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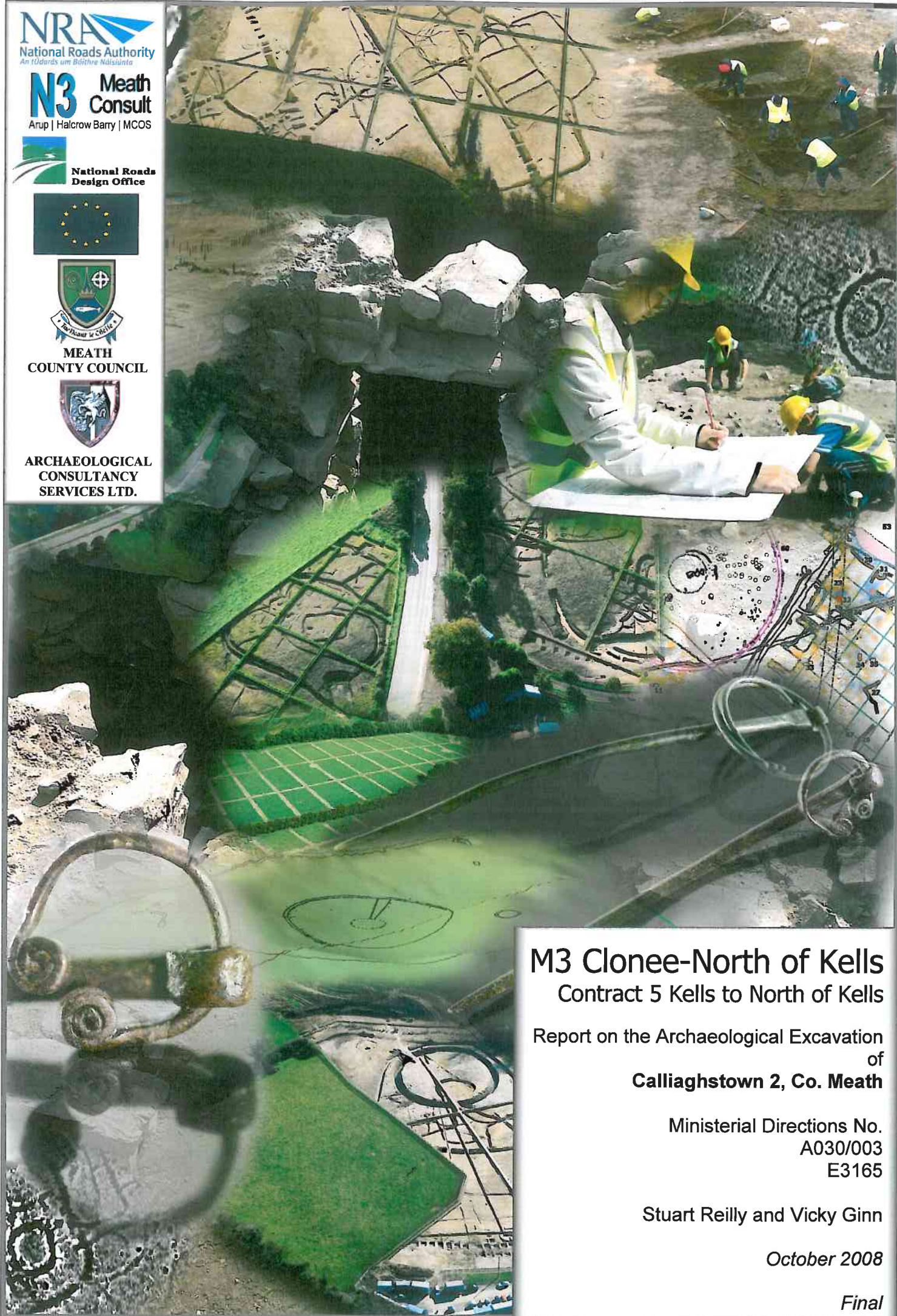
National Roads Design Office



MEATH COUNTY COUNCIL



ARCHAEOLOGICAL CONSULTANCY SERVICES LTD.



M3 Clonee-North of Kells Contract 5 Kells to North of Kells

Report on the Archaeological Excavation
of
Calliaghstown 2, Co. Meath

Ministerial Directions No.
A030/003
E3165

Stuart Reilly and Vicky Ginn

October 2008

Final

PROJECT DETAILS

Project	M3 Clonee–Kells Motorway
Site Name	Calliaghstown 2
Ministerial Direction Number	A030/003
Registration Number	E3165
Senior Archaeological Consultant	Donald Murphy
Site Director	Stuart Reilly
Excavated	24 November – 20 December 2006
Client	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
Townland	Calliaghstown
Parish	Kells
County	Meath
National Grid Reference	268690 276832
Chainage	80970–81000
Height	84.47m OD
Report Type	Final
Report Status	Submitted
Date of Report	October 2008
Report by	Stuart Reilly and Vicky Ginn

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 Direction Number 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

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NON-TECHNICAL SUMMARY

This site at Calliaghstown 2 was excavated by Gahan and Long for 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 between 24 November and 20 December 2006 under Ministerial Direction Number A030/003 issued by DOEHLG in consultation with the NMI. Two burnt mounds (Burnt mound 1 and 2) were identified and were located on the east-facing slope of a scarp that overlooked the nearby bog. Each burnt mound spread covered a single pit and a trough. The spread associated with Burnt mound 2 was dated to the late Bronze Age. A further three pits were also discovered. One of these pits was filled with burnt mound material and was probably associated with burnt mound 1 and although slightly later in date than burnt mound 2 was also dated to the late Bronze Age.

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FIGURE LIST

Figure 1: Location of Calliaghstown 2

Figure 2: Location of Calliaghstown 2 on current OS background

Figure 3: Calliaghstown 2, extract from 1st edition OS map, Meath sheet 16

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Figure 6: Detailed location of Calliaghstown 2

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PLATE LIST

Plate 1: Post-excavation of pit F110, looking north

Plate 2: Pre-excavation of burnt mound F102, looking north

Plate 3: Post-excavation of Calliaghstown 2

1 INTRODUCTION

The site at Calliaghstown 2 (Figures 1–6) was identified during advance testing carried out by Gill McLoughlin on behalf of Irish Archaeological Consultancy during August 2004 (04E1052) when two spreads of burnt mound material (heat-fractured stone and charcoal) (7.50m x 7.50m x 0.33m and 9.00m x 6.00m x 0.35m), 40m apart, were identified (McLoughlin 2005). A pit (2.20m x 1.00m x 0.26m), not associated with the spreads, was also noted and an unstratified barbed and tanged flint arrowhead, indicating Bronze Age activity in the area, was found (04E1052:1). Full resolution of the site occurred in November and December 2006 and the two spreads were re-located, along with associated pits and troughs.

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 5) will commence at the N52 Mullingar Road situated to the southwest of Kells in the townland of Calliaghstown (NGR 272828 274647) and runs to the northwest, crosses the River Blackwater at Balgree and terminates in the townland of Derver at the existing border between counties Meath and Cavan (NGR 266012 280943).

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 24 November and 20 December 2006 under Ministerial Direction Number A030/003 issued to Meath County Council NRDO. The work was carried out by Stuart Reilly on behalf of ACS. The topsoil (F100), a mid-brown, sandy clay, was stripped by machine equipped with a grading bucket and F125 formed the subsoil.

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

Twenty-three contexts of archaeological interest were identified within the excavation area. Only the principal archaeological features of Calliaghstown 2 will be discussed within this report; full details of all these, and further, contexts are located in Appendix 1.

Burnt Mound 1

An irregular-shaped spread of burnt mound material (heat-shattered stones and charcoal-rich material) was noted (F101: 20.00m x 19.50m x 0.44m, 2g charcoal flecks recovered). It was cut by a post-medieval stone drain (F116: 2.00m wide x 0.70m deep) to the east (Figures 7–9). The burnt mound material F101 sealed and filled the oval-shaped, north–south pit (F121: 1.50m x 0.94m x 0.26m) and the sub-rectangular trough F115 (2.26m x 1.80m x 0.40m). The trough F115 was cut along its eastern extent by the drain F116. Three stakeholes were identified in each of its surviving corners. The stakeholes, F118 (0.20m diameter x 0.27m depth), F119 (0.22m diameter x 0.15m depth), and F122 (0.30m diameter x 0.15m depth) all contained F120, a loose, sandy, brown clay with frequent organic material (including charcoal flecks recovered during sieving: Appendix 3).

A sub-rectangular pit (F110) which was aligned east–west (2.64m x 1.90m x 0.48m; Plate 1) was identified northwest of the burnt mound spread F101. Although it was not covered by the spread F101, its proximity and fill would suggest that it was associated. F110 contained two fills, the primary of which (F111) comprised burnt mound material (including 3g charcoal flecks recovered from sieving: Appendix 3) and the secondary of which (F112) consisted of a mid-brown, sandy clay with occasional stones and clay. Charcoal recovered from F111 was identified as hazel, ash, maloideae (hawthorn, whitebeams, apple and pear), blackthorn

cherries and willow/poplar with hazel being the most predominant (ASDU; Appendix 5). A sample of hazel from F111 was dated to Cal 957-806 BC (BETA 247133; Appendix 4).

Burnt Mound 2

This burnt mound was located approximately 40m from the first (Figures 7–9). It comprised an irregular-shaped spread (F102: 12.00m x 10.50m x 0.36m, from which 6g charcoal and 10g cremated bone was derived during sieving: Appendix 3; Plate 2). The charcoal was identified as hazel, ash, willow/poplar and elm with hazel being the most predominant whilst the cremated bone was too small and fragmented to identified as human or animal (ASDU; Appendix 5). A sample of hazel was dated to Cal 1266-1009 BC (BETA 247132; Appendix 4). Two wheat seeds were also recovered from this fill (ASDU; Appendix 5).

The spread F102 covered the sub-circular pit F113 (0.32m x 0.27m x 0.11m) which was filled with a moderately compact, dark-brown, sandy clay (F117, no charcoal recovered during sieving: Appendix 3) and a sub-rectangular, northwest–southeast trough F123 (2.25m x 1.75m x 0.40m) which was filled with the overlying burnt mound material F102.

2.2 Finds

There were no archaeological finds retrieved from the site.

3 DISCUSSION

3.1 Form and function

The site was dominated by two burnt mound spreads (Burnt mound 1 (F101) and Burnt mound 2 (F102)). They were located approximately 40m apart on the east-facing slope of a scarp, that overlooked an area of bog, on the fringes of waterlogged ground. The burnt mounds represented the remains of *fulachta fiadh* and were typically composed of a charcoal and a heat-fractured stone-rich spread. Each spread at Calliaghstown 2 sealed a single pit and a trough. An additional pit (F110) was filled with burnt mound material and was located in close proximity to burnt mound 1. It is likely that this burnt mound spread also originally sealed the pit F110 but was later ploughed away. A stakehole was identified in three corners of the trough (F115) associated with burnt mound spread 1. These stakeholes may indicate the remains of some form of contemporary structure; possibly to support wooden panels to aid the retention of water.

Burnt mound sites (*Fulacht Fiadh*) are frequently interpreted as cooking places (O' Kelly 1954), especially for boiling meat. Other theories are that they were used as saunas, for bathing (Buckley 1990a, 9), brewing (Quinn & Moore 2007), boat building, butter production, brine evaporation, pottery filler, leather working and metallurgy (Barfield and Hodder 1987, 371). It is generally accepted that these monuments were used to heat water by a form of hot stone technology (Brindley *et al* 1989-90, 25) and therefore as monuments they may have been multi-functional. Burnt stone mounds are characteristically crescent shaped and are usually located close to a water source, either a river or stream, standing water such as a boggy landscape or a natural spring. The burnt mound at Calliaghstown 2 was adjacent to waterlogged ground, in this case a large area of bog that would have provided a ready source of water.

Burnt mounds are the most common field monument identified in this country and have dominated the entire route of the proposed M3 Motorway. A total of sixty-one such sites were identified along this project and it is likely that this predominance would have been reflected throughout the entire surrounding landscape. Thirty-eight of the identified sites were similar to that of Calliaghstown 2 and contained the remains of a burnt mound and associated pits/hearths/troughs. Nine burnt mound sites in addition to Calliaghstown 2 were identified along this section (Section 5) of the proposed route (Boolies 1 (A030/005), Boolies 2 (A030/004), Chapelbride 5 (A030/006), Castlekeernan 3 (A030/014), Drumbaragh 3 (A030/013), Pottlebane 3 (A030/017), Derver 4 (A030/017), Derver 5 (A030/021) and Derver 6 (A030/013)). Three of these (Boolies 1, Boolies 2 and Chapelbride 5) were located in relatively close proximity to Calliaghstown 2 and were located 903m, 584m, and 1040m, respectively, to the west.

3.2 Date and sequence

Burnt mounds date from the late Neolithic (e.g Clowanstown 1 (A008/011)) to the medieval period (Walsh 1990), although they are commonly dated to the Bronze Age (Brindley & Lanting 1990, 55–6). A characteristic absence of artefacts means that dating the site is reliant on either dendrochronology or radiocarbon analysis. Two radiocarbon dates were recovered from this site and typically place the burnt mound activity at Calliaghstown 2 within the Bronze Age. Although these burnt mounds were both dated to the late Bronze Age, they were not contemporary and appeared to represent successive phases of burnt mound activity. A radiocarbon date was not obtained from the actual spread associated with or sealed by burnt mound 1 (F101) but was obtained from a pit (F110) that was located in close proximity to and in all likelihood originally sealed by the spread (pit was filled with burnt mound material).

This feature was dated to Cal 1266-1009 BC (BETA 247132; Appendix 4). Burnt mound 2 (F102) was marginally later in date and was dated to Cal 957-806 BC (BETA 247133; Appendix 4). This date was obtained from the burnt spread.

4 CONCLUSIONS

Calliaghstown 2 (A030/003) excavated (24 November – 20 December 2006) by Stuart Reilly of Gahan and Long for ACS as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council NRDO and the NRA, represented two irregular-shaped burnt mound spreads. Each burnt mound sealed a single pit and a trough. The trough, F115, which was sealed by burnt mound 1 (F101), may have been wood lined, as indicated by the presence of three stakeholes in each of its surviving corners. The burnt mounds were subsequently succeeded and disturbed by later farming activity, in particular trough F115 which was badly disturbed along its eastern edge by a large stone field drain (F116).

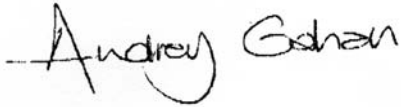
5 REFERENCES

- Barfield, L & Hodder, M 1987 'Burnt mounds as saunas & the prehistory of bathing', *Antiquity* Vol. 61, 370-371
- Brindley, AL *et al* 1989-90 'Radiocarbon dates from Irish fulachta fiadh and other burnt mounds', *Journal of Irish Archaeology*, Vol. 5. 25-33.
- Brindley, AL & Lanting, J 1990 'The dating of fulachta fiadha' in Buckley, V (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 55–56. Dublin, Wordwell.
- Buckley, V 1990 'Preface' in Buckley, V (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 9. Dublin, Wordwell.
- McLoughlin, G 2005 *Report on Archaeological Assessment at Testing Area 1, Calliaghstown, Co. Meath, Licence Number: 04E1052*. Unpublished report prepared for Irish Archaeological Consultancy Ltd.
- O' Kelly M.J. 1954 'Excavations and experiments in ancient Irish cooking-places' *Journal of the Royal Society of Antiquities of Ireland*, Vol. 84, 105-55

Quinn, B & Moore, D 2007 'Ale, brewing and *fulachta fiadh*', *Archaeology Ireland*, Volume 21 No.3 Issue No. 81.

Walsh, C 1990 'A Medieval Cooking Trough from Peter Street, Waterford' in Buckley, V (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 47–48. Dublin, Wordwell.

Signed:

A handwritten signature in black ink that reads "Andrew Gahan". The signature is written in a cursive style with a horizontal line under the first part of the name.

pp.Stuart Reilly
October 2008

APPENDIX 1 Context Details

Calliaghstown 2 A030/003											
No	Type	Fill of/ Filled with	Strat above	Strat below	Description	Interpretation	Group	Artefacts	Animal bone	Cremated bone	Samples
1-3					used previously during Topsoil Assessment						
4-99	not assigned										
100	topsoil	N/A	125	N/A	mid-brown, sandy clay 0.40 – 0.50m in depth	topsoil					
101	spread	121, 115	121, 115	100	irregular spread (20m east-west x 19.50m north-south x 0.44m) of friable, loose, black, clayey sand with frequent charcoal flecks and heat-fractured stone. Cut by drain 116	burnt mound spread					#6 charcoal
102	spread	123	123, 113	100	irregular spread (12m east-west x 10.50m north-south x 0.36m) of loose, friable, black, clayey sand with frequent heat-shattered stone and charcoal flecks	burnt mound spread					#3, #4 charcoal and cremated bone
103-108	not assigned										
109	spread	N/A	125	100	linear spread (6.00m x 2.00m x 0.15m) of friable, loose, black, clayey sand with frequent heat-shattered stones and charcoal flecks	burnt mound spread					
110	cut	111, 112	125	111	sub-rectangular, east-west cut (2.64m x 1.90m x 0.48m) with a sharp break of slope, steep sides (gradual on west) and a sharp break of slope leading to a flat base	pit					
111	fill	111	110	112	loose, black sand with grey and orange clay inclusions, heat-shattered stones and charcoal flecks	fill of pit 110					#2 charcoal
112	fill	110	111	100	moderately compact, mid-brown, sandy clay with occasional stones and clay inclusions	fill of pit 110					

113	cut	117	125	117	sub-circular cut (0.32m x 0.27m x 0.11m with a gradual break of slope, steep sides and a gradual break of slope leading to an east-west-sloped base	pit					
114	same as 101										
115	cut	101	125	101	sub-rectangular, northeast-southwest cut (2.26m x 1.80m x 0.40m) with a sharp break of slope, steep sides and a sharp break of slope leading to a flat base. Three stakeholes in remaining corners	trough					
116	cut	N/A	125	N/A	linear, north-south cut (2.00m width x 0.70m depth) with a sharp break of slope, steep sides and a sharp break of slope leading to an uneven base	drain					
117	fill	113	113	100	moderately compact, dark-brown, sandy clay with frequent charcoal flecks	fill of pit 113					#5 soil
118	cut	120	125	120	circular cut (0.20m diameter x 0.27m depth) with a sharp break of slope, vertical sides and a flat base	stakehole in southwest corner of trough 115					
119	cut	120	125	120	circular cut (0.22m diameter x 0.15m depth) with a sharp break of slope, vertical sides and a sharp break of slope leading to an even base	stakehole in northwest corner of trough 115					
120	fill	118, 119, 122	118, 119, 122	100	loose, sandy-brown clay with frequent organic inclusions	fill of three stakeholes in trough 115					#7 charcoal
121	cut	101	125	101	oval, north-south cut (1.50m x 0.94m x 0.26m) with an imperceptible break of slope, gradually sloping sides and a gradual break of slope leading to a flat base	pit					
122	cut	120	125	120	circular cut (0.30m diameter x 0.15m depth) with a sharp break of slope, vertical sides and a sharp break of slope leading to a flat base	stakehole in northeast corner of trough 115					

123	cut	102	125	102	sub-rectangular, northwest-southeast cut (2.25m x 1.75m x 0.40m) with a sharp break of slope, gradually sloping sides and a gradual break of slope leading to an even base	trough					
124	same as 102										
125	subsoil	N/A	N/A		Subsoil – grey stony marl and gravel	subsoil					

APPENDIX 2 *Finds List*

There were no finds recovered from the excavations at Calliaghstown 2.

APPENDIX 3 *Sample List*

Sample No	Context No	Results
2	111	3g charcoal flecks
3, 4	102	6g charcoal, 10g cremated bone fragments
5	117	nothing
6	101	2g charcoal flecks
7	120	charcoal flecks

APPENDIX 4 Radiocarbon dates

Context	Sample No	Material	Species id/Weight	Lab	Lab Code	Date Type	Calibrated Date	Conventional Date (BP)	13C/12C Ratio ‰
102: burnt mound spread	3	Charcoal	Hazel	Beta	247132	AMS (Std)	Cal BC 1266-1009	2930 +/- 40 BP	-26.5
111: burnt mound material fill of pit 110	2	Charcoal	Hazel	Beta	247133	AMS (Std)	Cal BC 957-806	2730 +/- 40BP	-26.3

APPENDIX 5 *Environmental Analysis*



**Calliaghstown 2, M3 Motorway Project, Co
Meath, Ireland**

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

on behalf of

Archaeological Consultancy Services Ltd

Report 2073
October 2008

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Calliaghstown 2, M3 Motorway Project, Co Meath, Ireland

plant macrofossil, charcoal and cremated bone analysis

Report 2073

October 2008

Archaeological Services Durham University

on behalf of

Archaeological Consultancy Services Ltd

Unit 21 Boyne Business Park, Greenhills, Drogheda, Co. Louth, Ireland

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3. Plant macrofossil and charcoal analysis	2
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1. Summary

The project

- 1.1 An excavation of a Bronze Age burnt mound was undertaken by Archaeological Consultancy Services Ltd at Calliaghstown 2, Co Meath, Ireland. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of burnt spreads (contexts 102 and 111) and a pit fill (context 106).

Results

- 1.2 The only charred plant macrofossils from the site were 2 wheat grains. The charcoal analysis suggests that the main fuels used for activities associated with the burnt mound were ash, hazel, Maloideae, willow/poplar, blackthorn, cherries and elm.
- 1.3 A small amount of cremated bone (13.0g) was recovered from the site. Most of the bone was well-oxidised, but parts of some fragments were dark in colour and may have experienced restricted oxygen or cooler temperatures during burning. It was not possible to tell whether the bone was human or animal.

2. Project background

Location and background

- 2.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Calliaghstown 2, Co Meath, Ireland. Radiocarbon dates indicate a Bronze Age date for the site. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of burnt spreads (contexts 102 and 111) and a pit fill (context 106).

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 April 2008. Analysis and report preparation was conducted between April – October 2008.

Personnel

- 2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. The residues were sorted by Dr Charlotte Henderson and Mr Bryan Atkinson. Plant macrofossil and charcoal analysis were carried out by Mr Lorne Elliott. Cremated bone analysis was by Dr Anwen Caffell, and report preparation was by Dr Charlotte O'Brien.

Archive

- 2.5 The licence number is A030/003. 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 MZ7.5 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 all fragments >4mm. 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 hazel charcoal from each of contexts (102 and (111), were provided for radiocarbon dating.

Results

3.3 Burnt stones and charcoal were present in all of the contexts. Modern roots, insect fragments and an uncharred seed were also recorded, but the non-waterlogged nature of the site suggests these are later intrusive material. The only charred plant macrofossils were 2 wheat grains in context (102). Hazel, ash and willow/poplar charcoal were present in contexts (102) and (111), with a few fragments of elm recorded in (102). Fragments of blackthorn, cherries (which includes blackthorn, wild cherry and bird cherry) and Maloideae (hawthorn, whitebeams, apple and pear) were also occasionally present in context (111). The few charcoal fragments in context (106) were too small for identification. The proportions of identified charcoal are presented in Figure 3.1. The results of the plant macrofossil and charcoal analyses are presented in Table 3.1.

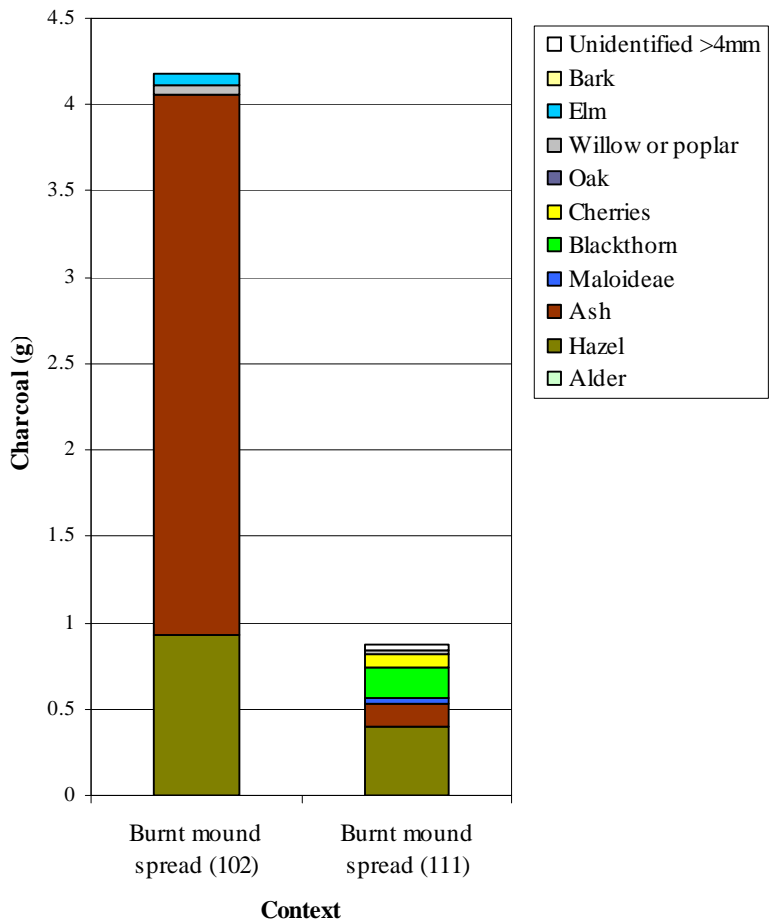


Figure 3.1: Proportions of identified charcoal from Calliaghstown 2

Table 3.1: Plant macrofossils and charcoal from Calliaghstown 2

Context	102	106	111
Sample	3, 4	1	2
Feature	Burnt mound spread	Pit	Burnt mound spread
<i>Material available for radiocarbon dating</i>	✓	✓	✓
<i>Volume of flot (ml)</i>	25	10	6
<i>Residue matrix (relative abundance)</i>			
Bone (calcined)	2	-	-
Charcoal	2	-	1
Heat-cracked stones	2	2	3
<i>Flot matrix (relative abundance)</i>			
Charcoal	2	1	1
Insect egg case	-	1	-
Roots (modern)	1	2	1
<i>Charcoal (g/number of fragments)</i>			
Total charcoal (g)	13.571	-	2.643
Percentage of sample analysed	100	-	100
Total charcoal analysed >4mm (g)	4.183	-	0.868
Number of analysed charcoal fragments >4mm	66	-	14
<i>Corylus avellana</i> (Hazel)	0.926 (14F)	-	0.395 (3F)
<i>Fraxinus excelsior</i> (Ash)	3.137 (49F)	-	0.132 (3F)
Maloideae (Hawthorn, whitebeams, apple, pear)	-	-	0.033 (1F)
<i>Prunus spinosa</i> (Blackthorn)	-	-	0.176 (4F)
<i>Prunus</i> spp (Cherries)	-	-	0.080 (1F)
Salicaceae (Willow or poplar)	0.045 (1F)	-	0.026 (1F)
<i>Ulmus</i> sp (Elm)	0.075 (2F)	-	-
Unidentified >4mm	-	-	0.026 (1F)
Unidentified <4mm	9.388	-	1.775
<i>Charred remains (total number)</i>			
(c) <i>Triticum</i> spp (Wheat species)	grain	2	-
<i>Uncharred remains (relative abundance)</i>			
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	1

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

Discussion

3.4 The 2 wheat grains from context (102) suggest that this cereal was used on the site, but without the diagnostic chaff, it is not possible to identify which species of wheat it was. Although wheat was cultivated in Ireland throughout prehistory, studies suggest that barley was the more widely used crop in the Bronze Age (Johnston 2007).

3.5 If the wood was collected locally, the results of the charcoal analysis suggest the proximity of mixed deciduous woodland to the site. This comprised a high canopy of ash, with hazel, Maloideae, blackthorn and cherries growing in the understorey vegetation or by the woodland margins. Elm, which favours the limestone, base-rich soils of central Ireland (Preston *et al* 2002), also formed a

minor component of this woodland. Willow and poplar charcoal cannot be differentiated with certainty (Hather 2000), and therefore the fragments of Salicaceae charcoal may derive from willows growing in wetland areas, or poplar trees which would have thrived on rich, alluvial soils.

- 3.6 The charcoal probably reflects the fuel used for activities associated with the burnt mound. The predominance of ash and hazel is in line with the results of a recent study of charcoal from Bronze Age sites in central and western Ireland, which has provided evidence that hazel, ash, alder and oak were the main trees selected for fuel on burnt mound sites (O'Donnell 2007).

4. Cremated bone analysis

Methods

The burnt bone from context (102) 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 is presented in Table 4.1, and the fraction weights and fragment size data are given in Table 4.2.
- 4.3 Context (102) contained a small amount of cremated bone, weighing 13.0g. The bone was well fragmented, with the largest fragment measuring 18.2mm and all the bone located in the middle and smallest sieved fractions (Table 4.2).

Table 4.1: Summary of cremated remains

Context	Context Detail	Bone Colour	Species	Weight (g)
102	Burnt mound spread	Mostly white, some dark grey/ black	Unknown	13.0

- 4.4 Most of the bone was white in colour suggesting exposure to temperatures in excess of *c.* 600°C with a plentiful supply of oxygen (McKinley 2004). However, some fragments darkened to grey and black in places, which could suggest cooler temperatures (*c.* 300-600°C) or an inadequate oxygen supply preventing full oxidation.

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	%	
102	13.0	0.0	0.0	6.0	46.2	7.0	53.8	18.2

- 4.5 The fragments were examined with a view to identification, but it was not possible to tell whether the bone was human or animal.

5. Sources

Boardman, S J, 1995 Charcoal and charred macrofossils, in K, Branigan & P, Foster (eds) *Barra: archaeological research on Ben Tangaval, Sheffield*: SEARCH Volume 1, 149-157

Hather, J G, 2000 *The identification of the Northern European Woods: a guide for archaeologists and conservators*, London

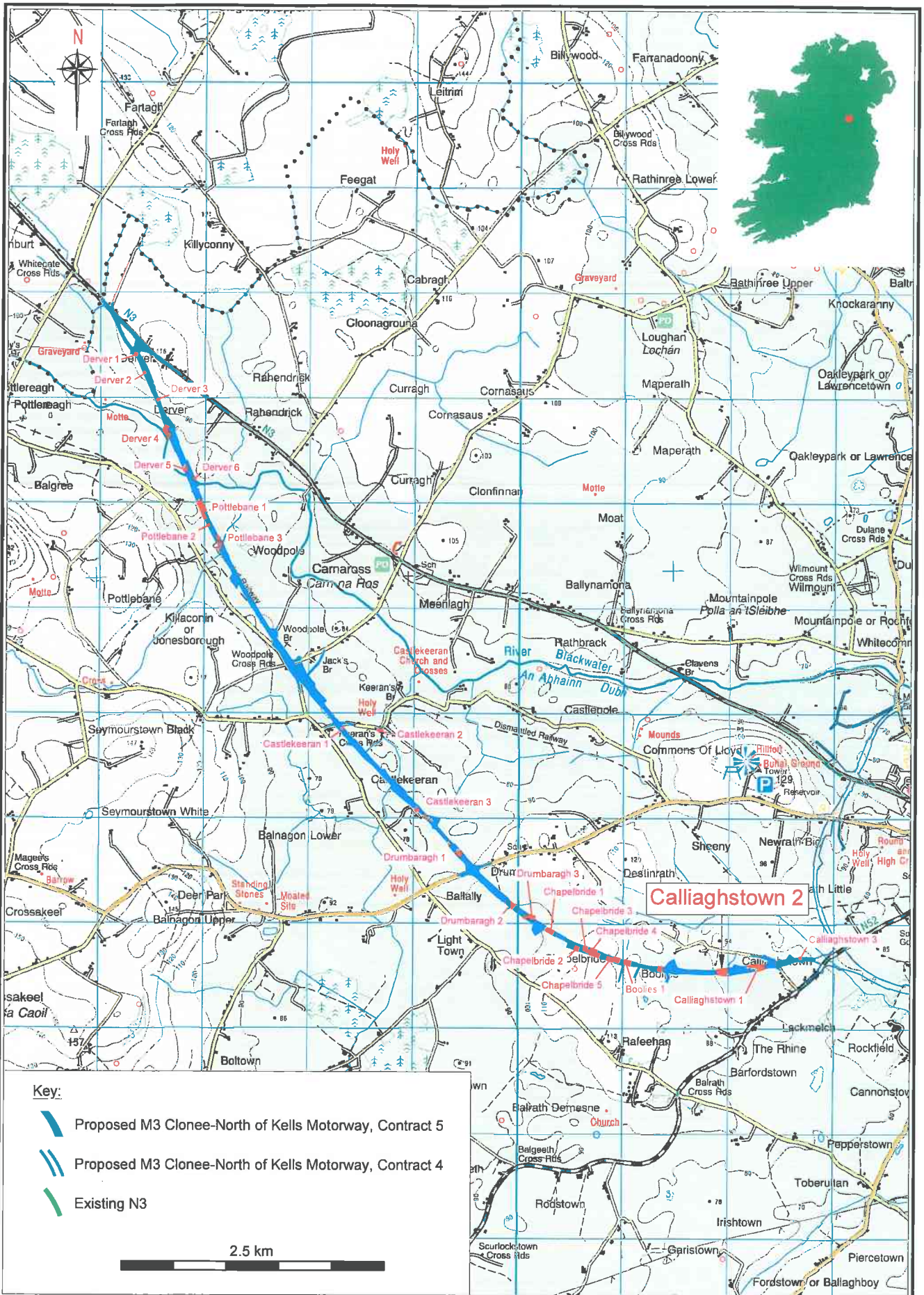
Johnston, P, 2007 Analysis of carbonised plant remains, in Grogan, E, O'Donnell, L, & Johnston, P, *The Bronze Age landscapes of the Pipeline to the West, an integrated archaeological and environmental assessment*, Wicklow

McKinley, J I, 2004 Compiling a Skeletal Inventory: Cremated Human Bone, in M Brickley & J I McKinley (eds) *Guidelines to the Standards for Recording Human Remains*, 9-13, Southampton and Reading

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

Preston, C D, Pearman, D A. & Dines, T D, 2002 *New Atlas of the British and Irish Flora*. Oxford

Stace, C, 1997 *New Flora of the British Isles*, 2nd Edition, Cambridge



Key:

- ▬ Proposed M3 Clonee-North of Kells Motorway, Contract 5
- ▬▬ Proposed M3 Clonee-North of Kells Motorway, Contract 4
- ▬ Existing N3

2.5 km

Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme Contract 5, Calliaghstown 2
 Issued for: Excavation Report
 Client: Meath County Council

Scale: 1: 50,000 A4
 Date: Jul '08
 Origin: OSi Discovery Series
 Drawing no.: 04_01_C9451i

Figure 1: Location of Calliaghstown 2



Key:

- Proposed M3 Clonee-North of Kells Motorway, Contract 5
- Proposed M3 Clonee-North of Kells Motorway, Contract 4

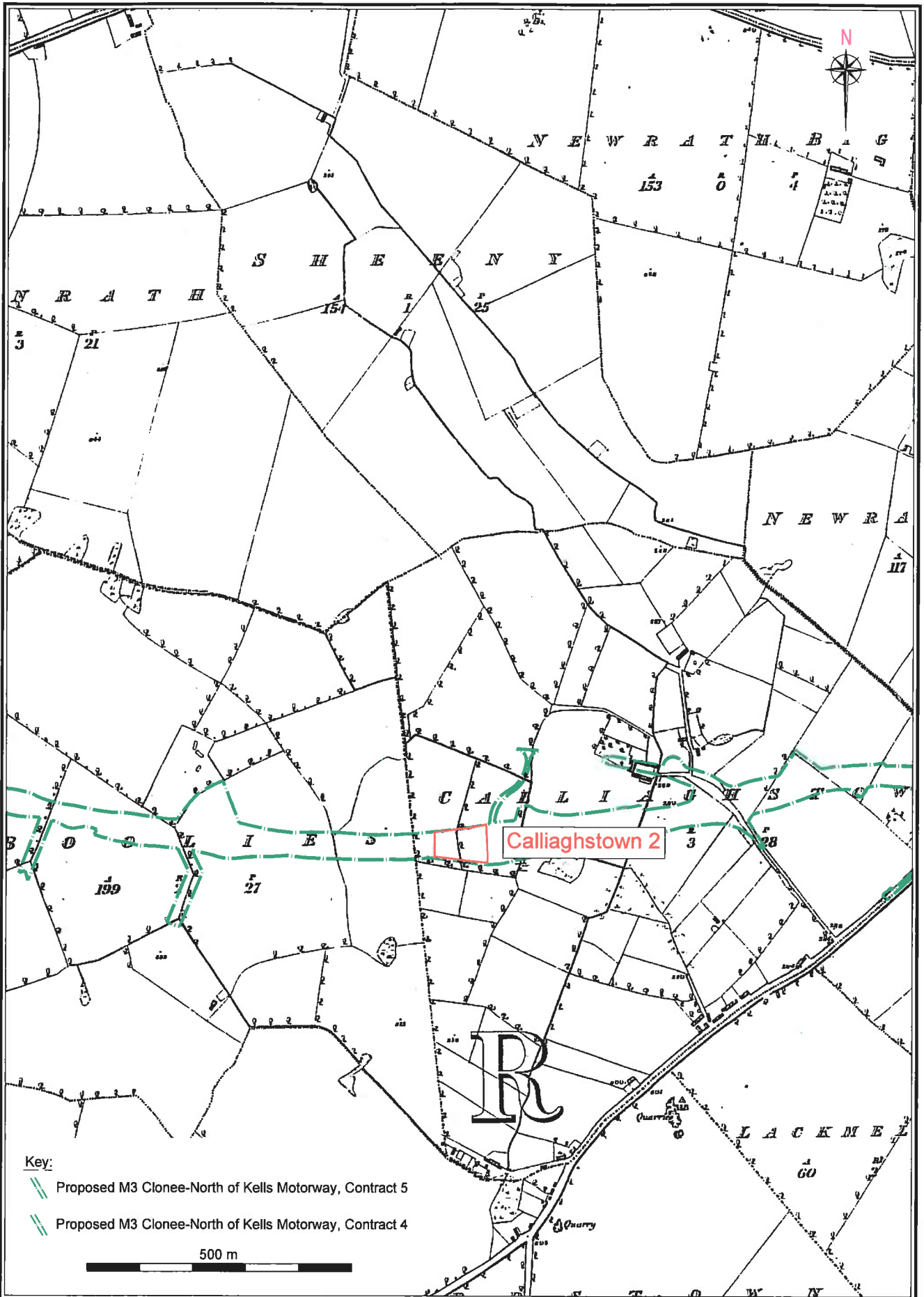
500 m

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 Greenhills, Drogheda, Co. Louth



Site: M3 Clonee-North of Kells PPP Scheme
 Contract 5, Calliaghstown 2
 Issued for: Excavation Report
 Client: Meath County Council

Scale: 1: 10,000 A4
 Date: Jul '08
 Origin: Client/ACS Ltd.
 Drawing no.: 04_01_C9452i

Figure 2: Location of Calliaghstown 2 on current OS background



Key:

-  Proposed M3 Clonee-North of Kells Motorway, Contract 5
-  Proposed M3 Clonee-North of Kells Motorway, Contract 4

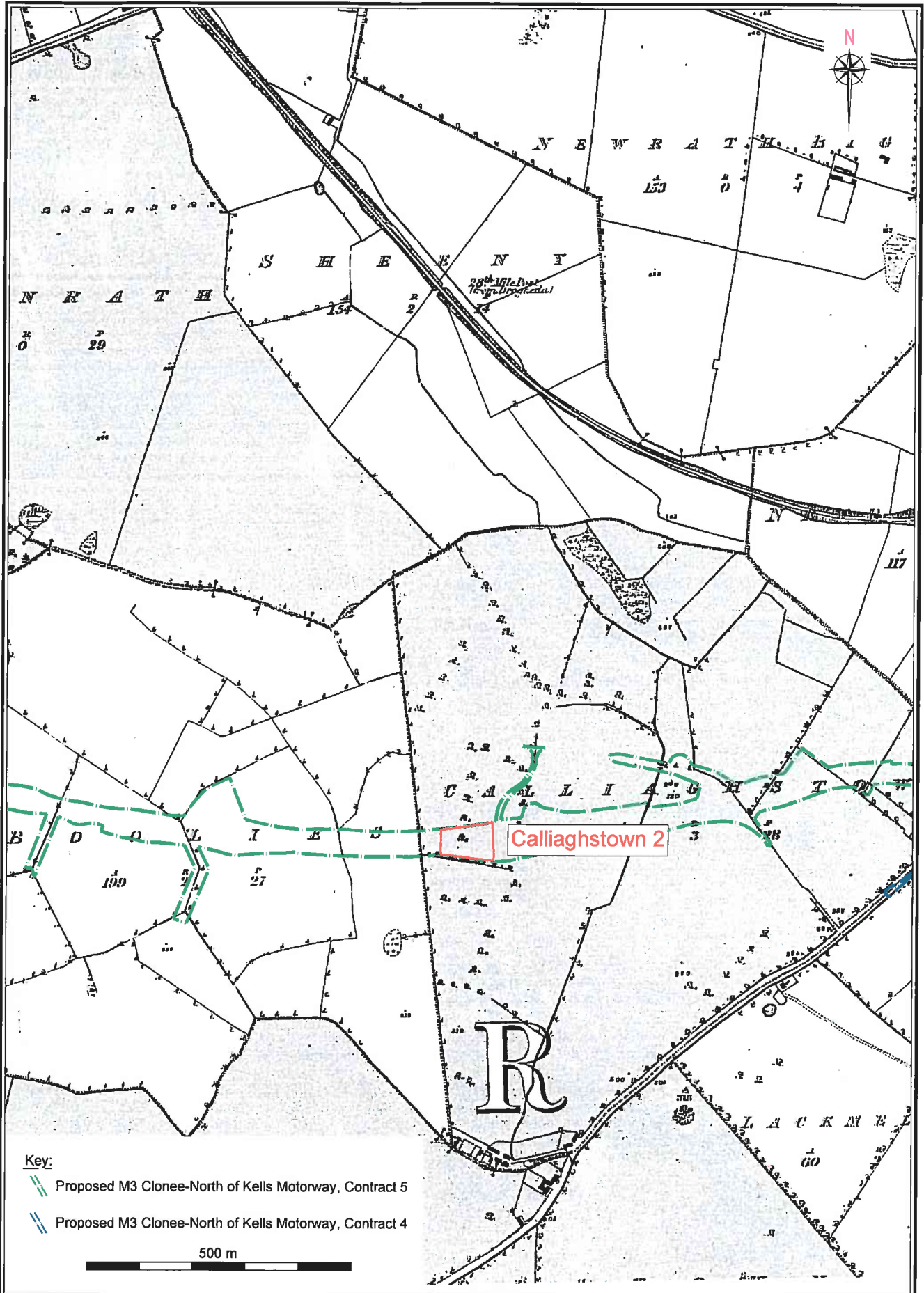
500 m

Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme Contract 5, Calliaghstown 2
 Issued for: Excavation Report
 Client: Meath County Council

Scale: 1: 10,000 A4
 Date: Jul '08
 Origin: OSi (1836)
 Drawing no.: 04 01 C9453i

Figure 3: Calliaghstown 2, extract from 1st edition OS map, Meath sheet 16

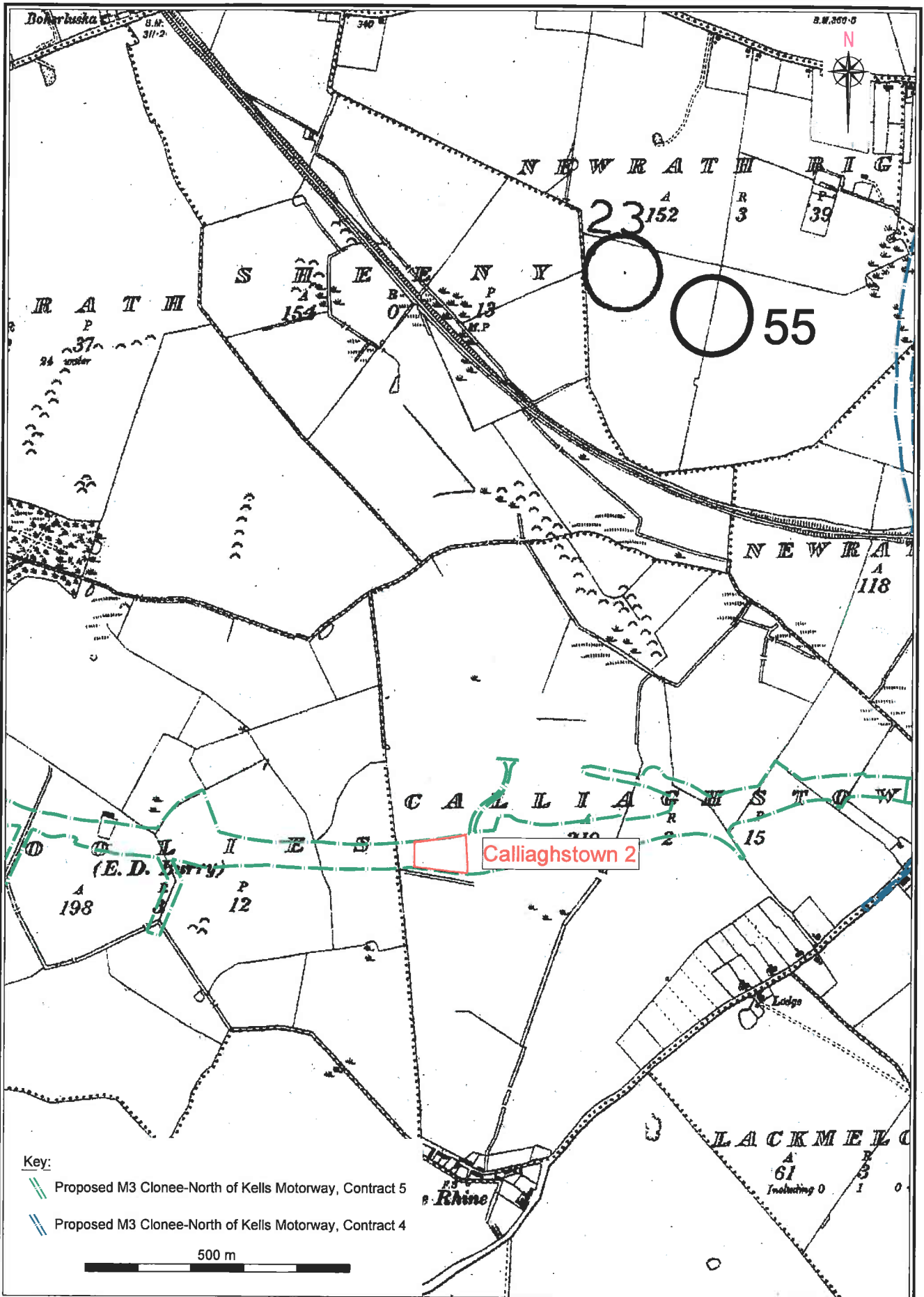


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 Client: Meath County Council

Scale: 1: 10,000 A4
 Date: Jul '08
 Origin: OSi (1882)
 Drawing no.: 04_01_C9454i

Figure 4: Calliaghstown 2, extract from 2nd edition OS map, Meath sheet 16

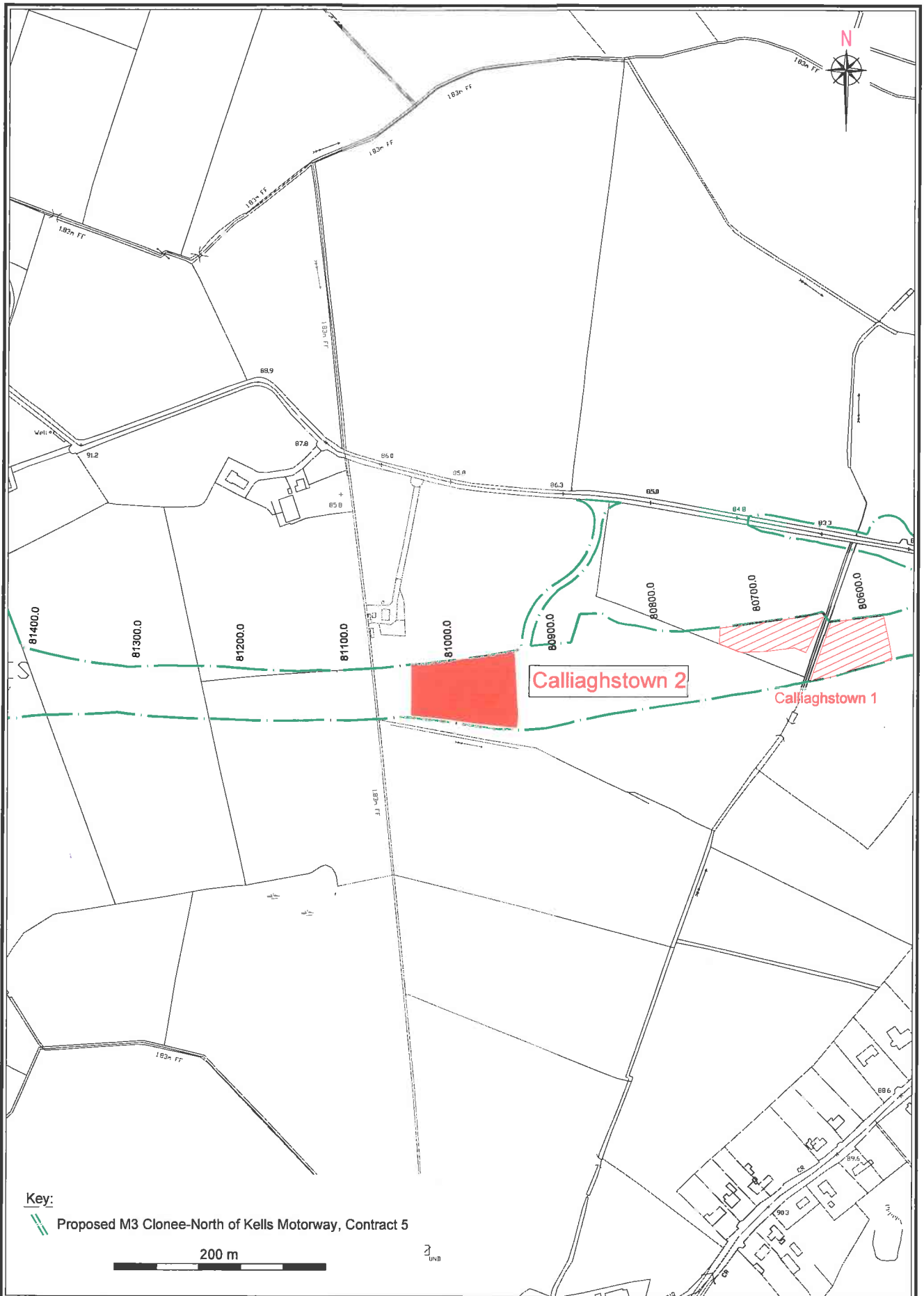


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 Contract 5, Calliaghstown 2
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Scale: 1: 10,000 A4
 Date: Jul '08
 Origin: OSi (1910)
 Drawing no.: 04 01 C9455i

Figure 5: Calliaghstown 2, extract from 3rd edition OS map, Meath sheet 16



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

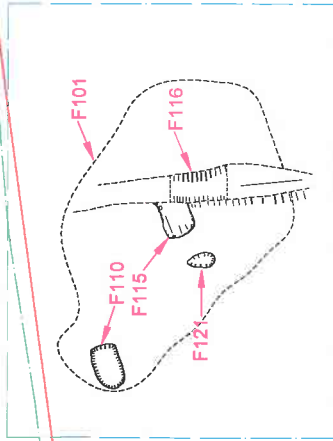
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 Issued for: Excavation Report
 Client: Meath County Council

Scale: 1: 5,000 A4
 Date: Jul '08
 Origin: Client/ACS Ltd.
 Drawing no.: 04 01 C9456i

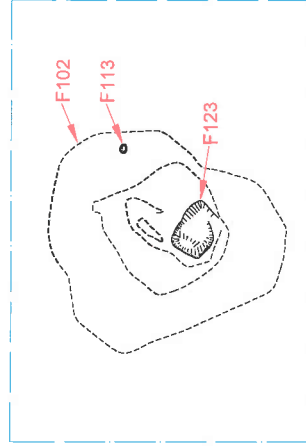
Figure 6: Detailed location of Calliaghstown 2



Limit of excavation
CPO Line



See Fig. 8b For Detail

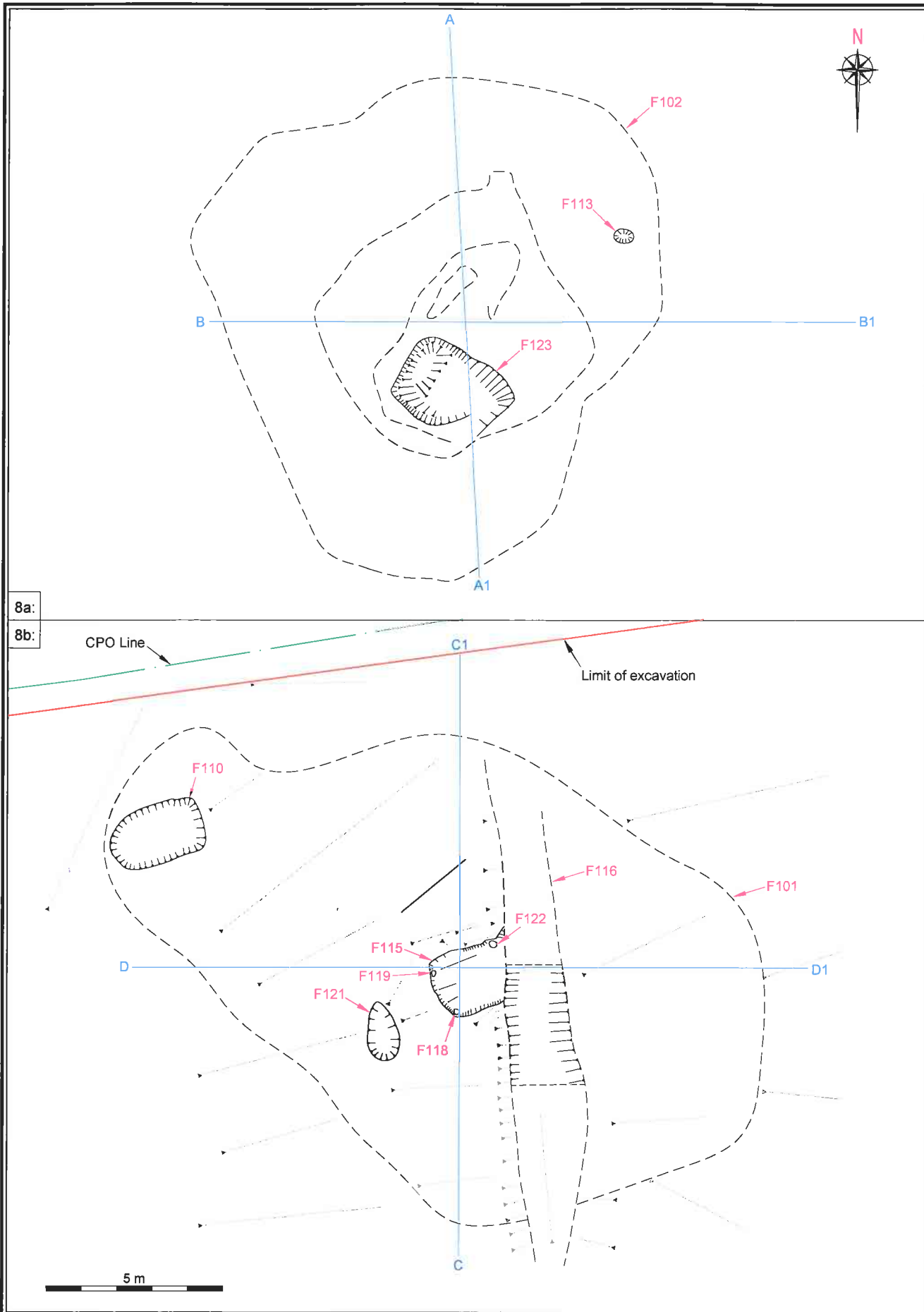


See Fig. 8a For Detail



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 5, Calliaghstown 2	Scale: 1: 450 A4
	Issued for: Excavation Report	Date: Jul '08
	Client: Meath County Council	Origin: Client/ ACS Ltd.
		Drawing no.: 04_01_C94571

Figure 7: Post-excavation plan of Calliaghstown 2



8a:

8b:

CPO Line

C1

Limit of excavation

F110

F116

F101

F115

F122

D

D1

F121

F119

F118

C

5 m

Archaeological Consultancy

Services Ltd. Unit 21, Boyne Business Park,
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme
Contract 5, Calliaghstown 2

Issued for: Excavation Report

Client: Meath County Council

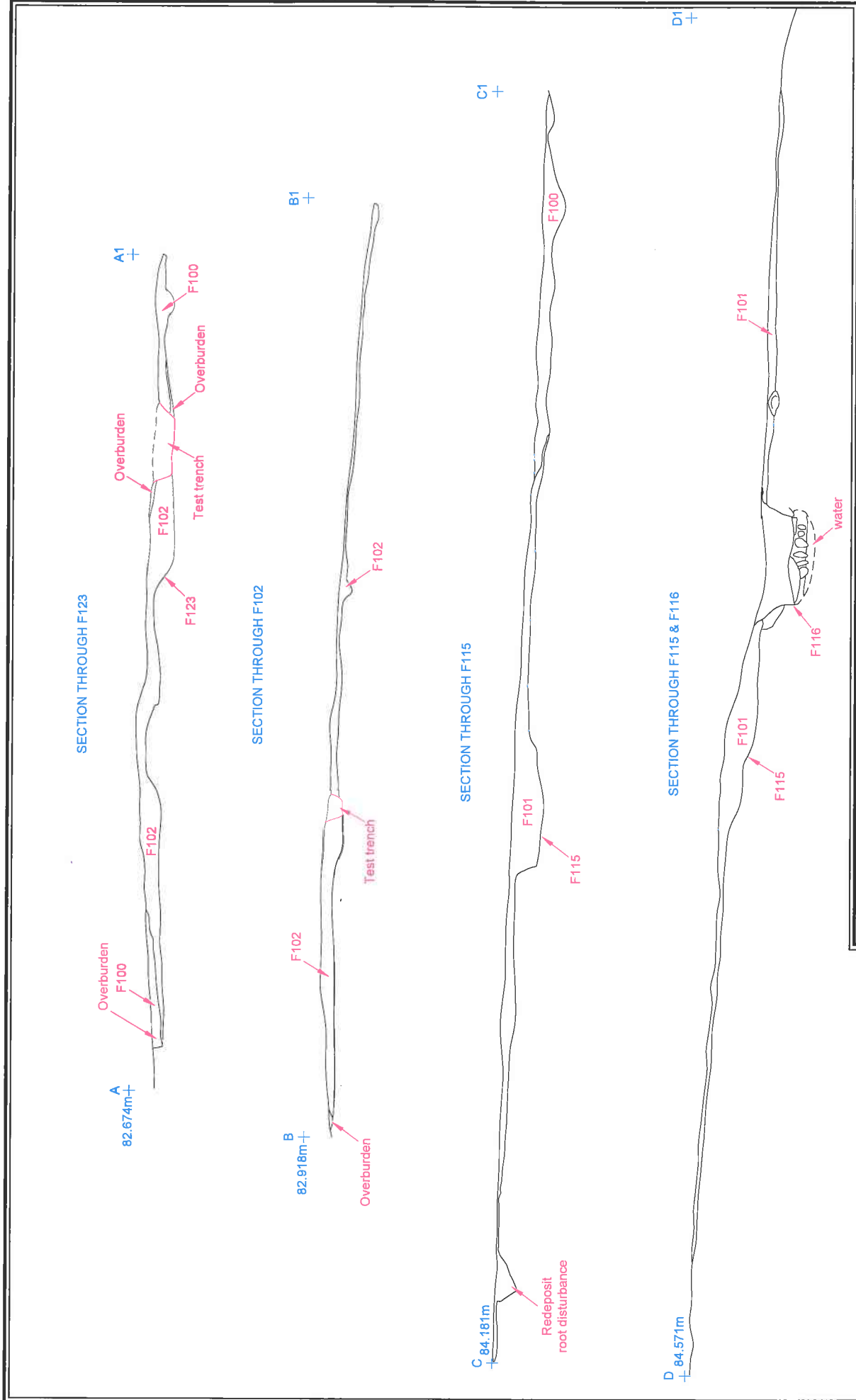
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Date: Jul '08

Origin: Client/ACS Ltd.

Drawing no.: 04_01_C9458i

Figure 8: Detail of Burnt Mounds 1 & 2



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Issued for: Excavation Report		Client: Meath County Council	Date: Jul '08
Client: Meath County Council		Origin: Client/ACS Ltd.	Drawing no.: 04 01_C9459I

Figure 9: Sections of Calliaghstown 2



Plate 1: Post-excitation of pit F110, looking north (04_01_Calliaghstown 2_CP06_04)



Plate 2: Pre-excitation of burnt mound F102, looking north (04_01_Calliaghstown 2_CP01_03)



Plate 3: Post-excitation of Calliaghstown 2 (04_01_Calliaghstown 2_CP10_20)