



Jigsaw Cambridgeshire Best Practice Users' Guide

A Basic Introduction to Archaeological Excavation

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October 2016 (version 2)





Before you start your research project you need to think about all the following areas of excavation, from start to finish. We hope you find this introductory guide useful to start thinking about how to undertake an excavation project.

1 PERMISSIONS

Before you can excavate a site, you need to:

- Gain permission from the landowner, and the tenant or occupier of the land (if applicable).
- Check that the land is not a Scheduled Ancient Monument. If you wish to excavate or otherwise research one of these, you must contact Historic England for permission.
- Check that the land isn't under Natural England stewardship: ask the landowner and tenant.
- Inform the County Archaeology Team by emailing archaeology@cambridgeshire.gov.uk or telephoning 01223 728569/592. They will advise you on any further permissions required.
- Request an Event Cambridgeshire (ECB) number from the County Archaeology Team on the contact details above. This is a requirement of any work carried out in the county, especially if there is any possibility that the County Archaeology Team will be involved in subsequent archive preparation or deposition.
- Check with the landowner whether they will want to maintain ownership of any finds excavated.

2 Research Framework

Project Aims

Before you start your project, you need to think about and write some project aims. These should cover the following questions:

- What do you want to find out?
- Why do you want to know?
- Will you carry out training?

It is important to do this at the start, as it should clarify what you are trying to do and why, and will impact the methodology you decide to use.

Methodology

You should decide which methodology you are going to use before you start your project, so that all participants are clear as to what they expect to do. Questions you should think about include:

- Who will be involved? How will you cover participants under your insurance policy? Do you wish to involve children, and/or local schools?
- How will you excavate? Will you require equipment and a digger?
- How will you record? Do you have recording sheets?
- How will you fund your excavation, particularly your finds identification? You may need to think about applying to the Heritage Lottery Fund or other grant-giving organisations to cover the costs of finds-identification, digger hire, portaloo hire etc.
- Where will you store your finds/records? You will be able to deposit your prepared archive with the HER in the County stores. There is a cost to deposition that covers the long term





storage and curation of the archive but contact the HER as soon as you begin to plan for a site so that a decision can be made about how best to cover these costs.

3 LOCATING EXCAVATION AREAS

Excavation should be the final activity you conduct on the site you are researching. Before you consider excavating, you should have completed most of the following research activities:

- Historic Environment Record (HER) search: research the archaeology of your local area on Heritage Gateway: http://www.heritagegateway.org.uk/gateway and email the HER County Archaeology Team at archaeology@cambridgeshire.gov.uk for more information. You can also visit your local HER at Shire Hall, Cambridge by appointment. The HER holds an extensive library of grey literature (both in digital and hard copy formats) alongside other original material. Grey literature reports can also be found on the Archaeology Data Service (ADS): <u>http://archaeologydataservice.ac.uk/myads/copyrights?from=2f61726368697665732f</u>. Old archaeological reports of Oxford Archaeology East excavations can either be downloaded from ADS, or from <u>http://library.thehumanjourney.net/</u> and more recent reports can be accessed from the library at our Bar Hill office.
- **Consult old maps:** they provide useful information about previous occupation of your site, and may help you locate where would be best to dig.
- **Geophysical survey** can give clues as to where you are likely to find features such as ditches and walls, meaning you can locate your trenches strategically.
- Fieldwalking over a ploughed site will bring up artefacts and again can give some indication of where would be best to locate a trench according to where the densest scatter of finds is.



A sample list of which tools you will require:

- Trowel
- Shovel
- Mattock
- Hoe
- Spade
- Wheelbarrow
- Tape measures and ranging poles
- Fine excavation tools such as a leaf trowel and dentistry tools for excavating small and delicate objects and human remains.
- Stationery, such as 6H pencils, erasers, sharpeners, biros and Artline marker pens.









- Finds bags and labels. Boxes to store finds in.
- Small finds archiving kit (e.g. for storing delicate metal objects)
- Photographic kit
- Mechanical excavator
- Recording materials (permatrace, recording sheets, clipboards, drawing boards)

Much of this equipment (excluding the mechanical excavator!) can be borrowed from Jigsaw.

- 4 SETTING UP HEALTH AND SAFETY
- Make sure you have a **Risk Assessment** for your activities, and that your society has a **Health and Safety Policy**. Insurance companies will expect that you adequately anticipated risks and hazards. Jigsaw has some pro formas that groups can use and adapt.
- You may need a Control of Substances Hazardous to Health (COSHH) Assessment, for example when digging in town centres. This covers the presence of diesel (as in Huntingdon town centre), Anthrax (seen if animal bones are covered with green lime), asbestos and radioactive material.
- Check that there are not any **underground services** (pipes, electricity cables etc.) by looking at Service Maps, using a CAT scanner and asking the landowner. Note however, that most services are not plotted on to Service Maps, so the only fail-safe method of locating them is by using a CAT scanner. Modern services should be covered by yellow tape (electricity) or blue tape (water), but older ones will not be covered by tape. Look out for red and white poles, which indicate the presence of a gas main. Bright yellow clean sand is often a good indicator that a service lies beneath.
- If using a mechanical digger, ensure that you are careful not to dig near **overhead services** such as telegraph lines, in case you inadvertently damage them.
- Check that all your excavation equipment is in good condition and not faulty.
- Check that you have easy site access, particularly if you wish to bring vehicles such as mechanical excavators on to the site.
- Ensure you have adequate **insurance** for your activities.
- Make sure you have adequate **welfare** facilities for your participants: some sort of shelter such as a site hut or gazebo to shelter in, toilets, storage of finds and car parking.

5 EXCAVATION

Methodology

Your excavation strategy will depend on your Project Aims, the archaeology uncovered, the size of the trench(es), and current land use.

Before starting excavation, you first need to locate your site as accurately as possible. This can be undertaken using a hand-held GPS, and measuring from features on an Ordnance Survey map.





Once you've chosen your excavation area and project, give it a **site code** e.g. BARTRA13 (parish, project/street, date; Bar Hill, Trafalgar Way, 2013). This will be marked on all your finds bags and recording documentation.

There are two basic ways to undertake an excavation: tespitting and open-area trench excavation:

Testpits

Testpits are dug from grass-level down, removing topsoil and subsoil, and occasionally uncovering archaeological features. They are a good starting point for most archaeological societies, as they are cheap and easy to excavate and suited to beginners. They can either be excavated in 10cm spits, or by archaeological contexts, with one context being topsoil, another being subsoil, and any archaeological contexts taking their own cut and fill context numbers.

Open-area trench excavation

This requires a machine to remove topsoil and subsoil layers down to the top of the archaeological layers (features are usually cut into the top layer of natural geology in rural areas). They cover a much larger area than testpits.

Machining will only be required when undertaking an open area excavation project. Make sure you choose an appropriately sized machine, tracked or wheeled,

with a ditching bucket. You will also require an experienced driver with the correct tickets (licences) who knows to separate topsoil and subsoil, and how to strip accurately down to 'natural' (first layer of natural geology under subsoil).

If you expect to find human remains, you will need to obtain a **Burials Licence**. Generally it is advisable for community archaeology groups to avoid excavating human remains where possible, due to complications of obtaining a licence, and reburial, where applicable.

Single Context Recording

Most archaeological excavations are recorded using the single context recording system, whereby every cut and fill of a feature, or layer, is issued a context number. There are two basic types of context: **cut**, and **fill/deposit**. As a rough guide, a 'cut' refers to something that was dug in the past, such as a ditch or pit, whereas a fill is something that fills the hole made by the cut, and may or may not have been filled in intentionally in the past. Fills and cuts can be identified by differences in colour and texture of soil; the line of the cut can be identified by trowelling away until all the colour soil you are currently digging has been removed.









Archaeological Terms Topsoil: the top layer of soil encountered when digging. Usually garden or plough soil and dark in colour. the second layer of soil encountered when digging. Usually lighter in colour Subsoil: than topsoil. the geological layer under topsoil and subsoil. E.g. Oxford Clay, sandstone, Natural: chalk. Archaeological features are often cut into this layer. Feature: something that was dug or created by people in the past, e.g. pit, post-hole, ditch, hearth, kiln, wall, foundation trench, well, furrow etc. a term used to describe an individual archaeological event, e.g. a cut or a fill. Context: Each context has its own context number. a small feature, usually round in plan, which was dug in the past to Posthole: support a post. On average, these have a diameter of 0.5m, but they vary considerably. They may also contain a post-pipe, a different coloured patch of soil within the post-hole fill showing where the post rotted away. Pit: a catch-all term used to describe anything bigger than a post-hole, usually dug to store objects or rubbish. a hole dug in the ground by someone in the past Cut: soil filling the hole dug in the ground, either filled intentionally by someone Fill: in the past, or after the hole's original use finished. There can be more than one fill in a feature. Deposit: literally, anything that has been put on or in the ground, and includes fills, lavers, masonry and human remains.

The best way to excavate a pit or post-hole is to **half-section** it (i.e. divide it in two and take out one half of the fill). Ditches are typically excavated by taking a 1m section out of it. This provides useful information such as how steep the sides of the feature are, what shape the bottom of the feature is, and what the fill contains. Once a feature has been half-sectioned or a 1m section has been taken out of it, the feature should be photographed, and a plan and section drawn.







In the above picture, the post-hole under excavation has a cut and fill. The post-hole probably looked roughly circular in plan before it was excavated. The excavator has half-sectioned it, i.e. drawn a line across it and removed one half of the feature, leaving a clean vertical section. We can see that the cut has steep sides sloping down to a concave U-shaped base. It is roughly round in plan (looking down at the feature). The fill is a light grey sandy-silt fill, which is darker than the surrounding soil.

6 Recording

Once you have excavated your feature, you need to give it a context number, draw a sectiondrawing and a plan of your feature, and take a photograph with a scale and photo board. You will also need to complete a context recording sheets for both the cut and fill(s) (see Appendix One for pro formas).

Section drawings

An archaeological section drawing is a vertical cross-section through the feature under excavation to reveal the contents of the fill and the shape of the fill. Accordingly, section drawings are a very important recording technique, as they allow future researchers to see the exact forms of the excavated features. They are usually drawn at a scale of 1:10 or 1:20.





In the above example, all the useful information about how to locate the feature has been listed in the title. The points of the compass are very useful for identifying which section of the feature has been drawn. The cut number has been put in [square brackets] and the two fill numbers have been put in (round brackets). The cut [101] has been given the lowest number, since the the archaeological event of the cut being dug came before the first fill (102) and the second fill (103).

Drawing plans

Plans are the maps drawn of a site providing the bird's eye view of the features excavated.







The above plan shows that the oval feature (such as a post-hole or pit) has been cross-sectioned and the line of the section drawn has been marked 'Section 22'. The southern half of the fill (103) has been excavated, but the northern part of fill (103) remains unexcavated. The shape of the cut is marked by the hachures, which show that the cut sloped gradually down to the base on all three sides. The plan was drawn at a scale of 1:50.

Photographs

The aim of archaeological recording is to try to create and keep a permanent record. Take a photograph of every feature, trench and testpit, with and without a photo board (recording the site code, north arrow, trench/testpit number, shot/photograph number and cut context number) and scale. Professionals tend to take photographs of each feature on two types of camera: a digital camera and a camera with a black and white film. Black and white film is the most archively-stable but expensive (c.£6/film) and difficult to find. If you are only able to record in colour or on a digital camera, this will be sufficient. Remember to also take shots of people excavating.

7 FINDS

All finds should be bagged with a finds label. The following information should be recorded on every bag and label:

Site code	e.g. BARTRA13	
Trench or Testpit no.	e.g. TP1	
Context number of fill	e.g. (102)	
Material (if you are bagging finds by type)	e.g. pottery or bone	
Small find number (if something made of		
metal, or fragile, or unusual)	e.g. 7	

The finds label should also have the excavator's initials and the date marked.

All finds (except metalwork and other fragile artefacts such as amber and shale) should be washed and allowed to dry at room temperature before being rebagged in clean finds bags with a clean label. These finds should then be properly identified by a professional finds expert so a full list of artefacts can be inserted into the report.

Fragile finds should be protected through use of plastazote padding in a finds bag, or acid-free tissue in a crystal box.



Silica gel may be required to dry out metalwork NOT found in waterlogged contexts. Amber and shale should not be allowed to dry out. See the book 'First Aid for Finds' for more information. Complete vessels should be lifted whole, with their contents.

Environmental Samples

Environmental samples are bulk samples of types of soil which archaeologists collect to be analysed for recovery of carbonized remains and small objects. Features containing (black) burnt material are often sampled. A 20I sample is usually collected. Monolith samples may also be taken in monolith tins for the recovery of pollen (this is a very expensive procedure).





8 FINISHING YOUR PROJECT

Back-filling

Remember to allow plenty of time to back-fill your trench, and don't forget to compact. Put the subsoil in first, followed by the topsoil, and then the turf.



Post-excavation analysis

The project doesn't finish on the last day of the dig! Finds need to be washed (except metalwork), and small finds (including metalwork) need to be curated, for example through application of silica gel. Some finds will need to be sent to a conservator to be stabilised. Environmental samples will need to be processed. Finds will need to be identified by a professional finds specialist, prior to writing a report of the excavation. Finds which come under the jurisdiction of the Treasure Act need to be reported to Cambridgeshire's Finds Liaison Officer a.s.a.p. You have a legal responsibility to report them within 14 days of discovery.

Report-writing

Reports should contain a Summary, Introduction, Aim, Methodology, Results (including finds summary), Discussion and Conclusions, and Recommendations for further work, as well as a References, a location map, and appendices such as finds reports, full descriptions of every context, section drawings and plans. If you would like to look at copies of professional excavation reports, Jigsaw has some examples available. We also have a pro forma for an archaeological evaluation which groups can use.

Inform the County Archaeology Team when the report is finished (by email to archaeology@cambridgeshire.gov.uk) and upload a copy to OASIS. They will update the HER record and link it to the OASIS unique identifying number for the project.

FURTHER READING

Grant, J., Gorin, S and Fleming, N.	2008.	The Archaeology Coursebook: An Introduction to Study Skills, Topics and Methods. Routledge. London.
Greene, K. and Moore, T.	2010	Archaeology: an Introduction. Routledge. Abingdon,
Renfrew, C. and Bahn, P.	2008	Archaeology: Theories, Methods and Practice. Fifth edition. Thames and Hudson Ltd.
Watkinson, D. and Neal, V.	1998	<i>First Aid for Finds: Practical Guide for Archaeologists.</i> Third Edition. Institute for Conservation of Historic & Artistic Works, Archaeology Section.