

## FPS Survey Site Investigation Reports

In a survey of over 220 projects awarded between July and September 2006 FPS members found the site investigation to be so poor that in a third of cases optimum piling or ground improvement solutions could not be provided. The survey found the following.

- *The most basic of information was frequently missing;*
- *Twenty percent of piling contracts had no borehole;*
- *In nearly 60% of cases there was inadequate topographical information;*
- *Rarely was a proper geotechnical Desk Study undertaken;*
- *In more than half of the projects surveyed environmental concerns dominated the investigation at the expense of the geotechnical element which was often compromised or absent;*
- *Information freely available was often not passed to the contractor (in 17% of contracts borehole location plans were not provided, rendering useless any borehole information).*

### ***The problem is not new!***

Over a period of many years, experience has shown that without adequate ground investigation clients are always exposed to the risk of costly delay, redesign and late project delivery arising out of unforeseen ground conditions (Site Investigation in Construction, 1993). FPS members know this and clients usually end up paying for inadequate investigation in a number of ways.

- *By the contractor adding 'risk money' to his price to cover his risk. This is usually more than an adequate investigation would have cost in the first place;*
- *Delay costs arising out of unforeseen conditions;*
- *Construction and legal costs arising from unforeseen ground conditions.*

### ***Why the problem?***

The ground is known to be unpredictable and to always present a risk unless adequately understood. Foundation design requires timely reference to specialist advice and appropriate investigation. Common problems include:-

- ***Procurement of Site Investigation based on price***
  - *There may be a differential of only a thousand pounds between a well supervised high quality investigation and a poor one yet the impact on final foundation costs can be many times this amount.*
- ***Poorly specified Site Investigation***
  - *Unbalanced emphasis between the geotechnical and environmental effort;*
  - *Inadequate matching of the scope and techniques used in the investigation with the proposed development and its anticipated foundation solution (e.g. 5m deep window samples for 15m long pile design);*
  - *Failure to understand that site investigation needs a phased approach.*

A preliminary investigation carried out before a speculative land purchase will rarely provide adequate information for optimum foundation design.

Properly specified and balanced investigation is essential to success. Every stage in the investigation process, from the initial desk study through intrusive investigations, soil sampling, testing, reporting and interpretation is crucial and must be undertaken by suitably

qualified and experienced people. Lack of attention to the quality of the output from any stage will introduce technical risk and therefore cost risk to a project.

### **Conclusions**

Construction clients are unnecessarily exposing themselves to ground related risk. This could be costing the construction and building industry millions of pounds every year. So how can clients access the savings that are available?

- *Involve a suitably qualified and experienced geotechnical specialist and contractor as early as possible;*
- *Ensure technical advisors are following best practice and guidance relating to site investigation (much of which is freely available on the internet e.g. [www.ags.org.uk](http://www.ags.org.uk));*
- *Recognise that adequate investigation usually requires a phased approach;*
- *Recognise that procurement of site investigation on the basis of price will almost inevitably lead to poor value;*
- *Ensure that all the Site Investigation information obtained is communicated to all of the relevant parties within the supply chain.*

### **Further information**

How useful is the typical site investigation Report (Presentation to AGS Members Day, 2007)  
The Ground – How Clients are exposing themselves to unnecessary risk

Published Minimum Requirements for Site Investigation

### **References**

*Without site investigation ground is a hazard.* 1993, Site investigation in construction. Vol. 1  
Published Thomas Telford, 1993.

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