200l	layer	Percent Passing Sieve Number 200	The minimum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 200 sieve.
no40h	layer	Percent Passing Sieve Number 40	The maximum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 40 sieve.
no40l	layer	Percent Passing Sieve Number 40	The minimum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 40 sieve.
no4h	layer	Percent Passing Sieve Number 4	The maximum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 4 sieve.
no4l	layer	Percent Passing Sieve Number 4	The minimum value for the range in percent by weight of the soil material in a layer or horizon which is less than 3 inches in size and passes a no. 4 sieve.
omh	layer	Organic Matter	The maximum value for the range in organic matter content of the soil layer or horizon, expressed in percent by weight.
oml	layer	Organic Matter	The minimum value for the range in organic matter content of the soil layer or horizon, expressed in percent by weight.
order	taxclass	Order	Code for the taxonomic ORDER category of the record.

Element	Tables	Long name	Description
ordsym	woodmgt	Ordination Symbol	The ordination symbol is the class and subclass part of the woodland suitability group. The first element in ordination symbol is the productivity class. This is a number that denotes potential productivity in cubic meters of wood per hectare per year for an indicator tree (1 m^3/ha is equal to 14.3 ft^3/ac.). The second part of the ordination is the subclass, a capital letter symbol which indicates certain soil or physiographic characteristics that contribute to important hazards or limitations in management. Example: W - Excessive wetness. Subclasses are listed in ranked order.
otherfam	taxclass	Other Family	This field consists of OTHER FAMILY codes for soil depth class, slope class, consistence class, classes of coatings and classes of cracks of the Family category of taxonomic classification.
otherph	comp	Class-Determining Criteria	Phase Class-determining phase criteria, other than slope and texture, recorded on the SOI-6 and used to select appropriate interpretation and rating from the SOI-5 Record.
pandeph	comp	Depth to Cemented Pan	Maximum value for the range in depth to the upper boundary of a cemented pan, expressed in inches.
pandepl	comp	Depth to Cemented Pan	Minimum value for the range in depth to the upper boundary of a cemented pan, expressed in inches.
panhard	comp	Cemented Pan Thickness	The degree of induration and thickness of the cemented pan. A pan is rated as "THICK" if it is more than 3 inches thick and continually indurated or more than 18 inches thick and discontinuous or fractured. Pans not meeting these criteria are rated THIN.
partsize	taxclass	Particle Size	Code for the PARTICLE-SIZE class of the Family category of taxonomic classification.
permh	layer	Permeability Rate	The maximum value for the range in permeability rate for the soil layer or horizon, expressed as inches/hour.
perml	layer	Permeability Rate	The minimum value for the range in permeability rate for the soil layer or horizon, expressed as inches/hour.
phh	layer	Soil Reaction (pH)	The maximum value for the range in soil reaction (pH) for the soil layer or horizon.

Element	Tables	Long name	Description
phl	layer	Soil Reaction (pH)	The minimum value for the range in soil reaction (pH) for the soil layer or horizon.
pih	layer	Plasticity Index	The maximum value for the range in plasticity index for the soil layer or horizon, expressed as percent of moisture by weight.
pil	layer	Plasticity Index	The minimum value for the range in plasticity index for the soil layer or horizon, expressed as percent of moisture by weight.
plantcov	forest	Plant Ground Cover	The percentage of the ground covered by the plant (forest understory).
plantpct	plantcom	Plant Production Percentage	The percentage of total site production attributed to the specified plant, expresses as percent of air dry plant material weight.
plantsym	forest plantcom plantnm windbrk woodland	Plant Symbol	Symbol used to identify a specific plant.
pndbeg	comp	Ponding Begin	Month in which soil surface ponding begins in a normal year.
pnddeph	comp	Ponding Depth	The maximum value for the range in depth of surface water ponding on the soil.
pnddepl	comp	Ponding Depth	The minimum value for the range in depth of surface water ponding on the soil.
pnddur	comp	Ponding Duration	The duration of surface water ponding.
pndend	comp	Ponding End	Month in which surface water ponding ends in a normal year.
prec	valrange	Precision Value	The number of digits to the right of a decimal.
primfml	comp mapunit	Prime Farmland Classification	The prime farmland classification of the mapunit. State codes have been developed for some states.
prodfav	rsprod	Range Production Favorable	The estimated annual potential production of range forage for the soil in a year with favorable or above average growing conditions. Round to nearest 100 pounds.
prodnorm	rsprod	Range Production Normal	The estimated annual potential production of range forage for the soil in a year with normal or average growing conditions. Round to nearest 100 pounds.

Element	Tables	Long name	Description
produnfv	rsprod	Range Production Unfavorable	The estimated annual potential production of range forage for the soil in a year with unfavorable or below average growing conditions. Round to nearest 100 pounds.
rangeh	valrange	High Range	
rangel	valrange	Low Range	
rating	interp	Soil Interpretative Rating	Rating of soil for specified use. Suitability ratings are good, fair, and poor. Limitation ratings are slight, moderate, and severe.
reaction	taxclass	Reaction	Code for the REACTION class of the Family category of taxonomic classification.
restct1	interp	Rating Limitation Restrictions	Restrictive feature code, 1st.
restct2	interp	Rating Limitation Restrictions	Restrictive feature code, 2nd.
restct3	interp	Rating Limitation Restrictions	Restrictive feature code, 3rd.
rockdeph	comp	Depth to Bedrock	The maximum value for the range in depth to bedrock, expressed in inches.
rockdepl	comp	Depth to Bedrock	The minimum value for the range in depth to bedrock, expressed in inches.
rockhard	comp	bedrock hardness	The degree of hardness of the underlying rock. Rated as: HARD - Excavation requires blasting or special equipment or SOFT - Excavation can be made with trenching machines, backhoes, or small rippers.
rsid	rsprod	Range Site Identification	Code used to identify the SCS range site.
rsname	rsprod	Range Site Name	Name for the SCS range site.
s5id	comp layer	Soil Interpretations Record Number	The Soil Interpretations Record (SOI-5) identification number assigned to the particular SOI-5. Example: CO0034.
salinh	layer	Salinity	The maximum value for the range in soil salinity of the soil layer or horizon measured as electrical conductivity of the soil in a saturated paste. Values are expressed in mmhos/cm.
salinl	layer	Salinity	The minimum value for the range in soil salinity of the soil layer or horizon measured as electrical conductivity of the soil in a saturated paste. Values are expressed in mmhos/cm.

Element	Tables	Long name	Description
sarh	layer	Sodium Absorption Ratio	The maximum value for the range in Sodium Absorption Ratio (SAR) for the soil layer or horizon.
sarl	layer	Sodium Absorption Ratio	The minimum value for the range in Sodium Absorption Ratio (SAR) for the soil layer or horizon.
sciname	plantnm	Scientific Plant Name	The scientific name of a plant.
sclirr	comp	Irrigated Capability Subclass	Irrigated Capability Subclass. Concatenation of capability class and subclass codes: Example: class 2 and subclass e are combined and entered as 2E.
sclnirr	comp	Nonirrigated Capability Subclass	Nonirrigated Capability Subclass. Concatenation of capability class and subclass codes. Example: class 2 and subclass e are combined and entered as 2E.
seqnum	comp compyld forest interp layer plantcom rsprod windbrk wlhabit woodland woodmgt	Sequence Number	A number identifing the sequence of components in a mapunit. The first component of a multitaxa mapunit has a seqnum of 1, the second component 2, and so on.
shrinksw	layer	Shrink-Swell Potential	An interpretation rating of the soil layer or horizons behavior of changing volume (shrinking and swelling) upon wetting and drying.
sitind	woodland	Site Index	The height in feet of the larger trees at some given age, normally 100 years in the western U.S., and 50 years in the east. The pinyon-juniper forest type is an exception, where the site index is determined by basal area.
slopeh	comp	Soil Slope	The maximum value for the range of slope of a soil component within a mapunit.
slopel	comp	Slope of Soil	The minimum value for the range of slope of a soil component within a mapunit.
soiltemp	taxclass	Soil Temperature	Code for the SOIL TEMPERATURE class of the Family category of taxonomic classification.
ssaid	mapunit	Soil Survey Symbol	Three character numeric code which identifies the soil survey area. For survey areas covering a single county the ssaid is the county FIPS code. For multicounty survey areas the ssaid is identified in the Soil Survey Schedule. Example: 617,...012.

Element	Tables	Long name	Description
stssaid	comp compyld forest interp layer mapunit plantcom rsprod windbrk wlhabit woodland woodmgt	State Soil Survey Area ID	A concatenation of FIPS alpha code for a state and the soil survey area symbol (ssaid). Example: CO017.
subgroup	taxclass	Subgroup	Code for the taxonomic SUBGROUP category of the record.
subinith	comp	Initial Subsidence	Maximum value for the range in initial subsidence that can be expected when drained, expressed in inches (organic soils only).
subinitl	comp	Initial Subsidence	Minimum value for the range in initial subsidence that can be expected when drained, expressed in inches (organic soils only).
suborder	taxclass	Suborder	Code for the taxonomic SUBORDER category of the record.
subtoth	comp	Total Subsidence	Maximum value for the range in total subsidence that can be expected when drained, expressed in inches (organic soils only).
subtotl	comp	Total Subsidence	Minimum value for the range in total subsidence that can be expected when drained, expressed in inches (organic soils only).
suitcode	woodland	Woodland Tree Suitability	Code indicating if the tree is common to the site; Existing (E), or a tree which could be planted as a tree crop; Potential (P). Trees which are both existing and have a potential for planting are giving a dual code (EP).
surftex	comp	Surface Soil Texture	Code for the USDA texture for the surface layer or horizon. Example: Loam (L); Sandy loam (SL). Also includes terms used to modify texture and terms used in lieu of texture.
table	table element tblelt valrange	Table Name	Data dictionary - Identifies the short name used to identify the table in the data base.
texture	layer	Soil Texture Class	Code for the USDA texture for the specified layer or horizon of the soil. Example: Sandy Loam (SL); Loam (L). Also includes terms used to modify texture and terms used in lieu of texture.

Element	Tables	Long name	Description
tfact	layer	T Factor	Soil loss tolerance factor. The maximum rate of soil erosion that will permit a high level of crop production.
unified	layer	Unified Soil Classification	The Unified soil classification. An engineering classification of soils.
wdequip	woodmgt	Woodland Equipment	Woodland limitation rating for the use of equipment, year round or seasonal.
wderosn	woodmgt	Woodland Erosion	Woodland limitation rating identifying the probability that damage may occur as a result of site preparation and following cutting operations where soil is exposed.
wdplant	woodmgt	Woodland Plant Competition	Woodland limitation rating for the likelihood of the invasion or growth of undesirable species when openings are made in the canopy.
wdseed	woodmgt	Woodland Seeding Mortality	Woodland limitation rating identifying the probability of death of naturally occurring or planted tree seedlings as influenced by kinds of soil or topographic conditions.
wdwind	woodmgt	Woodland Windthrow Hazard	Woodland limitation rating identifying the windthrow hazard. Windthrow is the likelihood of trees being uprooted by wind as a result of insufficient depth of the soil to give adequate root anchorage.
weg	layer	Wind Erodibility Group	The wind erodibility group (weg) assigned to the soil layer or horizon.
wei	layer	Wind erodibility index	The wind erodibility index assigned to the soil layer or horizon.
wlconif	wlhabit	Wildlife Habitat Element (coniferous trees)	Suitability of the soil to produce the wildlife habitat element coniferous trees.
wlgrain	wlhabit	Wildlife Habitat Element (grain)	Suitability of the soil to produce the wildlife habitat element grain.
wlgrass	wlhabit	Wildlife Habitat Element (grass)	Suitability of the soil to produce the wildlife habitat element grass.
wlhard	wlhabit	Wildlife Habitat Element (hardwood trees)	Suitability of the soil to produce the wildlife habitat element hardwood trees.
wlherb	wlhabit	Wildlife Habitat Element (herbaceous plants)	Suitability of the soil to produce the wildlife habitat element herbaceous plants.
wlopen	wlhabit	Wildlife Habitat Potential (openland)	Suitability of the soil to produce the habitat requirements for openland wildlife.
wlrange	wlhabit	Wildlife Habitat Potential (rangeland)	Suitability of the soil to produce the habitat requirements for rangeland wildlife.

Element	Tables	Long name	Description
wlshlwat	wlhabit	Wildlife Habitat Element (shallow water)	Suitability of the soil to produce the habitat element shallow water.
wlshrub	wlhabit	Wildlife Habitat Element (shrubs)	Suitability of the soil to produce the wildlife habitat element shrubs.
wlwet	wlhabit	Wildlife Habitat Potential (wetland)	Suitability of the soil to produce the habitat requirements for wetland wildlife.
wlwetplt	wlhabit	Wildlife Habitat Element (wetland plants)	Suitability of the soil to produce the wildlife habitat element wetland plants.
wlwood	wlhabit	Wildlife Habitat Potential (woodland)	Suitability of the soil to produce the habitat requirements for woodland wildlife.
wndbrkht	windbrk	Windbreak Tree Height	Windbreak tree height in feet at age in 20 years.
woodprod	woodland	Production Class	Production class information for a specific tree measured in cubic meters per hectare per year (1 m^3/ha = 14.3 $ft.^3$/ac.).
wtbeg	comp	Water Table Begins	Month in which seasonal water table occurs at the depth specified in a normal year.
wtdeph	comp	Water Table Depth	Maximum value for the range in depth to the seasonally high water table during the months specified.
wtdepl	comp	Water Table Depth	Minimum value for the range in depth to the seasonally high water table during the months specified.
wtend	comp	Water Table Ends	Month in which seasonal water table subsides below the depth specified in a normal year.
wtkind	comp	Water Table Kind	The type of water table: Apparent (APPAR); Artesian (ARTES); Perched (PERCH).
yldunits	yldunits	Yield Units	The units used to record the yield for the specified crop.