

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				
Be: Benfield-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Low	High	Low
Florence-----	40-60	Bedrock (lithic)	---	Indurated	Low	Moderate	Low
Cc: Clime-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Low	High	Low
Cf: Clime-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Low	High	Low
Sogn-----	4-20	Bedrock (lithic)	---	Strongly cemented	Moderate	Low	Low
Cr: Crete-----	---	---	---	---	Low	Moderate	Low
Cs: Crete-----	---	---	---	---	Low	Moderate	Low
Ct: Crete-----	---	---	---	---	Low	Moderate	Low
Eu: Eudora-----	---	---	---	---	High	Low	Low
Ge: Geary-----	---	---	---	---	Moderate	Low	Low
Gf: Geary-----	---	---	---	---	Moderate	Low	Low
He: Haynie-----	---	---	---	---	High	Low	Low
Hf: Hobbs-----	---	---	---	---	Moderate	Low	Low
Hg: Hobbs-----	---	---	---	---	Moderate	Low	Low
Hm: Holder-----	---	---	---	---	Moderate	Low	Low
Ho: Holder-----	---	---	---	---	Moderate	Low	Low
Id: Irwin-----	---	---	---	---	Moderate	High	Low
Ka: Kahola-----	---	---	---	---	Moderate	Low	Low
Kb: Kahola-----	---	---	---	---	Moderate	Low	Low
Ko: Konza-----	---	---	---	---	Moderate	High	Moderate
Lm: Ladysmith-----	---	---	---	---	Moderate	High	Low
Lo: Longford-----	---	---	---	---	Moderate	High	Low
M-W: Miscellaneous Water-----	---	---	---	---	---	---	---
Mb: Mccook-----	---	---	---	---	Moderate	Low	Low
Mc: Mccook-----	---	---	---	---	Moderate	Low	Low
Mk: Mccook-----	---	---	---	---	Moderate	Low	Low
Smokyhill-----	---	---	---	---	Low	High	Low
Mu: Muir-----	---	---	---	---	Moderate	Low	Moderate
Oc: Orthents-----	---	---	---	---	Low	High	Moderate
Or: Orthents, Earthen Dam----	---	---	---	---	---	---	---
Pt: Pits, Quarries--	---	---	---	---	---	---	---
Ra: Reading-----	---	---	---	---	Moderate	Moderate	Low
Re: Reading-----	---	---	---	---	Moderate	Moderate	Low
Sa: Sarpy-----	---	---	---	---	Low	Low	Low
Sc: Sarpy-----	---	---	---	---	Low	Low	Low
Sh: Solomon-----	---	---	---	---	Moderate	High	Low
St: Sutphen-----	---	---	---	---	Low	High	Low
Tn: Tully-----	---	---	---	---	Low	High	Low
To: Tully-----	---	---	---	---	Low	High	Low
Vc: Valentine-----	---	---	---	---	Low	Low	Low
W: Water-----	---	---	---	---	Low	---	---
We: Wells-----	---	---	---	---	Moderate	Low	Moderate
Ortello-----	---	---	---	---	Moderate	Moderate	Low

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Wells-----	---	---	---	---	Moderate	Low	Moderate
Ortello-----	---	---	---	---	Moderate	Moderate	Low

