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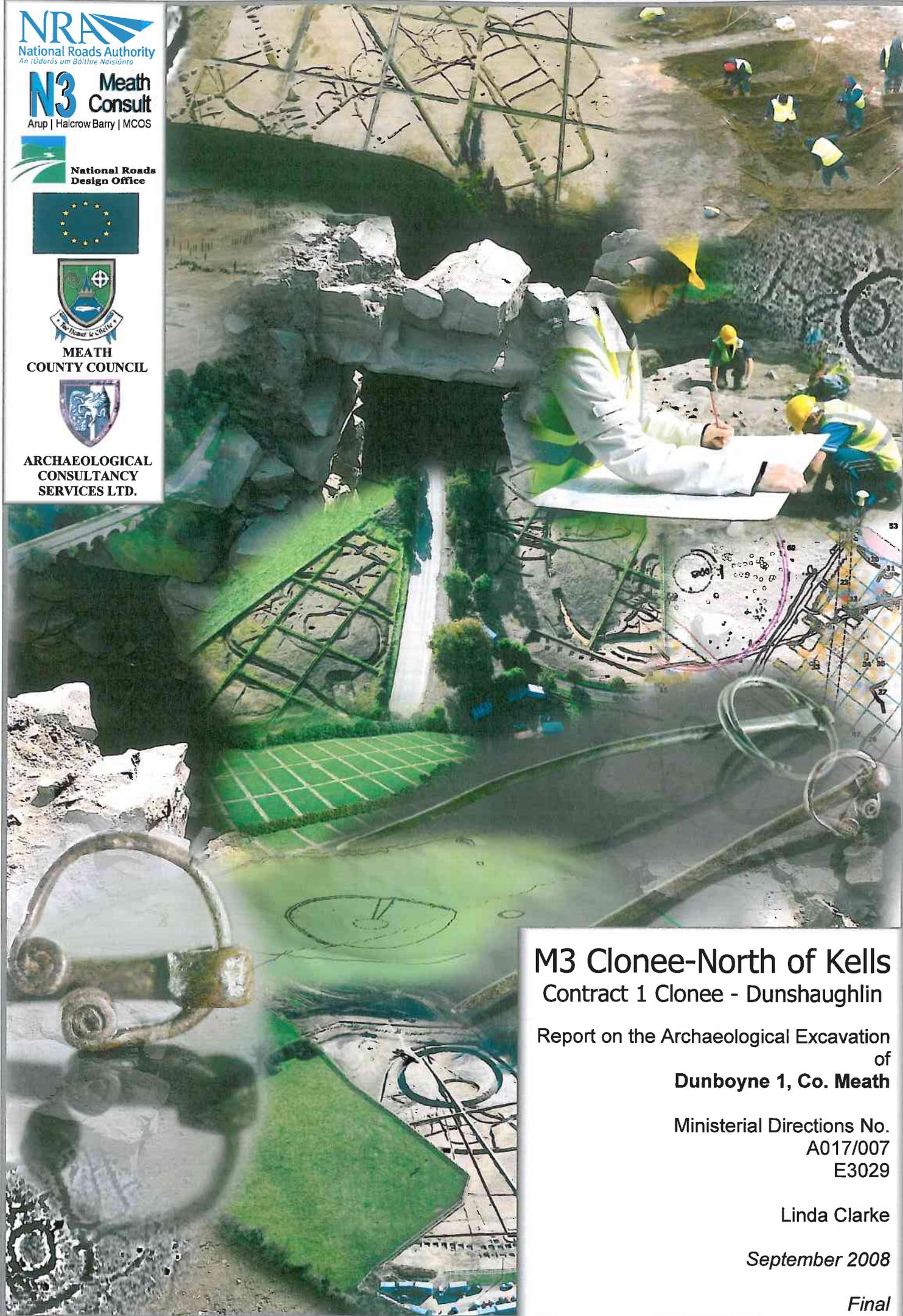
National Roads Design Office



MEATH COUNTY COUNCIL



ARCHAEOLOGICAL CONSULTANCY SERVICES LTD.



M3 Clonee-North of Kells Contract 1 Clonee - Dunshaughlin

Report on the Archaeological Excavation
of
Dunboyne 1, Co. Meath

Ministerial Directions No.
A017/007
E3029

Linda Clarke

September 2008

Final

PROJECT DETAILS

Project	M3 Clonee–Kells Motorway
Site Name	Dunboyne 1
Ministerial Direction Number	A017/007
Registration Number	E3029
Senior Archaeological Consultant	Donald Murphy
Site Director	Linda Clarke
Excavated	August 2005
Client	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
Townland	Dunboyne
Parish	Dunboyne
County	Meath
National Grid Reference	302494 242484
Chainage	700–1000 (Bracetown Road)
Height	65.71m OD
Report Type	Final
Report Status	Submitted
Date of Report	September 2008
Report by	Linda Clarke

ACKNOWLEDGEMENTS

This report has been prepared by Archaeological Consultancy Services Ltd on behalf of Meath County Council, National Roads Design Office (NRDO), and the National Roads Authority (NRA). The excavation was carried out under Ministerial Directions issued by the Department of the Environment, Heritage and Local Government (DOEHLG) in consultation with the National Museum of Ireland (NMI).

Consulting Engineers - N3 Meath Consult

Engineer – Peter Thorne and Thomas Meagher

Engineer's Representative – Conor Wilkinson

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Archaeologist – Martin Reid

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NON-TECHNICAL SUMMARY

This site at Dunboyne 1 was excavated by Archaeological Consultancy Services Ltd (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council, NRDO, and the NRA. The excavation was carried out in August 2005 under Ministerial Direction Number A017/007 issued by DOEHLG in consultation with the NMI. The site at Dunboyne 1 incorporated the disturbed remains of two Bronze Age cremation pits. The bone from these features could not be positively identified as human or animal. This site was located south of and along the flood plain of the River Tolka and approximately 30–40m south of the Bronze Age burnt mound at Bracetown 1 (A017/006).

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Plate 1: Pre-excavation photograph of F6 showing upper fill F12 from the east

Plate 2: Post-excavation photograph of cremation pit F6 from the west

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Plate 4: Post-excavation photograph of cremation pit F7 from the east

1 INTRODUCTION

The site at Dunboyne 1 (Figures 1–6; Plates 1–4) was identified during advance testing carried out by Rob O’Hara during March–October 2004 under the licence number 04E0489 (O’Hara 2004). Dunboyne 1 was located along the edge of the floodplain of the River Tolka, which formed the northern boundary of the site. Two small shallow pits (0.70m x 0.80m x 0.05m and 0.46m x 0.41m x 0.14m) containing small quantities of charcoal and cremated bone were identified during testing. The full resolution of the site occurred in August 2005 and re-located the two pits. An area 2678m² was opened during the resolution.

1.1 Development

Meath County Council and the National Roads Authority are constructing 49km of two-lane, dual-carriageway motorway between Clonee and Kells and 10km of single carriageway from Kells to Carnross, north of Kells, along with additional road upgrades, realignments and associated ancillary works. For the purposes of the Environmental Impact Assessment and the subsequent archaeological investigations the scheme was subdivided into five separate sections as follows: Clonee to Dunshaughlin (Contract 1), Dunshaughlin–Navan (Contract 2), the Navan Bypass (Contract 3) Navan to Kells (Contract 4) and Kells to North of Kells (Contract 5). This section of the scheme (Contract 1) commences at the end of the existing Clonee Bypass, east of Dunboyne (NGR 303385 241281) and proceeds in a north western direction, finishing to the west of Dunshaughlin (NGR 295633 253070).

The archaeological components of the Environmental Impact Statement published in 2002 were carried out by Valerie J. Keeley Ltd (VJK) and Margaret Gowen and Co. Ltd (MGL) in 2000–2001. This included desk-based studies and field surveys of each section (VJK Sections 1 & 3 and MGL Sections 2, 4 & 5). Additionally on behalf of MGL geophysical survey was undertaken on the Dunshaughlin–Navan section and at Nugentstown on the Navan–Kells section by GSB Prospection (2000 & 2001). These studies carried out as part of the Environmental Impact Assessment were augmented by further geophysical survey conducted by Bartlett-Clark Consultancy on the remainder of the scheme (2002). Archaeological testing was completed by ACS and Irish Archaeological Consultancy Ltd (IAC) in 2004 (ACS Sections 1–3 and IAC Sections 4–5). Excavation of the sites identified during testing was conducted by ACS and IAC between 2005 and 2008 (ACS Sections 1–3 & 5 and IAC Section 4).

2 EXCAVATION

Excavation occurred between 02–23 August 2005 under Ministerial Direction Number A017/007. Linda Clarke of ACS undertook the excavations on behalf of Meath County Council, NRDO, and the NRA by DoEHLG and in consultation with the NMI. The topsoil (F10), which consisted of a compact brown clay, was stripped by machine equipped with a grading bucket. The subsoil (F11) consisted of a mottled grey marl.

All archaeological features exposed were recorded and excavated by hand using the single context method. Each feature was assigned a context number. Where appropriate, samples were retrieved in an attempt to obtain evidence for the date and function of these features (Appendix 3). Unless otherwise stated, the features have been measured length-width-depth. All measurements are in metres. All finds were numbered according to the requirements of the National Museum of Ireland from 1 onwards consistent with licence and feature number.

2.1 Results

An area measuring 100m east-west by 25m north-south was stripped of topsoil along the south bank of the Tolka. Six contexts of archaeological interest were noted within the excavation area. Only the principal archaeological features of Dunboyne 1 will be discussed within this report; full details of all these, and further contexts are located in Appendix 1.

Cremation pits

The first (cremation pit 1) of two small pits (F6: 0.70m x 0.80m x 0.05m; Figures 7–8; Plates 1–2) was oval in shape, and contained two fills. The primary fill (F9: 0.04m depth) consisted of a compact, greyish-black clay and the secondary fill (F12: 0.06m depth) consisted of a compact grey clay with gravel, cremated bone and charcoal inclusions. Charcoal recovered from F12 was identified as hazel, ash, maloideae (hawthorn, whitebeams, apple, pear), cf. wild cherry and cherries (Appendix 5) and the hazel charcoal was dated to Cal BC 1260-1000 (BETA 241270 CAL BP 2910+/- 40; Appendix 4). The cremated bone recovered from this feature was fragmented and small and could not be positively identified as human or animal (Appendix 5).

The second (cremation pit 2), sub-circular pit (F7: 0.46m x 0.41m x 0.14m; Figures 7–8; Plates 3–4) also contained two fills. The primary fill (F4: depth 0.08m) was a compact, greyish-black clay with moderate charcoal flecks with frequent stone and cremated bone inclusions and the secondary fill (F8: 0.04m depth) was similar to F12, a compact grey clay. Charcoal from F4 was identified as hazel and alder (Appendix 5) and the alder charcoal was dated to Cal BC 1530-1410 (BETA 241263 Cal BP 3200+/- 40; Appendix 4). The greatest

volume of cremated bone was recovered from context F4. Nineteen fragments of cranial vault were identified and it is possible that these were human. No diagnostic features were present so this is a tentative identification. The remainder of bone recovered was fragmented and small and could not be positively identified as human or animal (Appendix 5).

2.2 Finds

Aside from the cremated bone there were no archaeological finds obtained from the site.

3 DISCUSSION

3.1 Form and function

Two small pits were revealed during the excavation of this site. Both of these features contained similar fills which consisted of charcoal flecks and burnt bone fragments and have been interpreted as cremation pits. The cremated bone recovered from both features was subjected to specialist analysis (Appendix 5). Nineteen cranial vault fragments were recovered from cremation pit 2 and it is possible that these were human. The absence of diagnostic features would not permit a positive identification. The remainder of the cremated bone recovered from cremation pit 1 and 2 was small and fragmented and it is not possible to ascertain whether it is human or animal (Appendix 5). A relatively small quantity of cremated bone was recovered from each feature and was no where near the volume required which would suggest the presence of a complete individual. This would suggest that the remainder of the bone was removed as a result of disturbance or degradation or that only a token amount of the cremation was inserted in each pit (Appendix 5). The latter appears most likely. It has been suggested by Grogan (2004, 67) that unaccompanied token cremations are common to the Middle Bronze Age. Both of these features were unaccompanied, appeared to contain token cremations and although not contemporary, have been securely dated to the Middle Bronze Age.

The analysis of the charcoal recovered from these two cremation pits also provides us with an insight into the surrounding environment at Dunboyne 1 (Appendix 5). The charcoal recovered from cremation pit 1 was identified as hazel, ash, maloideae (hawthorn, whitebeams, apple, pear), cf. wild cherry and cherries with hazel and maloideae being the most dominant. The charcoal from cremation pit 2 was identified as alder and hazel with alder being the most dominant (Appendix 5). The species recovered as part of the charcoal assemblage would suggest the presence of a scrub woodland in the vicinity of Dunboyne 1, which would have comprised hazel, maloideae and cherries. The presence of ash would suggest that higher canopy trees existed within the scrub woodland, whilst the presence of alder, which thrives in wet conditions, would suggest wetland nearby (Appendix 5). The

nearby River Tolka would have provided suitable and favourable conditions for the growth of alder. This would correspond with the results obtained as a result of the environmental analysis conducted at the neighbouring site of Bracetown 1 (A017/006). The second phase of burnt mound activity at Bracetown 1 was dated to Cal BC 1387-1123 (Cal BP 3011+/- 39 BP-UB 7050) and was broadly contemporary with the Dunboyne 1 cremation pits. Charcoal recovered from this mound was identified as hazel, ash, alder, blackthorn, willow, and pomoideae which would also suggest a mixed woodland with hedgerows/scrublands and a nearby wet terrain (see report A017/006; Appendix 5).

The analysis of the charcoal recovered from Dunboyne 1 was not typical of the results usually associated with Bronze Age cremation pits. Recent analysis of charcoal recovered from this feature type would suggest that oak was the most common source of fuel type used because of its ability to achieve the high temperatures required during the cremation process (Grogan *et al* 2007; Appendix 5). Oak was not present in any of the charcoal recovered from Dunboyne 1. It may be possible that oak was not available in the surrounding woodlands and it is possible that soil conditions did not promote the growth of oak species-Dunboyne 1 was located along the edge of the River Tolka which would suggest wet, waterlogged conditions. These conditions would not suit the growth of oak favourably (Appendix 5). It would seem therefore that the fire material used at this site was based on availability and not on its ability as firewood (Appendix 5). It was however noted by Grogan (2007), that wild/bird cherry and maloideae were often used and he has suggested that they were used for aromatic purposes (Appendix 5). These species were recorded in cremation pit 1.

Cremation pits are not an uncommon feature within the Irish landscape and are typically located and identified along many road schemes and other infrastructural projects. Cremation pits were identified at eighteen sites along the M3 Scheme - Dunboyne 1, Drumree 1 (A017/027), Johnstown 3 (A017/021), Johnstown 4 (A017/043), Knockmark 1 (A017/028), Ardsallagh 1 (A008/035), Ardsallagh 2 (A008/034), Castletown Tara 1 (A008/025), Collierstown 2 (A008/016), Philpotstown 1 (A023/007), Macetown 1 (A023/008), Hanlonstown 1 (A023/012), Boyerstown 3 (A023/015), Grange 1 (A029/007), Grange 3 (A029/005), Kilmainham 1a (A029/053), Newrath Little 1 (A029/035) and Castlekeeran 2 (A030/015). Three of these sites were flat cemeteries (Ardsallagh 1, Ardsallagh 2 and Castletown Tara 1), isolated cremations were identified at four (Collierstown 2, Grange 1, Castlekeeran 2 and Philpotstown 1) whilst the remainder of cremation pits were located on sites that contained other activity (Drumree 1, Johnstown 3, Johnstown 4, Knockmark 1, Macetown 1, Hanlonstown 1, Boyerstown 3, Grange 3, Kilmainham 1a and Newrath Little 1).

No site was similar to that of Dunboyne 1 which contained the truncated remains of two cremation pits and no other archaeological features.

Apart from the sites from which pottery was recovered (Johnstown 3, Ardsallagh 1, Ardsallagh 2 and Collierstown 2), there was no way of dating the cremation pits in the absence of radiocarbon determinations. Based on previous analysis and studies and the generally accepted perception that cremation pits are typically Bronze Age in date, all identified cremation pits from the M3 Scheme have been provisionally dated to this period. The pottery recovered from the four aforementioned sites would reinforce this as they were dated to the Bronze Age based on type-Vase food Vessel fragments, Vase Urn fragments and Cordoned Urn sherds were recovered from a single pit at Johnstown 3 (see report A017/021 *Appendix 6*), the remnants of a Late Bronze Age coarse domestic vessel was recovered from a single pit at Ardsallagh 1 (see report A008/035 *Appendix 10*), the remnants of four vessels were recovered from three pits at Ardsallagh 2 (see report A008/034 *Appendix 10*) and included the upper portion of a Collared Urn from one (vessel 1), fragments of a Cordoned Urn (Vessel 2) and a Vase Food Vessel (vessel 3) from a third and the remnants of a Cordoned Urn from the final pit (vessel 3) whilst the upper rim of a Bronze Age vessel (unidentified to date) was recovered from a single pit at Collierstown 2 (see report A008/016). The dating of these features to the Bronze Age was also reinforced by radiocarbon determinations-the pit at Johnstown 3 was dated to Cal BC 1920-1750, the pit at Ardsallagh 1 was dated to Cal BC 1060-880, two of the pits at Ardsallagh 2 were dated to Cal BC 1950-1700 (pit that contained vessels 2 and 3) and Cal BC 1870-1620 (pit that contained vessel 4), whilst the pit at Collierstown 2 remains undated at present. Although to the most extent radiocarbon determinations prove the assertion that cremation pits are indeed Bronze Age in date (an additional three pits which did not contain sherds of pottery at Ardsallagh 2 were dated to Cal BC 1940-1740, Cal BC 1750-1520 and Cal BC 2030-1740-see report A008/034 *Appendix 5*), this may not always be the case. A cremation pit located outside the ringditch at Ardsallagh 1 was significantly later and was dated to the Early Iron Age (Cal BC 380-160; see report A008/035 *Appendix 5*). A more in-depth study of cremation pits will be possible with the examination of all radiocarbon determinations obtained for cremation pits located along this proposed motorway once the entire post excavation process is complete.

3.2 Date and sequence

The two pit features at Dunboyne consisted of two unaccompanied token cremations. It has been suggested by Grogan that unaccompanied token cremations are common to the middle bronze age (2004, 67). The stratigraphical relationship between the two pits at this site cannot be determined although it was initially thought that, due to their proximity, similar fills and function, that they were created within a relatively short time frame, perhaps within one generation. Radiocarbon analysis proved otherwise. The first cremation pit was dated to Cal BC 1530-1410 (BETA 241263 Cal BP 3200 +/- 40; Appendix 4) whilst the second was considerably later and was dated to Cal BC 1260-1000 (BETA 241270 Cal BP 2910 +/- 40 BP; Appendix 4). It is perhaps coincidental that these features were located in close proximity to each other but it is more likely that the position of the earlier pit was known to that of the later pit. This would suggest that the former feature was physically demarcated in some way and perhaps the area was perceived as a sacred place and the remains within the second pit were therefore deliberately interred beside the first. The dates recovered from these features would place them securely within the middle bronze age. It is significant to note that the earliest phase of burnt mound activity at the nearby site of Bracetown 1 (A017/006) returned a radiocarbon date of Cal BC 1387-1123 (Cal BP 3011 +/- 39 BP) which is broadly contemporary with the latest pit at Dunboyne 1. This date would therefore suggest that there is a possibility that the same community which utilised the burnt mound at Bracetown 1 interred the cremated remains at Dunboyne 1.

4 CONCLUSIONS

Dunboyne 1 (A017/007) excavated in August 2005 by Linda Clarke (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council, NRDO, and the NRA, represented two small, shallow cremation pits situated roughly 20m apart. Both of these features were situated south of and along the floodplain of the River Tolka and were located approximately 30–40m south of the burnt mound at Bracetown 1 (A017/006). Although there is no evidence of a stratigraphical relationship between the pits, they are likely to be associated due to their similar fills and function. Other such pits may exist in the vicinity but this has not been proven.

5 REFERENCES

Grogan, E 2004 'Middle Bronze Age burial traditions in Ireland', H. Roche *et al* (eds) *From Megaliths to Metals: Essays in Honour of George Eogan*. Oxbow Books, Oxford, 61-71.

Grogan, E, O' Donnell, L, & Johnston, P, 2007 *The Bronze Age landscapes of the Pipeline to the West, an integrated archaeological and environmental assessment*, Wicklow

O'Hara R 2004 *Report on Archaeological Assessment at Testing Area 5, Bracetown, Dunboyne, Loughsallagh Co. Meath, 04E0489*. Unpublished report prepared for Archaeological Consultancy Services Ltd.

Signed:

Linda Clarke

Linda Clarke
September 2008

APPENDIX 1 Context Details

Dunboyme 1: A017/007											
No	Type	Fill of/ Filled with	Strat above	Strat below	Description	Interpretation	Group	Artefacts	Animal bone	Cremated bone	Samples
1-3					previously used during topsoil assessment						
4	fill	7	7	8	compact, grey-black clay with frequent stone and cremated bone inclusions and moderate charcoal flecks. 0.08m depth	primary fill of pit 7				yes	# 4-7 & 9 96g charcoal, 231g cremated bone
5	deposit	N/A	11	10	natural deposit showing original extent of River Tolka						
6	cut	9, 12	11	9	oval cut (0.70m x 0.80m x 0.05m) with almost imperceptible slopes and a flat base	cremation pit					
7	cut	4, 8	11	4	sub-circular cut (0.46m x 0.41m x 0.14m) with a sharp break of slope, gently sloping sides and a gentle break of slope leading to a slightly concave base	cremation pit					
8	fill	7	4	10	compact, grey clay. 0.04m depth	secondary fill of pit 7					
9	fill	6	6	12	compact, grey-black clay. 0.02m depth	primary fill of pit 6					
10	topsoil	N/A	11	N/A	compact brown clay 0.30-0.50m in depth	topsoil					
11	subsoil	N/A	N/A	10	mottled grey marl	subsoil					
12	fill	6	9	10	compact, grey clay with gravel, cremated bone and charcoal inclusions. 0.06m depth	secondary fill of pit 6				yes	# 1-3 & 8 63g cremated bone, 14g charcoal

APPENDIX 2 *Finds List*

No finds were recovered from the excavations at Dunboyne 1.

APPENDIX 3 *Sample List*

Sample No	Context No	Results
1, 3, 2, 8	12	63g cremated bone, 14g charcoal
4, 5, 6, 7, 9	4	96g charcoal and 231g cremated bone

APPENDIX 4 Radiocarbon dates

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Date	Conventional Date (BP)	13C/12C Ratio ‰
C4: primary fill of cremation pit C7	7	Charcoal	Alder (180mg)	Beta	241269	AMS (Std)	Cal BC 1530-1410	3200 +/- 40 BP	-24.9
C12: upper fill of cremation pit C6	3	Charcoal	Hazel (240mg)	Beta	241270	AMS (Std)	Cal BC 1260-1000	2910 +/- 40 BP	-23.5

APPENDIX 5 *Environmental Analysis*



**Dunboyne 1, M3 Motorway Project, Co
Meath, Ireland**

**plant macrofossil, charcoal and cremated
bone analysis**

on behalf of

Archaeological Consultancy Services Ltd

Report 1926
September 2008

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plant macrofossil, charcoal and cremated bone analysis

Report 1926

September 2008

Archaeological Services Durham University

on behalf of

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1. Summary

The project

- 1.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Dunboyne 1, Co Meath, Ireland. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of the fills of 2 shallow cremation pits.

Results

- 1.2 The results of the charcoal analysis indicated the proximity of scrub woodland and the abundance of alder on wetland areas near the site. Maloideae, ash, elm and wild cherry were also recorded, which may all have been selected for use as fuel on the cremation pyres.
- 1.3 The 2 small pits yielded cremated bone weighing 209.2g and 58.5g respectively. Although the largest fragment measured 41.4mm, most of the bone was fairly fragmented and found in the middle and smallest sieved fractions. Nineteen fragments of skull vault from the heaviest context might have been human, but the lack of diagnostic features prevented confirmation. Unfortunately, no other bone fragments could be identified in either context, and it was not possible to tell if the bone was animal or human. The majority of bone fragments had been burnt at high temperatures and achieved full oxidation.

2. Project background

Location and background

- 2.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Dunboyne 1, Co Meath, Ireland (NGR 302510 242487). Two small, shallow cremation pits were situated along the original line of the River Tolka (now the western bank), both containing small quantities of cremated bone and charcoal. Radiocarbon dates indicate that the features are Bronze Age in date. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of the pit fills (contexts 4 and 12).

Objective

- 2.2 The objective was to analyse the plant macrofossils, charcoal, and cremated bone from the site, in order to provide information about the diet, land use and local environment.

Dates

- 2.3 Samples were received by Archaeological Services Durham University in November 2007. Analysis and report preparation was conducted between November 2007 – September 2008.

Personnel

- 2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. Plant macrofossil and charcoal analysis were carried out by Dr Charlotte O'Brien and Mr Lorne Elliott. Cremated bone analysis was by Dr Anwen Caffell. Residues were sorted by Mr Lorne Elliott.

Archive

- 2.5 The licence number is A017/007 (E0489). The charcoal, flots and bone samples are currently held at the Environmental Laboratory at Archaeological Services Durham University awaiting collection or return.

3. Plant macrofossil and charcoal analysis

Methods

- 3.1 The residues were examined for plant remains, shells, bones, pottery sherds and metalworking debris. The dry flots were scanned at up to x60 magnification using a Leica MZ6 stereomicroscope for charred and waterlogged plant remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant taxonomic nomenclature follows Stace (1997).
- 3.2 Charcoal was collected from the residues and flots and added to pre-sorted material. Following Boardman (1995), identifications were made on fragments >4mm. At least 100 fragments were identified from each context, where possible. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. The different species were weighed separately. A single

entity of alder charcoal from context (4), and hazel charcoal from context (12), (weighing 180 mg and 240mg respectively), were provided for radiocarbon dating.

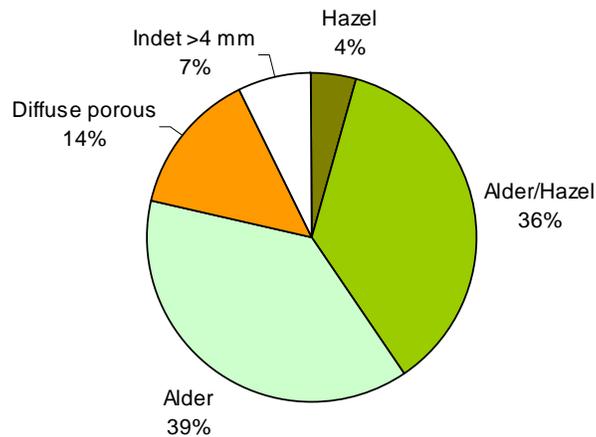
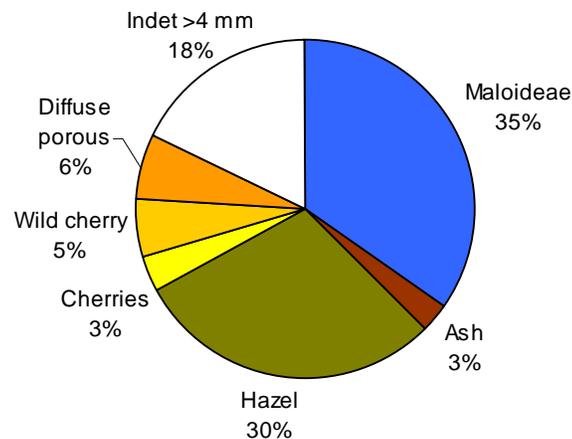
Results

- 3.3 Charcoal and small pieces of calcined bone were present in both contexts. A few uncharred seeds, roots and insect egg cases were present, but charred plant macrofossils were absent from both flots. The results of the plant macrofossil and charcoal analyses are presented in Table 3.1.

Table 3.1: Plant macrofossils and charcoal from Dunboyne 1

Context	12	4
Sample	2, 3	6, 7
Feature	Cremation Pit	Cremation Pit
<i>Material available for radiocarbon dating</i>	✓	✓
<i>Volume of flot (ml)</i>	5	10
<i>Residue matrix (relative abundance)</i>		
Charcoal	2	-
Bone (calcined)	1	-
<i>Flot matrix (relative abundance)</i>		
Bone (calcined)	-	1
Charcoal	1	1
Insect (egg case)	1	1
Roots (modern)	1	2
<i>Charcoal (mg/number of fragments)</i>		
Percentage of sample analysed	100	80
Total charcoal analysed (mg)	8166	25756
Number of identifiable fragments >4mm	73	120
<i>Fraxinus excelsior</i> (Ash)	218 (3F)	-
<i>Corylus avellana</i> (Hazel)	2420 (26F)	1132 (5F)
<i>Alnus glutinosa</i> (Alder)	-	9815 (48F)
<i>Alnus/Corylus</i> (Alder/Hazel)	-	9316 (49F)
Maloideae (Hawthorn, Whitebeams, Apple, Pear)	2835 (22F)	-
<i>Prunus cf. avium</i> (cf. Wild cherry)	449 (3F)	-
<i>Prunus</i> sp (Cherries)	273 (3F)	-
Diffuse porous	518 (6F)	3622 (13F)
Unidentified >4mm fraction	1453 (10F)	1871 (5F)
Unidentified <4mm fraction	7511	49168
<i>Uncharred remains (relative abundance)</i>		
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	1
(w) <i>Carex</i> spp (Sedges)	trigonous nutlet	-
(x) Caryophyllaceae undifferentiated (Pink family)	seed	-
(x) <i>Cenococcum geophilum</i> (soil fungus)	sclerotia	-
(x) <i>Centaurea</i> spp (Thistles)	achene	-
(x) Poaceae undifferentiated >2mm (Grass family)	caryopsis	-
(x) <i>Urtica dioica</i> (Common nettle)	achene	-

[r-ruderal; w-wetland; x-wide niche]. F = number of charcoal fragments
Relative abundance is based on a scale from 1 (lowest) to 5 (highest).

Context 4 (Total charcoal 92g)**Context 12 (Total charcoal 15.5g)****Figure 3.1:** Proportions of identified charcoal from Dunboyne 1

- 3.4 The charcoal in both contexts was in a poor condition, which prevented identification of many of the fragments. Hazel and alder were the main species positively identified in context (4), while hazel, Maloideae (Hawthorns, whitebeams, apple and pear), ash and cf. wild cherry were present in context (12). Other species of cherry may also have been present in context (12); native species in Ireland include wild cherry, bird cherry and blackthorn. The proportions of identified charcoal species are presented in Figure 3.1.

Discussion

- 3.5 The few uncharred seeds are from weeds of ruderal and disturbed ground habitats, and would have required a degree of waterlogging of the site to facilitate their preservation. However, if the features were not waterlogged, they are likely to represent later intrusive material.

- 3.6 If the wood was collected locally, the charcoal assemblages suggest that scrub woodland comprising, hazel, Maloideae and cherries, grew near the site. Ash suggests that areas of higher canopy woodland may also have been present, in which some of the smaller trees may have grown in the understorey. Alder was abundant in context 4, which would have occupied areas of wet ground, for example along the banks of the River Tolka.
- 3.7 The charcoal in both contexts was in a poor condition, with numerous fragments exhibiting degradation of the cell structures and orange mineral staining. In addition, sediment was deposited in the vessels of many of the fragments which obscured the characteristic morphological features necessary for identification. This is likely to be the result of adverse preservational conditions, for example exposure to frequent periods of waterlogging characteristic of riverside environments.
- 3.8 The features are presumed by the excavator to be cremation pits, and therefore the charcoal may represent fuel used on the funeral pyre. Recent studies of charcoal from Bronze Age cremations indicated that oak was the main wood used in prehistoric cremations, and was probably chosen for its ability to achieve the high temperatures required for the cremation process (Grogan *et al* 2007). Wild/bird cherry and Maloideae were also often recorded, which it was suggested may have been used on the pyre for aromatic purposes (Grogan *et al* 2007). While Maloideae and cf. wild cherry were present in context (12) from Dunboyne 1, oak was absent from both contexts, which may indicate that oak was not available in the surrounding woodland. This may have been due to adverse soil conditions, for example, oak would not favour permanently waterlogged conditions. Therefore at Dunboyne 1, availability may have been a more influential factor for selection, than properties as a firewood.

4. Cremated bone analysis

Methods

- 4.1 Five samples of cremated bone from the two pit fills were presented for analysis, with a total weight of 267.7g. Each sample of cremated remains was passed through a nest of sieves, with mesh sizes of 10mm, 5mm, and 2mm (McKinley 2004). Each fraction was weighed and the largest fragment of bone was measured.

Results and interpretation

- 4.2 Summary data for each context is presented in Table 4.1, the fraction weights and fragment size data for each individual sample are given in Appendix 1, with the combined weights per context given in Table 4.2.
- 4.3 Context (4) from cremation pit (7) yielded the greatest amount of cremated bone, weighing 209.2g in total. Considerably less bone was recovered from context (12), cremation pit (6), which weighed 58.5g in total (Table 4.1). In comparison, the total weight of cremated bone that could be expected from a complete adult cremation burial is 1000-3000g (McKinley 2000). This suggests that either some material had been lost through degradation or disturbance, or only a token amount of cremated bone was buried originally.

- 4.4 The largest fragments were found in the heavier of the two contexts, with the largest measuring 41.4mm. The largest fragment in context (12) was 25.5mm long. However, in both cases, the majority of fragments fell into the middle fraction, followed by the smallest fraction, and only a relatively small percentage of the material was found in the 10mm+ fraction (Table 4.2).

Table 4.1: Summary of cremated remains

Context	Context Detail	Bone Colour	Species	Weight (g)
4	Primary fill of cremation pit (7)	Pale grey/ white	Human?	209.2
12	Upper fill of cremation pit (6)	Pale grey/ white, occasional black	Unknown	58.5

- 4.5 In both cases most of the bone was fully oxidised, being pale grey or white in colour. This implies exposure to high temperatures in excess of *c.* 600°C (McKinley 2004). Occasionally small areas of black were seen in bone from context (12), which could suggest not enough oxygen was available during burning to allow full oxidation of all the bone, or that temperature was not constant throughout the pyre.
- 4.6 All fragments were examined with a view to identification. Nineteen fragments of cranial vault (weighing 15.5g) were found in context (4), and it is possible that these were human. However, there were no diagnostic features present to allow a firm identification of the bone as human, so the identification of species is tentative. Unfortunately, none of the remaining bone in either context could be identified, largely due to the general small size of the fragments, and it was impossible to determine if they were human or animal.

Table 4.2: Fraction weights and fragment size

Context	Total Weight g	Fraction Weights						Max. Frag Size mm
		>10mm		5-10mm		2-5mm		
		g	%	g	%	g	%	
4	209.2	39.0	18.6	92.2	44.1	78.0	37.3	41.4
12	58.5	3.8	6.	25.8	44.1	28.9	49.4	25.5

5. Sources

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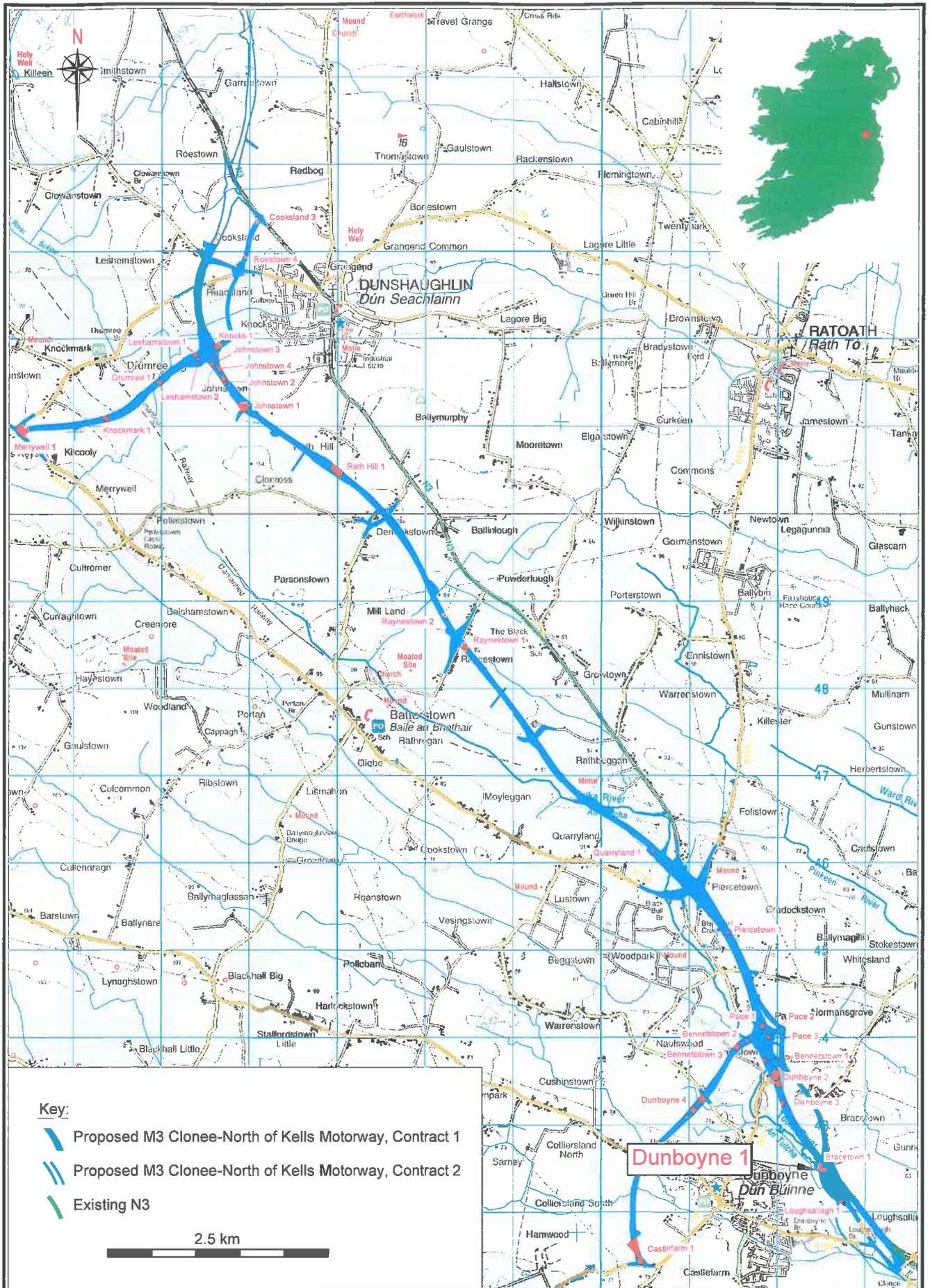
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Appendix 1: Cremated bone – fraction weights and maximum fragment size / sample

Context	Sample	Total Weight g	Fraction Weights						Max. Frag Size mm
			>10mm		5-10mm		2-5mm		
			g	%	g	%	g	%	
4	1	194.0	39.0	20.1%	90.8	46.8%	64.2	33.1%	41.4
4	6	14.0	0.0	0.0%	1.4	10.0%	12.6	90.0%	12.8
4	7	1.2	0.0	0.0%	0.0	0.0%	1.2	100.0%	9.0
12	1	53.2	3.8	7.1%	24.7	46.5%	24.7	46.4%	25.5
12	2	5.3	0.0	0.0%	1.1	20.8%	4.2	79.2%	11.6

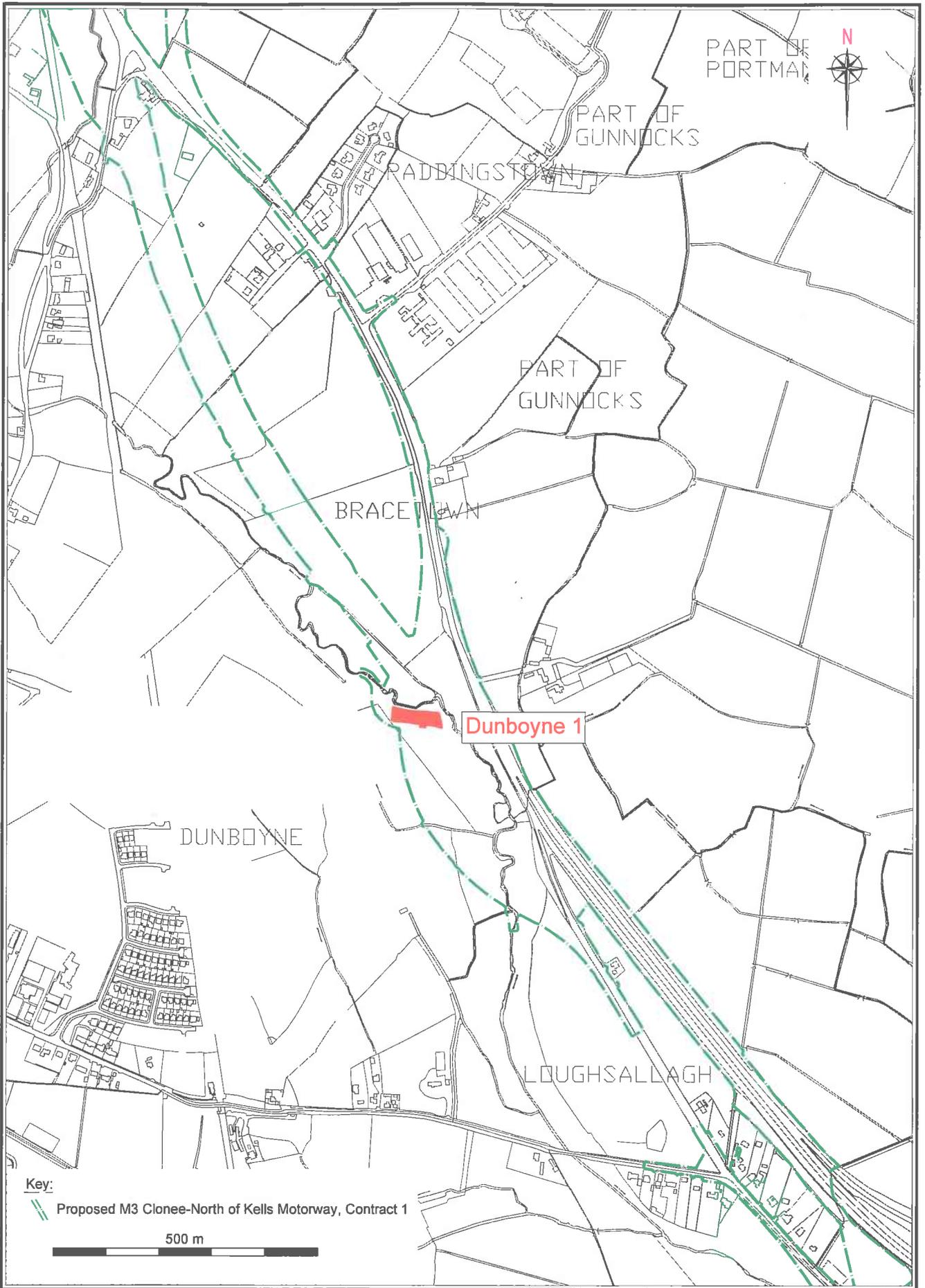


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Site: M3 Clonee-North of Kells PPP Scheme
 Contract 1, Dunboine 1
 Issued for: Excavation Report
 Client: Meath County Council

Scale: 1:60,000 A4
 Date: Jul '08
 Origin: OSi Discovery Series
 Drawing no.: 04 01 C3191i

Figure 1: Location of Dunboine 1

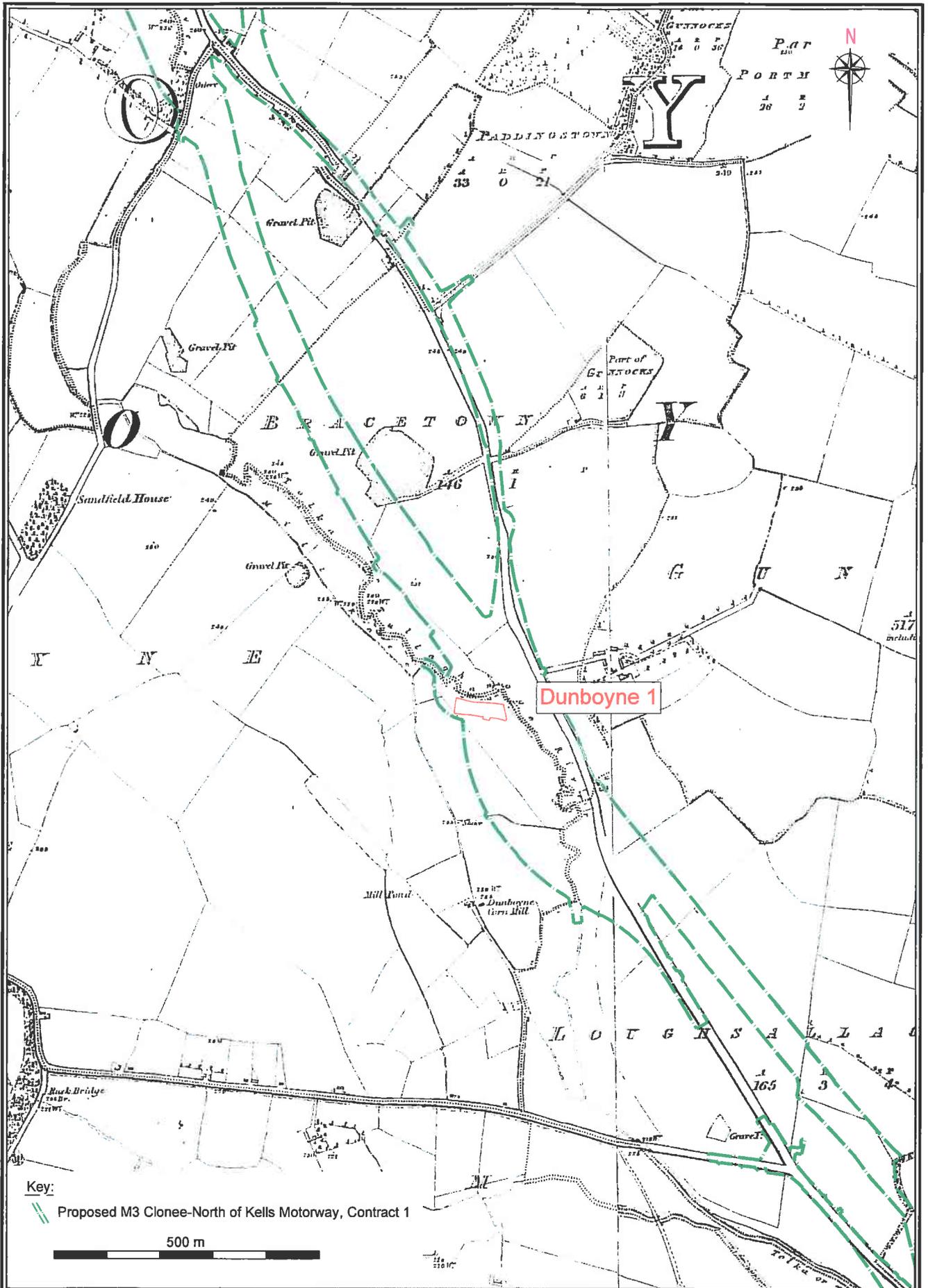


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Scale: 1:10,000 A4
 Date: Jul '08
 Origin: Client/ACS Ltd.
 Drawing no.: 04_01_C3192i

Figure 2: Location of Dunboyme 1 on current OS background

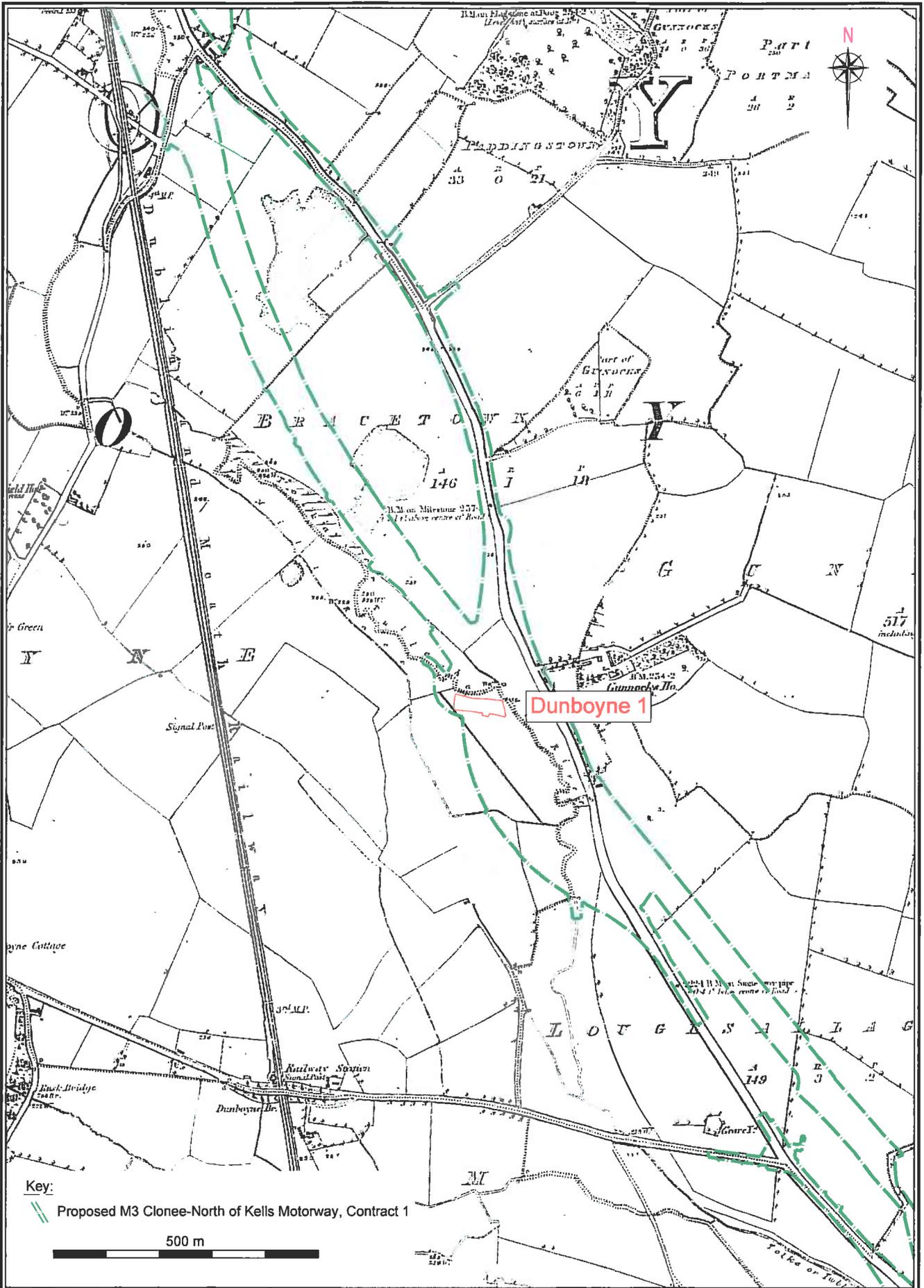


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Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Dunboyncy 1
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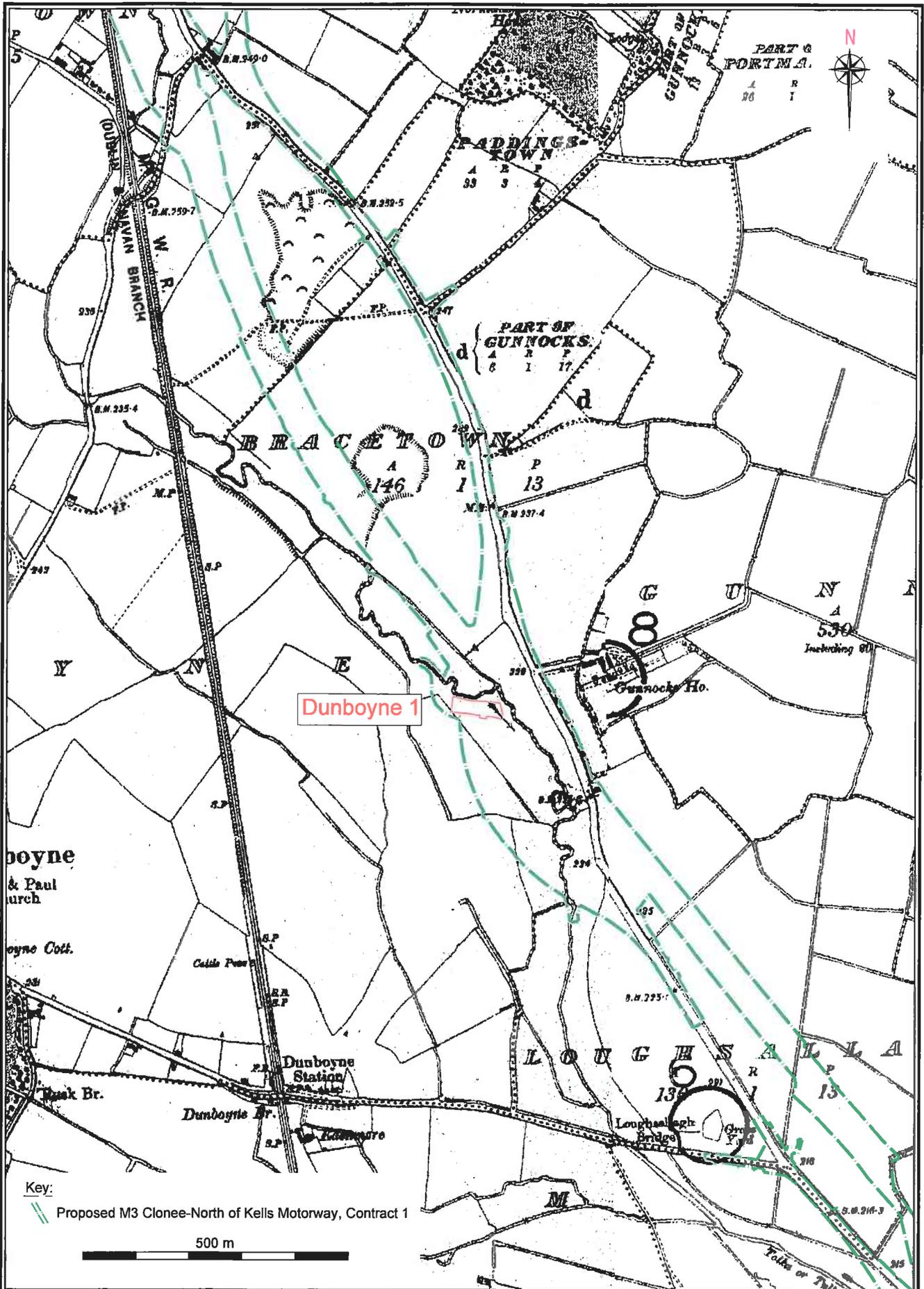
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Figure 3: Dunboyncy 1, extract from 1st edition OS map, Meath sheets 50 & 51



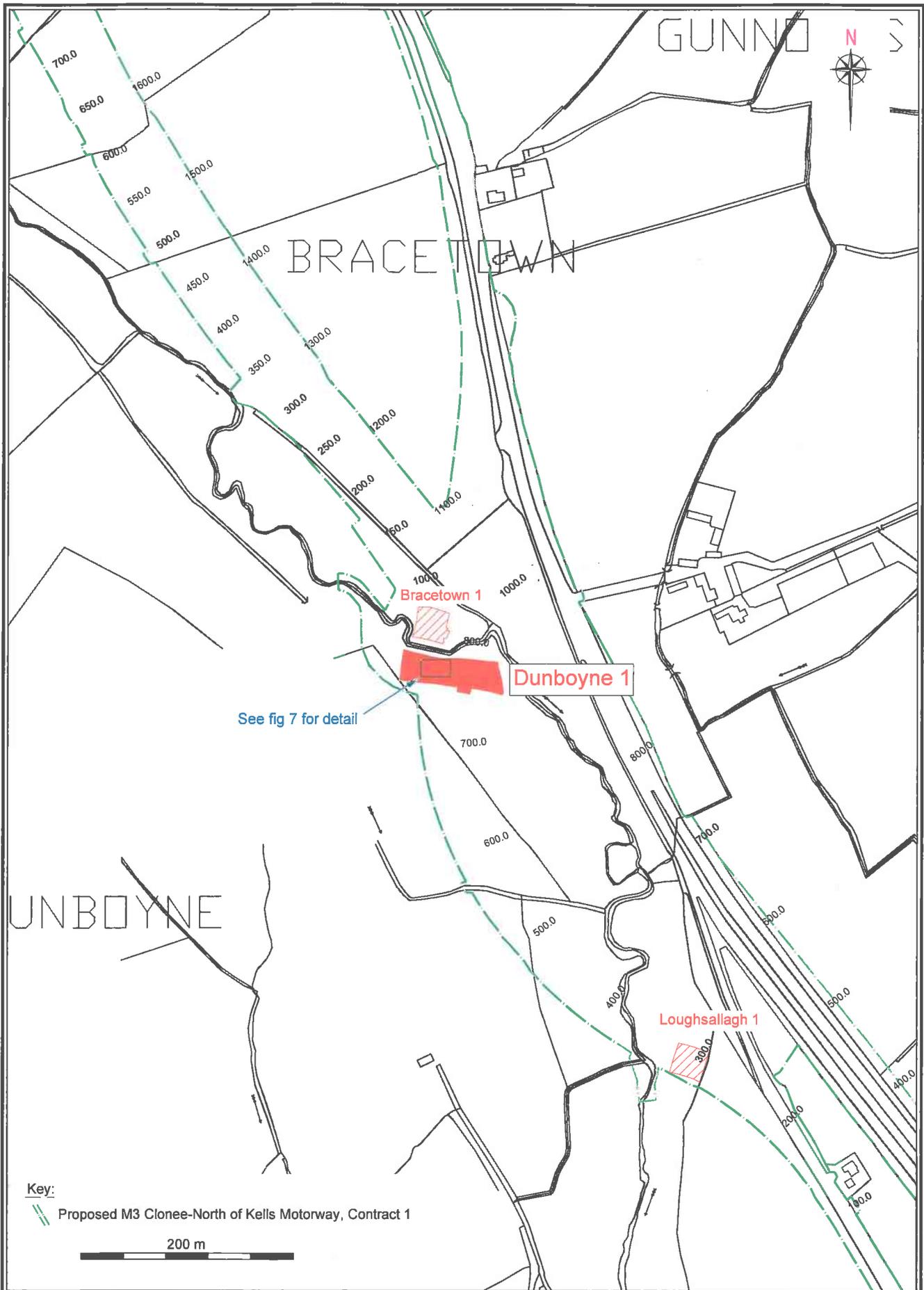
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Dunboyne 1	Scale: 1:10,000 A4
	Issued for: Excavation Report	Date: Jul '08
	Client: Meath County Council	Origin: OSi (1883)
		Drawing no.: 04_01_C3194i

Figure 4: Dunboyne 1, extract from 2nd edition OS map, Meath sheets 50 & 51



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Dunboyncy 1	Scale: 1:10,000 A4
	Issued for: Excavation Report	Date: Jul '08
	Client: Meath County Council	Origin: OSi (1909)
		Drawing no.: 04_01_C3195i

Figure 5: Dunboyncy 1, extract from 3rd edition OS map, Meath sheets 50 & 51



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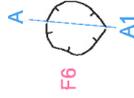
Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Dunboyne 1
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 Client: Meath County Council

Scale: 1:5,000 A4
 Date: Jul '08
 Origin: Client/ACS Ltd.
 Drawing no.: 04_01_C3196i

Figure 6: Detailed location of Dunboyne 1



Extent of previous river course



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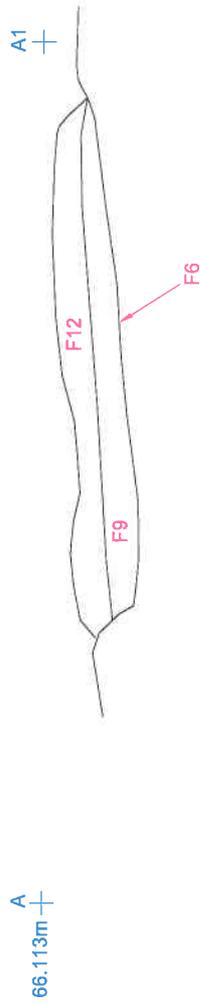
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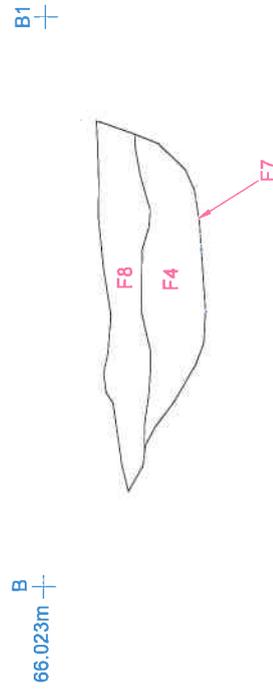
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Figure 7: Post-ex plan of features at Dunboyne 1

SECTION THROUGH F6



SECTION THROUGH F7



50 cm

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Figure 8: Sections of Dunboyne 1



Plate 1: Pre-ex shot of F6 showing upper fill F12 from the east (04_01_Dunboyne_1_CP1001_03)



Plate 2: Post-ex shot of F6 from the west (04_01_Dunboyne_1_CP1002_11)

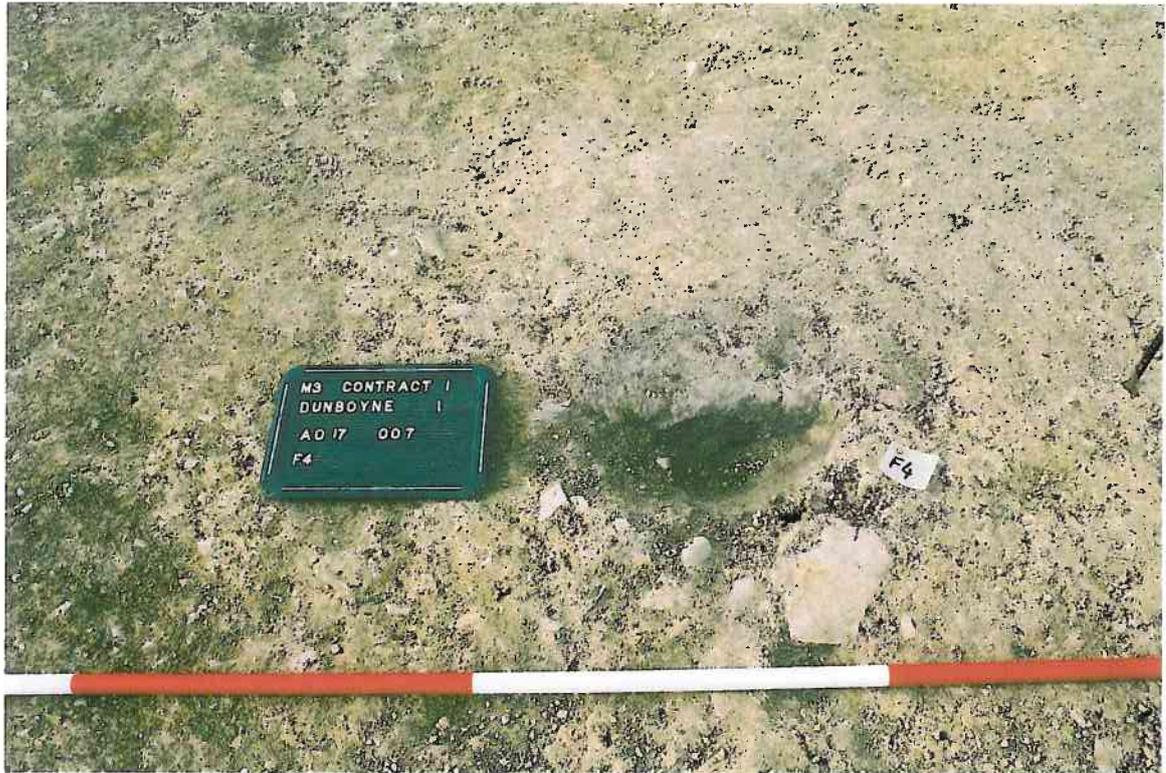


Plate 3: Pre-ex shot of F4 showing F8 from the east (04_01_Dunboyne_1_CP1002_23)



Plate 4: Post-ex shot of F7 from the east (04_01_Dunboyne_1_CP1002_12)