

Estimation of Green-Ampt Infiltration Parameters

(SWMM RUNOFF Variables SUCT, HYDCON, SMDMAX)

Provisional Values Suitable for Design Storm Events Where More Detailed Soils Data Is Not Available

USDA Soil Texture Classification	SUCT Avg. Capillary Suction		HYDCON Saturated Hydraulic Conductivity		SMDMAX Initial Moisture Deficit for Soil (Vol. of Air / Vol. of Voids, expressed as a fraction)	
	(in)	(mm)	(in/hr)	(mm/hr)	Moist Soil Climates (Eastern US)	Dry Soil Climates (Western US)
Sand	1.95	49.5	9.27	235.6	.346	.404
Loamy Sand	2.41	61.3	2.35	59.8	.312	.382
Sandy Loam	4.33	110.1	0.86	21.8	.246	.358
Loam	3.50	88.9	0.52	13.2	.193	.346
Silt Loam	6.57	166.8	0.27	6.8	.171	.368
Sandy Clay Loam	8.60	218.5	0.12	3.0	.143	.250
Clay Loam	8.22	208.8	0.08	2.0	.146	.267
Silty Clay Loam	10.75	273.0	0.08	2.0	.105	.263
Sandy Clay	9.41	239.0	0.05	1.2	.091	.191
Silty Clay	11.50	292.2	0.04	1.0	.092	.229
Clay	12.45	316.3	0.02	0.6	.079	.203

Notes:

1. These values are provisional, and are offered as reasonable parameters estimates for SWMM applications where more detailed soils information is not available. There is significant variance in these values; laboratory and field testing, sensitivity analysis, and calibration may be employed to improve upon these estimates.
2. Typically use USDA SCS (now NRCS) Soil Survey to determine Soil Texture. In these surveys, Saturated Hydraulic Conductivity is reported as Permeability. Use the values reported in the soil survey for permeability for **HYDCON**, rather than the **HYDCON** values listed in the table above. In the absence of a soil survey or more reliable information, the values listed above may be used.
3. Synthesized from *Handbook of Hydrology*, D.R. Maidment, Editor in Chief, McGraw-Hill, Inc., 1993, pp 5.1-5.39.