CIfA Geophysics Group

Specialist competence matrix – to support applicants who work in geophysics

PLEASE NOTE: All applications will be assessed against the main competence matrix (P6 Applicant's Guide) with the specialist matrix as an advisory document only.

	Knowledge	Autonomy	Coping with Complexity	Perception of Context
Practitioner (PCIfA)	• Principles of basic field survey from GPS operation and limitations to traditional methods utilising tapes and trigonometry. • Basic geophysical instrument operation. • Basic principles of physics - i.e. what is being measured and how it is recorded. • Rudimentary knowledge of archaeological features & landforms. • Basic crop and soil type recognition	• Configuring and setting up instruments. • Monitoring of real-time data quality and ability to react if quality deteriorates. • Ability to work safely and recognise potential environmental hazards (ground conditions, weather and livestock). • Recognise how the data they collect in the field are affected by the local landforms and environmental conditions. • Taking opportunities to shadow senior staff and begin to learn principles of interpretation. • Appreciate benefits of background reading (from journals, available grey-literature, etc.) and attending archaeological events.	• Coping with awkward survey areas, obstructions and other less straight-forward data collection contexts. • Dealing with instrument / environmental issues. • Ability to cope with changes to planned survey strategy due to external constraints.	• Understand that they form part of a team working to a deadline. Value benefits of "team" work. • Understanding that raw survey quality (physical or digital - i.e. positional accuracy or recorded data quality) is paramount - everything else depends upon this. • Realise that geophysics is often a "baseline" for further evaluation.

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Associate (ACIfA)	• Sound and demonstrable knowledge of geophysical theory. • Understanding physical limitations of techniques. • Recognise potential environmental effects upon data - these might be fixed (geology/soils/past land use) or transient (weather/current land use). • Developing survey strategies for complex sites. • Basic data processing steps.	• Responsibility for timetabling within field. • Responsible for limited numbers of staff. • Ability to enforce safe systems of working, recognising potential hazards and taking appropriate action. • In-project liaison with clients, landowners and site visitors. • Responsible for overall data quality. • Forming own interpretations under supervision. • Drafting smaller reports.	• Dealing with site practicalities. • Able to keep to schedule and, importantly, recognise when timetable will have to change and notify others (e.g. line manager) in good time. • Able to handle changing external factors requiring flexible strategy. • Can make contingency decisions based on initial survey results. • Recognise when specified technique is not producing satisfactory results and inform stakeholders / consider alternatives.	• Keeping up-to-date with technological developments (journals/conferences/training sessions). • Appreciation of how landforms affect data. • Understanding the effects of previous and current land-use on data sets. • Appreciate how wider archaeological setting might inform upon the results. • Ability to maintain focus on wider research aims / objectives of a project during both fieldwork and reporting stages. • Consideration of the readership when drafting reports - i.e. style might be different for a commercial unit, national heritage body or local society. • Understanding of geophysics' role within a planning or research framework.

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Member (MCIfA)	• In-depth knowledge of geophysical theory, backed-up by relevant geoscience qualification or, at the very least, demonstrable extended experience. • Application of complex and/or novel data processing techniques. • Full understanding of the potential implications of applying processing techniques on a given data set. • Recognising situations in which standard approaches may not be appropriate and ability to propose alternatives.	• "Whole project" timetabling from fieldwork to report delivery. • Ensuring field teams are fully resourced. • Management of large/complex projects. • Final sign-off of reports. • Full liaison with clients, landowners, local/national curatorial heritage staff. • Has responsibility for mentoring/training of other members of staff (especially in more complex aspects of works such as data processing and interpretation) and, where appropriate, responsible for identifying external CPD opportunities that might benefit staff.	• Responsible for project design. • Recognise that certain target/environment combinations may require 'non-standard' approaches which will require specific justification and planning. • Confidence to recommend and justify alternative approaches that might best fulfil a project brief rather than the proposed methodology. • Understanding of differing strengths and complementarity of the various geophysical techniques and ability to propose a package of work rather than a single technique. • Ability to interpret the potential archaeological significance of a range of geophysical anomaly types using more than one geophysical technique to an appropriate level of detail. • Ability to synthesise a broad range of supplemental information (land use past & present/soils/geology/topography /weather conditions) whose effects may combine to produce artefacts within the data which could otherwise be misinterpreted.	• Appreciation of the role of geophysics within the "inverted pyramid" hierarchy of investigative techniques from the more extensive, lower detail techniques (e.g. aerial mapping, landscape survey) as well as more targeted, high detail investigations (e.g. excavation). • Fully appreciates the relevance and value of archaeological feedback upon future geophysical work. • Able to identify CPD requirements of a team/department to better meet the wider goals of the organisation and, where appropriate, plan to meet those requirements. • Recognise the importance to the industry as a whole of promoting and demonstrating best practice in every aspect of their work and instilling this amongst colleagues.