Land North of Coventry Road, Long Lawford, Warwickshire

Geophysical Survey Report  
(Caesium Vapour Magnetic - Archaeology)

Project code: LLW171

Produced for:  
Nexus Heritage

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BEng(Hons) DIS MISoilSci

28th April 2017
Land to the North of Coventry Road, Long Lawford, Warwickshire

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TigerGeo Limited

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Non-Technical Summary

A magnetic survey was commissioned by Nexus Heritage to prospect land to the north of Coventry Road, Long Lawford, for buried structures of archaeological interest.

Survey was undertaken using an ATV-towed and GNSS-tracked array of caesium vapour magnetometers in a transverse non-gradiometric configuration.

With the exception of a single narrow ditch fill, nothing of obvious archaeological interest was observed within the data, although a number of different zones of soil character and hence magnetic response were mapped. The central region of the site is dominated by alluvial soils associated here with low magnetic contrast, this rising over the differing superficial deposits at each end and south of the site.
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1 Introduction

Land to the north of Coventry Road, Long Lawford, Warwickshire was magnetically surveyed to prospect for potential features of archaeological interest. Approximately 5.5 hectares was surveyed across three fields of pasture, bounded to the north by a construction site and by a busy road to the south. Ground conditions were overall good but the magnetic environment was inevitably slightly noisy.

<table>
<thead>
<tr>
<th>Country</th>
<th>England</th>
</tr>
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<tbody>
<tr>
<td>County</td>
<td>Warwickshire</td>
</tr>
<tr>
<td>Nearest Settlement</td>
<td>Long Lawford</td>
</tr>
<tr>
<td>Central Co-ordinates</td>
<td>447273,275609</td>
</tr>
</tbody>
</table>

2 Context

2.1 Background information

The land immediately to the north of the site (Back Lane, Long Lawford) has previously been subject to archaeological evaluation. A geophysical survey was undertaken at the site (Stratascan, 2012) and revealed anomalies of agricultural and potential archaeological interest.

A subsequent trial trench (ULAS, 2013) evaluation targeted the anomalies and identified evidence of late Iron Age or Romano-British activity. Features included field boundaries and enclosures and a concentration of activity in the south-east corner, where burnt clay and broken fragments of iron tyre finds may represent settlement and/or burial activity.

The features in the south-east corner may be localised or represent the edge of a more extensive area of activity, either to the east or to the south, potentially into the current survey area.

2.2 Environment

<table>
<thead>
<tr>
<th>Soilscapes Classification</th>
<th>Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial 1:50000 BGS</td>
<td>Alluvium - Clay, Silt, Sand And Gravel (band adjacent to ditch, centre of site) (ALV); Bosworth Clay Member - Clay And Silt (patch at W and E ends) (BOSW); River Terrace Deposits, 4 - Sand And Gravel (within BOSW W end) (RTD4)</td>
</tr>
<tr>
<td>Bedrock 1:50000 BGS</td>
<td>Rugby Limestone Member - Mudstone And Limestone, Interbedded (RSL)</td>
</tr>
<tr>
<td>Topography</td>
<td>Flat, few local hollows</td>
</tr>
<tr>
<td>Hydrology</td>
<td>Presumed natural, locally wet (two winter ponds within the survey area)</td>
</tr>
<tr>
<td>Current Land Use</td>
<td>Agricultural – Pastoral</td>
</tr>
<tr>
<td>Historic Land Use</td>
<td>Agricultural – Mixed</td>
</tr>
<tr>
<td>Vegetation Cover</td>
<td>Grass</td>
</tr>
<tr>
<td>Sources of Interference</td>
<td>Possible ferrous interference from residential properties to the east and west, localised vehicular interference from the road to the south and agricultural debris</td>
</tr>
</tbody>
</table>

Limestone can exhibit a generally weak magnetic response, however, depending on the depth and susceptibility of the overlying soils and the archaeological features within these, the magnetic contrast will vary accordingly. If the survey area overlies a mudstone band, there may be more available iron and therefore more moderate magnetic enhancement of the soils possible.

The British Geological Survey (BGS) 5 km resolution G-Base soil iron content is 3.6% and should provide sufficient magnetic contrast for the detection of features of potential archaeological interest.
3 Discussion

3.1 Introduction
The sections below first discuss the geophysical context within which the results need to be considered and then specific features or anomalies of particular interest. Not all will be discussed here and the reader is advised to consult the graphical elements of this report.

3.2 Principles
Magnetic survey for any purpose relies upon the generation of a clear magnetic anomaly at the surface, i.e. strong enough to be detected by instrumentation and exhibiting sufficient contrast against background variation to permit diagnostic interpretation. The anomaly itself is dependent upon the chemical properties of a particular volume of ground, its magnetic susceptibility and hence induced magnetic field, the strength of any remanent magnetisation, the shape and orientation of the volume of interest and its depth of burial. Finally the choice and configuration of measurement instrumentation will affect anomaly size and shape.

Archaeological sites present a complex mixture of these factors and for some the causative affects are not known. However, depth of burial and size are usually fairly constrained and background susceptibility can be estimated (or measured). The degree of remanent magnetisation is harder to predict and depends on both the natural magnetic properties of the soil and any chemical processes to which it has been subjected. Fortunately heat will raise the susceptibility of most soils and topsoil tends to be more magnetic than subsoil, by volume.

It is hard to draw reliable conclusions about what sort of geology is supportive of magnetic survey as there are many factors involved and in any case magnetic response can vary across geological units as well as being dependent upon post-deposition and erosional processes. In general a relatively non-magnetic parent material contrasting with a magnetisable erosion product, i.e. one which contains iron in the form of oxides and hydroxides, will allow archaeological structures to exhibit strong magnetic contrast against their surroundings and especially if the soil has been heated or subjected to certain processes of fermentation. In the absence of either, magnetic enhancement becomes entirely reliant upon the geochemistry of the soil and enhancement will often be weaker and more variable.

The principal magnetic iron mineral is the oxide magnetite which sometimes occurs naturally but is more often formed during the heating of soil. Subsequent cooling yields a mixture of this, non-magnetic oxide haematite and another magnetic oxide, maghaemite. Away from sources of heat, other magnetic iron minerals include the sulphides pyrite and greigite while in damp soils complex chemistry involving the hydroxides goethite and lepidocrocite can create strong magnetic anomalies. There are thus a number of different geochemical reaction pathways that can both augment and reduce the magnetic susceptibility of a soil. In addition, this susceptibility may exhibit depositional patterns unrelated to visible stratigraphy.

Most structures of archaeological interest detected by magnetic survey are fills within negative or cut features. Not all fills are magnetic and they can be more magnetic or less magnetic than the surrounding ground. In addition, it is common for fills to exhibit variable magnetic properties through their volume, basal primary silt often being more magnetic than the material above it due to the increased proportion of topsoil within it. However, a fill containing burnt soil may be much more magnetic than this primary silt and sometimes a feature that has contained standing water can produce highly magnetic silts through mechanical depositional processes (depositional remanent magnetisation, DRM).

A third structural factor in the detection of buried structures is the depth of topsoil over the feature. As fills sink, the hollow above accumulates topsoil and hence a structure can be detected not through its own magnetisation but through the locally deeper topsoil above it. The volume of soil required depends upon the magnetic susceptibility of the soil but just a few centimetres are often sufficient. Such a thin deposit can, however, easily be lost through subsequent erosion by natural factors or ploughing.

3.2.1 Instrumentation
The use of the magnetic sensors in non-gradiometric (vertical) configuration avoids measurement
sensitisation to the shallowest region of the soil, allowing deeper structures, whether natural or otherwise to be imaged within the sensitivity of the instrumentation. However, this does remove suppression of ambient noise and temporal trends which have to be suppressed later during processing. When compared to vertical gradiometers in archaeological use, there is no significant reduction in lateral resolution when using non-gradiometric sensor arrays and the inability of gradiometers to detect laminar structures is completely avoided.

Caesium instrumentation has a greater sensitivity than fluxgate instruments, however, at the 10 Hz sampling rate used here this increase in sensitivity is limited to about one order of magnitude.

The array system is designed to be non-magnetic and to contribute virtually nothing to the magnetic measurement, whether through direct interference or through motion noise.

### 3.3 Character & principal results

The following paragraphs represent an interpretive summary of the survey. The numbers in square brackets refer to individual anomalies shown on DWG 03 onwards.

#### 3.3.1 Data

Data quality is good overall and magnetic contrast overall is quite low, with local ferrous effects from some of the boundary fences, adjacent structures and vehicle movements, including on the construction site to the north. Some strong distortion is present in the centre of the site (north of [4]) due to interference from overhead power cables, however, the effect of most of these sources has been limited to the cosmetic and has not unduly influenced the interpretation. Strong anomalies of natural origin locally dominate the data.

#### 3.3.2 Geology, soils and hydrology

The superficial geology is patchy within the survey area, according to BGS mapping, with some variation as to sand, gravel, silt and clay content. These deposits may not be particularly thick and any localised soil property variation due to this may be minor. Locally wet areas, e.g. in the vicinity of the ditch and the winter ponds, may exhibit reduced magnetic contrast due to alteration of soil iron chemistry.

Some discrete zonation of the soil is identifiable, dependent partly upon topography and likely also upon drainage. The regional background is typified by [1] and [6] which will loosely relate to soils derived from the river terrace and similar deposits but the whole of the central region [3] is typical of alluvium, with low magnetic contrast throughout. Within this zone, there is increased potential that small features of archaeological interest will not have been detected, however, the use of a non-gradiometric sensor array has maximised the chance of detection of magnetic materials buried relatively deeply within or below the alluvium.

The presence of soils derived from the Bosworth Clay Member might be indicated by zones [2] and perhaps also the band of material [5], this presumably being the relatively impervious material forming the alluvial basin.

#### 3.3.3 Land use

No field boundary changes are evident since the earliest Ordnance Survey mapping but ponds appear from 1905 onwards. These might suggest deliberate water management, e.g. for cattle, perhaps exploiting the natural wetness of the ground and maybe also connected with land drainage.

There is no evidence for palaeo-environmental character, e.g. woodland and instead ridge and furrow cultivation is evident in the drier parts of the site and off the alluvium. Three small areas of this were detected, [7], [8] and [9], with the last being the most evident and apparently terminating at the contact between soils [5] and [6]. In the western field, the other two patches have slightly different character and alignment but there is no sign of a former headland between them. There is, however, a small gap but whether this marks a former landscape division of whether the two areas represent different and spatially overlapping episodes of cultivation is uncertain.

Long term modern usage as pasture is probably a factor in the overall low magnetic contrast at the site.
3.3.4 Archaeology

Three very narrow (0.5m maximum) linear enhanced field anomalies would all be typical of ditch fills, [11] and [12] likely being parts of the same long feature and [10] being a tentative identification of a possible perpendicular spur. These are not known (from Ordnance Survey mapping) to relate to former field boundaries, but their relationship to the presumably medieval ridge and furrow cultivation is also unknown and hence the anomalies lack temporal context.

There is nothing else potentially of archaeological interest within the data.

3.4 Conclusions

Overall magnetic contrast is low but sufficient is evident to suggest a variably damp landscape dominated by presumably medieval cultivation giving way in the modern era to pastoral use. With the possible exception of a very narrow likely ditch fill within the western field, there are no magnetic indications of earlier activity within the site boundary.

3.5 Caveats

Geophysical survey is reliant upon the detection of anomalous values and patterns in physical properties of the ground, e.g. magnetic, electromagnetic, electrical, elastic, density and others. It does not directly detect underground features and structures and therefore the presence or absence of these within a geophysical interpretation is not a direct indicator of presence or absence in the ground. Specific points to consider are:

- some physical properties are time variant or mutually interdependent with others;
- for a buried feature to be detectable it must produce anomalous values of the physical property being measured;
- any anomaly is only as good as its contrast against background textures and noise within the data.

TigerGeo will always attempt to verify the accuracy and integrity of data it uses within a project but at all times its liability is by necessity limited to its own work and does not extend to third party data and information. Where work is undertaken to another party's specification any perceived failure of that specification to attain its objective remains the responsibility of the originator, TigerGeo meanwhile ensuring any possible shortcomings are addressed within the normal constraints upon resources.
4 Methodology

4.1 Survey

4.1.1 Technical equipment

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<th>Measured variable</th>
<th>Magnetic flux density / nT</th>
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<tr>
<td>Instrument</td>
<td>Array of Geometrics G858 Magmapper caesium magnetometers</td>
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<tr>
<td>Configuration</td>
<td>Non-gradiometric transverse array (4 sensors, ATV towed)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>0.03 nT @ 10 Hz (manufacturer’s specification)</td>
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<tr>
<td>QA Procedure</td>
<td>Continuous observation</td>
</tr>
<tr>
<td>Spatial resolution</td>
<td>1.0m between lines, 0.25m mean along line interval</td>
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</table>

4.1.2 Monitoring & quality assessment

The system continuously displays all incoming data as well as line speed and spatial data resolution per acquisition channel during survey. Rest mode system noise is therefore easy to inspect simply by pausing during survey, and the continuous display makes monitoring for quality intrinsic to the process of undertaking a survey. Rest mode test results (static test) are available from the system.

4.2 Data processing

4.2.1 Procedure

All data processing is minimised and limited to what is essential for the class of data being collected, e.g. reduction of orientation effects, suppression of single point defects (drop-outs or spikes) etc. The processing stream for this data is as follows:

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<th>Software</th>
<th>Parameters</th>
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<td>Bandpassed 0.3 – 10.0s</td>
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<tr>
<td>Temporal reduction, regional field suppression</td>
<td>Proprietary</td>
<td>Kriging, 0.25m x 0.25m</td>
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<tr>
<td>Gridding</td>
<td>Surfer</td>
<td>Gaussian lowpass 3x3 data</td>
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<tr>
<td>Smoothing</td>
<td>Surfer</td>
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<tr>
<td>Imaging and presentation</td>
<td>Manifold GIS</td>
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Potential field processing procedures are used where possible on gridded data from the above processing, allowing simulation of vertical gradient data, separation of deep and shallow magnetic sources, etc. The initial processing uses proprietary software developed in conjunction with the multisensor acquisition system. Gridded data is ported as data surfaces (not images) into Manifold GIS for final imaging and detailed analysis. Specialist analysis is undertaken using proprietary software.

4.3 Interpretation

4.3.1 Introduction

Numerous sources are used in the interpretive process, which takes into account shallow geological conditions, past and present land use, drainage, weather before and during survey, topography and any previous knowledge about the site and the surrounding area. Old Ordnance Survey mapping is consulted and also older sources if available. Geological information (for the UK) is sourced only from British Geological Survey resources and aerial imagery from online sources. LiDAR data is usually sourced from the Environment Agency or other national equivalents, SAR from NASA and other topographic data from original survey.

Information from nearby surveys is consulted to inform upon local data character, variations across soils and
near-surface geological contexts. Published data from other contractors may also be used if accompanied by adequate metadata.

4.3.2 Geological sources – magnetic character

On some sites, e.g. some gravels and alluvial contexts, there will be anomalies that can obscure those potentially of archaeological interest. They may have a strength equal to or greater than that associated with more relevant sources, e.g. ditch fills, but can normally be differentiated on the basis of anomaly form coupled with geological understanding. Where there is ambiguity, or relevance to the study, these anomalies will be included in this category.

Not all changes in geological context can be detected at the surface, directly or indirectly, but sometimes there will be a difference evident in the geophysical data that can be attributed to a change, e.g. from alluvium to tidal flat deposits, or bedrock to alluvium. In some cases the geophysical difference will not exactly coincide with the geological contact and this is especially the case across transitions in soil type.

Geophysical data varies in character across areas, due to a range of factors including soil chemistry, near-surface geology, hydrology and land use past and present. These all contribute to the texture of the data, i.e. a background character against which all other anomalies are measured.

4.3.3 Agricultural sources - magnetic character

Coherent linear dipolar enhancement of magnetic field strength marking ditch fills, narrow bands of more variable magnetic field or changes in apparent magnetic susceptibility, are all included within the category of former field boundaries if they correlate with those depicted on the Tithe Map or early Ordnance Survey maps. If there is no correlation then these anomaly types are not categorised as a field boundaries.

Banded variations in apparent magnetic susceptibility caused by a variable thickness of topsoil, depositional remanent magnetisation of sediments in furrows or susceptibility enhancement through heating (a by product of burning organic matter like seaweed) tend to indicate past cultivation, whether ridge-based techniques, medieval ridge and furrow or post medieval ‘lazy beds’. Modern cultivation, e.g. recent ploughing, is not included.

In some cases it is possible to identify drainage networks either as ditch-fill type anomalies (typically ‘Roman’ drains), noisy or repeating dipolar anomalies from terracotta pipes or reduced magnetic field strength anomalies from culverts, plastic or non-reinforced concrete pipes. In all cases identification of a herring bone pattern to these is sufficient for inclusion within this category.

4.3.4 Archaeological sources – magnetic character

Any linear or discrete enhancement of magnetic field strength, usually with a dipolar character of variable strength, that cannot be categorised as a field boundary, cultivation or as having a geological origin, is classified as a fill potentially being of archaeological interest. Fills are normally earthen and include an often invisible proportion of heated soil or topsoil that augments local magnetic field strength. Inverted anomalies are possible over non-earthen fills, e.g. those that comprise peat, sand or gravel within soil. This category is subject to the ‘habitation effect’ where, in the absence of other sources of magnetic material, anomaly strength will decrease away from sources of heated soil and sometimes to the extent of non-detectability.

Former enclosure ditches that contained standing water can promote enhanced volumetric magnetic susceptibility through depositional remanence and remain detectable regardless of the absence of other sources of magnetic enhancement.

Anything that cannot be interpreted as a fill tends to be a structure, or in archaeological terms, a feature. This category is secondary to fills and includes anomalies that by virtue of their character are likely to be of archaeological interest but cannot be adequately described as fills. Examples include strongly magnetic bodies lacking ferrous character that might indicate hearths or kilns. In some cases anomalies of ferrous character may be included.

On some sites the combination of plan form and anomaly character, e.g. rectilinear reduced magnetic field strength anomalies, might indicate the likely presence of masonry, robber trenches or rubble foundations.
Other types of structure are only included if the evidence is unequivocal, e.g. small ring ditches with doorways and hearths. In some circumstances a less definite category may be assigned to the individual anomalies instead.

It is sometimes possible to define different areas of activity on the basis of magnetic character, e.g. texture and anomaly strength. These might indicate the presence of middens or foci within larger complexes. This category does not indicate a presence or absence of discrete anomalies of archaeological interest.

4.4 Bibliography & selected reference


Chartered Institute for Archaeologists, 2014 (Updated 2016), “Standard and guidance for archaeological geophysical survey” Reading


4.5 Archiving and dissemination

An archive is maintained for all projects, access to which is permitted for research purposes. Copyright and intellectual property rights are retained by TigerGeo on all material it has produced, the client having full licence to use such material as benefits their project. Where required, digital data and a copy of the report can be archived in a suitable repository, e.g. the Archaeology Data Service, in addition to our own archive.

The archive contains all survey and project data, communications, field notes, reports and other related material including copies of third party data (e.g. CAD mapping, etc.) in digital form. Many are in proprietary formats while report components are available in PDF format.

The client will determine the distribution path for reporting, including to the end client, other contractors, local authority etc., and will determine the timetable for upload of the project report to the OASIS Grey Literature library or supply of report or data to other archiving services, taking into account end client confidentiality.

TigerGeo reserves the right to display data rendered anonymous and un-locatable on its website and in other marketing or research publications.
5 Supporting information

5.1 Standards and quality (archaeology)

TigerGeo is developing an Integrated Management System (IMS) towards ISO certification for ISO9001, ISO14001 and OHSAS18001/ISO45001 and has appointed Alan Ward of Bigfoot Services Limited as our ISO/HSE Technical Advisor. For work within the archaeological sector TigerGeo has been awarded CIfA (Chartered Institute for Archaeologists) Registered Organisation status.

A high standard of client-centred professionalism is maintained in accordance with the requirements of relevant professional bodies including the Geological Society of London (GeolSoc) and the Chartered Institute for Archaeologists (CIfA). Senior members of TigerGeo are professional members of the GeolSoc (FGS), CIfA (MCIfA & ACIfA grades) and other appropriate bodies, including the European Association of Geoscientists and Engineers (EAGE) Near Surface Division (MEAGE) and the Institute of Professional Soil Scientists (MISoilSci).

In addition TigerGeo is a member of EuroGPR and all ground penetrating and other radar work is in accordance with ETSI EG 202 730.

TigerGeo meets with ease the requirements of English Heritage in their 2008 Guidance “Geophysical Survey in Archaeological Field Evaluation” section 2.8 entitled “Competence of survey personnel”. The management team at TigerGeo have over 30 years of combined experience of near surface geophysical project design, survey, interpretation and reporting, based across a wide range of shallow geological contexts. Added to this is the considerable experience of our lead geophysicists in a variety of commercial and academic roles. All geophysical staff have graduate and in many cases also post-graduate relevant qualifications pertaining to environmental geophysics from recognised centres of academic excellence.

During fieldwork there is always a fully qualified (to graduate or post-graduate level) supervisory geophysicist leading a team of other geophysicists and geophysical technicians, all of whom are trained and competent with the equipment they are working with. Data processing and interpretation is carried out by a suitably qualified and experienced geophysicist under the direct supervision and guidance of the Senior Geophysicist. All work is monitored and reviewed throughout by the Senior Geophysicist who will appraise all stages of a project as it progresses.

Data processing and interpretation adheres to the scientific principles of objectiveness and logical consistency. A standard set of approved external sources of information, e.g. from the British Geological Survey, the Ordnance Survey and similar sources of data, in addition to previous TigerGeo projects, guide the interpretive process. Due attention is paid to the technical constraints of method, resolution, contrast and other geophysical factors.

There is a strong culture of internal peer-review within TigerGeo, for example, all reports pass through a process of authorship, technical review and finally proof-reading before release to the client. Technical queries resulting from TigerGeo’s work are reviewed by the Senior Geophysicist to ensure uniformity of response prior to implementing any edits, etc.

All work is conducted in accordance with the following standards and guidance:

- David et al, "Geophysical Survey in Archaeological Field Evaluation", English Heritage, 2008;
- "Standard and guidance for Archaeological Geophysical survey", Chartered Institute for Archaeologists, 2014 (Updated 2016);

and undertaken in accordance with the high professional standards and technical competence expected by the Geological Society of London and the European Association of Geoscientists and Engineers.
### 5.2 Key personnel

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Senior Geophysicist</strong> (Quality manager)</td>
<td>Martin Roseveare</td>
<td>MSc BSc(Hons) MEAGE FGS MCIfA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operations Manager</strong> (Safety manager)</td>
<td>Anne Roseveare</td>
<td>BEng(Hons) DIS MISoilSci</td>
</tr>
<tr>
<td><strong>Archaeological Consultant</strong></td>
<td>Daniel Lewis</td>
<td>MA BA(Hons) ACIfA</td>
</tr>
<tr>
<td><strong>Geophysicist</strong></td>
<td>Kathryn Cunningham</td>
<td>BSc(Hons) FGS</td>
</tr>
<tr>
<td><strong>Geophysicist</strong></td>
<td>Jack Wild</td>
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Martin specialised (MSc) in geophysical prospection for shallow applications and since 1997 has worked in commercial geophysics. Elected a GeolSoc Fellow in 2009 he is now working towards achieving CSci. A member of the European Association of Geoscientists & Engineers, he has served on the EuroGPR and CIfA GeoSIG committees and on the scientific committees of the 10th and 11th Archaeological Prospection conferences. He has reviewed papers for the EAGE Near Surface conference, was a technical reviewer of the Irish NRA geophysical guidance and is a founding member of the ISSGAP soils group. Professional interests include the application of geophysics to agriculture and the environment, e.g. groundwater and geohazards. He is also a software writer and equipment integrator with significant experience of embedded systems.

On looking beyond engineering, Anne turned her attention to environmental monitoring and geophysics. She is a Member of the British Society of Soil Science (BSSS) and has specific areas of interest in soil physics & hydrology, agricultural applications and industrial sites. Amongst other contributions to the archaeological geophysics sector over the last 18 years, Anne was the founding Editor of the International Society for Archaeological Prospection (ISAP) and is a founding member of the ISSGAP soils group. Specifications, logistics, safety, data handling & analysis are integral parts of her work, though she is happily distracted by the possibilities of discovering lost cities, hillwalking and good food.

Daniel studied archaeology at the University of Nottingham and worked in field archaeology for many years, managing urban and rural fieldwork projects in and around Herefordshire. When the desk became more appealing he jumped into the world of consulting, working on small and large multi-discipline projects throughout England and Wales. At the same time, he returned to University, gaining an MA in Historic Environment Conservation. With over 15 years’ experience in the heritage sector, Daniel has a diverse portfolio of skills. Here he ensures that geophysical work within the heritage sector is well grounded in the archaeology. His spare time includes much running up mountains.

Kathryn has been with TigerGeo for more than 18 months and has undertaken over 100 surveys comprising total field magnetometry, twin probe resistivity, electrical resistance tomography, ground penetrating radar and laser-scanning. Her particular role is to ensure all aspects of fieldwork run smoothly, including site-specific paperwork, liaison, internal auditing and risk assessment. In addition she has increasing responsibilities in data processing and interpretation. She graduated with a BSc (Hons) in Applied Geology in 2015 from the University of Plymouth, is a Fellow of the Geological Society and enjoys acrobatics and sunny days.

Down to earth and a recent Plymouth University graduate in geology (GeolSoc accredited degree) Jack entered the world of shallow geophysics with an Atkison Leapfrog. Happiest when in the field he has undertaken geological projects Europe wide including in Sicily and the Spanish Pyrenees and closer to home has studied much of the Cornish and Devon coast. The mystery of what lies below drives his interest in the collection and interpretation of high quality data - be it from magnetometry or GPR he just cannot resist(ivity)!