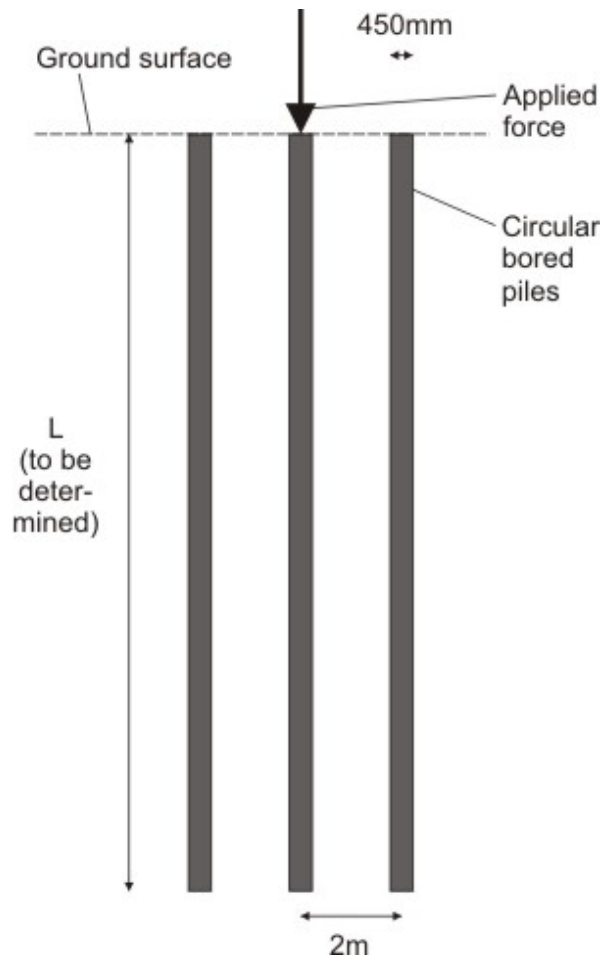


Example 2.3 Pile foundation in stiff clay

A building is to be supported on 450 mm diameter bored piles founded entirely in a stiff clay and spaced at 2m centres. The piles are bored dry, without casing, and concreted on the same day as boring. Each pile carries a characteristic vertical permanent load of 300 kN and a characteristic vertical variable load of 150 kN. This is a small project for which there will be no load testing. Settlement in service is to be limited to 20 mm. The pile's design working life is 50 years. The clay is an over-consolidated marine clay of Miocene age, containing fissures and occasional claystones. Bedding is essentially horizontal.



The water table is at the surface of the clay, and water pressures may be taken to be hydrostatic. The weight density of the clay may be taken as 20kN/m³. At this location the ground surface should be taken to be +17m OD (OD = Ordnance Datum, i.e. reference level), which is also the level of the surface of the stiff clay.

Please assume the following benchmark characteristic values apply:

Level	Triaxial	CPT	SPT	PMT	Overview
	c_u	q_c	N	p_{lim}	c_u
m	kPa	MPa		kPa	kPa
17	0	1.00	10	350	30
7	115	2.75	32	1125	130
-3	230	4.50	53	1900	230

Please use only the column of data relevant to your calculation method (as used in Phase 1 of the exercise).

For example, if the calculation is based only on CPT results, use the CPT column only. If the calculation uses c_u based on taking an overview of all the results, use the 'Overview' column.