



Borehole Prognosis

This module provides an evaluation of the expected geological sequence beneath a site to a depth appropriate for the specified use. This interpretation is based on the information available in the surrounding area. Due to natural geological variation the conditions encountered on drilling may differ. This module does not cover the possibility of artesian conditions or gas being encountered. (Information on artesian conditions is included in the 'Groundwater abstraction' and 'Hydrogeology – non abstraction' modules).

Setting:

The site lies at an elevation of about 48 m above Ordnance Datum (OD) on the edge of the village of Crowmarsh Gifford. The proposed borehole site lies about 450 m east of the River Thames that flows approximately north to south at an elevation of about 44 m above OD. The site is about 300 m east of the Thames flood plain. There are open drains in places on the nearby flood plain, and also a longer open drain flowing from east to west, about 500 m north of the site.



Geology

It is anticipated that the following succession of strata will be encountered in a deep borehole below the site:

Unit	Typical composition	Potential for difficult ground i.e. possible running sands, possible undermining or possible dissolution	Thickness in metres	Depth to the base of the unit in metres
Artificial ground				
Made Ground	Unknown		Up to 1 m	Less than 1 m
Superficial deposits				
Northmoor Sand and Gravel Member (upper facet)	Sand and gravel	Possible running sands	Up to 5 m	Less than 6 m
Bedrock (below rockhead)				
West Melbury Marly Chalk Formation	Grey marly (clay-rich) chalk with thin limestone beds		Up to 2 m	Less than 8 m
Glaucconitic Marl Member	Pale brownish-grey clay-rich chalk marl with grains of glauconite; commonly contains phosphatic pebbles		Up to 2 m	Less than 10 m
Upper Greensand Formation	Dark green glauconitic sand and sandstone with a clay matrix underlain by whitish, micaceous, calcareous siltstone and fine-grained sandstone with some chert and siliceous sandstone ('malmstone')	Possible running sands	About 15 m	Less than 25 m



Gault Formation	Grey, silty mudstone; silty towards top, gravelly at base		About 60 m	Less than 85 m
Lower Greensand Group	Coarse-grained, ferruginous, quartzose sand with small quartzite pebbles; locally passes into sandy clay	Possible running sands	Less than 8 m	Less than 93 m
Portland Formation	Sand and limestone	Possible running sands	Probably absent	
Kimmeridge Clay Formation	Silty mudstones, some sandy		About 35 m	Less than 128 m
Corallian Group	Sand, sandstone, limestone and mudstone	Possible running sands	About 25 m	Less than 153 m
West Walton and Oxford Clay Formations	Mudstone		Over 90 m	More than 243 m

The blue line in this table indicates 'rockhead', which is the base of superficial deposits. This is the 'geological rockhead', as distinct from the 'engineering rockhead', which is the base of 'engineering soil' (in the sense of BS5930:1999).

For further definitions of stratigraphic terms that appear in the table above, on our maps and in our publications please see 'The BGS Lexicon' www.bgs.ac.uk/lexicon.

Information on the distribution of contaminated land is not held by BGS but by the relevant Local Authority.



Potential drilling hazards considered at your site

This section of the report only describes geological hazards that might be directly encountered by drilling at this site.

Running conditions hazard

Running sand conditions occur when loosely-packed sand moves as a result of water flowing through the spaces between the sand grains. The pressure of the flowing water reduces the contact between the grains and they are carried along by the flow. Excavations or boreholes in water-saturated sand are likely to encounter running conditions: the sand will tend to flow into the void. This can lead to subsidence of the surrounding ground.