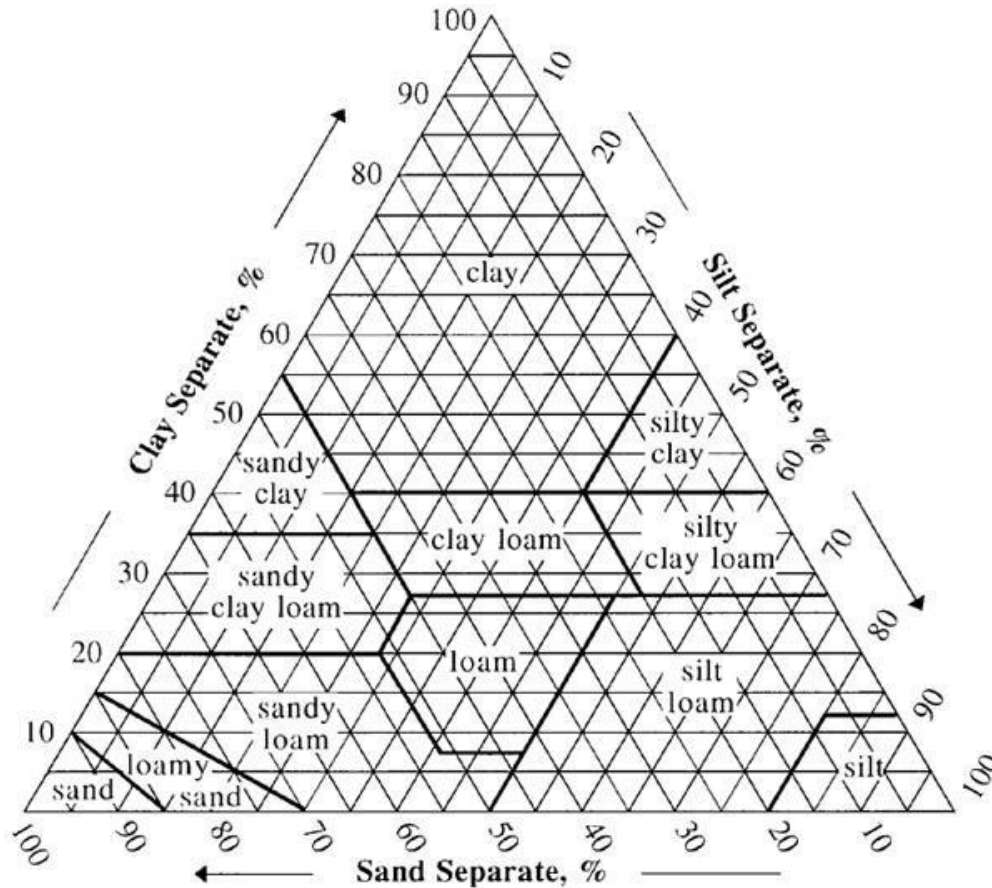


Data Tools for

Catch it if you can – Quantifying Storm Water Runoff

Soil Texture Triangle: After identifying the percent sand, silt and clay in your sample, use the soil texture triangle below to identify your soil type. To do this, follow the straight or diagonal line for each soil separate, using the angle of the separate to identify which line to follow (ex: for silt and sand you will be following a diagonal line). Your soil texture classification is determined by the intersection of the 3 lines in the triangle. For example, if your sample has 50% clay, 30% silt, and 20% sand, then your sample is "clay."



(This figure is in the public domain from the USDA Natural Resources Conservation Service)

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/nedc/training/soil/?cid=nrcs142p2_054167

- Clay is a very fine particle. When it is dry it is very hard, and what it is wet, water cannot flow through.
- Sand provides soil with air spaces and pathways for water to flow
- Silt is a light particle that erodes easily, but makes for good farm land.
- Loam is a "perfect soil" that is an even mix of all three soil separates.

Description of Hydrologic Soil Groups

HSG	Soil Textures
A	Sand, loamy sand, or sandy loam
B	Sandy clay loam
C	Silt loam or loam
D	Clay loam, silty clay loam, sandy clay, silty clay, or clay

Table of Curve Numbers
(Adapted from USDA Natural Resources Conservation Service)

Cover description	Hydrologic Soil Group			
	A	B	C	D
Cover type and hydrologic condition				
Woods—grass combination (orchard or tree farm)	43	65	76	82
Woods	36	60	73	79
Fallow - Bare soil	77	77	86	94
Residential districts by average lot size:				
1/8 acre or less (town houses)	77	85	90	92
1/4 acre	61	75	83	87
1/3 acre	57	72	81	86
1/2 acre	54	70	80	85
1 acre	51	68	79	84
2 acres	46	65	77	82

The curve numbers refer to the permeability of the soil types based upon land use type. A curve number of "100" is interpreted as a surface that is 100% impervious. Included in this table are only a small sample of the curve numbers available to calculate runoff; however we have what we need to analyze the problem in this lesson. Look at the numbers above and identify any trends in the data and account for those trends as related to soil type and surface cover type.

If you would like to apply the content of this problem to your own problem, you can find the additional information you need at the following links:

Web Soil Survey – to identify the Hydrologic Soil Group if access to site is not possible
<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

All the Curve Numbers may be found in "Urban Hydrology for Small Watersheds TR-55" from the USDA- NRCS and published in 1986. A web search will bring up the PDF document.