

Chartership guidance note for Near Surface Geophysicists

The skills of the professional Near Surface Geophysicist are used in wide and varied fields such as site investigation, mapping of geological hazards, archaeological and forensic investigation, groundwater investigation and evaluation, the detection and identification of contaminated sites and mineral exploration, for the purpose of non-invasive characterisation of the shallow sub-surface.

Candidates may apply for Chartered Geologist (CGeol) or Chartered Scientist (CSci), both of which have equal standing and convey the same professional status. Candidates applying for CGeol must specifically prove their competence against the following Chartership criteria:

1. Understanding of the complexities of geology and of geological processes in space and time in relation to their speciality
2. Critical evaluation of geoscience information to generate predictive models

A first degree in a non-geological subject does not preclude candidates from successfully achieving CGeol status providing the above competences are met. Candidates who cannot meet these requirements may find it more appropriate to demonstrate competence under the criteria for CSci. Candidates should seek advice and guidance from their mentor, and from the Chartership Officer at the Society in preparing their application, and for the most appropriate route to chartership.

Candidates are expected to have a working knowledge of all areas of near surface geophysics, with detailed experience in their own particular area of specialism. It is recognised that within geophysics there are many specialist activities and the candidates could be highly specialised in one or more areas (e.g. engineering geophysics), or be a generalist and have no in-depth knowledge of any one area, but a broad appreciation of the issues critical to several sub-disciplines. As a guide, candidates are expected to be experienced and proficient in the use of one or a number of the following techniques:

- Ground penetrating radar
- Frequency domain EM
- Time domain EM
- Magnetics
- Gravity/microgravity
- Active or passive seismic methods
- Electrical methods including mapping and profiling
- Radiometric prospecting/surveying
- Borehole/down-hole geophysics

Dependent upon the training and experience, the candidate would be expected to demonstrate competence in the planning, execution and interpretation of surveys using a number of the techniques above, or may perhaps have competence and a very high level of specialist knowledge in one or a small number of related techniques. A geophysicist should be clear on the source for their expertise for interpretation of data acquired by the techniques they use - i.e. are they experts (e.g. in archaeology or groundwater development), or do they consult other experts and collaborate to produce an appropriate interpretation. These feed in to the need to

understand how to make predictive ground (or other) models and test them against what is expected, as well as to plan and execute an investigation to calibrate, refine and improve the interpretative model.

It is expected that candidates be familiar with all or some of the following guidelines and regulations according to their field of expertise:

- English Heritage: Geophysical Survey in Archaeological Field Evaluation, 2nd edition <http://www.helm.org.uk/upload/pdf/GeophysicsGuidelines.pdf>
- Licensing requirements relating to the use of GPR systems <http://www.ofcom.org.uk/radiocomms/ifi/licensing/classes/rfms/gprlicences/ofw350.pdf>
- CIRIA guide C562 Geophysics in Engineering Site Investigations www.ciria.org.uk
- The survey Association guidance notes for specifying a utility detection survey www.tsa-uk.org.uk
- European GPR code of practice www.eurogpr.org
- BS5930:1999 as amended 2007: Code of practice for site investigations
- BS10175: 2011 Investigation of Potentially Contaminated Sites - Code of Practice

Near-Surface Geophysicists are encouraged to expand their experience throughout their professional career and also to structure their early training so as to gain sufficient and relevant experience to meet the requirements for Chartered Status. There is a risk that candidates may not be given sufficient opportunity to develop their skills across the wider spectrum of geophysics. Therefore candidates must encourage their employers to support their training and professional development.