



# A quick guide to archaeological excavation

## Starting off - cleaning

During an excavation there is typically a set pattern in the way in which the archaeology is treated. Once a trench or area is opened, it will be cleaned of all loose soil in order to clearly identify any archaeology.

- When cleaning, trowel in a straight line, not in circles. Keep in line with everyone else and trowel in the same direction (see image below).
- Keep spoil to a minimum as you work. **DO NOT** leave mounds of spoil isolated in cleaned areas.
- DO NOT** walk over your, or anyone else's, nicely trowelled area. Many a friendship has been broken this way.
- An open area with lots of features will often be photographed (before everyone walks on it again) and planned before excavation of individual features begins.

Photographs of features and areas **ALWAYS** need a scale, a North arrow and an identifying number (a trench / area number and / or a context number). **ALSO** be aware of light (sun & shadows), depth of field, perspective, focus, health & safety (don't fall into something whilst taking your photo!).

**REMEMBER:** Use the right tool for the job. Fine tools for delicate jobs, trowels for cleaning surfaces & small excavation (e.g. digging a post-hole), heavier tools for when lots of soil needs moving (e.g. digging a pit).

### An archaeologist's tool kit

- 4" pointing trowel
- Hand shovel & bucket
- Shovel, mattock, spade & wheelbarrow
- Stiff hand brush (only for cleaning stones / masonry)
- Fine tools such as a leaf trowel, paint brushes and dentistry tools (for excavating small and delicate objects)
- Surveyors tape & hand tape
- Stationary (4H pencil, eraser, sharpener, pen and permanent marker pen)
- Finds bags of assorted sizes, waterproof (Tyvek) labels, seed trays and archive boxes
- Digital camera, photo scales, photo numbers, north arrow, compass
- 6" nails, string, foldback or bulldog clips, masking tape, line level, plumb bob
- Drawing board & clipboard
- Recording materials (gridded drafting film, recording sheets, site index)
- Mechanical digger



Above: Cleaning an area of archaeology.

## Excavating the archaeology

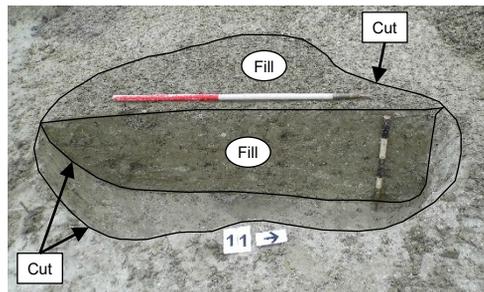
Most sites are excavated using a Single Context recording system, whereby every cut, fill of a feature and layer are issued a unique identifying number, called a Context (taken from the site's context index). There are four basic types of Context:

- CUT** = an event in the past which has deliberately removed part of the archaeological sequence (e.g. digging a ditch, pit, post-hole or foundation trench).
- FILL** = a contained deposit of material filling in the hole left by the cut.
- LAYER** = an uncontained horizontal deposit of material.
- STRUCTURE** = vertical construction of consolidated material.

When excavating, contexts are removed one at a time from top to bottom (from most recent to oldest in the archaeological sequence) and from known to unknown (starting in the area where the sequence is clearest / best understood).

The bottom of a layer or edge of a cut is usually identified when there is a change in colour and/or texture from the soil currently being removed. This is the time to stop excavating and start recording (see the excavation sequence table below).

**CIRCULAR FEATURES**, such as pits and post-holes, are usually excavated as a half-section - the feature is divided in two and one half of the fill is taken out to show the shape of the cut and what the fill contains. **LINEAR FEATURES**, such as ditches and foundation trenches, are typically excavated by taking out a series of 1m wide slots along their length. **LAYERS** are usually excavated in their entirety, although a temporary bulk may be left through it to demonstrate its relationship with higher and lower layers. **STRUCTURES** should be excavated stratigraphically like layers. **DO NOT** 'wall chase', this destroys the relationship between the vertical structure and adjacent horizontal layers leaving it unclear where the structure lies within the stratigraphic sequence.



Above: This pit has been half-sectioned (i.e. the excavator has created an arbitrary line across it and removed one half of the feature leaving a clean vertical section). This reveals the feature's fill and the shape of its cut in both horizontal plan and vertical section.

## Good troweling

- The 4" pointing trowel is your best friend!
- Always trowel in the same direction.
- Angle the trowel to use the straight edge to evenly scrape the surface. **DO NOT** use the point or the corner, which will leave a groove, or the flat underside of the trowel which will smear the archaeology.
- Scrape away the surface of the archaeology in level slices, **DO NOT** dig into it.
- Sweep the trowel across the ground with your arm, not your wrist, otherwise you will eventually damage your wrist.

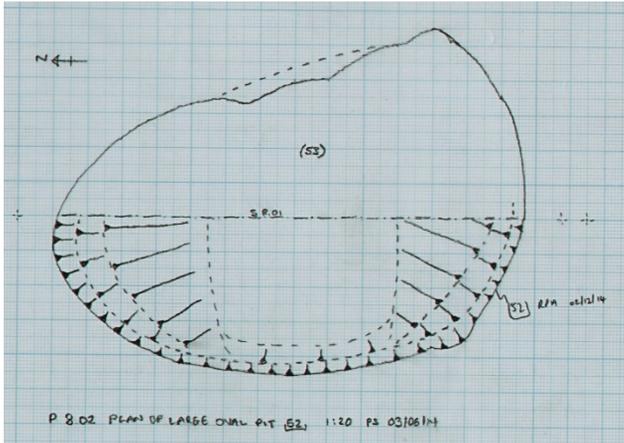
Features (Cuts & Fills)	Layers & Structures
1. Clean the feature	1. Clean the layer / structure
2. Excavate the feature (often by half-sectioning it)	2. Photograph the layer / structure
3. Photograph the feature	3. Draw the layer (plan) or structure (plan, section & elevation) & take levels
4. Draw the feature (plan & section) & take levels	4. Excavate the layer / structure
5. Excavate the rest of the feature if required. Write the context sheets for each context	5. Write the context sheet
6. Make sure all finds, records, photos etc. are clearly labelled and cross-referenced. <b>REMEMBER</b> - Many sites will not be written up until months or years later. It is essential, therefore, that all records are <b>COMPLETE</b> and <b>ACCURATE</b> during the dig.	



### Finds

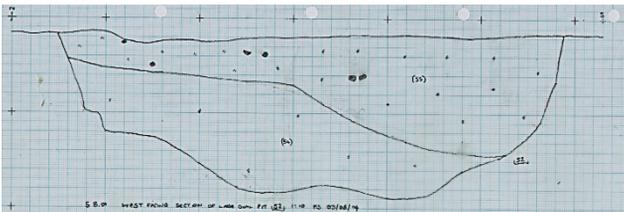
Finds are key to dating most features and layers so it is essential to look after them. They **MUST** always be kept in a clearly labelled tray or bag with the correct context number.

If you are not sure where a find came from, or which context it belongs to then save it as U/S (unstratified). It is better to lose the finds provenance than mess up the dating sequence.



Above: Plan of a pit.

Below: Section across a pit.



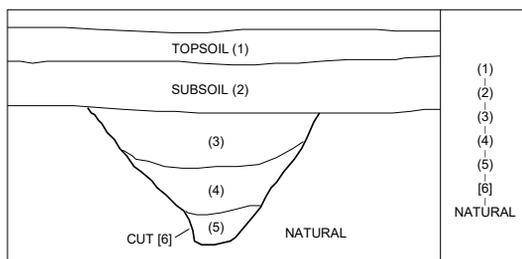
### The Matrix

Stratigraphy is a term used to describe the order in which archaeological events (soil layers, cut features and their fills) were created. It forms the basis for **ALL** archaeological excavation and analysis. Every cut, fill and layer is given a unique context number which is used to create a matrix.

The matrix is a flow chart which shows the order in which every context occurred. To fully understand a site it is **CRITICALLY IMPORTANT** to record your feature or layer's stratigraphic relationship with the surrounding archaeology.

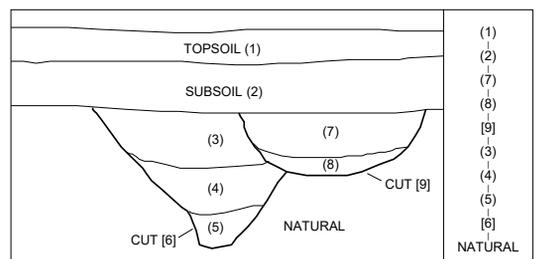
- What is it **ABOVE**? What is it **BELOW**? Is it the **SAME AS** another context?
- These relationships **MUST** be accurately recorded on the context sheet during the excavation.

**REMEMBER** - The matrix seeks only to record the stratigraphic sequence of deposition, not the direct physical contact other features and layers have with the context. The matrix runs from the oldest (or first event) at the bottom, to the newest (or last event) at the top.



Right: The matrix for a single feature.

Far right: If a second feature was dug later (i.e. cutting the original feature) the matrix would look like this.



### Drawings

A drawing of a feature or layer is often better than a photograph because it is possible to highlight context changes more clearly on a drawing. Archaeological drawings are meant to be simple, precise and clear representations of the archaeology. No artistic skills are required!

Archaeology is drawn in three ways.

- PLAN** = a measured horizontal representation of the feature/s or area excavated. Plans are drawn by taking measurements from a site grid or a base line. Planning points can be created by nails placed in the ground but remember, **DO NOT** remove the nails until your planning points have been recorded on the site grid or by dGPS / EDM.
- SECTION** = a measured vertical cross-section through the feature under excavation showing the relationship between multiple layers, or the fill and shape of a cut. Sections use section points in much the same way as plans (often they are the same planning points) but on a vertical plane with a string line tied between them. A line level is used to make sure the string is perfectly level.

- ELEVATION** = a measured vertical drawing of the external appearance or surface features of a structure (e.g. a wall). Drawn in a similar manner to a section.

Drawings are made on gridded drafting film at two main scales.

- PLANS** are generally drawn at 1:20 so that 1m equals 5cm on the drawing.
- SECTIONS & ELEVATIONS** are generally drawn at 1:10 so that 1m equals 10cm on the drawing.
- Occasionally you might be asked to draw something at 1:50 (1m equals 2cm) or 1:100 (1m equals 1cm).

**REMEMBER** – Draw with a hard pencil (4, 5 or 6H), label all context numbers, add a drawing number, title, scale, initials and date.

- PLANS** – Mark the position of section and elevation drawings and label them, add a North arrow. If a site grid is being used add the grid co-ordinates too.
- SECTIONS & ELEVATIONS** – Orientate the drawing points (i.e. E, W etc.) and state facing direction (i.e. south facing).

### Taking a level

Whilst we can draw and photograph features we also need to know their relative height in relation to other features. This is usually done using a dumpy level and a telescopic staff – basically a telescope on a fixed horizontal plane looking at a big vertical ruler! – or electronically using dGPS / EDM.

A reading is taken on a reference point (called a **temporary bench mark** or **TBM**) which has a known height above sea level. This is called the **back sight (BS)**. Further readings are taken at relevant points on the archaeology, these are called **fore sights (FS)**.

Working out the height of the archaeology uses the following calculations.

- $TBM + BS = \text{Instrument Height (IH)}$
- $IH - FS = \text{Reduced Level (RL, your archaeological spot height)}$ .

**REMEMBER** – Record where you took levels on you plan or section. Record the readings for the TBM, BS, FS, RL & IH on your drawing or in a level index.