

Kildare Town By-pass:  
Archaeological Excavation of *fulacht fiadh*  
and associated pits,  
Site 15, Mayfield,  
Co. Kildare

FINAL REPORT  
02E0681

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## SUMMARY

This report comprises the final results of the archaeological excavation of Site 15, at Mayfield, as part of the archaeological programme for the Kildare Town Bypass. The excavation was undertaken by Ros Ó'Maoldúin under licence number 02E0681 for Valerie J Keeley Ltd. in June 2002. Site 15 comprised the remains of a possible *fulacht fiadh*. Features discovered during the excavation included a deposit of heat-shattered stones and charcoal-rich soil, a rectangular trough, a possible sunken structure, as well as three associated pits. Three additional nearby pits, showing evidence for *in situ* burning, were also excavated under this licence.



## 1.0 INTRODUCTION

This report details the final results of an archaeological excavation undertaken at Mayfield or Ballynagalligh townland, Co. Kildare. The excavation was part of the archaeological programme preceding the construction of the Kildare Town By-Pass, financed by the National Roads Authority through Kildare County Council. The site, subsequently referred to as Site 15, was discovered in April 2001 during archaeological monitoring of topsoil stripping along the line of the Kildare Town Bypass. Archaeological monitoring was conducted by Breandán O' Riordán for Valerie J. Keeley Ltd. under licence number 00E0467. The site had previously not been recorded in the Sites and Monuments Record. The site was subsequently excavated by Ros Ó'Maoldúin under licence number 02E0681 for Valerie J Keeley Ltd. in June 2002.

## 2.0 SITE LOCATION

Site 15 in Mayfield townland consisted of a relatively large area extending across the summit and western slope of a hill (Figs. 1, 2 & 3). The site was divided into four areas, which were labelled numerically in an east-west direction. Area 1 was located furthest east at NGR 265906E, 210957N. Area 2 was located at NGR 265812E, 210906N, Area 3 at NGR 265798E, 210913N and Area 4 at NGR 265681E, 210871N. Three pits showing evidence of *in situ* burning were located on the summit of the hill (Areas 1-3) and a spread of heat-shattered stones and charcoal-rich soil, deposited over several pits and a rectangular feature, was found near the base of the slope, close to a wetland area (Area 4).

## 3.0 ARCHAEOLOGICAL BACKGROUND

Site 15 is located in Mayfield or Ballynagalligh townland, midway between Kildare and Monasterevin town. Kildare town is reputed to have been established as a monastery and nunnery, sometime in the early 6<sup>th</sup> Century, by St Brigid. According to a seventh century writer Cogitosus, the town *Cill Dara* (the church of the oak), owes its name to a tree which stood near the early monastery. The Annals contain many other references to Kildare and record raids by Irish and Vikings alike. Although the fortunes and import of the ecclesiastical settlement may have wavered over the succeeding centuries, in the 12/13<sup>th</sup> century, it was considered sufficiently important to give its name to the County. In the succeeding centuries a stone castle and Cathedral were added to Kildare.

Monasterevin also owes its origins to the early Christian period and gets its name from Eimhin's Monastery also reputed to have been constructed sometime in the 6<sup>th</sup> century. This was replaced in the 12<sup>th</sup> century by dedication to the Virgin Mary and finally in the 1600's by Moore Abbey, which although much modernised forms the basis of the convent which remains there today.

Although no previously recorded archaeological sites lie within the townland, there is abundance within the surrounding landscape, both recorded within the Sites and Monuments Record and evident within the townland names. Ballynagalligh itself could be literally translated as “town of the witches” and no doubt refers to an event or events that occurred within the townland. Approximately 700 m southwest, in Monasterevin bog townland, an area overlooked by the site is the site of an undated enclosure (KD026-016). A Crannog (KD022-038) is located c. 1.5 km to the north east in the townland of Lackaghmore and two possible earthworks (KD021-014001&2) are located c. 1.2 km to the northeast in Hybla or Ballneage townland. A holy well (KD022-015) c. 1.5 km directly north, gives the townland Tobercocka its name and c. 1.4 km south a graveyard (KD027-022) is recorded in Oghil townland.

#### 4.0 THE EXCAVATION

##### Area 1 (Fig. 3 and 4)

The only archaeological feature situated in Area 1 was a single isolated pit, visible above ground as a patch of burnt soil (Plate 1). The feature had been severely disturbed by the tracks of a JCB before discovery. The fill of the pit consisted of only one discernible context, comprising compressed charcoal and clayey silt (context C005). It was evident from the fire-reddened, orange colour of the natural boulder clay (context C003) surrounding the pit, that burning had taken place *in situ* (Plate 2).

##### Area 2 (Fig. 3 and 5)

The only archaeological feature in Area 2 consisted of an isolated pit (context C021), truncated on its western side by a relatively modern agricultural furrow (Fig. 5). The pit was filled with dark brown, sandy clay (context C020), containing approximately 10% charcoal (Fig. 5, Section). There was evidence for *in-situ* burning. No finds or additional features were found in association with this pit.

##### Area 3 (Fig. 3 and 6)

Area 3 contained a single sub-rectangular pit (C015) with intensely fired clay evident around the upper edges (Plate 3). It measured c. 1.8 m by 0.8 m in plan and had a maximum depth of 0.17 m (Fig. 6). The pit contained two fills (Fig. 6). The upper or tertiary fill (C017) was friable, brown, sandy silt with a considerable amount of charcoal inclusions (10%) and c. 0.12 m deep. The lower or basal fill (C032) comprised a layer of charcoal, c. 0.02 m deep, along the base and sides of the pit. A circular area of fired clay (C108) was evident at the base of pit C015 (Plate 4). It extended over c. 0.32 m by 0.5 m and connected to the fired clay initially observed around the upper edges of the pit, via a narrow line of oxidised earth. The intense burning may have been caused by the use of a bellows to increase the temperature. No finds or additional features were found in association with the pit.

A bulk sample (S9) of C032 was sent for flotation and palaeobotanical analyses (Appendix 3). The sample predominantly contained charcoal but some seeds were retrieved. These were identified as *Chenopodiaceae* or Goosefoot, which is a modern weed and were probably airborne at the time of excavation. The charcoal (80 grammes) was subsequently sent for identification (Appendix 2) and returned a more interesting result. The vast majority (79 grammes) was identified as oak, the remainder as blackthorn (1 gramme). Given the proportion of oak it can be reasonably suggested that, whatever process the fire-pit was put involved the specific selection of oak, particularly good firewood. The sample was subsequently sent for C14 dating and returned a date calibrated to 770AD (@68.2%) or 690-950AD (@95.4%) placing the feature in the Early Medieval period.

#### Area 4 (Fig. 7-9)

The initial clean back of Area 4 exposed a number of pits and a burnt spread truncated by a modern drain (Fig. 7 & Plate 5). The cut for the modern drain (C028) was 2.4 m wide and 0.73 m deep, filled with mid-brown silty clay (C029) and traversed the entire site in a southwest to northeast direction. Two animal skeletons (C013 & C136) had been deposited in the original cut (C028) in recent times. One of the skeletons was a cat and the other a fox. Forensic examination of the fox revealed the cause of his/her demise. A lead pellet was still located in his/her cranium.

The burnt spread comprised burnt and heat-shattered sandstone, charcoal and silty clay. However, the ratio of its composite parts and the varying intensity of colour made it possible to distinguish three different contexts (C034, C052 & C075). To the extreme north, the spread (C034) contained a large amount of heat-exposed sandstone (c. 30%) and was of a noticeably darker hue, due to the considerable amount of charcoal present. To the southwest (C075), it was less charcoal-stained, mid-grey in colour and contained less burnt stone (c. 10-15%). Toward the centre of Area 4 the spread (C052) was dark grey and contained c. 20% fire exposed stone.

Several features became apparent after the removal of the burnt spread (C034, C052 & C075). These were filled with material similar to the overlying spread. Directly under deposit C052 at the centre of the burnt spread lay what appeared to be the impression of a shallow trough or small sunken floor structure (C116, Plate 6). The feature comprised a shallow, sub-rectangular cut, 2.6 m by 1.8 m in plan and c. 0.1m deep, a post-hole in each corner (contexts C094, C096, C098 & C092) and seven stakeholes (C111, C112, C117, C100, C102, C104 & C106) up around its edges (Fig. 8 & Plate 6). Surrounding this feature were three clay-lined pits (C076, C077 & C079: Fig. 8 & 9, Sect. 8, 10 & 13), and a square trough (C119, Plates 7 & 8). The first pit (C076) was 1.6 m by 2.2 m in plan and 0.48 m deep. The second pit (C079) was 1.5 m by 2 m in plan and 0.55 m deep. The third pit (C077) was considerably smaller and only 0.8 m by 1 m in plan, and 0.2m deep (Fig. 8). All three pits were filled

with varying proportions of burnt sandstone, charcoal and silty clay. Similarly, all three were lined with very light grey, fine, clayey marl containing charcoal inclusions.

The trough (C119) was almost perfectly rectangular (Plate 7 & 8), 1.6 m by 1.12 m in plan and had a very regular and flat base (Fig. 9, Sect. 19). A stake-hole was discovered in each corner and the impression of a plank could be seen running between the stake holes on the two longer sides of the trough. However, no evidence for planks could be seen along the two shorter sides. A considerable amount of re-deposited soil was observed on the edges of the trough behind the planks. The removal of these deposits caused the cut of the trough to appear irregularly oval in shape in the post-excavation plan of the site (Pl. 8).

No finds were recovered from the spread or underlying features. The only finds retrieved originated from the agricultural furrows and the drain (context C028), which are all of relatively recent date. These finds consisted of clay pipe fragments, animal bone and post-medieval pottery.

Four soil samples (S14, 16, 26 & 36) were selected for palaeobotanical analyses. These originated from two of the pits, a stakehole and the trough. All contained badly abraded charcoal but none produced plant macro fossils or any other such remains.

## 5.0 CONCLUSIONS

### Area 1 and 2

The archaeological features observed in Area 1 and Area 2 represents isolated pits. Their dating and original use is unclear. Both pits appear to have been exposed to burning, as indicated by the presence of fire-reddened clay and large amounts of charcoal and may have served as charcoal production pits. No finds were retrieved from either of these areas.

### Area 3

Area 3 did not produce any datable artefacts but the fill was comprehensively sampled and analysed. The ratio of unabraded oak charcoal in the basal fill suggests both that oak was specifically collected for this feature and that it was burnt *in-situ*. C14 dating has dated the pit to the Early Medieval period and it probably represents charcoal production.

#### Area 4

Area 4 contained the remains of a burnt mound and associated features, typically referred to as a *fulacht fiadh*. Burnt mounds or "*fulacht fiadh*" are the commonest type of monument surviving from Ireland's prehistory. In the eighties Ó'Drisceoil (1988) portrayed the existence of at least 4000 known examples and over recent years increased development has revealed and led to the excavation of many more. A quick search of the DoEHLG's new on-line database [www.archaeology.ie](http://www.archaeology.ie) reveals 26 known *fulachta* in County Kildare. Despite this abundance of evidence there are relatively few published excavation results. Probably the most comprehensive publication was compiled by Victor Buckley (1990). It included contributions on a number of Irish and European excavations, accompanied by a few surveys, a provision of dates and some experimental work. Although this work presented a much needed synthesis of some available evidence, it included no real discussion on their physical or social functions. More recently the Royal Irish Academy's (Gosling, P., Manning, C. and Waddell, J. 2007) archaeological contribution to the series on Clare Island has included a substantial amount of research, both survey and excavation on burnt mounds. While artefactual evidence and information relating to function was as rare as usual, the landscape element of the study allowed for spatial analyses of the mounds in relation to their presumed contemporary settlement patterns.

*Fulachta fiadh* are generally interpreted as cooking places but there have been alternative suggestions, such as bathing sites (Ó'Drisceoil, 1988), clothes drying sites and beer production sites. As with site 15, artefacts and ecofacts are notoriously rare at *fulacht fiadh* sites, offering little support for any theory.

The trough (C119) and pits are typical of many *fulachta* excavated across the country. The trough was clearly lined with regularly placed planks forced against its wall by means of 4 stakes placed in the corners. The surrounding pits were almost certainly dug to reach or hold a supply of water. Whatever final actual function, the stone was heated and added to water in the trough. Perhaps the most interesting feature about site 5 is the shallow square feature; although quite small in plan it may represent some form of sunken floored structure. It appeared too shallow and the postholes would seem excessive to serve as a trough. Perhaps this *fulacht* does offer the constitute elements for a sweat lodge.

As with many linear developments the motorway has offered only a slice through the local archaeological landscape and it is difficult to know where any nearby contemporaneous settlement might have existed. *Fulachta* are generally found alone but this may have more to do with the nature of development and the ease of their discovery in comparison to other site types.

## 6.0 Bibliography

ORDNANCE SURVEY. *Discovery map series 1:50,000*. County Kildare Sheet 55

DoEHLG. *Recorded Monuments & Places*, Co Kildare.

Buckely V. (1990). *Burnt Offerings*, International contributions to  
Burnt Mound Archaeology.

Manning C, Gosling P and Waddell J ed. (2007) *New Survey of Clare Island Volume 4:  
The Abbey*

O'Drisceoil D.A. (1988). *Burnt Mounds*; Cooking or Bathing. *Antiquity*  
vol. 62 p671-80.

Sharpe R (1982) *Vitae S. Brigitae: The Oldest Texts*. Peritia, i.



APPENDIX 1

Context Register

## APPENDIX 1: List of Contexts

Context Number	Area	Description
1	All	Topsoil: Mid-brown, silty clay
2	All	Part of topsoil
3	All	Natural subsoil: Mixture of yellow boulder-clay and lighter, almost white-coloured sand.
4	1	Cut of disturbed pit with burning <i>in-situ</i> .
5	1	Fill of C004. Brown, clayey silt with 30% charcoal.
6	4	Fill of furrow C007. Mid-brown, silty clay.
7	4	Cut of furrow. Relatively modern agricultural feature.
8	4	Fill of furrow C009. Mid-brown, silty clay.
9	4	Cut of furrow. Relatively modern agricultural feature.
10	4	Fill of furrow C011. Mid- to dark brown, silty clay.
11	4	Cut of furrow. Relatively modern agricultural feature.
12	4	Fill of modern cut C028. Dark brown, silty clay.
13	N/A	Non-archaeological.
14	N/A	Non-archaeological.
15	3	Cut of sub rectangular pit. 1.80m by 0.80m.
16	3	Fire-reddened natural clay observed around the edges of pit C015.
17	3	Upper fill of pit C015. Mid-brown, friable, sandy silt with charcoal inclusions.
18	3	Non-archaeological.
19	3	Non-archaeological.
20	2	Fill of pit C021. Dark brown to black, sandy clay containing charcoal.
21	2	Badly disturbed pit. Machine tracks on surface. Cut by later agricultural furrow C027. Approximately 1.12m by 1.05m in size.
23	4	Non-archaeological.
24	2	Fill of pit C021. Mid-brown, sandy clay.
25	2	Part of pit C021.
26	2	Fill of pit C021. Yellow-brown, sandy clay.
27	2	Cut of plough furrow truncating pit C021.
28	4	Cut of modern stone drain C029.
29	4	Stone/French drain.
30	4	Part of C028
31	4	Part of C028

Context Number	Area	Description
32	3	Lower fill of pit C015. Layer of charcoal, c. 2cm in depth.
33	3	Part of C032.
34	4	Upper fill of pit C079. Black, clayey sand containing some charcoal and fired stone.
35	4	Disturbed C034, from the construction of the drain C028.
36	4	Deposit of sandy grey soil with charcoal inclusions. Disturbance associated with the construction of the modern drain C028.
37	3	Cut featuring large amount root activity truncating pit C015.
38	3	Fill of root activity C037 Friable mid brown silty clay
39	3	Redeposited burnt natural clay between the main fills in pit C015.
40	4	Disturbed C034, from the construction of the drain C028.
41	4	Disturbed C034, from the construction of the drain C028.
42	4	Small irregularly shaped cut filled by C043, material from the burnt spread. Dimensions: 1m by 0.64m, depth 0.22m.
43	4	Fill of pit C042. Black sandy clay with frequent charcoal flecks and some burnt stone.
44	4	Modern cut within C028.
45	4	Fill of cut C044. Greyish-yellow sand.
46	4	Fill of small stone drain. Modern.
48	4	Cut of small pit filled with burnt material. 0.8m by 0.7m, depth 0.2m.
49	4	Fill of pit C048. Friable, dark brown to black, silty clay containing charcoal and burnt stone.
50	4	Part of furrow cut C007.
51	4	Part of furrow fill C006.
52	4	Part of the central spread of burnt stone. Charcoal-rich silty clay mixed with fire-exposed sandstone, fill of C116.
53	4	Cut of small pit. Dimensions: 0.3m by 0.2m, depth 0.15m.
54	4	Fill of pit C053. Firm, mid-brown to black, silty clay.
55	4	Cut of post hole. Dimensions: 0.19m by 0.15m, depth 0.15m.
56	4	Fill of posthole C055. Friable, greyish-brown, sandy clay.
57	4	Cut of possible stakehole. Dimensions: 0.09m by 0.05m, depth 0.04m.
58	4	Fill of possible stakehole C057. Friable, mid-brown, sandy clay.
59	4	Cut of agricultural furrow. Modern.
60	4	Fill of furrow C059. Mid-brown, silty clay.
61	4	Cut of stakehole. Dimensions: 0.16m by 0.07m, depth 0.05m.

Context Number	Area	Description
62	4	Fill of stakehole C061. Dark grey, silty clay.
63	4	Cut of stakehole. Dimensions: 0.15m by 0.10m, depth 0.06m.
64	4	Fill of stakehole C063. Friable, dark brown, silty sand.
65	4	Non-archaeological.
66	4	Non-archaeological.
67	4	Part of C131. Same as C114. Basal fill of rectangular trough C119.
68	4	Fill of C121, plank impressions on base of trough C119
69	4	Part of C119.
70	4	Non-archaeological.
71	4	Non-archaeological.
72	4	Cut of modern disturbance associated with the field drain.
73	4	Upper fill of pit C077. Friable, black, clayey silt with frequent burnt stone inclusions.
74	4	Upper fill of pit C076. Loose, mid-grey, sandy silt with frequent fragments of charcoal and burnt stone.
75	4	Lower fill of pit C076. Loose, dark grey, clayey silt with moderate amount of burnt stone.
76	4	Cut of large pit. Dimensions: 1.5m by 2m, depth 0.48m.
77	4	Cut of pit. Dimensions: 0.8m by 1m, depth 0.20m.
78	4	Fill of pit C79. Dark grey, silty clay with sand inclusions, occasional charcoal flecks.
79	4	Cut of pit. Dimensions: 1.6m by 2m, depth 0.55m.
80	4	Basal fill of pit C079. Redeposited natural subsoil, with occasional charcoal flecks throughout.
81	4	Cut of stakehole within pit C053, at the northeast end of the feature. With a tapered point, 0.15m by 0.20m, depth 0.16m.
82	4	Fill of stakehole C081. Firm, greyish-black, silty clay.
83	4	Cut of stakehole within pit C053, at the northwest end of the feature. With a tapered point, 0.10m by 0.15m, depth 0.13m.
84	4	Fill of stakehole C083. Firm, greyish-black, silty clay.
85	4	Cut of stakehole within pit C053, at the south-eastern end of the feature. With a tapered point, 0.10m by 0.15m, depth 0.11m.
86	4	Fill of stakehole 085.m. Firm, greyish-black, silty clay.
87	4	Lower deposit of pit C077. Light grey, marl clay.
88	4	Cut of stakehole. Dimension 0.07m by 0.075m, depth 0.20m.
89	4	Fill of stakehole C088. Firm, dark grey to black, silty clay.

Context Number	Area	Description
90	4	Material disturbed during construction of the modern drain C028. Mix of natural subsoil C003 and the burnt material C034.
91	4	Material disturbed during construction of the modern drain C028. Mix of natural subsoil C003, and the burnt spread C034.
92	4	Cut of stakehole within potential sunken structure C116. Diameter 0.21m, depth 0.20m.
93	4	Fill of stakehole C092. Friable, blackish-brown, sandy clay.
94	4	Cut of stakehole within potential sunken structure C116. Diameter 0.22m, depth 0.1m.
95	4	Fill of stakehole C094. Friable, blackish-brown, sandy clay.
96	4	Cut of stake-hole within potential sunken structure C116. Dimensions 0.27m by 0.17m, depth 0.13m.
97	4	Fill of stake-hole C097. Friable, blackish-brown, sandy clay.
98	4	Cut of stakehole within potential sunken structure C116. Diameter 0.18m, depth 0.1m.
99	4	Fill of stakehole C098. Friable, blackish-brown, sandy clay.
100	4	Cut of stakehole on edge/slope of cut C116. Diameter 0.1m, depth 0.1m.
101	4	Fill of stakehole C100. Friable, dark brown, fine, sandy clay.
102	4	Cut of stakehole on edge/slope of cut of potential sunken structure C116. Diameter 0.11m, depth 0.09m.
103	4	Fill of stakehole C100. Friable, dark brown, fine, sandy clay.
104	4	Cut of stakehole on edge/slope of cut C116. 0.1m by 0.06m, depth 0.09m.
105	4	Fill of stakehole C104. Friable, dark brown, fine, sandy clay.
106	4	Cut of stakehole on edge/slope of potential sunken structure, cut C116. Diameter 0.08m, depth 0.09m.
107	4	Fill of stake-hole C106. Firm, blackish-grey, fine, silty clay.
108	3	Circular impression of burnt natural subsoil at the base of sub-rectangular pit C015 connects to C016 (possibly the impression left by the use of a bellows).
109	4	Same as C117.
110	4	Same as C118.
111	4	Cut of stakehole on edge/slope of potential sunken structure C116. Dimensions 0.11m by 0.14m, depth 0.24m.
112	4	Cut of stakehole on edge/slope of potential sunken structure C116. Dimensions 0.6m by 0.8m, depth 0.12m.
113	4	Fill of stakehole C112. Firm, blackish-grey, fine, silty clay.

Context Number	Area	Description
114	4	Basal fill of rectangular trough C119. Moderately compacted, dark brown, silty clay, mixed with 40% burnt stone.
115	4	Cut of furrow. Truncates C116 and C111.
116	4	Cut of sub-rectangular sunken floored structure. Dimensions: 2.6m by 1.8m, depth 0.1-0.15m.
117	4	Cut of stakehole on edge/slope of cut C116. Dimensions: 0.6m by 0.08m, depth 0.12m.
118	4	Fill of stakehole 117. Moderately compacted, dark brown, sandy clay.
119	4	Cut of rectangular trough. Dimensions 1.6m by 1.12m, depth 0.17-0.27m.
120	4	Upper fill of trough C119. Moderately compacted, dark brown silt with 5% burnt stone.
121	4	Feature consisting of plank impressions running between the stakeholes at the bottom of the trough C119.
122	4	Fill of the plank impressions C121. Dark grey, sandy silt with frequent charcoal flecks.
123	4	Cut of stakehole in corner of C119. Dimensions 0.11m by 0.095m, depth 0.27m.
124	4	Fill of stake-hole (C123). Light grey sand with moderate amount of charcoal flecks.
125	4	Cut of stakehole in corner of trough C119. Dimensions 0.14m by 0.18m, depth 0.06m.
126	4	Fill of stake-hole C125. Light grey sand with moderate amount of charcoal flecks.
127	4	Cut of stakehole in corner of trough C119. Dimensions 0.1m by 0.08m, depth 0.09m.
128	4	Fill of stakehole C127. Light grey sand with moderate amount of charcoal flecks.
129	4	Cut of stakehole in corner of trough C119. Dimensions: 0.13m by 0.11m, depth 0.13m.
130	4	Fill of stakehole C129. Light grey sand with moderate amount of charcoal flecks.
131	4	Same as C114.
132	4	Fill of modern cut C133 within modern drain cut C046.
133	4	Modern cut within modern drain cut C046
134	4	Cut of furrow
135	4	Fill of modern furrow (C134)
136	4	Modern cut. Skeleton of a cat was found within.

APPENDIX 2

Charcoal Identification

**SPECIES IDENTIFICATION  
OF A CHARCOAL SAMPLE FROM  
Mayfield, Co. Kildare**

**02E0681**

*ELLEN OCARROLL  
July 2004*



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Radiocarbon dating

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## 1. Introduction

One charcoal sample was submitted for analysis. This sample was collected during the excavation of a ploughed out burnt mound and a series of pits located upslope from the *fulacht fiadh*. The excavations were undertaken as part of an archaeological programme preceding the construction of the Kildare town by-pass. The sample (**Sample # 9, Context 32**) originates from a pit which had severe oxidisation on the upper edges of the cut and the base which may represent some form of bellows. This pit was sub-rectangular in plan and measured 1.8m in length, 0.8m in width and had a maximum depth of 0.17m. The charcoal was sampled from the lower layer or fill and comprised a layer of charcoal containing some grey silt.

The charcoal was sent for species identification prior to <sup>14</sup>C dating, and also to obtain an indication of the range of tree species growing in the area at the time. Charcoal analysis may also provide information on the utilization of certain species for various functions. Wood used for fuel at prehistoric sites would generally have been sourced at locations close to the site. Therefore, charcoal identifications may, but do not necessarily, reflect the composition of the local woodlands.

## 2. Methods

The process for identifying wood, whether it is charred, dried, or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990). The identification of charcoal material involves breaking the charcoal piece so that a clean section of the wood can be obtained. This charcoal is then identified to species under an Olympus SZ3060 zoom stereomicroscope. By close examination of the microanatomical features of the samples, the species is determined.

The diagnostic features used for the identification of charcoal are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement, and also the type of perforation plates.

### 3. Results

Table 1 Results from charcoal identifications

Context No. & Feature Type	Sample No.	Species	Weight and Comment
C32, fill of pit	S9	<i>Quercus</i> sp. (oak) and <i>Prunus spinosa</i> (blackthorn)	80 grammes in total. Oak (79g), Blackthorn (1g)

Table 2: Species represented in the identified samples

Botanical name	Species
<i>Quercus</i> sp.	Oak
<i>Prunus spinosa</i>	Blackthorn

### 4. Discussion

The identifications yielded two wood species (Table 1). Oak was by far the most represented species in the assemblage with a tiny amount of blackthorn also identified.

Oak was identified in large quantities from the possible smelting pit (C32) and its presence indicates it was available in the surrounding environment. Oak makes good firewood when dried and was used as fuel in iron smelting processes in the recent past. It would have been suitable material for use in the metal working kiln and was probably selected because of such qualities. Throughout all periods of prehistory and history oak has been used for structural timbers. Oak also has unique properties of great durability and strength which makes it a suitable species for such structural requirements.

Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native and common to Ireland. The wood of these species cannot be differentiated based on its microstructure. Pedunculate oak is found on heavy clays and loams particularly where the soil is of alkaline pH. Sessile oak is found on acid soils often in pure stands and although it thrives on well drained soils it is also tolerant of flooding (Beckett 1979, 40-41). Both species of oak grow to be very large trees (30-40m) and can live to an age of 400 years. The oak may have grown in mixed woodlands nearby to the site.

A small amount of blackthorn was also identified from the pit. It is a very durable wood and is as strong as oak. Blackthorn (*Prunus spinosa*) is a thorny shrub found in

woods and scrubs on all soil types. In a woodland situation it is more likely to occur in clearings and at the woodland edges.

**5. Conclusions**

The oak was probably selected specifically for use in the possible smelting pits as it makes good firewood when dried, and was used in iron smelting processed in the last centuries.

The oak points to the presence of woodlands and indicates that open conditions did not prevail throughout the Mayfield area. The blackthorn identified would have grown in dry conditions or possibly as scrub in hedgerows near to the site.

**6. Radiocarbon dating**

A minimum of 5 grammes of charcoal is needed for a 14C date but 25 grammes is the preferred amount. As oak is a long-lived species it is preferable to send other short living species for radiocarbon dating, when available. The blackthorn is suitable for carbon dating.

## 7. References

Beckett, J.K. 1979 *Planting Native Trees and Shrubs*. Jarrold & Sons Ltd, Norwich.

Nelson E.C. 1993 *Trees of Ireland*. The Lilliput Press, Dublin.

Warner, R.B., 1987 A proposed adjustment for the « Old-Wood Effect ». In Mook, W. & Waterbolk, H. (Eds) *Proc. 2nd Symposium of <sup>14</sup>C & Archaeology*. Groningen 1987, 29, 159-172.

Webb, D.A.1977 *An Irish Flora*. Dundalgan Press Ltd, Dundalk.

Schweingruber, F.H. 1990. *Microscopic Wood Anatomy*. 3rd Edition. Birmensdorf: Swiss Federal Institute for Forest, Snow and Landscape Research.



**APPENDIX 3**

**Plant Remains Analysis**

**Analysis of Plant Remains  
Mayfield Excavations  
Co. Kildare**

Licence Nos. 02E0681

By  
Penny Johnston  
Margaret Gowen and Co. Ltd.

For  
Valerie J. Keeley Ltd.

11<sup>th</sup> October 2002



## **1 Introduction**

1.1 Five soil samples were taken during excavation of the archaeological deposits at Mayfield, Co. Kildare and an analysis of the environmental content of these samples is presented below. The site, a fulacht fiadh and a series of pits, was found during archaeological monitoring of topsoil stripping in advance of road construction. Ros O Maoldúin on behalf of Valerie J. Keeley Ltd directed subsequent excavation.

## **2 Methodology**

The samples were taken as bulk soil during excavation and were processed by flotation. The residues were collected in sieve meshes measuring 1mm and 250 and these were sorted using a low-powered binocular microscope (magnification x4.8-x56).

## **3 Results**

The samples were taken from contexts C015 (S9), C074 (S14), C079 (S16), C099 (S26) C 119 (S36), and C I 26 (S45). All of the samples contained charcoal, although only C015 (S9) contained it in abundance. This was also the only sample where seeds were recovered.

### ***C015 (S9)***

The flot from this sample was dominated by good quality charcoal, which was present in large amounts. It was highly fragmented, but there was little or no evidence of encrustation or abrasion, which suggests that it was found in situ. This is corroborated by the excavator's report, which states that intensely fired clay was evident around the upper edges of the pit. A few seeds from the ubiquitous goosefoot plant (Chenopodiaceae) were found, these were modern seeds, probably growing nearby on site as it was excavated.

### ***C074 (S14)***

The small flot from this sample contained only very small amounts of charcoal, often in tiny, microscopic fragments; no seeds were recovered.

### ***C079 (Si 6)***

This large sample contained some charcoal but no seeds. The preservation quality of the charcoal (poor) suggested that some abrasion had occurred and it is likely that the charcoal was exposed for some time, or that it was burnt in oxidising circumstances.

*C099 (S26)*

This deposit, from a stakehole fill, contained no seeds, although charcoal was found in moderate frequency. When examined under the microscope, this appeared rounded and abraded, suggesting that it was degraded, and may have been redeposited, or burnt in oxidising circumstances, which caused it to burn away almost to ash, destroying much of its cellular structure.

*C0119 (S36)*

The contents of this deposit, (the sample was taken from a rectangular trough), were similar to the sample above (C099, S26) with occasional, badly degraded charcoal, but no seeds recovered.

*C126 (45)*

This sample was taken from a stakehole and, as with the sample from stakehole C099 (S26), occasional fragments of charcoal were found, but these were badly preserved. Once again, no seeds were recovered from these samples.

#### 4 Summary

The samples from this site all contained charcoal, in varying states of preservation. The differences in the quality of the charcoal from the different areas at the site were probably due to the circumstances in which carbonisation occurred, as charcoal is at its best when made in low-oxygen circumstances. When burnt in an open fire with a plentiful supply of oxygen, wood may bum away to ash, rather than being preserved as charcoal. The samples from the site at Mayfield contained almost no seeds, the only examples found were modern, from a common weed plant, which probably grew near the site and was accidentally included in the deposit. No indications of seeds used for economic purposes, such as cereal grains, were found; this is hardly unusual, as charred grains from deposits associated with *Fulachta fiadh* are extremely rare.

Penny Johnston  
16 October 2002



## APPENDIX 4

### Radiocarbon Dating



Director: Professor A E Fallick

**Scottish Universities Environmental Research Centre**

Rankine Avenue  
Scottish Enterprise Technology Park  
East Kilbride Scotland UK G75 0QF

**Email:** g.cook@suerc.gla.ac.uk  
**Telephone:** 01355 223332  
**Direct Dial:** 01355 270136  
**Fax:** 01355 229898

**RADIOCARBON DATING CERTIFICATE**

2 May 2006

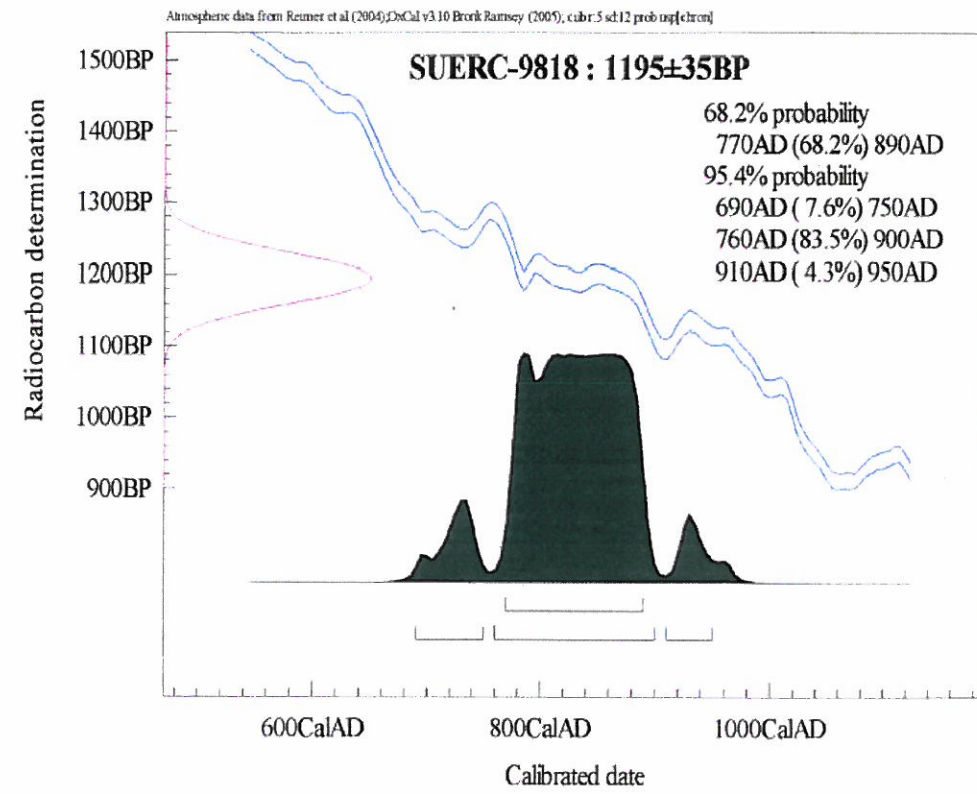
<b>Laboratory Code</b>	SUERC-9818 (GU-13932)
<b>Submitter</b>	Ros O'Maolduin Valerie J. Keeley Ltd. Brehon House, Kilkenny Road Castlecomer Co. Kilkenny, Republic of Ireland
<b>Site Reference</b>	02E0681, Site 15, Mayfield, Kildare Town Bypass
<b>Sample Reference</b>	02E0681, Context 32, Sample 9
<b>Material</b>	Charcoal : Oak and Blackthorn
<b><math>\delta^{13}\text{C}</math> relative to VPDB</b>	-24.9 ‰
<b>Radiocarbon Age BP</b>	1195 $\pm$ 35

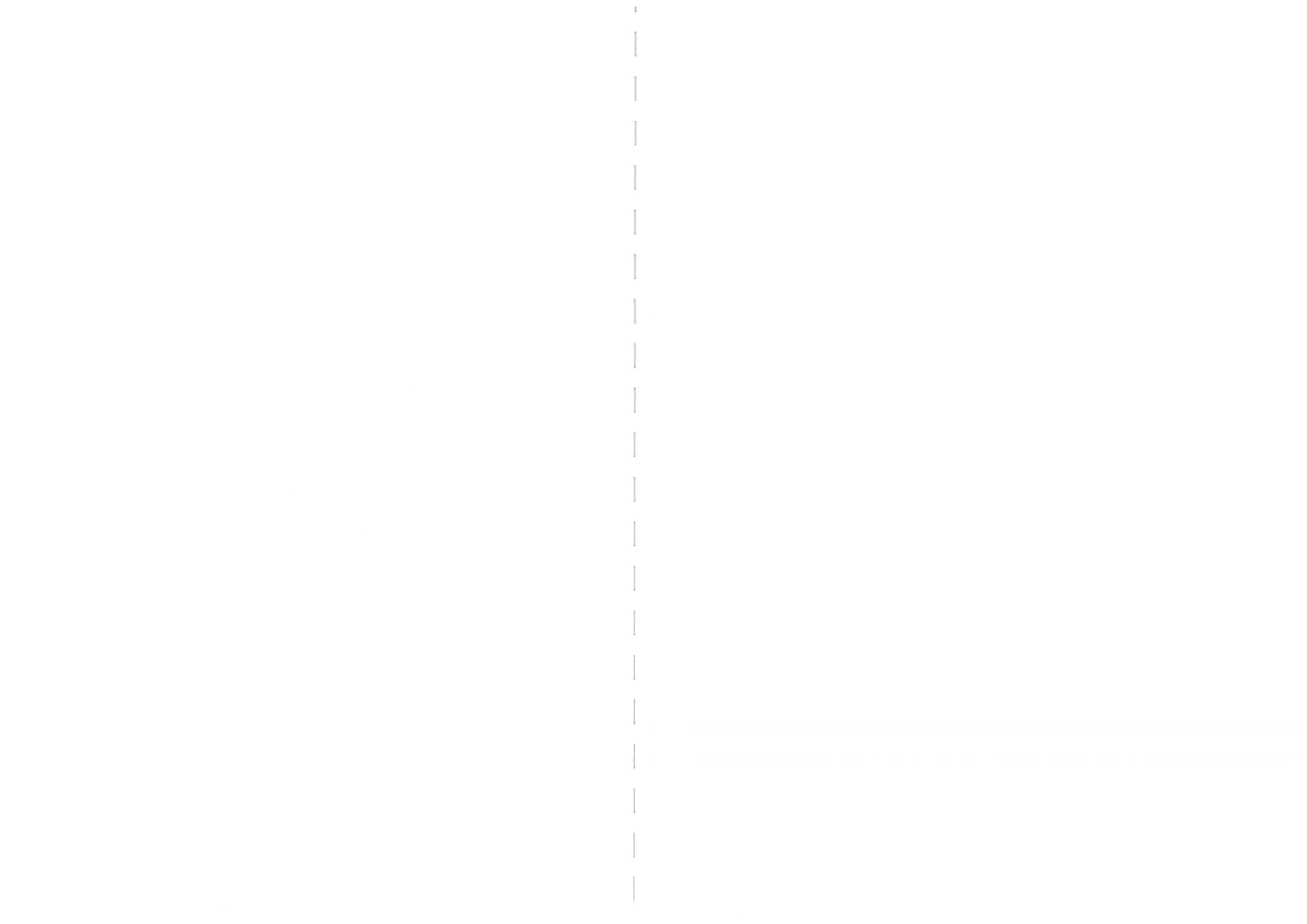
- N.B.**
1. The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.
  2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).
  3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code.

Conventional age and calibration age ranges calculated by :- R. Anderson Date :- 2-5-06

Checked and signed off by :- P. Naysmith Date :- 2-5-06

## Calibration Plot







**Plates**



Plate 1: Area 1, pre-excavation view of context C005.





Plate 2: Area 1, post-excavation view.





Plate 3: Area 2, view of pit C015 before excavation, showing fill C017.



Plate 4: Area 3, post-excitation view of pit C015.





**Plate 5:** Area 4, before excavation, showing burnt spread and modern drain.



**Plate 6:** Area 4, sunken structure C116.





Plate 7: Area 4, possible trough, C119, during excavation.



Plate 8: Area 4, trough C119 after excavation.





**Plate 9:** General view of Area 4 after excavation, looking northwest.

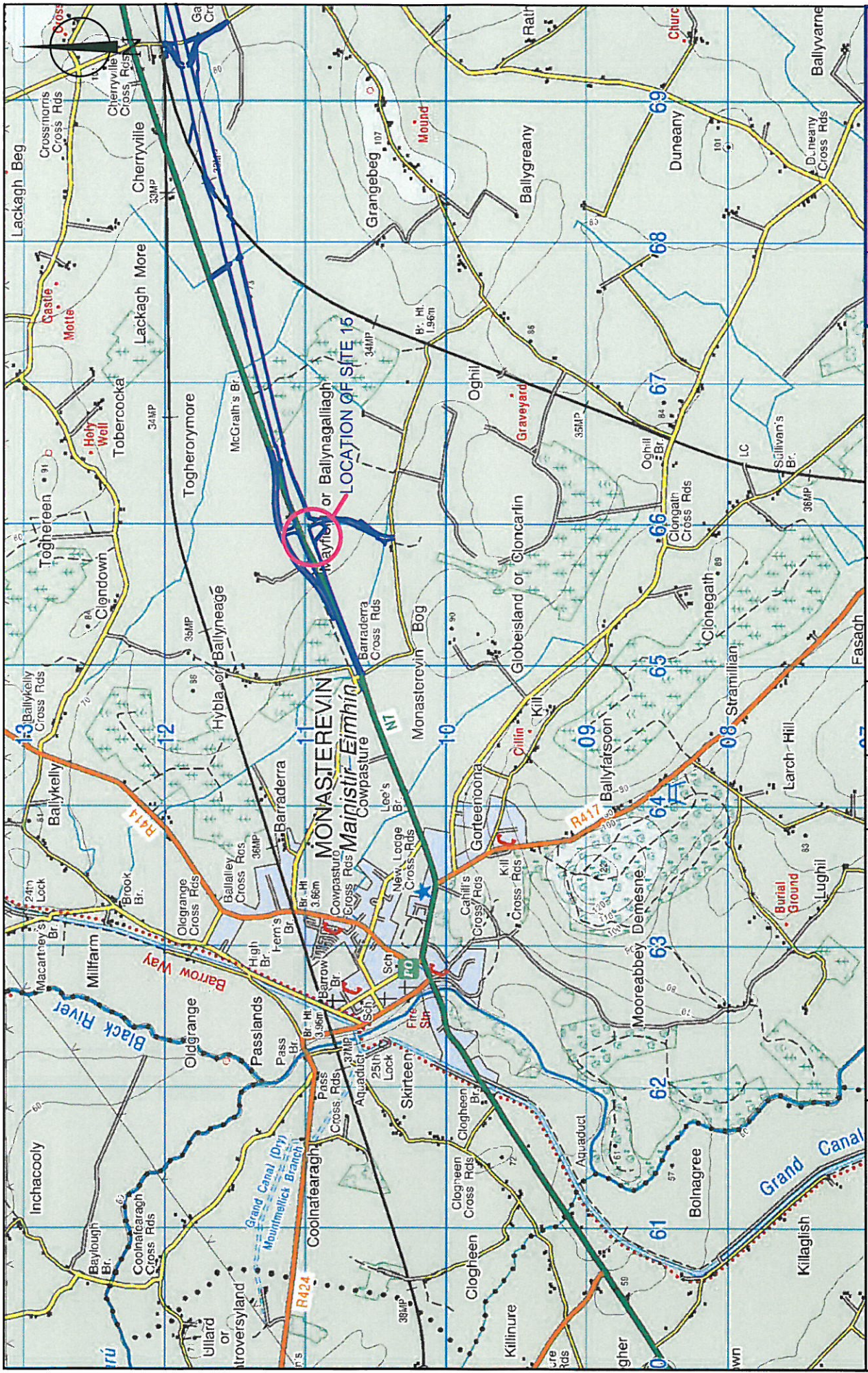





Figures



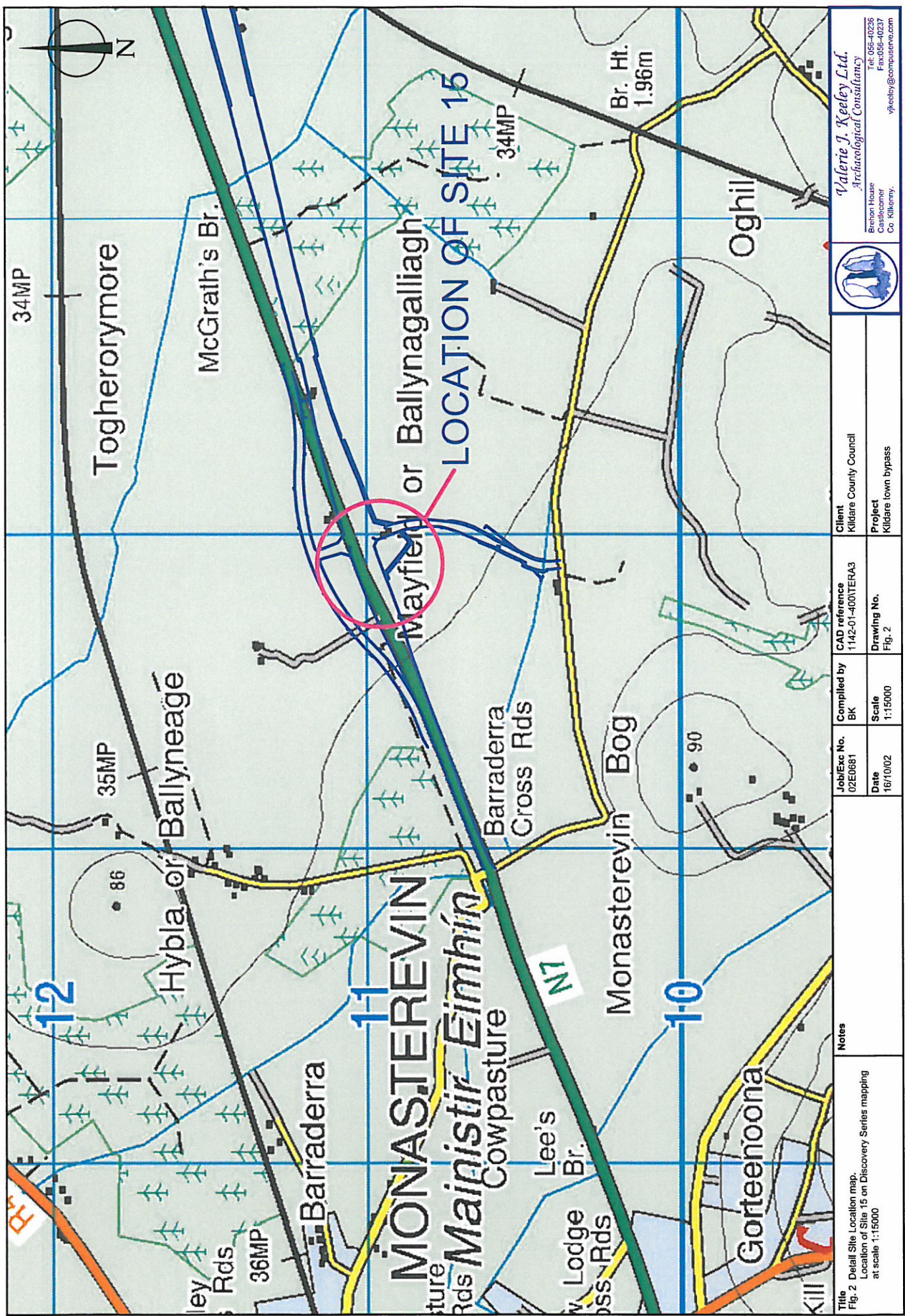




<b>Title</b> Fig. 1 Site Location map. Extract from Discovery Series mapping at scale 1:35000	<b>Notes</b>	<b>Job/Exc No.</b> 02E0681	<b>Compiled by</b> BK	<b>CAD reference</b> 1142-01-400TERA3	<b>Client</b> Kildare County Council
		<b>Date</b> 16/10/02	<b>Scale</b> 1:35000	<b>Drawing No.</b> Fig. 1	<b>Project</b> Kildare town bypass
					
		<b>Valerie J. Keeley Ltd.</b> Archaeological Consultancy Breton House 15-17 The Quay Co. Kilkenny Tel: 056-40238 Fax: 056-40239 v.j.keeley@compuserve.com			

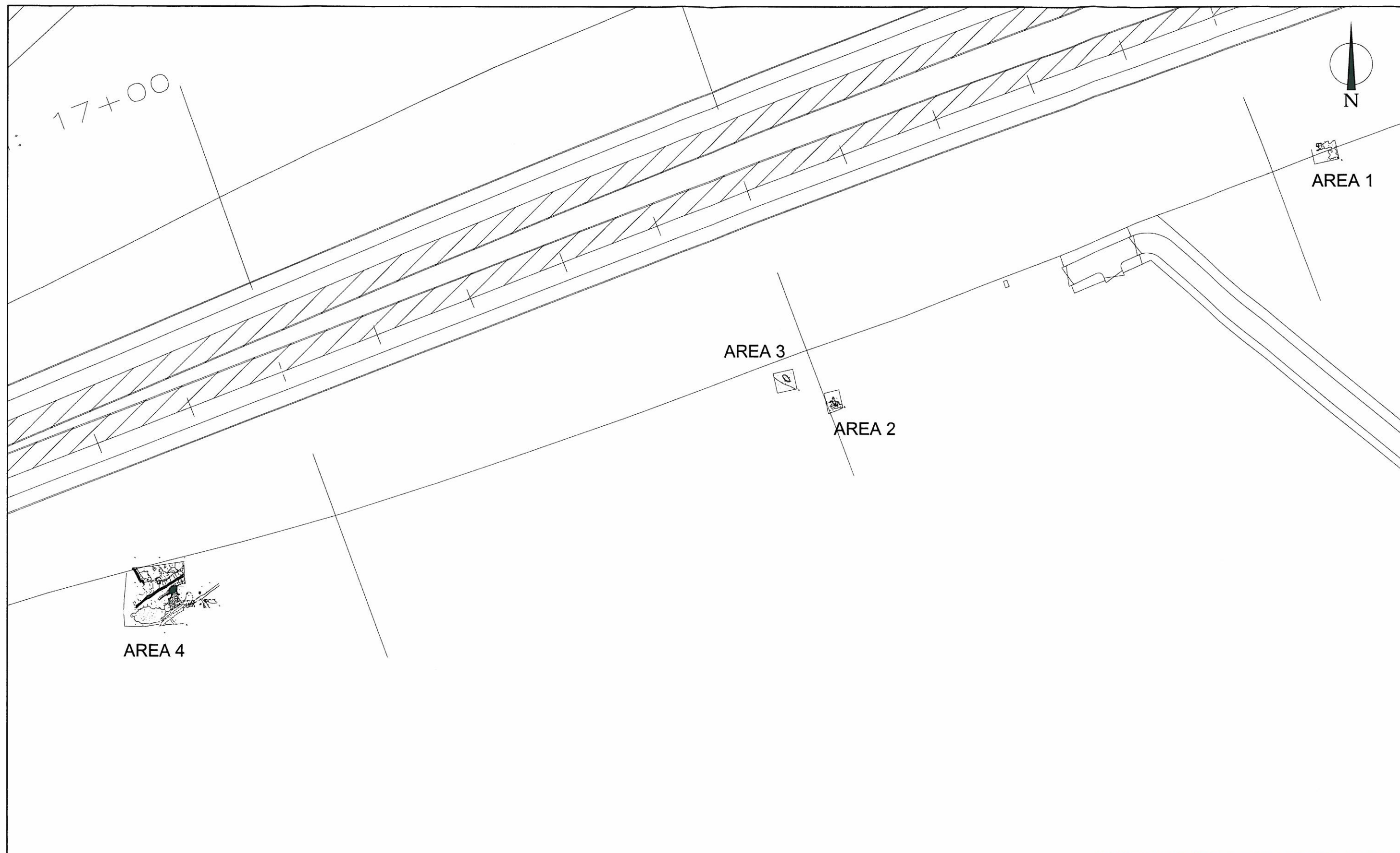












<b>Title</b> Fig. 3 Location plan of Areas 1 to 4	<b>Notes</b>	<b>Job/Exc No.</b> 02E0681	<b>Compiled by</b> BK	<b>CAD reference</b> 1142-01-400\TERA3	<b>Client</b> Kildare County Council
		<b>Date</b> 16/10/02	<b>Scale</b> 1:700	<b>Drawing No.</b> Fig. 3	<b>Project</b> Kildare town bypass



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*Archaeological Consultancy*

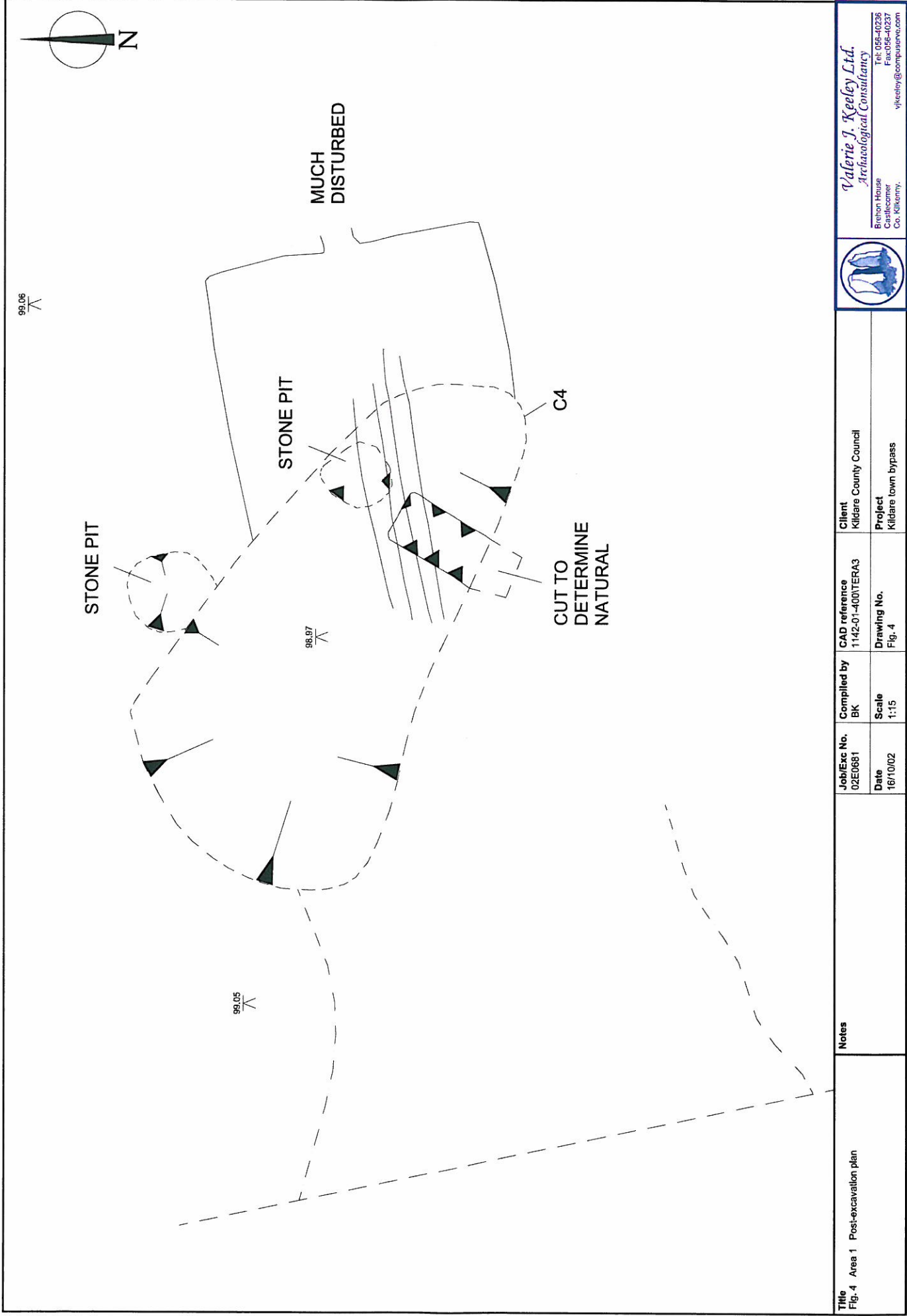
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[vjkeeleay@compuserve.com](mailto:vjkeeleay@compuserve.com)







Title  
Fig. 4 Area 1 Post-excavation plan

Notes

Job/Exc No.  
02E0681

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BK

CAD reference  
1142-01-4001TERA3

Client  
Kildare County Council

Date

16/10/02

Scale

1:15

Drawing No.

Fig. 4

Project

Kildare town bypass



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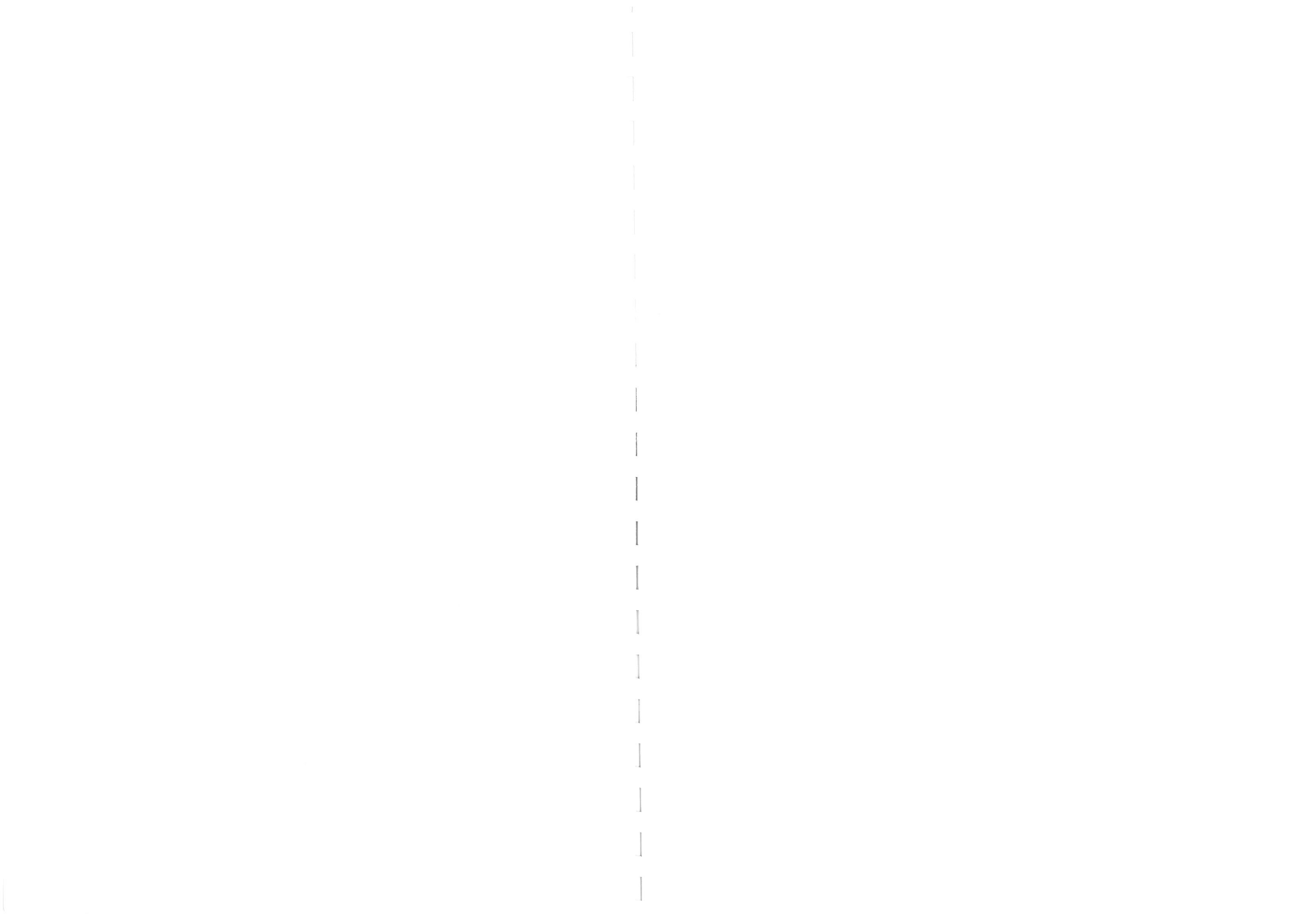
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**Title**  
Fig. 8 Area 4 Post-excavation plan.

**Notes**

**Job/Exc No.**  
02E0681

**Compiled by**  
BK

**CAD reference**  
1142-01-400\TERA3

**Client**  
Kildare County Council

**Date**  
16/10/02

**Scale**  
1:60

**Drawing No.**  
Fig. 8

**Project**  
Kildare town bypass



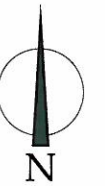
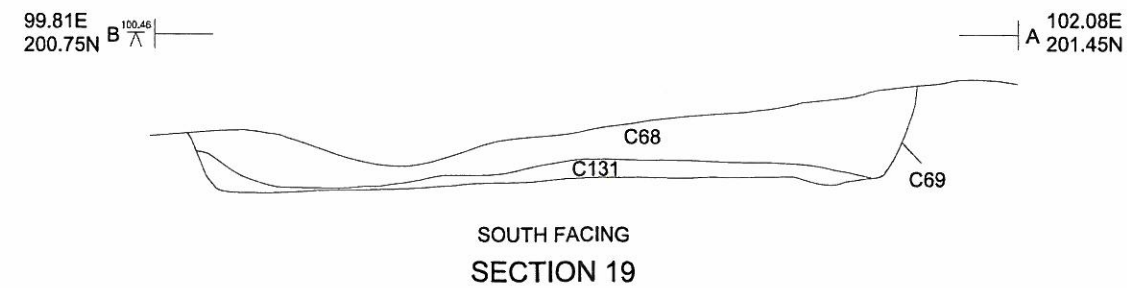
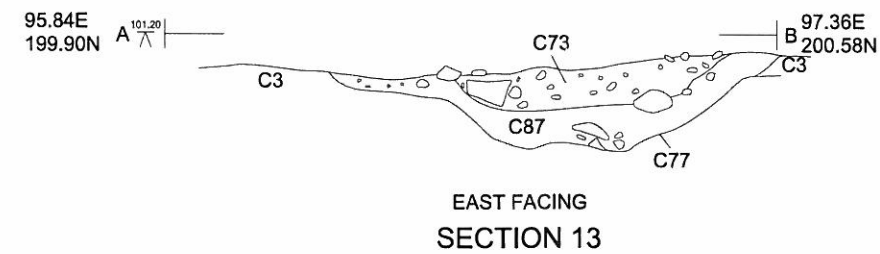
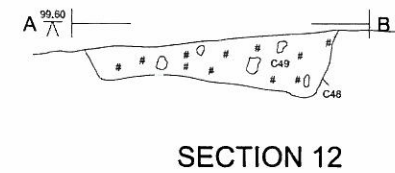
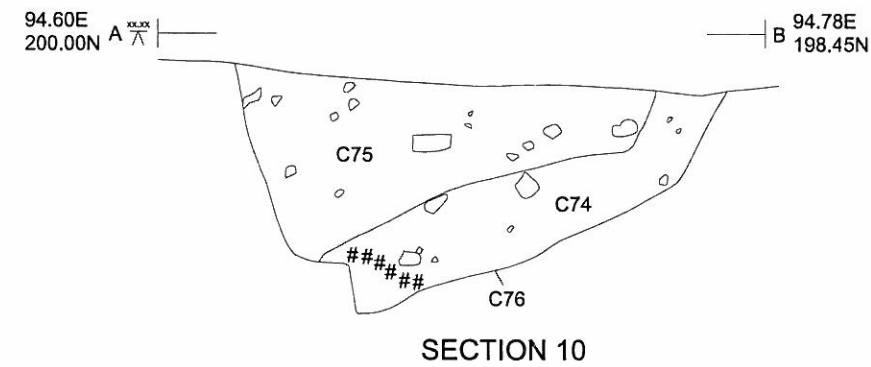
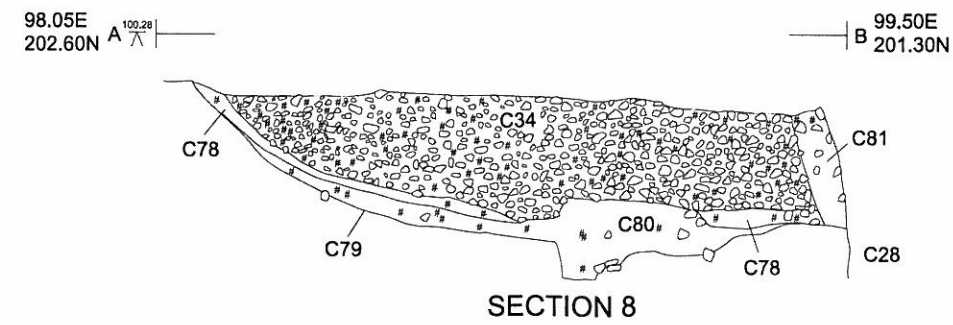
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<b>Title</b> Fig. 9 Area 4 Sections	<b>Notes</b>	<b>Job/Exc No.</b> 02E0681	<b>Compiled by</b> BK	<b>CAD reference</b> 1142-01-400\TERA3	<b>Client</b> Kildare County Council
		<b>Date</b> 16/10/02	<b>Scale</b> 1:20	<b>Drawing No.</b> Fig. 9	<b>Project</b> Kildare town bypass



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