

Material	Fill (Unit 1)	Residual Soils (Unit 2)	Class V Sandstone (Unit 3) ^{3, 5}	Class IV Sandstone (Unit 4) ^{3, 5}	Class III Sandstone (Unit 5) ^{3, 5}
Unit Weight (kN/m ³) ⁴	16	18	20	22	24
Effective Cohesion c' (kPa)	0	5	35	70	150
Angle of Friction ϕ' (°)	24	25	28	32	36
Modulus of Elasticity E _{sh} (MPa)	4	10	75	250	550
Earth Pressure Coefficient At Rest K _o ¹	0.59	0.58	0.53	0.47	0.41
Earth Pressure Coefficient Active K _a ²	0.42	0.41	0.36	0.3	0.26
Earth Pressure Coefficient Passive K _p ²	2.37	2.46	2.77	3.25	3.85
Poisson Ratio ν	0.35	0.35	0.35	0.3	0.25

Maximum Allowable (Serviceability) Values (kPa)

Unit Type/Material	End Bearing Pressure ¹	Shaft Adhesion (Compression)	Shaft Adhesion (Tension)
Fill (Unit 1)	N/A	N/A	N/A
Residual Soils (Unit 2)	N/A	N/A	N/A
Class V Sandstone (Unit 3) ²	1,000	100	50
Class IV Sandstone (Unit 4) ²	1,500	150	75
Class III Sandstone (Unit 5) ^{2, 3}	2,500	250	125
L M – H (or better)	3,500	350	175