

TABLE 1
Typical Properties of Compacted Soils

Group Symbol	Soil Type	Range of Maximum Dry Unit Weight, Percent	Typical Value of Compression		Typical Strength Characteristics				Typical Coefficient of Compressibility, ft./min.	Range of Subgrade Modulus, lbs./cu. in.
			At 1-4 (20 psi)	At 3-6 (50 psi)	Cohesion (uncorrected) (psf)	Effective Stress (logarithmic) (psf)	tan ϕ	Range of CBR Values		
GW	Well graded clean gravels, gravel-sand mixtures.	11 - 6	0.3	0.6	0	>38	>0.79	5×10^{-2}	40 - 80	300 - 500
GP	Poorly graded clean gravels, gravel-sand mix	14 - 11	0.4	0.9	0	>37	>0.74	10^{-1}	30 - 60	250 - 400
GM	Silty gravels, poorly graded gravel-sand-silt.	12 - 8	0.5	1.1	.....	>34	>0.67	$>10^{-6}$	20 - 60	100 - 400
GC	Clayey gravels, poorly graded gravel-sand-clay.	14 - 9	0.7	1.6	.....	>31	>0.60	$>10^{-7}$	20 - 40	100 - 300
SW	Well graded clean sands, gravelly sands.	16 - 9	0.6	1.2	0	38	0.79	$>10^{-3}$	20 - 40	200 - 300
SP	Poorly graded clean sands, sand-gravel mix.	21 - 12	0.8	1.4	0	37	0.74	$>10^{-3}$	10 - 40	200 - 300
SM	Silty sands, poorly graded sand-silt mix.	16 - 11	0.8	1.6	1050	34	0.67	5×10^{-5}	10 - 40	100 - 300
Sh-SC	Sand-silt clay mix with slightly plastic fines.	15 - 11	0.8	1.4	1050	33	0.66	2×10^{-6}	5 - 30	100 - 300
SC	Clayey sands, poorly graded sand-clay-mix.	19 - 11	1.1	2.2	1550	31	0.80	5×10^{-7}	5 - 20	100 - 300
ML	Inorganic silts and clayey silts.	24 - 12	0.9	1.7	1400	32	0.62	$>10^{-5}$	15 or less	50 - 200
ML-CL	Mixture of inorganic silt and clay.	22 - 12	1.0	2.2	1350	32	0.62	5×10^{-7}	.....	.....
CL	Inorganic clays of low to medium plasticity.	24 - 12	1.3	2.5	1800	28	0.54	$>10^{-7}$	15 or less	50 - 200
OL	Organic silts and silt-clays, low plasticity.	33 - 21	.....	.....	.....	.....	.....	.....	5 or less	50 - 100
ML	Inorganic clayey silts, elastic silts.	40 - 24	2.0	3.8	1500	25	0.47	5×10^{-7}	10 or less	50 - 100
CH	Inorganic clays of high plasticity	36 - 19	2.6	3.9	2150	19	0.35	$>10^{-7}$	15 or less	50 - 150
OH	Organic clays and silty clays	43 - 21	.....	.....	.....	.....	.....	.....	5 or less	25 - 100

Notes:

- All Properties are for condition of "Standard Proctor" maximum density, except values of k and CBR which are for "Modified Proctor" maximum density.
- Typical strength characteristics are for effective strength envelopes and are obtained from USSR data.
- Compression values are for vertical loading with complete lateral confinement.
- (?) indicates that typical property is greater than the value shown. (..) indicates insufficient data available for an estimate.