Chapter 3: Methodology

The first two objectives of the Project were to review, analyse and compare published academic literature and published/unpublished archaeological manuals/guidelines, and to identify the origins, development and current use of excavation methods and recording systems in the United Kingdom, Ireland, Australasia and North America. To achieve these two objectives the candidate took the following approach:

In order to collect and review published academic literature, a thorough literature search was performed. When literature sources could not be obtained from Bournemouth University's library collection, the candidate gathered the necessary documents from other sources. To date, this literature search has resulted in the collection of approximately 400 data sources, each of which has been read and analysed, forming a substantial literature pool that has been used to inform the research and underpin the subsequent discussion in the thesis.

In order to obtain unpublished/published archaeological manuals/guidelines, 499 archaeologists, archaeological companies, organisations, institutions, museums and libraries in the United Kingdom, Ireland, Australasia and North America were contacted (Appendix A). Through contacting these establishments the candidate obtained 153 archaeological manuals and guidelines. The data relating to excavation methods and recording procedures in these manuals/guidelines has been processed using a spreadsheet system, in which each manual/guideline has been analysed against a set of analytical criteria (Appendix B). These criteria were developed by reading through each of the manuals/guidelines and identifying points of difference in excavation approaches and recording methods. Consequently, any variation in approach to excavation or recording prompted the creation of a new criterion, against which all of the other manuals/guidelines would be evaluated. Each criterion was specifically developed to initiate a 'yes' or 'no' response when a manual/guideline was being assessed against it. This ensured that all data entered into the system was in a binary format (1 = Yes, 0 = No). The data entry process is explained in Figure 3.1.

Organisation	Manual usage				Manual creation year					
	The organisation has got its own manual	The organisation has <u>not</u> got its own manual	The organisation uses another organisation's manual	The organisation is in the process of updating their manual	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
University College London	1	0	0	0	0	0	0	0	1	0
SHARP Archaeology	1	0	0	0	0	0	0	0	1	0
Archaeology South East	0	1	1	0	0	0	0	1	0	0
Museum of London	1	0	0	0	0	0	0	1	0	0
Archaeology Project Services	0	1	1	0	0	0	0	1	0	0
CFA Archaeology Ltd	0	1	1	0	0	0	0	1	0	0

Figure 3.1: An example of data entry into the spreadsheet system:
Take University College London as an example. Their organisation has its own manual. Therefore, a 1 is entered, representing a ‘yes’ response to the prompting criteria. However, as they have their own manual, are not in the process of updating their manual, and do not use another company’s manual the response to the three other prompting criteria in this section is 0, representing a ‘no’ response. This process is repeated for all of the other criteria, and all of the manuals/guidelines. The completed spreadsheet is contained in Appendix B.

It was necessary to use a binary data entry format as this enabled each of the manuals/guidelines to be directly compared against one another, and analysed to determine the extent of similarities and differences in the excavation and recording approaches presented in the manuals/guidelines. Once the data was processed in this manner, the candidate was then able to evaluate the extent and causes of variation in the approaches to excavation and recording in the geographical areas being studied. This data also assisted in the development of the experimental phase of the Project as it directly dictated which excavation methods and recording systems were to be experimentally compared.

The third objective of the Project was to conduct interviews with field and academic archaeologists in order to evaluate how they excavate, and why and when they choose to use particular excavation methods and recording systems.

In order to achieve this objective, and to assist with the evaluation of variation, and reasons for variation within individual excavation methods and recording systems, and between systems identified during the data gathering phase of the Project, the candidate arranged and chaired conferences at the Theoretical Archaeology Group (TAG), the Society for American Archaeology (SAA), and the Institute for Archaeologists (IfA) annual conferences (Appendix A). This enabled the candidate to obtain the conference's participant's perspectives on how, why and when they choose to use a particular excavation method or recording technique. Additionally, during the experimental phase of the Project, the candidate was able to conduct interviews with experimental participants 'live' in the field, to ascertain how, why and when different archaeologists choose to use particular excavation methods and recording systems, and the extent to which a certain approach to excavation or recording can be justified. These interviews were based around a consistent series of open and closed questions that enabled the answers to be directly compared and analysed. The questions were as follows:

Section 1: Participating archaeologist's profile

1- Please select the highest academic qualification you have obtained in the field of archaeology/anthropology:

Diploma

Higher National Diploma (HND)

Bachelor of Arts/Science (BA/BSc)

Postgraduate Diploma (PGDip)

Master of Arts/Science (MA/MSc)

Master of Philosophy (MPhil)

Doctor of Philosophy (PhD)

Doctor of Science (DSc)

2- In which country did you receive your archaeological training?

3- Please select the archaeological sector(s) in which you currently work. You may select more than one category.

Academic sector

Research sector

Commercial/Cultural resource management sector

National government sector

Regional government sector

Local government sector

4- Please select the job category in which you are currently working. You may select more than one category.

Academic archaeologist

Research archaeologist

Field archaeologist

Supervising field archaeologist

Senior field archaeologist

Archaeological site director

Archaeological company director

Other (please specify)

5- How many years have you been working within the archaeological industry?

6- In which country do you currently work in the field of archaeology?

7- When conducting archaeological fieldwork, do you, or the organisation with which you are affiliated, follow a set of established archaeological guidelines?

8- Are you, or the organisation with which you are affiliated, required to report the findings of an archaeological investigation to a governing body?

9- Do you, or the organisation with which you are affiliated, conduct archaeological fieldwork on any of the following site types? You may select more than one category.
Urban sites
Rural sites
Pre-contact/Prehistoric sites
Post-contact/Historic sites
Cemetery sites
Underwater sites
Other (please specify)

Section 2: Archaeological excavation methods

10- Do the excavation methods you use vary according to the type of archaeological site you are working on?

11- Do you, or the organisation with which you are affiliated, have an excavation manual?

12- When excavating an archaeological site, do you follow the excavation methods outlined in your organisation's excavation manual, or do you excavate according to your own methodological preferences?

13- Please rate each of the following factors by the extent to which they influence your selection of an excavation method.

1= Most influence

5= Least influence

	Influence rating				
Factors	1	2	3	4	5
Literary Sources					
Previous archaeological training					
Requirements of the local governing body					
Research aims and objectives					
Field experience					
Communication with other archaeologists					
Site type					
The recording method that will be used					

14a- When excavating a negative feature, which of the following four methods would you choose to use?

The Stratigraphic Excavation method

The Demirant Excavation method

The Quadrant Excavation method

The Arbitrary Excavation method

14b- Please provide a summary of how the excavation method you selected is used during the excavation of a negative feature.

14c- Please explain the reason(s) why you chose this excavation method.

Section 3: <u>Archaeological recording techniques</u>

15- Do the recording techniques you use vary according to the type of archaeological site you are working on?

16- Do you, or the organisation with which you are affiliated, have an archaeological recording manual?

17- When recording an archaeological site or archaeological feature, do you follow the recording procedures outlined in your organisation's recording manual, or do you record according to your own methodological preferences?

18- Do you, or the organisation with which you are affiliated, use pro-formas when recording archaeological data?

19a- When recording the excavation of a negative feature, which of the following recording techniques would you choose to use? You may select more than one category.
Plans
Sections
Context sheets
Excavation unit forms
Unit level form
Photographs
Sketches
Journal
Other (please specify)

19b- Please explain the reason(s) why you chose these recording techniques.

Objective four was to create a controlled experiment through which differing archaeological excavation methods, recording systems, and the affect of archaeological experience can be directly compared, contrasted and measured. In order to achieve this objective and set up such an experiment the following steps were taken:

Excavation method and recording system selection

Having processed the data from the manual/guideline analysis it is evident that four distinct excavation methods are used in field archaeology to excavate negative features (Figure 3.2).

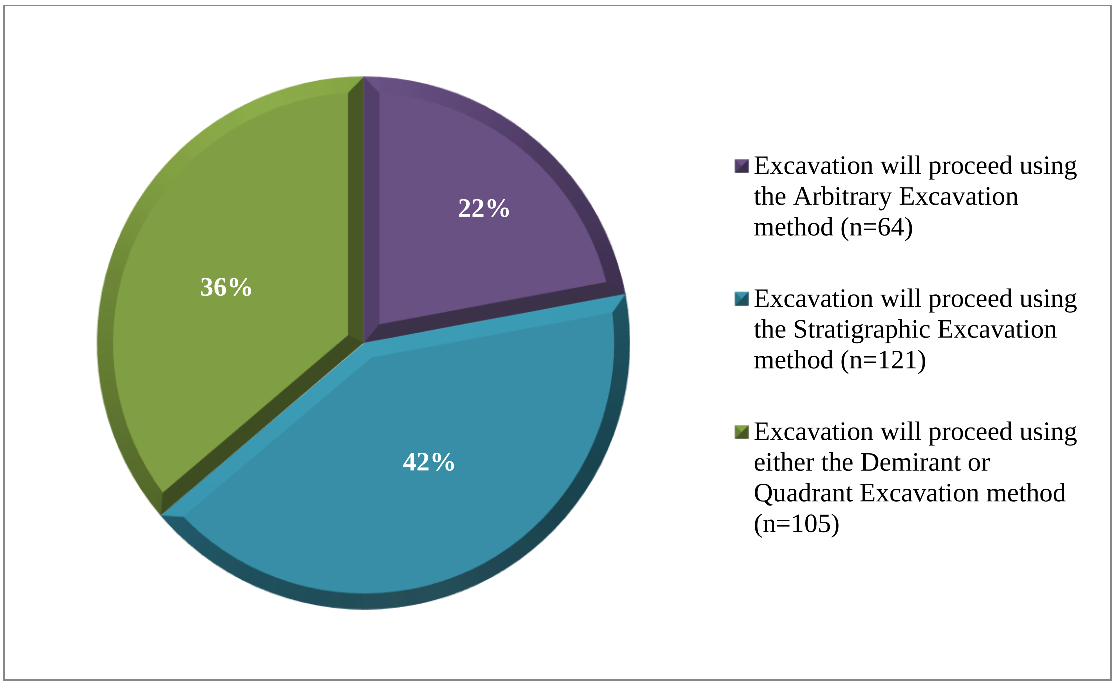


Figure 3.2: Illustrates the excavation methods that are currently being used in field archaeology to deal with negative features. Data source: Manual/guideline analysis spreadsheet (Appendix B).

These are – the Stratigraphic Excavation method, the Demirant Excavation method, the Quadrant Excavation method, and the Arbitrary Excavation method. Additionally, each of these excavation methods has a particular recording system associated with its use. These include – the Single Context Recording system, the Standard Context Recording system and the Unit Level Recording system. The application of these methods in terms of excavating and recording a negative feature, such as a grave, is understood as follows:

The Stratigraphic Excavation method and Single Context Recording system

The Stratigraphic Excavation method relies on the recognition that any single action, whether it results in the creation of a positive record, such as a deposit, or a negative record, such as a cut, is identified and recorded as an individual stratigraphic unit or context during the excavation process. This method relies on the understanding that within any stratigraphic sequence, a chronologically earlier context will be found to be sealed or cut by a chronologically later context, and that by excavating each of these individual stratigraphic units in their entirety, in the reverse order in which they were created, it is possible to accurately reconstruct the formation sequence of an archaeological site or an individual feature.

Whilst excavating using the Stratigraphic Excavation method, a recording system known as the Single Context Recording system is used. When using this system, the uppermost, chronologically latest context is defined, allocated a unique identifying number often referred to as a context number, and is then planned and excavated. This procedure is then repeated until all of the contexts contained within the archaeological site, or individual feature, have been removed. Both during and after an individual context's excavation the archaeologist proceeds to complete a pro-forma known as a context recording form. This sheet contains a variety of prompts which allow an archaeologist to provide a description of the context, discuss what the context contained, note down any sampling that was undertaken, write down what photographs were taken, and provide an interpretation of what they believe the context may be. This pro-forma also contains a space in which to record the context's stratigraphic relationship with those contexts that were identified and excavated before and after it. In order to establish this relationship, each of the individual context plans are laid over one another in chronological order. If a relationship is found to exist between contexts, it is recorded on the pro-forma by writing the current context's unique identifying number in the central box; those contexts that have been proven to stratigraphically precede the current context's formation are then written in the box below, and those that stratigraphically succeed the current context's formation are written in the box above.

The Demirant Excavation method and Standard Context Recording system

The Demirant Excavation method is also known as Half-sectioning. When using this methodology, the feature that is to be excavated is divided into two halves. The archaeologist then proceeds to excavate each half separately. Once the first half has been removed, the archaeologist inspects the exposed section of the remaining half of the feature. It is by examining and recording this section that the archaeologist is then able to identify and verify the presence of, and the stratigraphic relationships between, individual contexts contained within the feature. Such information is then used by the archaeologist to guide their excavation of the remaining half of the feature.

When using the Demirant Excavation method a recording system known as the Standard Context Recording system is used. When using this system, as each context is found, a pro-forma known as a context recording form is filled out. This form contains the same prompts as the context recording form used in the Single Context Recording system. However, unlike the Single Context Recording system, this system does not rely on overlaying plans of individual contexts to determine stratigraphic relationships. Instead, it relies on using the section that was exposed and recorded during the excavation process. Nevertheless, once such relationships are established, they are recorded on the pro-forma in the same way as described for the Single Context Recording system.

The Quadrant Excavation method and Standard Context Recording system

The Quadrant Excavation method involves dividing the feature to be excavated into four equal sectors. The archaeologist then proceeds to excavate each sector individually. Usually, when using this excavation method, the archaeologist leaves a staggered, cross-shaped baulk along the axes of the feature during the excavation process. This ensures that any artefactual or ecofactual material that may be present in the central area of the feature is recovered, and also enables the archaeologist to inspect and record sections along the entire length and width of the feature. As with the Demirant Excavation method, it is by examining and recording these sections that the archaeologist is then able to identify and verify the presence of, and the stratigraphic relationships between, individual contexts. Once these sections have been drawn, the archaeologist then removes the standing baulks in order to ensure that any artefactual and/or ecofactual material contained within the baulks is recovered.

The Quadrant Excavation method uses the same recording system as the Demirant Excavation method; this system is known as the Standard Context Recording system. However, unlike the Demirant Excavation method, sections from both the length and width of the feature are used to evaluate the stratigraphic relationships between individual contexts.

The Arbitrary Excavation method and Unit Level Recording system

The Arbitrary Excavation method is also known as Spit Excavation, Planum Excavation or Metrical Excavation. The first step of this method is to define the boundaries of the feature that is to be excavated. Once this has been completed an area, usually 30cm beyond the boundaries of the feature, is demarcated to form an excavation unit. After the excavation unit has been established, soil is removed from within the boundaries of the excavation unit in a succession of pre-determined spits, usually ranging from between 5cm and 10cm in depth. If artefacts are located whilst excavating an individual spit they are left upon a soil pedestal until the excavation of the spit has been completed and their horizontal and vertical locations have been recorded, after which the artefacts and pedestals are removed. This process continues until the feature contained within the excavation unit has been completely excavated.

Whilst using the Arbitrary Excavation method, a recording system known as the Unit Level Recording system is used. This recording system relies on the use of a pro-forma, known as the unit level record. This pro-forma is filled out once an individual spit has been excavated. It contains a series of prompts which require the archaeologist to describe and discuss the presence of any features, deposits, fills, artefacts, or disturbances within the excavation unit. It also contains a planning grid in which the archaeologist should draw a plan of the excavation unit, in which any features, artefacts, fills, or deposits that are discernable are drawn and annotated. The pro-forma also has a space in which to record the surface and ending elevations of the individual spit, a column in which to list the type and number of samples taken, and tables in which to record the artefactual/ecofactual material that has been recovered and the number and type of photographs taken.

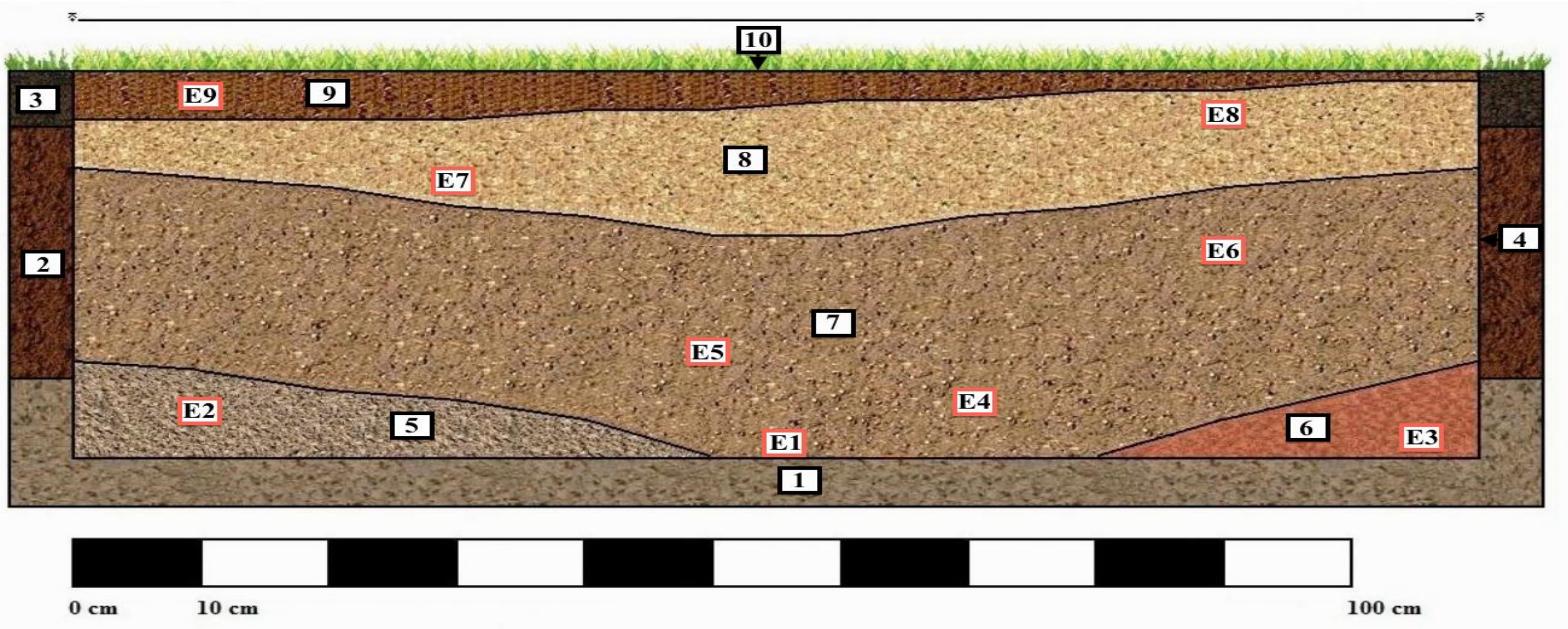
As the four aforementioned excavation methods and their associated recording systems are the most commonly used approaches identified during the manual/guideline analysis for excavating negative features, they are the techniques that were tested during the experimental phase of the Project.

Experimental design

In terms of experimental design, the most effective method by which an experiment could be created that would allow for a direct comparison of different excavation methods and recording systems was through creating an archaeological site simulation. This approach is one that has been used in several experimental archaeology projects. For example Riley and Freimuth (1979), Fowler (1980), Nash and Petraglia (1987), and Crabtree (1990) used an archaeological site simulation to study site formation processes. Davenport *et al*., (1988), France *et al*., (1992), and Isaacson *et al*., (1999) used an archaeological site simulation to test geophysical equipment, and Chilcott and Deetz (1964) used an archaeological site simulation to evaluate excavation methods and excavator proficiency.

In the case of this experiment, as it ultimately aimed to determine which excavation method and recording technique best meets the needs of forensic archaeology, the experiment used a grave simulation. By using a simulation such as this it enabled evidence such as artefacts, geotaphonomic features, stratigraphic contexts (deposits, fills, cuts, interfaces) and stratigraphic relationships to be created and placed into a stratigraphic sequence at measured points with known and defined properties. In order to ensure that the grave simulation was able to be replicated easily, and to better control the experimental process the grave simulation was simple in design.

The design of the grave simulation is shown in Figure 3.3, Figure 3.4, Figure 3.5 and Figure 3.6.

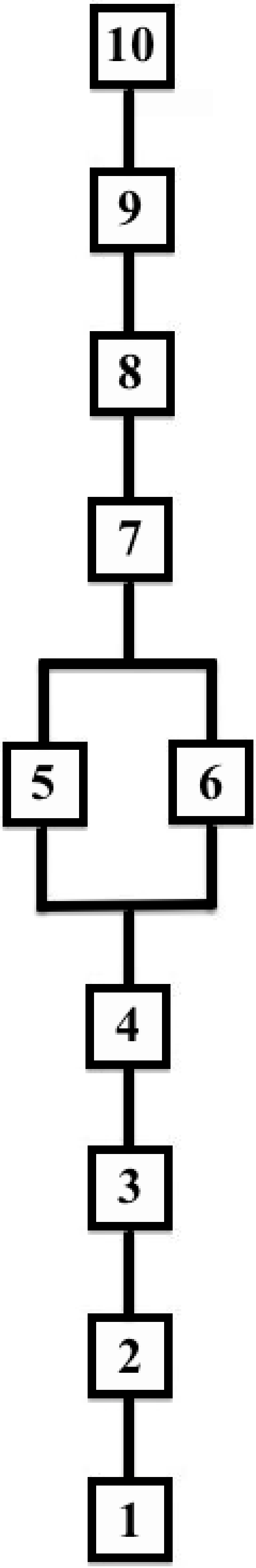


Context number	Description
1	Natural
2	Subsoil
3	Topsoil and turf
4	Feature cut
5	Fill 1
6	Fill 2
7	Fill 3
8	Fill 4
9	Fill 5
10	Replaced turf

Evidence number	Description	Location (length, width, depth)
E1	Dress	55cm, 20cm, 0cm
E2	Two pence coin	10cm, 35cm, 25cm
E3	Lighter	105cm, 2cm, 28cm
E4	Fake nail	70cm, 10cm, 25cm
E5	ID card	50cm, 20cm, 20cm
E6	Earring 2	90cm, 20cm, 15cm
E7	Curby grip	30cm, 15cm, 10cm
E8	Earring 1	90cm, 35cm, 5cm
E9	Cigarette papers	10cm, 10cm, 4cm

Figure 3.3: Illustrates the design of the grave simulation.

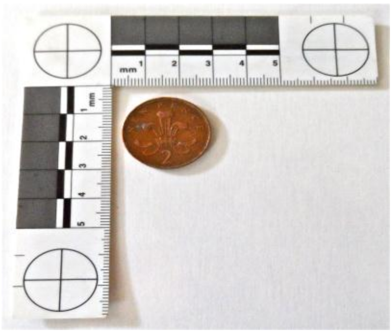
Figure 3.4: The Harris Matrix of the grave simulation.



Context number	Description
1	Natural
2	Subsoil
3	Topsoil and turf
4	Feature cut
5	Fill 1
6	Fill 2
7	Fill 3
8	Fill 4
9	Fill 5
10	Replaced turf

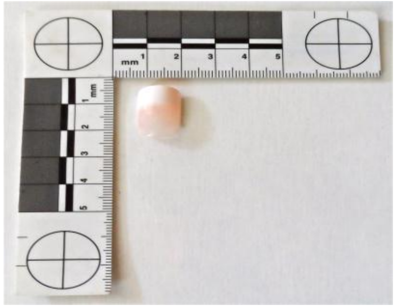
Figure 3.5: Illustrates material evidence items E1-E9.

E1 Dress

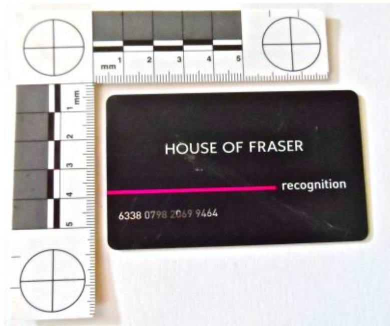


E2 Two pence coin

E3 Lighter

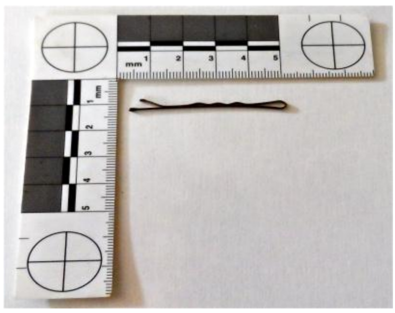


E4 Fake nail

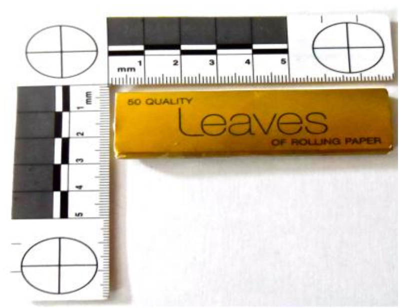


E5 ID card

E6 and E8 Earrings



E7 Curby grip



E9 Cigarette papers

Figure 3.6: Illustrates the grave simulation construction process.

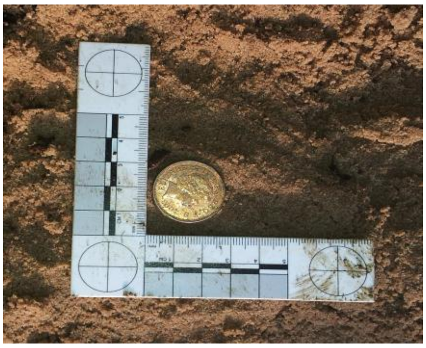
Stage 1 – The grave cut was excavated. The dimensions of the grave cut was 110cm long, 40cm wide, and 30cm deep.

Stage 2 – The dress (E1) was placed along the base of the feature at 55cm long, 20cm wide, and 0cm deep.

Stage 3 – Context 6/fill 2 started to be added to the grave and a lighter (E3) was added to context 6/fill 2 at 105cm long, 2cm wide, and 28cm deep.

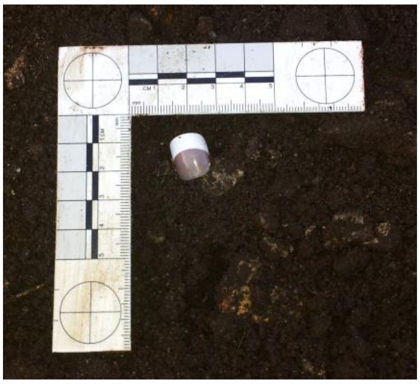
Stage 4 – The rest of context 6/fill 2 was added to the grave.

Stage 5 – Context 5/fill 1 started to be added to the grave and a two pence coin (E2) was added to context 5/fill1 at 10cm long, 35cm wide, and 25cm deep.



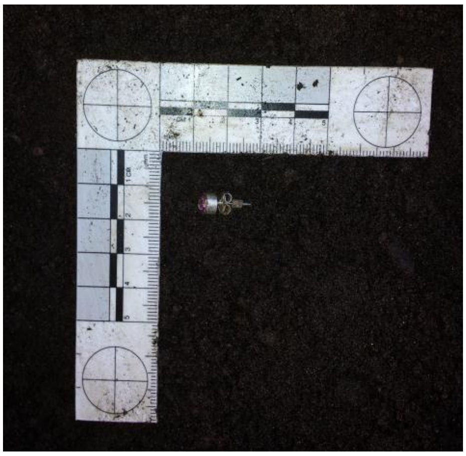
Stage 6 – The rest of context 5/fill 1 was added to the grave.

Stage 7 – Context 7/fill 3 started to be added to the grave and a finger nail (E4) was added to context 7/fill 3 at 70cm long, 10cm wide, and 25cm deep, an ID card (E5) was added to context 7/fill 3 at 50cm long, 20cm wide, and 20cm deep, and an earring (E6) was added to context 7/fill 3 at 90cm long, 20cm wide, and 15cm deep.



Stage 8 – The rest of context 7/fill 3 was added to the grave.

Stage 9 – Context 8/fill 4 started to be added to the grave and a curby grip (E7) was added to context 8/fill 4 at 30cm long, 15cm wide, and 10cm deep, and an earring (E8) was added to context 8/fill 4 at 90cm long, 35cm wide, and 5cm deep.



Stage 10 – The rest of context 8/fill 4 was added to the grave.

Stage 11 – Context 9/fill 5 started to be added to the grave and a packet of cigarette papers (E9) was added to context 9/fill 5 at 10cm long, 10cm wide, and 4cm deep.

Stage 12 – The rest of context 9/fill 5 was added to the grave.

Stage 13 – The turf that had been removed when excavating the grave cut was placed back over the grave (context 10).

In terms of artefact selection, the dress (E1) located at the bottom of the grave replicated the placement of a body. Unfortunately, due to resource constraints, it was not possible to use a plastic skeleton from Bournemouth University's collection. Furthermore, as the experiment was repeated at various sites around the United Kingdom, it was not possible to transport a plastic skeleton to these locations (Appendix C). The other artefacts included in the grave (E2-E9) were chosen to represent items that a perpetrator might lose out of their pocket whilst creating a grave, or a victim may have on their person whilst being buried. All of these artefacts were selected to ensure that participating archaeologists would recognise them if they came across them during the excavation process, and are types of artefacts that, according to the literature, are often found by forensic archaeologists during the course of excavating a clandestine burial. In addition, by including artefacts of various sizes in the experiment it made it possible to determine if certain excavation approaches have a greater tendency to recover smaller artefacts than others. Another variable taken into consideration when selecting these artefacts was whether or not they would preserve during the short time period between the grave's creation and excavation, in variable soil conditions. By reviewing the results of existing experimental studies conducted by Janaway (1996: 58-81; 2002: 380-399) it was evident that these artefacts would preserve during the short time frame between the grave's creation and subsequent excavation.

The stratigraphic contexts contained within the grave were designed to overcome the weaknesses of previous grave simulation studies conducted by Pelling (2008) and Evis (2009). One of the weaknesses of Pelling's (2008) and Evis's (2009) studies was that the stratigraphic contexts included in their graves contained a number of fills that were flat bottomed and topped, and were either 5cm or 10cm in depth. Although such fills are easy to replicate, they are unusual in archaeological contexts, and potentially favour an arbitrary form of excavation, providing an unfair advantage to this technique during experimental testing. Furthermore, one of the criticisms of Arbitrary Excavation is that it is unable to recover angled deposits/fills, as the method relies on the use of levelled spits, usually 5cm or 10cm in thickness, to remove the fills contained within the feature, thereby introducing artificial divisions of space and time (Harris 1979; 1989; 2002; 2006; Hanson 2004; Komar and Buikstra 2008). That, in turn, could result in the creation of a biased and potentially incomplete interpretation of the stratigraphic sequence, as the original physical dimensions of the deposits/fills are destroyed during the excavation process (Harris 1979; 1989; 2002; Hanson 2004). Therefore, this grave was designed to include multiple angled fills, enabling the candidate to evaluate whether or not the criticisms noted above had any foundation during experimental testing. The straight edged and flat bottomed design of the grave cut was chosen because it made replication of the grave easier and less time consuming, as attempting to accurately replicate a curved edged and bottomed grave could increase the potential for inaccuracies during repetitive experimental testing.

The soils chosen to represent the various fills contained within the grave were selected for three reasons. Firstly, the play sand (context 5/fill 1 and context 6/fill 2) and the sterilised topsoil (context 8/fill 4) could be purchased from a mainstream supplier - B&Q, which has retail outlets across the United Kingdom meaning that the candidate was able to purchase the same brand of soil products at each experimental location, ensuring that the soils contained within the feature were consistent. Secondly, context 7/fill 3 and context 9/fill 5 were constructed from the spoil created from the excavation of the grave. The justification for using the spoil to construct these contexts was that the archaeologists who participated in the experiment were familiar with excavating this type of soil as it was the soil that was present in the regions in which they conducted their archaeological fieldwork, and therefore, the archaeologists would be able to differentiate these fills from the others contained within the grave. Thirdly, by using the play sand to represent context 5/fill 1 and context 6/fill 2 and the spoil to represent context 7/fill 3 and context 9/fill 5 it was possible to detect whether or not an excavation technique was able to distinguish and define individual contexts, or whether the excavation technique resulted in these contexts being mistakenly joined, as context 5/fill1 and context 6/fill 2 were at the same depth in the grave but were not connected, and context 7/fill 3 and context 9/fill 5 were separated in their entirety by context 8/fill 4.

Another weakness of Evis’s (2009) experimental research was that the graves were too large. This resulted in archaeologists taking up to 31 hours to excavate an individual grave. Due to the fact that the majority of the participants in the experiment were commercial archaeologists, who were only able to participate in the experiment for a maximum of one day, it was decided to decrease the size of the overall grave from 120cm x 75cm x 85cm to 110cm x 40cm x 30cm. This reduced the length of time that it took for archaeologists to excavate the grave, and in turn, allowed for more experimental graves to be produced and excavated than in Pelling's (2008) and Evis's (2009) studies.

Participant selection

Participants were gained by inviting the various organisations that donated their archaeological manuals/guidelines to the Project to participate in the experiment. Each of the organisations were provided with an outline of the excavation methods and the recording systems that were going to be tested, and were asked if they could provide archaeologists that have had experience in using one or all of these techniques. Additionally, it was requested that any individual who volunteered to participate in the experiment did not suffer from colour blindness as this could have biased a participant's ability to distinguish and define contexts contained within the grave simulation.

This approach resulted in a grab sample of participants. Unfortunately, due to recent difficulties in the commercial archaeology sector, the candidate was unable to obtain as many participants as she would have liked. However, in total, fifty individuals participated in the Project. Forty of whom had archaeological training, and ten who acted as controls, who had never received any archaeological training and did not have any archaeological knowledge whatsoever, and were associates of the candidate. Each archaeologist was allowed to choose which methodological approach they wished to use, and were able to choose which tools they would like to use to excavate and record the grave. In regards to the controls, they too were allowed to choose which tools they wished to use and were given the freedom to excavate and record the grave using whatever approach they deemed fit. In total, ten different archaeologists tested each of the four excavation methods and recording systems, producing data against which each of the excavation methods and recording systems could be compared.

Due to the nature of the field of archaeology, the participating archaeologists had varying levels of experience. For this reason, this variable was taken into consideration during the experiment, to determine whether or not it affected the quality and quantity of evidence recovered, and the consistency of interpretation(s) regarding the site's formation process. In order to collect data regarding the experience level that the participating archaeologists held, the candidate interviewed the participants before the experiment began, and asked questions relating to their archaeological experience (the length of time that they had worked as an archaeologists).

The final objective of the Project was to examine the affect that factors such as archaeological excavation method, archaeological recording system, and experience have on archaeological investigations including, the quality and quantity of evidence recovered and the consistency of interpretation(s) regarding the site's formation process. The data that has allowed for this objective to be completed was collected during the experimental phase of the Project and has been used to determine:

- Which excavation method was the most productive and consistent in terms of evidential recovery (evidence includes: artefacts, geotaphonomic features and stratigraphic contexts – deposits/fills/interfaces/stratigraphic relationships).

- Which recording system provided the most consistent and informative record of the evidence and depositional sequence present in the grave simulation.

- Which excavation and recording method provided the most consistent interpretation-based narrative of the simulated grave's formation process.

To assist with the assessment of which excavation and recording technique provides the most consistent interpretation-based narrative of the simulated grave's formation process. The candidate went into the field, prior to the experimental phase of the Project, and created the grave simulation. During this process, she recorded the procedure using a digital camera (Figure 3.6) and video camera, and narrated the exact steps taken to create the grave. These steps are summarised in Table 3.1.

Stages of Formation	Description
Stage 1	The feature was cut (C4) through the top soil and turf (C3), subsoil (C2) and natural (C1)
Stage 2	The dress (E1) was placed along the base of the cut feature (C4)
Stage 3	Fill 1 (C5) started to be added to the feature overlaying the dress (E1)
Stage 4	A two pence coin (E2) was added to fill 1 (C5) at 10cmL, 35cmW, 25cmD
Stage 5	The rest of fill 1 (C5) was added to the feature, covering the two pence coin (E2)
Stage 6	Fill 2 (C6) started to be added to the feature
Stage 7	A lighter (E3) was added to fill 2 (C6) at 105cmL, 2cmW, 28cmD
Stage 8	The rest of fill 2 (C6) was added to the feature, covering the lighter (E3)
Stage 9	Fill 3 (C7) started to be added to the feature overlaying fill 1 (C5) and fill 2 (C6)
Stage 10	A fake nail (E4) was added to fill 3 (C7) at 70cmL, 10cmW, 25cmD
Stage 11	More of fill 3 (C7) was added into the feature, covering the fake nail (E4)
Stage 12	An ID card (E5) was added to fill 3 (C7) at 50cmL, 20cmW, 20cmD
Stage 13	More of fill 3 (C7 was added to the feature, covering the ID card (E5)
Stage 14	Earring 2 (E6) was added to fill 3 (C7) at 90cmL, 20cmW, 15cmD
Stage 15	The rest of fill 3 (C7) was added to the feature, covering earring 2 (E6)
Stage 16	Fill 4 (C8) started to be added to the feature overlaying fill 3 (C7)
Stage 17	A curby grip (E7) was added to fill 4 (C8) at 30cmL, 15cmW, 10cmD
Stage 18	More of fill 4 (C8) was added to the feature, covering the curby grip (E7)
Stage 19	Earring 1 (E8) was added to fill 4 (C8) at 90cmL, 35cmW, 5cmD
Stage 20	The rest of fill 4 (C8) was added to the feature, covering earring 1 (E8)
Stage 21	Fill 5 (C9) started to be added to feature overlaying fill 4 (C8)
Stage 22	Cigarette papers (E9) was added to fill 5 (C9) at 10cmL, 10cmW, 4cmD
Stage 23	The rest of fill 5 (C9) was added to the feature, covering the cigarette papers (E9)
Stage 24	The turf (C10) that had been removed during stage 1 was placed back over the feature, overlaying fill 5 (C9)

Table 3.1: Illustrates the various stages in the simulated grave's formation process.

This digital narrative along with the steps outlined in Table 3.1 was then compared to the narratives produced by each of the participating archaeologists to evaluate which excavation and recording technique provided the most consistent and accurate interpretation of the simulated grave's formation process.

3.1 Research ethics

Researcher responsibility

- This Project adheres to the policies and procedures outlined in Bournemouth University's Code of Practice (2009).

- The candidate has read and fully understood Bournemouth University's Research Ethics Codes of Practice (RECP) (2009).

- The 'Initial Research Ethics Checklist' was completed in accordance with the RECP (2009). It was reviewed and approved by Elizabeth Craig (Appendix D).

- The candidate is a member of the Institute for Archaeologists (IfA), the British Association for Human Identification (BAHID) and the British Association for Biological Anthropology and Osteoarchaeology (BABAO). As a member of these organisations the candidate is required to adhere to their ethical codes of practice and maintain an awareness of ethical issues within the disciplines of archaeology, forensic archaeology, anthropology, and forensic anthropology. By adherence to the codes of practice of these organisations the candidate is, and has been, kept aware of any ethical issues within the industry, and is required to conduct research with integrity and due consideration to the participants and the outcomes that such a Project might entail.

Researcher integrity

- The candidate has read and fully understood Bournemouth University's code of practice on misconduct in academic research.

- In order to abide by the requirement for the candidate and supervisors to have sufficient knowledge and experience to undertake the Project, the candidate has obtained a BA (Hons) in Archaeology and Ancient History (2:1), an MSc in Forensic Archaeology: Crime Scene and International Investigations (Distinction), a PGDip in Biological and Forensic Anthropology (Distinction), and has worked in the field as an archaeologist and a university demonstrator in forensic archaeology and biological and forensic anthropology at Bournemouth University.

This background has enabled the candidate to gain sufficient experience in the fields of archaeology, forensic archaeology and anthropology to fully comprehend the nature of this Project, and to conduct research in accordance with the requirements outlined by Bournemouth University. Moreover, the Project represents an extension of the candidate's MSc dissertation (Evis 2009) in which the candidate compared varying excavation techniques. The candidate therefore has experience in dealing with this particular type of Project.

In regards to the Project's supervisors, each has extensive experience in field archaeology and/or forensic archaeology. Each supervisor has produced papers and/or books on topics relating to excavation methodology and recording systems and as a consequence have provided a support structure founded on years of research and experience.

- Any limitations of the research, particularly those which may affect the utilisation of the research to users in the field, are clearly stated within this thesis and will be discussed in any associated published material.

Non-permitted sources of funding

- As this Project was self-funded it has not conflicted with Bournemouth University's funding guidelines.

Participant consent

- Prior to participating in the experiment all volunteers were asked to agree to sign a consent form and a manual handling guidelines form (Appendix E; Appendix F). These forms ensured that all participants acknowledged that they understood what was involved in the experiment, and had received a health and safety briefing, in accordance with the recommendations of the RECP (2009).

- In accordance with the RECP (2009), participants in the Project were gained on a voluntary basis. In line with the recommended approach of the RECP (2009) volunteers were recruited through public notice. Such notices included information regarding the purpose of the research and details of what would be expected of participants within the Project. Offers were made to pay participants for their travelling expenses; such financial incentives are in line with the RECP (2009).

Informed consent

- Prior to participation in the experiment all volunteers were given an information sheet which outlined the purpose of the research, potential hazards, the need for participants to have obtained a tetanus vaccination, any potential discomfort that the research might entail, their rights under the Data Protection Act (1998), the candidate's contact details, their right to withdraw from the experiment at any point, and the complaints procedure (Appendix G).

- During the initial data collection phase any individuals/organisations that were contacted in order to provide opinions/data were informed of the use to which the information gathered was to be put. This form of data collection classifies as a survey and thus responses from such enquiries will be accepted as an expression of consent to participate in accordance with the RECP (2009). In adherence to Bournemouth University's Code of Practice, all participants/organisations have been and will be duly acknowledged in the Project and any associated publications.
- Any forms signed by the participants during the course of the Project were retained and stored in the candidate's designated safe storage facility, in the School of Applied Sciences.

Data protection

- All data collected during the course of the Project complied with the stipulations laid out in the Data Protection Act (1998).

- Participants were informed that they had, and continue to have, the right to withdraw their permission for their personal data to be stored. In addition, they were informed that they have the right to access their personal data at any time they wish.

- Organisations that provided information regarding excavation/recording systems in the initial phase of data collection are classified as corporate/public companies and therefore do not require anonymity.

- In order to protect the identity of the individuals who participated in the experimental phase of the Project, the candidate ensured that personal data was coded. Furthermore, any personal data gathered throughout the course of the Project was stored in the candidate's designated safe storage facility, in the School of Applied Sciences, when paper based. Digital data was password protected.

- Participants/organisations who contributed data to the Project were informed that any numerical, statistical, interview, questionnaire, image, audio or visual data obtained during the course of the Project will be kept for a maximum of 5 years and will be destroyed after such time has elapsed, in accordance with the Data Protection Act (1998) and the RECP (2009).

- Upon the final submission of the thesis, the candidate will contact the School of Applied Sciences ethics representative in order to obtain the school's procedures for – data security, documentation rationalisation, wiping computer hard drives containing personal data, the archival process for IT software which contains any of the raw data used in the Project, and the system to destroy other electronic or hard copy data collected over the course of the Project.

3.2 Health and safety assessment

The candidate has completed the School of Applied Science's 'Risk Assessment Form' in accordance with the RECP (2009) (Appendix H).

As this Project required participants to conduct excavations there was a risk of physical injury through manual handling and exposure to the outdoors. In order to counter these risks appropriate health and safety guidelines were followed in accordance with Bournemouth University's health and safety policy. Such counter measures included: completing risk assessment forms before each experimental excavation, and conducting a health and safety briefing prior to participating in the experiment that covered factors such as: manual handling, checks for vaccinations (tetanus etc.) and other medical conditions that might have affected the participants. In addition, the candidate ensured that there were toilets, shelters, sun creams and first aid kits supplied throughout the experimental phase of the Project, to protect participants from exhaustion, exposure and adverse weather conditions. Such measures protected participants from any physical harm during the experimental phase of the Project. Moreover, each participant was asked to agree to sign an acknowledgement form to demonstrate that such conditions had been met and that they understood, and were happy with, the health and safety briefing provided (Appendix E). The candidate also informed participants that she was happy to answer any queries relating to such issues.

3.3 Intellectual property rights

- The candidate has read and fully understood Bournemouth University's Intellectual Property Policy (2006).

- The candidate has read and fully understood Bournemouth University's Intellectual Property Management Procedures (2006).