

The following table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as low, moderate, or high, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as low, moderate, or high. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
		In	In				
007AE:							
Albion-----	---	---	---	---	Low	Low	Low
Shellabarger----	---	---	---	---	Low	Low	Moderate
007CC:							
Case-----	---	---	---	---	Low	Moderate	Low
Clark-----	---	---	---	---	Low	Moderate	Low
007LN:							
Lincoln-----	---	---	---	---	Low	Low	Low
007SB:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
047PG:							
Pratt-----	---	---	---	---	Low	Low	Moderate
095AB:							
Albion-----	---	---	---	---	None	Low	Low
095DA:							
Dillwyn-----	---	---	---	---	Low	Low	Low
Plevna-----	---	---	---	---	Low	High	Low
097AS:							
Albion-----	---	---	---	---	Low	Low	Low
Shellabarger----	---	---	---	---	Low	Low	Moderate
097CE:							
Case-----	---	---	---	---	Low	Moderate	Low
097CK:							
Clark-----	---	---	---	---	Low	Moderate	Low
097CM:							
Clark-----	---	---	---	---	Low	Moderate	Low
1005:							
Albion-----	---	---	---	---	Low	Low	Low
1006:							
Albion-----	---	---	---	---	Low	Low	Low
1017:							
Shellabarger, Eroded-----	---	---	---	---	Low	Low	Moderate
Albion-----	---	---	---	---	Low	Low	Low
1324:							
Carway-----	---	---	---	---	Low	High	Moderate
Carbika-----	---	---	---	---	Low	Moderate	Low
1340:							
Case-----	---	---	---	---	Low	Moderate	Low
Clark-----	---	---	---	---	Low	Moderate	Low
1341:							
Case-----	---	---	---	---	Low	Moderate	Low
Clark-----	---	---	---	---	Low	Moderate	Low
1725:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
1726:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
1985:							
Hayes-----	---	---	---	---	Low	Moderate	Low
1986:							
Hayes-----	---	---	---	---	Low	Moderate	Low
Solvay-----	---	---	---	---	Low	High	Moderate
1987:							
Hayes-----	---	---	---	---	Low	Moderate	Low
Turon-----	---	---	---	---	Low	Low	Moderate
1988:							
Hayes-----	---	---	---	---	Low	Moderate	Low
2556:							
Langdon-----	---	---	---	---	Low	Low	Low
2946:							
Nalim-----	---	---	---	---	Low	Moderate	Low
3051:							
Ost-----	---	---	---	---	Low	Moderate	Low
3053:							
Ost-----	---	---	---	---	Low	Moderate	Low
3180:							
Pratt-----	---	---	---	---	Low	Low	Moderate
3181:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Turon-----	---	---	---	---	Low	Low	Moderate
3445:							
Shellabarger, Moderately Eroded-----	---	---	---	---	Low	Low	Moderate
3510:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
Farnum-----	---	---	---	---	Low	Moderate	Low
3512:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Naron-----	---	---	---	---	Low	Low	Low
3533:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
3534:							
Shellabarger----	---	---	---	---	Low	Low	Moderate

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
		In	In				
3540:							
Solvay-----	---	---	---	---	Low	High	Moderate
3639:							
Taver-----	---	---	---	---	Low	High	Low
3640:							
Tivin-----	---	---	---	---	Low	Low	Low
3644:							
Turon-----	---	---	---	---	Low	Low	Moderate
Carway-----	---	---	---	---	Low	High	Moderate
3926:							
Water-----	---	---	---	---	Low	---	---
4005:							
Yaggy-----	---	---	---	---	Low	High	Low
Saxman-----	---	---	---	---	Low	Low	High
Ab:							
Albion-----	---	---	---	---	Low	Low	Low
Ao:							
Albion-----	---	---	---	---	Low	Low	Low
As:							
Albion-----	---	---	---	---	Low	Low	Low
Shellabarger----	---	---	---	---	Low	Low	Moderate
Bc:							
Blanket-----	---	---	---	---	Low	High	Low
Be:							
Blanket-----	---	---	---	---	Low	High	Low
Bh:							
Blanket-----	---	---	---	---	Low	High	Low
Br:							
Fluvents-----	---	---	---	---	Low	Low	Low
Ca:							
Carwile-----	---	---	---	---	Low	High	Moderate
Cc:							
Case-----	---	---	---	---	---	Moderate	Low
Clark-----	---	---	---	---	---	Moderate	Low
Ck:							
Case-----	---	---	---	---	Low	Moderate	Low
Clark-----	---	---	---	---	Low	Moderate	Low
Cm:							
Clark-----	---	---	---	---	Low	Moderate	Low
Cn:							
Clark-----	---	---	---	---	Low	Moderate	Low
Co:							
Clark-----	---	---	---	---	Low	Moderate	Low
Ost-----	---	---	---	---	Low	Moderate	Low
Cs:							
Lincoln-----	---	---	---	---	Low	Low	Low
Fa:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Fe:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Fm:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Fn:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Fu:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Fw:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Carwile-----	---	---	---	---	Low	High	Low
GRP:							
Pits-----	---	---	---	---	Low	Low	Low
INT:							
Aquolls-----	---	---	---	---	Low	---	---
Kp:							
Kanza-----	---	---	---	---	Low	High	Moderate
Plevna-----	---	---	---	---	Low	High	Low
Ks:							
Elandco-----	---	---	---	---	Low	Moderate	Low
Kw:							
Elandco-----	---	---	---	---	Low	Moderate	Low
Nd:							
Naron-----	---	---	---	---	Low	Low	Low
Nf:							
Naron-----	---	---	---	---	Low	Low	Low
Ng:							
Naron-----	---	---	---	---	Low	Low	Low
Nk:							
Naron-----	---	---	---	---	Low	Low	Low
Nm:							
Naron-----	---	---	---	---	Low	Low	Low
Nn:							
Naron-----	---	---	---	---	Low	Low	Low
Farnum-----	---	---	---	---	Low	Moderate	Low
Oc:							
Ost-----	---	---	---	---	Low	Moderate	Low
Os:							
Ost-----	---	---	---	---	Low	Moderate	Low

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
Pm:		In	In				
Pratt-----	---	---	---	---	Low	Low	Moderate
Pn:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Po:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Carwile-----	---	---	---	---	Low	High	Moderate
PRR:							
Pratt-----	---	---	---	---	Low	Low	Moderate
PSS:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Pt:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Tivoli-----	---	---	---	---	Low	Low	Low
PTT:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Tivoli-----	---	---	---	---	Low	Low	Low
Sa:							
Albion-----	---	---	---	---	Low	Low	Low
Kaski-----	---	---	---	---	Low	Low	Low
Sb:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
Se:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
Sf:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
Ta:							
Tabler-----	---	---	---	---	Low	High	Low
Tf:							
Tivoli-----	---	---	---	---	Low	Low	Low
W:							
Water-----	---	---	---	---	---	---	---
Wa:							
Waldeck-----	---	---	---	---	Low	Moderate	Low
Wd:							
Kingman-----	---	---	---	---	Low	High	Low
Ze:							
Zenda-----	---	---	---	---	Low	High	Low
Zs:							
Drummond-----	---	---	---	---	Low	High	High
Zenda-----	---	---	---	---	Low	High	Low

