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N6 KINNEGAD – ATHLONE SCHEME PHASE 2: KILBEGGAN TO ATHLONE DUAL CARRIAGEWAY



SITE A016/042; E2670: CURRIES 2

FINAL REPORT

ON BEHALF OF WESTMEATH COUNTY COUNCIL

25 JUNE 2009

IAC Irish Archaeological
Consultancy

PROJECT DETAILS

Project Reference No.	WH/00/112
Project	N6 Kinnegad – Athlone Road Scheme: Phase 2, Kilbeggan – Athlone Dual Carriageway
Ministerial Direction Reference No.	A016/042
NMS Registration Number	E2670
Excavation Director	Patricia Lynch
Senior Archaeologist	Shane Delaney
Consultant	Irish Archaeological Consultancy Ltd, 120b Greenpark Road, Bray, Co. Wicklow
Client	Westmeath County Council
Site Name	Curries 2
Site Type	Charcoal production kilns, furnace
Townland	Curries
Parish	Kilcleagh
County	Westmeath
NGR (Easting)	E218425
NGR (Northing)	N237312
Chainage	13350–13390
Height m OD	62m OD
RMP No.	N/A
Excavation Start Date	20 March 2006
Excavation Duration	10 days
Report Type	Final
Report Date	25 June 2009
Report By	Patricia Lynch

ACKNOWLEDGMENTS

This report has been prepared by Irish Archaeological Consultancy Ltd on behalf of Westmeath County Council and the National Roads Authority in advance of the construction of the N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme.

The excavation was carried out in accordance with the Directions of the Minister for the Environment, Heritage and Local Government (DOEHLG), in consultation with the National Museum of Ireland (NMI) issued under Section 14 of the National Monuments Acts 1930–2004.

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ABSTRACT

Irish Archaeological Consultancy Ltd (IAC), funded by Westmeath County Council (WCC) and the National Roads Authority (NRA), undertook an excavation in the townland of Curries at the site of Curries 2 in advance of the proposed N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme (Figure 1). The following report describes the final results of archaeological fieldwork at that site. The area was fully excavated by Patricia Lynch under Ministerial Direction (A016/042) and NMS Registration Number E2670 issued by the DOEHLG in consultation with the National Museum of Ireland. The fieldwork took place between 20 and 31 March 2006.

The excavation at Curries 2 revealed the remains of several archaeological features indicating the presence of industrial activity during the early medieval period. A single broad phase of archaeological activity, the primary phase, was identified on-site. The primary phase of archaeological activity consisted of: the remains of six charcoal production kilns, one of which (C6) dated to AD 989–1148 (2 Sigma Calibration); a metalworking pit (C25) with evidence of *in-situ* iron smelting dated to AD 992–1148 (2 Sigma); a possible hearth dated to AD 895–1016 (2 Sigma); six shallow possible pits; an isolated possible posthole; and three deposit features. A post-medieval to modern phase of activity was also identified consisting of the remains of nine agricultural plough furrows and a single pit.

The site produced no archaeological artefacts or ecofacts however two samples of archaeo-metallurgical material were recovered from pit C25 and were subsequently identified as being a generic slag sample indicative of iron smelting and a complete smithing hearth bottom.

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1 INTRODUCTION

1.1 General

This final archaeological report describes the results of the excavation carried out at the site of Curries 2 in the townland of Curries, Co. Westmeath (Figures 1 and 2) as part of an archaeological mitigation program associated with the N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme. Archaeological fieldwork was carried out under ministerial direction by Patricia Lynch of Irish Archaeological Consultancy Ltd (IAC Ltd) and was funded by Westmeath County Council & the National Roads Association under the National Development Plan 2000–2006, 2007–2013 and the EU Structural fund.

Curries 2 was identified as a result of archaeological assessment undertaken by IAC Ltd. in August 2005 (Ministerial Direction No. A016/029; NMS Reg. No. E3273). All features identified during the assessment phase (three sub-circular pits) were subsequently re-identified and the site was fully excavated during the full resolution phase of the project which took place between 20 and 31 March 2006 with a team of 1 director, 1 supervisor and 8 site assistants.

The site was located in pastureland at a height of 62m OD to the south of the existing N6, c. 1km south of Moate (Westmeath OS sheet 036). Site A016/042 was not noted in the EIS. Two CHS were identified, however, in its immediate vicinity. CHS 128, a possible earthwork, was identified at Ch. 13060, to the west and CHS 26, a mound, was identified at Ch. 13100, to the northwest of the site. Curries 2 had not been previously identified and was not a recorded monument.

The site was assigned the following identification data:

Site Name: Curries 2; Ministerial Direction No.: A016/042; NMS Registration No.: E2670; Route Chainage (Ch): 13350–13390; NGR: 218425/237312.

1.2 Proposed Development

The proposed N6 Kinnegad–Athlone Scheme is to be constructed in two phases. The Phase 2 Kilbeggan–Athlone scheme will consist of a dual carriageway that will run for a distance of approximately 29km. The location of the route is predominantly to the south of the existing N6 and there will be access to the local road network through the seven grade separated junctions located at Athlone, Farnagh, Moate and Kilbeggan. The cross-section of the mainline consists of 2m wide verges, 2.5m wide hard shoulders, 7m wide two-lane carriageways and a 3m wide central reserve. This central reserve will accommodate 1m hard strips and a safety barrier. In addition to the mainline dual carriageway there is a further 0.3km of standard dual carriageway to the south of Athlone Interchange to connect to the existing N6 and 1.2km to the south of Kilbeggan Interchange to connect to the existing N52.

1.3 Archaeological Requirements

The archaeological requirements for the N6 Kilbeggan to Athlone Dual Carriageway Scheme, are outlined in the Ministerial Directions issued to Westmeath County Council by the Minister for Environment, Heritage and Local Government under Section 14A (2) of the National Monuments Acts 1930–2004 and in the terms of the contract between Westmeath County Council and Irish Archaeological Consultancy Ltd. These instructions form the basis of all archaeological works undertaken for this development. The archaeological excavation works under this contract are located between the townlands of Kilbeggan South, Co. Westmeath and Creggan Lower, Co. Westmeath.

The proposed N6 was subjected to an Environmental Impact Assessment, the archaeology and cultural history section of which was carried out by Sheila Lane and Associates and presented in 2003. The Record of Monuments and Places, the Sites and Monuments Record, Topographical files, aerial photography, the Westmeath Archaeological Urban Survey and literary sources were all consulted. One phase of geophysical survey was also conducted at selected sites along the proposed route by Target Archaeological Geophysics. As a result of the paper survey, field inspections and geophysical survey, a number of potential sites were recorded in proximity to this section of the overall route alignment.

Advance archaeological testing was completed by IAC Ltd and excavation of the sites identified during testing was conducted by IAC Ltd on behalf of Westmeath County Council.

1.4 Methodology

The topsoil was reduced to the interface between natural and topsoil using a 20 tonne mechanical excavator equipped with a flat toothless bucket under strict archaeological supervision. The remaining topsoil was removed by the archaeological team with the use of shovels, hoes and trowels in order to expose and identify the archaeological remains. A site grid was set up at 10m intervals and was subsequently calibrated to the national grid using GPS survey equipment.

All features were subsequently fully excavated by hand and recorded using the single context recording system with plans and sections being produced at a scale of 1:50, 1:20 or 1:10 as appropriate.

A complete photographic record was maintained throughout the excavation. Digital photographs were taken of all features and of work in progress.

An environmental strategy was devised at the beginning of the excavation. Where relevant features exhibiting large amounts of carbonised material were the primary targets. If present, features containing metallurgical waste were fully sampled for analysis.

In the instances where artefacts were uncovered on site they were dealt with in accordance with the guidelines as issued by the NMI and where warranted in consultation with the relevant specialists. All artefacts, ecofacts and paper archive are currently stored in IAC offices, Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland.

Radiocarbon dating of the site was carried out by means of AMS (Accelerator Mass Spectrometry) dating of identified and recommended charcoal samples. All calibrated AMS dates in this report are quoted to 2 Sigma.

All excavation and post excavation works were carried out in consultation and agreement with the Project Archaeologist, the National Monuments Section of the DOEHLG and the National Museum of Ireland.

2 EXCAVATION RESULTS

Detailed descriptions of contexts are listed in Appendix 1. The site matrix is detailed in Figure 7.

2.1 Phase 1: Natural Drift Geology

The dominant bedrock geology identified along the corridor of the proposed route are Lower Carboniferous rocks, mainly limestone lithologies, which overlay Devonian Old Red Sandstone rocks. Carboniferous volcanic rocks were also identified as being present locally in the form of sills passing through the bedrock sequences (Riada Consult, 2003). The underlying geology of the area is overlain by occasional moraines and small glacial hillocks covered by grey brown podzolic soils.

The subsoil C2 above bedrock encountered at Curries 2 was uniform across the site and consisted of firm yellow clay.

2.2 Phase 2: Primary Archaeological Activity

One clear archaeological phase was recorded. This comprised a number of well-defined, rectangular and sub-circular charcoal rich pits, interpreted as charcoal production kilns (Figure 7). In addition to this a metalworking furnace/pit was also identified. These features are described below in groups relevant to typology.

2.2.1 Charcoal Production Kilns C6, C11, C37, C47, C74 and C78

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
6	N/A	2.74	1.58	0.21	Sub rectangular, flat base	Cut of CPK
7	C6	2.54	1.58	0.06	Charcoal layer, oxidised natural	Basal fill of CPK
11	N/A	1.25	0.7	0.17	Oval cut, rounded base	Cut of CPK
12	C11	1.25	1.7	0.17	Brownish black sandy silt, charcoal, stones	Fill of CPK
16	C6	2.74	1.58	0.15	Dark grey sandy silt, charcoal, burnt clay	Upper fill of CPK
37	N/A	1.26	1.22	0.16	Sub oval cut, flat base	Cut of CPK
38	C37	1.26	1.22	0.16	Sub oval, dark brown, charcoal rich silt	Charcoal rich fill of CPK
47	N/A	0.4	0.66	0.12	Oval cut, concave base	Cut of CPK
48	C47	0.4	0.66	0.12	Black grey gritty charcoal rich clay	Fill of CPK
74	N/A	1.5	0.9	0.5	Oval cut, concave base	Cut of CPK
75	C74	0.6	0.7	0.15	Mid grey silt with no inclusions	Top fill of CPK
76	C74	0.65	0.8	0.15	Black grey, clayey silt, charcoal flecking	Middle fill of CPK
77	C74	1.5	0.9	0.4	Black charcoal rich, sandy silt	Basal fill of CPK
78	N/A	1.84	1.26	0.12	Sub oval cut, flat base	Cut of CPK
79	C78	1.84	1.26	0.12	Dark brown, charcoal, burnt stone	Fill of CPK

Finds: None

Interpretation:

This group of contexts represents the remains of six charcoal production kilns (C6, C11, C37, C47, C74, C78) and their relevant fills (Figures 4, 5 and 6; Plates 2, 3, 5, 7, 8, 9 and 10), which appear located around the perimeter of the site. The stratigraphic relationships of the fills are described in the table above. There was no discernible pattern to the distribution of these pits however as the site had been truncated heavily by agricultural plough furrows (Cf. Section 2.3.1) it is possible that more features did at one time exist which may have added to the distribution pattern of the features. No stratigraphic relationship existed between them so phasing of these features was not possible.

A charcoal sample, identified as alder (*Alnus* sp.), retrieved from C7, the basal fill of pit C6, was sent for AMS radiocarbon dating. It returned a date of 999 +/- 22 BP (UBA 9149). The 2 Sigma calibrated result of this sample produced a date range of 989–1148 AD, dating it to the early medieval period (Appendix 2.3).

Charcoal production kiln C6 conformed to the classic typology for this feature type (rectangular, flat base, scorching around base and edges, and charcoal rich fill), while the remaining kilns were sub-circular in plan with flat bases (Cf. Section 3.3).

A comprehensive analysis of all the charcoal retrieved from these kilns was undertaken and a wide variety of charcoal was identified (Appendix 2.2) including alder (*Alnus* sp.), oak (*Quercus* sp.), hazel (*Corylus avellana*), pomoideae, birch (*Betula*), willow (*Salix* sp.), and ash (*Fraxinus excelsior*).

2.2.2 Metalworking Furnace/Pit C25

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
25	N/A	0.2	0.58	0.21	Sub circular cut, flat base	Cut of pit
26	C25	0.2	0.58	0.21	Greyish black, sandy silt, charcoal, slag	Fill of pit

Finds: None

Interpretation:

This feature was found in isolation along the western limit of the excavation and it provided evidence for metal working, most likely iron smelting, on-site (Figures 4 and 5; Plate 4). This feature had a single fill (C26) and had evidence of *in-situ* burning around the edges. The fill C26 was charcoal rich and contained a quantity of metallurgical waste (132g). The samples taken from fill C26 were identified as being an amorphous black clinker slag which can be the by-product of any iron making process but are usually associated with smelting. In addition to this a complete smithing hearth bottom was found which may also be interpreted as a bloom from a failed smelt (Appendix 2.1). It is likely that the charcoal production kilns mentioned above provided the charcoal (oak) fuel to charge this furnace.

A charcoal sample, identified as young oak (*Quercus* sp.), retrieved from fill C26 was sent for AMS radiocarbon dating. It returned a date of 994 +/- 21 BP (UBA 9150). The 2 Sigma calibrated result of this sample produced a date range of 992–1148 AD, dating it to the early medieval period (Appendix 2.3).

2.2.3 Possible Hearth

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
17	N/A	0.96	0.98	0.3	Oval cut, flat irregular base	Cut of hearth
18	C17	0.96	0.98	0.28	Dark brown/black charcoal rich silty clay	Fill of possible hearth

Finds: None

Interpretation:

This represents the remains of an isolated possible hearth feature and its associated fill located in the centre of the site. Evidence to support the interpretation of function was in the form of burnt or oxidised clay at the base around the cut (Figure 6). A charcoal sample, identified as willow (*Salix* sp.), retrieved from the fill C18 was sent for AMS radiocarbon dating. It returned a date of 1082 +/- 23 BP (UBA 9151). The 2 Sigma calibrated result of this sample produced a date range of 895–1016 AD, placing it within an early medieval date range (Appendix 2.3).

2.2.4 Possible Pits C3, C43, C51, C58, C66 and C70

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
3	N/A	0.8	N/A	0.29	Oval shaped cut, concave base	Cut of pit
4	C3	0.85	N/A	0.18	Mid brown sandy silt with small stones	Upper fill of pit
5	C3	0.85	N/A	0.11	Mid grey clayey silt, small stones	Lower fill of pit
43	N/A	0.6	0.32	0.13	Oval cut, concave base	Small charcoal rich pit
44	C43	0.6	0.32	0.13	Dark grey to black, charcoal rich sandy silt	Fill of small pit
51	N/A	1.25	0.95	0.34	Sub square cut, concave base	Cut of possible pit
52	C51	1.25	0.95	0.16	Mid brown gritty clay, charcoal flecked	Fill of possible pit
53	C51	1.25	0.46	0.18	Loose grey, silty sand	Fill of possible pit
58	N/A	1.21	1.12	0.04	Sub oval cut, flat base	Cut of possible pit
59	C58	1.21	1.12	0.04	Brown, sandy silt with occasional charcoal	Fill of pit
66	N/A	0.69	0.44	0.28	Circular cut, irregular base	Cut of possible pit
67	C66	0.69	0.44	0.28	Light grey, silty sand with no inclusions	Fill of possible pit
70	N/A	1.32	0.9	0.15	Oval cut, flat base	Cut of possible pit
71	C70	1.32	0.9	0.15	Mid grey, silty sand, charcoal inclusions	Fill of possible pit

Finds: None

Interpretation:

This group of contexts represent the remains of five possible pit features and their associated fills (Figures 4, 5 and 6). There was no direct stratigraphical relationship between these features and there was no discernible pattern of distribution which may have indicated their function. The fills were largely similar consisting of brown sandy silty clay with occasional charcoal flecking. None of the features produced any artefacts or ecofacts to further their interpretation.

2.2.5 Possible Posthole C21

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
21	N/A	0.4	0.41	0.28	Circular cut, concave base	Cut of posthole
22	C21	0.4	0.41	0.28	Grey brown sandy silt, charcoal flecking	Fill of posthole

Finds: None

Interpretation:

This represents the remains of an isolated feature, located at the southern extent of the site, interpreted as a possible posthole and its associated fill, based upon its form and dimensions (Figure 5; Plate 6). It is possible that associated features could have existed beyond the limit of excavation.

2.2.6 Shallow Cut Features

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
23	N/A	0.25	0.36	0.02	Circular cut, flat base	Cut of deposit
24	C23	0.25	0.36	0.02	Dark grey black, charcoal rich silt	Charcoal rich deposit
62	N/A	0.94	0.58	0.22	Sub oval cut, irregular base	Possible deposit/cut
63	C62	0.94	0.58	0.22	Light grey, silty sand with no inclusions	Probably a deposit
64	N/A	1.13	0.66	0.3	Sub oval cut, irregular base	Possible deposit/cut
65	C64	1.13	0.66	0.3	Light grey, silty sand with no inclusions	Probably a deposit

Finds: None

Interpretation:

This group of contexts represent the remains of three ambiguous features and their associated fills (Figure 6). The features were generally shallow and sterile in terms of artefacts, ecofacts and any indicators of functionality. It is possible that these features were originally deposits rather than cut features and that over time through compression associated with the topsoil covering they sunk into the natural creating a false cut effect. The function of these features collectively is unknown.

2.3 Phase 3: Post-Medieval Activity**2.3.1 Plough furrows**

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
8	N/A	2.5	0.5	0.05	L-shaped, flat base	Cut of furrow
9	C8	2.5	0.5	0.05	Mid brown clay sand with no inclusions	Fill of furrow
13	N/A	1.35	N/A	0.12	Rectangular cut, flat irregular base	Cut of furrow
14	C13	1.35	N/A	0.12	Mid-brown silty sand	Fill of furrow
19	N/A	5	1.08	0.22	Linear cut, flat irregular base	Cut of furrow
20	C19	5	1.08	0.22	Dark yellow brown sandy silt	Fill of furrow
27	N/A	0.53	0.63	0.2	Linear cut, flat irregular base	Cut of furrow
28	C27	0.53	0.63	0.2	Brown, silty clay, occasional pebble	Fill of furrow
29	N/A	20.0	0.6	0.38	Linear cut, flat irregular base	Cut of furrow
30	C29	20	0.6	0.38	Mid yellow brown, sandy silt	Fill of furrow
31	N/A	0.35	0.76	0.05	Linear cut, flat irregular base	Cut of furrow
32	C31	0.35	0.76	0.05	Medium brown, silty clay	Fill of furrow
49	N/A	4	0.5	0.13	Linear cut, concave base	Cut of furrow
50	C49	4	0.5	0.13	Light medium brown gritty sandy clay	Fill of furrow
55	N/A	N/A	0.5	0.18	Linear cut, concave base	Cut of furrow
56	C55	N/A	0.5	0.18	Grey, silty sand with no inclusions	Fill of furrow
57	N/A	6.5	0.2	0.05	Linear cut, concave base	Cut of furrow
60	N/A	11.93	0.67	0.11	Linear cut, flat base	Cut of furrow
61	C60	11.93	0.67	0.11	Light brown, sandy silt	Fill of furrow
C81	C57	6.5	0.2	0.05	Light brown sandy silt	Fill of furrow

Finds: None

Interpretation:

This group of contexts represent the remains of a series of modern agricultural plough furrows identified which traversed the entire site (Figure 4; Plate 1). All of the fills were similar consisting of a mix of brown silty clay and topsoil material. The furrows themselves are of no archaeological significance but do represent the latest phase of activity associated with the site in general. These features have heavily truncated the site and possibly destroyed any remaining associated structure with the charcoal production kilns (Cf. Section 2.2.1).

2.3.2 Possible Pit C35

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
35	N/A	0.5	0.5	0.2	Circular cut, concave base	Cut of pit
36	C35	0.5	0.5	0.2	Circular, medium dark brown, silty sand	Fill of pit

Finds: None

Interpretation:

These two contexts represent the remains of a pit feature and its associated fill which truncated the plough furrow C57. The feature produced no artefacts or ecofacts and represents the very latest phase of activity on-site based upon its relationship to the furrow in Section 2.3.1. The function of this feature is unknown.

2.4 Phase 4: Topsoil**2.4.1 Topsoil**

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
1	N/A	N/A	N/A	N/A	Loose, mid brown silty sand	Topsoil

Finds: None

Interpretation:

Phase 4 represents the topsoil that sealed all of the archaeological deposits and features at Curries 2 (Figure 7).

3 SYNTHESIS AND DISCUSSION

3.1 Landscape Setting

The new route of the N6 runs from south of Kilbeggan town to east of Athlone Co. Westmeath, crossing through the northern part of Co. Offaly for approximately 7.5km of its entire length. The landscape of this area is comprised of generally flat to undulating terrain. The underlying geology of the area is dominated by carboniferous limestone and is overlain by occasional glacial features such as moraines and eskers. The eskers dominate to the north and south of most of the route, with moraines featuring along parts of the western section toward Athlone. The soil cover varies considerably across the scheme, passing through soil complexes, grey brown podzols, boglands and alluvial deposits. The area is drained by the River Shannon through its tributaries, the Brosna, Boor, Cloghatanny and Gageborough rivers.

The site at Curries 2 was located 1km south of the town on Moate on the side of an eastern facing hill (62m OD). The underlying geology of the area is carboniferous limestone, which is overlain by small glacial hillocks to the north of the site. The site was located on Patrickswell/Baggotstown soil complexes covering a generally flat terrain apart from the occasional small hill. A small bog was situated 200m to the southwest of the site in Gorteen/Curries/Ballynamuddagh townlands (6"OS map 1834–1842). While the bog in Moategranoge/Ballyscartan/Culleenagower/Lurgan townlands lay 650m southeast of the site (6"OS map 1834–1842). Smaller areas of wetland were situated 50m to the west in the townland of Moategranoge. The Cloghatanny River was located 75m to the east.

3.2 Archaeological Landscape (Early Medieval)

From east to west the N6 passes in proximity to the towns of Kilbeggan, Clara, Moate and Athlone. This stretch of landscape corresponds with a probable medieval routeway leading from the secular hub of Kilbeggan to that of Athlone, which is thought by some to represent the *Slioghe Mhór* (O Lochlainn 1940, 471).

Kilbeggan, or *Cill Bheagáin*, derives its name from St Beccan who was associated with the town in the sixth century AD (McCormack 2006, 5). The site of St Beccan's monastery occupies the vicinity of the current graveyard and Protestant Church in the town. A later monastery was constructed by the Cistercians, close to Saint Beccan's site, in AD 1150 (Masterson 2004). Both of these monastic foundations lay in proximity to the River Brosna and it is likely that the town developed from this point. A number of recorded RMP sites testify to early medieval monastic activity in Kilbeggan and include an ecclesiastical site (WM038-017001), graveyard (WM038-017002) and church (WM038-017006). A recent geophysical survey has identified the footprint of the Cistercian monastery and excavations nearby have revealed a large cemetery (possibly of early medieval date) a cereal-drying kiln, pits and ditches (Hayden 2003; Sweetman 2004). A significant excavation, c. 5km to the north of Kilbeggan, at Gneevebeg uncovered an enclosed cemetery of probable early medieval date in addition to cereal-drying kilns, a bullaun stone and a number of pits and ditches (Wallace 2002).

The north midlands, through which the N6 traverses, is described by Stout (1997, 77) as having a high-density of ringforts and enclosures. A number of enclosure sites (OF008-006) and possible enclosures (OF008-005 & OF008-014) are recorded within the small town of Clara, Co. Offaly; some of which may represent early medieval ringforts. Excavations at Ballicknahee, near Clara, revealed at least 17 extended inhumation burials of possible early medieval date (Murphy 1998). Research undertaken to study the regional distribution of ringforts in the barony of Kilcoursey, Co. Offaly has revealed a high density of ringforts in the area with 0.41

per km squared (Stout 1998, 33). Kilcoursey is the smallest barony in Offaly and the only one in the county to be impacted upon by the N6. Excavations at Cappydonnell Big (Coughlan 2009a) have revealed a large multi-period enclosure located in proximity to several ringforts at Ballynakill Big (OF002-023, OF002-032 & OF002-033) to the south and at Kilbeg (WM037-001 & WM037-004) to the east.

An early medieval enclosure was excavated at Moyally 1 (Bayley 2009a) 400m south of a ringfort (WM030-115) and near two enclosures (WM030-114 and OF001-005), indicating a continuance of settlement and activity c. 2km southeast of Moate. The nearest recorded early medieval monument at Moate, Co. Westmeath is a ringfort to the west at Tullaghnageeragh (WM030-108), however the sites in closest proximity are castles dating to the later medieval period. As Moate develops into a settlement of status in the later medieval period it is thought that there must have been a preceding focus of activity here during the early medieval of possible ecclesiastical origin due to the presence of a bullaun stone (WM030-117) and burial ground (WM030-113).

The largest of the towns along the N6, Athlone, is situated on the banks of the River Shannon in Co. Westmeath. By the ninth century AD the territory to the immediate west of Athlone was occupied by the *Delbna Nuadat* and the region to the east was inhabited by a vassal tribe of the southern *Uí Néill* called the *Bregmine* who gave title to the barony of Brawny (Murtagh 2000, 9). Archaeological evidence in the form of five decorated grave slabs, dating between the middle eighth to tenth centuries, indicates that an unrecorded ecclesiastical site was situated in Athlone at this time (Murtagh 2000, 11). Athlone is associated with a battle in AD 894 between the Connachmen and the men of Meath meanwhile Lough Ree, to the north, was repeatedly the focus of Viking activity between AD 922 and 937 (*ibid.*). Little is known about the development of Athlone west of the Shannon but the surviving castle, probably constructed in the 13th century, was possibly built on the site where the castle of the *Uí Conchobhair* stood in the early 12th century (Sullivan 1997); of which the precise location is unknown (Murtagh 2000, 13). Recent excavations in Athlone have failed to locate any trace of early medieval activity; instead they have revealed later activity dating mainly to the late middle ages and post medieval period.

The Hill of *Uisneach* located c. 14km to the NNW of Kilbeggan is often referred to as a central axis point or place of assembly of high importance, due to its location in *Mide* (Schot 2006, 41). During the early medieval period it was thought to hold contemporary significance with Tara and many mythological and annalistic tales refer to the area as one of territorial and spiritual consequence. Reanalysis of the excavations undertaken by MacAlister and Praeger in the 1920s at Rathnew, a figure of eight shaped enclosure at the Hill of *Uisneach*, has highlighted activity during the late Iron Age and early medieval period. It has been suggested that the conjoined bivallate ringfort with associated structures and souterrain may have functioned as a royal seat of the *Clann Cholmáin* further adding to the political and religious significance of this landscape (*ibid.* 65).

Crannógs also feature significantly in this region and include those excavated by Hugh Hencken during the 1920s at Ballinderry I, Co. Westmeath (Hencken 1936) and Ballinderry II, Co. Offaly (Hencken 1942), located c. 2km north east and ENE respectively from Moate. Recently, the excavated evidence from both crannógs has been reinterpreted by Ruth Johnson (1999) at Ballinderry I and Conor Newman (2002) at Ballinderry II. These crannógs are centrally located in relation to many important early medieval ecclesiastical centres, such as Clonmacnoise, Gallen, Bealin, Durrow, Rahan and Inchbofin (Johnson 1999, 24).

Ballinderry I, located in the barony of Clonlonan, has been interpreted as a high status early medieval site with evidence for craft working, agriculture, trade, hunting or warfare and domestic and leisure activities (Johnson 1999). The tenth century Ballinderry game-board is thought to be the most striking piece of decorated wood of this period found outside Dublin and certainly adds to the significance of the settlement. The artefactual evidence for Hiberno-Scandinavian influence at Ballinderry I is strong and it has been suggested that this may be associated with a rise in the military and economic strength of the *Clann Cholmáin* in the region (Johnson 1999, 67). Newman's reassessment of the early medieval activity at Ballinderry II, located in the barony of Kilcoursey, revealed evidence for high status deer hunting, killing and feasting (Newman 2002). The abundance of deer bone and antler in the faunal assemblage and presence of c. 11 circular wicker structures are associated with numerous high quality artefacts dating to the sixth and seventh centuries. Artefacts including pins with zoomorphic design, sherds of E ware and gaming pieces indicate possible trade with northern Europe (Newman 2002, 111).

A more recent excavation of a crannóg was undertaken at Newtownlow, in the barony of Moycashel a short distance to the northeast of Kilbeggan (Bourke 1984, 1985). At Coolure, on Lough Derravaragh also within the barony of Moycashel, a crannóg was the focus of a recent archaeological survey, environmental investigation and artefactual and landscape research (O'Sullivan *et al* 2007). Historically, the impact of the Vikings in the region and specifically on Lough Ree is well summarised by Alfred Smyth (1979, 246–53). Ballaghkeeran Little, in the barony of Clonlonan, has been suggested as the location of a possible *longphort* site (Fanning 1980/84).

Excavations of ecclesiastical sites are rare in the archaeological record but a monastic enclosure was partially excavated at Clonfad, Co. Westmeath (Stevens 2006, 8–11). The findings revealed that a variety of industrial and craft activities occurred on the site including extensive evidence for ironworking and non-ferrous metalworking, notably the production of handbells, and bone working. Another ecclesiastical site excavated at Kilpatrick, located in the most northern barony of Westmeath in Fore, also revealed evidence for bone, antler and ironworking (Swan 1976, 89–96; 1994/95, 1–21).

Early Medieval Curries 2

Excavations at Curries 2 revealed a number of charcoal production kilns, charcoal-rich pits, a pit with slag and a possible hearth.

A number of definite kilns of this type have been uncovered along the N6 Kilbeggan to Athlone road scheme. A large rectangular charcoal production kiln at Kilbeggan South 3 (C12), measuring 2.97m x 1.85m x 0.3m (length x width x depth), displayed evidence for a heat-scorched base and sides and its primary fill contained charcoal-rich material with a number of large well preserved pieces of carbonised wood (Coughlan 2009b). A sample of charcoal (elm) from this fill returned a 2 Sigma date range of AD 1157–1251. The upper fill contained mixed clays and this possibly represents the collapse of the superstructure after the kiln had gone out of use. An even larger oval-shaped charcoal production kiln from the same site (C19), 3.3m x 1.96m x 0.05m also produced a charcoal-rich primary fill with large well preserved pieces of carbonised wood and evidence for intense *in-situ* burning (*ibid.*). A similar 2 Sigma date of AD 1052–1217 was obtained from charcoal (young oak) within the primary fill. At Ballinderry Big 3, a large rectangular-shaped charcoal production kiln (C12), 2.78m x 1.14m x 0.18m, displayed evidence for a scorched base and its primary fill consisted of over 50% charcoal inclusions (Lynch 2009a). Charcoal (oak branch) from this fill returned a 2 Sigma date of AD 896–1014. Another, as yet undated, large oval example (C26), measuring 3.6m x 1.8m x 0.82m, was excavated

at Culleenagower 1 (Whitty 2009). Smaller examples were also utilised such as the circular kiln at Kilgaroan 1 (C7), 1.2m x 1.5m x 0.25m, which had oxidised edges and frequent charcoal lump inclusions in both its primary and upper fills (Bayley 2009b). This charcoal production kiln was dated between the middle sixteenth and middle seventeenth centuries.

Other examples found along the scheme include two large sub-rectangular charcoal production pits at Monganstown 1 – on Section 1 between Kinnegad and Tyrellspass – which returned radiocarbon dates between the late ninth and early eleventh centuries (Lehane and Johnston 2007) and at Stonehousefarm 3 – Section 2 between Tyrellspass and Kilbeggan – that included oval and rectangular types. The primary fill of the latter was charcoal-rich and included large pieces of charred wood (McDermott 2004).

The main charcoal production kiln at Curries 2 (C6) is similar to a number of features along the N6 that are recorded as rectangular or oval with heat-scorched sides and bases and moderate to high amounts of charcoal within their fills. Examples include C13 at Ballinderry Big 3 returned a 2 Sigma date range of AD 779–940 (Lynch 2009a), C19 at Russagh 4 (0.91m x 1.4m x 0.08m), which returned 2 Sigma date of AD 994–1153 (O’Carroll 2009), and C4, a rectangular example at Tonaphort 3, that was dated to 2 Sigma AD 777–970 (Coughlan 2009c). Finally, two features (C6 & C11) that were intensively heat-scorched and contained high levels of charcoal were excavated at Kilbeggan South 1 (Coughlan 2009d). The former returned a 2 Sigma date of AD 877–984 while the latter was dated between the middle eleventh and early thirteenth centuries. It is likely that these features represent charcoal production kilns even though some only contained moderate amounts of charcoal. The positive identification of previous examples, such as Hardwood 3, Co. Meath (Carlin *et al* 2008, 101), was due to the survival of charred wood and this is also true of certain kilns on the N6 including those at Kilbeggan South 3. However, this was the result of the kilns’ abandonment, possibly due to the charcoal becoming wet and therefore useless, whereas the charcoal from successful kilns would have been retrieved leaving only the heat-scorched pit, low levels of charcoal, and various soil, including clay, inclusions that survive in the archaeological record today.

It appears that the majority of charcoal production kilns date to the latter part of the early medieval period into the early part of the later Middle Ages and the findings on the N6 broadly mirror the findings from other dated kilns (Carlin *et al* 2008; Kenny 2008). It is also apparent that these industrial features were located a safe distance away from settlement sites and in areas close to the required natural resources such as wood and bogland.

3.3 Archaeological Typology Background (Charcoal Production Kilns)

Charcoal production kilns were essential to the ironworking process as charcoal was produced as a fuel in the smelting and forging stages. Very little was known about charcoal production more than 20 years ago Tylecote (1986, 225) and this has changed little since (O’Sullivan and Harney 2008, 198). However, there has been an ever increasing discovery of such sites during the boom in development-led archaeology and excavations of charcoal production kilns are beginning to feature in recent publications (Carlin *et al* 2008; Grogan *et al* 2007; Hull and Taylor 2006).

An unpublished paper by Niall Kenny (2008) has identified approximately 100 charcoal production kilns in Ireland that range in plan from rectangular, oval and circular, with sub-variations of these, and there is an approximate equal amount of each type. It appears, on current evidence, that the classic type are large and rectangular in plan such as Hardwood 3, Co. Meath for example, where long

carbonised pieces of oak were found along the axis of the kiln that made up almost 100% of the deposit (Carlin *et al* 2008, 101; Illus. 5.8b, 102). The rectangular kilns tend to be larger than oval and circular types with an average length of 2.5m but they can also be as long as 4m (Kenny 2008, 14–5). The oval kilns tend to be shallower than the other types while the circular examples are usually smaller but deeper compared to rectangular and oval charcoal production kilns (*ibid.*, 15).

Charcoal production kilns are identifiable archaeologically as earth-cut pits, with charcoal-rich fills, and evidence for extensive *in-situ* burning along the base and sides (Carlin *et al* 2008, 101; Kenny 2008, 15). Those discovered along the M4 were rectangular or sub-rectangular in plan (Carlin *et al* 2008), whereas Kenny (2008) has also identified circular and oval types. However, it is important to stress that charcoal production kilns, such as Hardwood 3 and Kilmaniheen West 10 and 12, Co. Kerry (Hull and Taylor 2006, 29–30), were recognisable because the carbonised wood had survived *in-situ* upon excavation. These kilns were abandoned possibly due to the charcoal becoming wet which left it useless as a fuel. Successful kilns would not leave abundant charcoal within their primary fills so would appear archaeologically as heat-scorched pits probably containing only moderate amounts of charcoal. This, therefore, conveys the problems positively identifying charcoal production kilns as many charcoal yields will have been previously removed.

The majority of charcoal production kilns are located away from settlements and close to resources required for the primary ironworking processes such as bog and woodlands. Large quantities of tress were required for charcoal production and, similarly, large quantities of iron ore – available within surrounding bogs (Mytum 1992, 230; Raftery 1994, 147) – were needed during the smelting process. Therefore, it made sense, logistically and for safety reasons, for charcoal production kilns to be situated a distance from dwellings and farms and close to available raw materials. Kenny's (2008, 20–2) research has also shown that the majority of kilns are located on sloping and agriculturally unproductive ground and drainage was probably an important factor because it was imperative to keep the charcoal dry.

Radiocarbon dates are beginning to emerge from a number of charcoal production kilns and possible examples. Of those dated, the majority appear to date to the latter part of the early medieval period. The kilns at Hardwood 3, Rossan 3, Ardnamullan and Newcastle 2, excavated along the M4, returned radiocarbon dates between the eighth and thirteenth centuries (Carlin *et al* 2008, 88). The dates appear to converge at a point between the eleventh and twelfth centuries. Kilns at Kilmaniheen West, Co. Kerry and Barefield, Co. Clare also returned radiocarbon dates spanning the latter part of the early medieval period (Hull and Taylor 2006). A circular kiln at Mondaniel 2, Co. Cork was dated to AD 1420–1640 (Kenny 2008, 18) but, on current evidence, charcoal production kilns generally date to the latter part of the early medieval period into the early years of the later middle ages. Therefore, it appears that charcoal production was at its most prolific during these years but dating of further features may alter this picture.

Charcoal is the material produced from the incomplete combustion of wood and was used as an effective fuel – much more so than wood or turf for example – during the smelting and forging stages of ironworking. It was produced through the placement of wood – mainly oak – against a vertical post in earth-cut pits that were covered by layers of straw or bracken and were then sealed by a layer of earth or turf. The post was removed and the kiln was subsequently ignited as the wood was roasted to produce the charcoal over a number of days (Carlin *et al* 2008, 89–91). This was a labour intensive process that required careful supervision and plentiful raw materials and the identification of increasing number of charcoal production kilns emphasises

that it was a much more widespread industrial activity than previously considered and that it was an essential component of the iron production process.

3.4 Discussion

The excavation at Curries 2 revealed the remains of several archaeological features indicating the presence of industrial activity during the early medieval period. A single broad phase of archaeological activity was identified.

3.4.1 Phase 1: Natural Deposits/Landscape

This phase represents the natural subsoil, which was cut or sealed by all subsequent archaeological features (Figure 7). The subsoil above bedrock encountered at Curries 2 was uniform across the site and consisted of firm yellow clay. The site was located on the eastern edge of a small hill. Research has shown that like at Curries 2 the majority of kilns are located on sloping well drained, agriculturally poor land, as good drainage was necessary to keep the charcoal in the kilns from getting wet (Kenny 2008).

3.4.2 Phase 2: Primary Archaeological Activity

Phase 2 represents the remains of features uncovered that are associated with the primary phase of activity on-site. A total of 18 features were identified consisting of six charcoal production kilns, a pit with evidence of iron smelting, a possible hearth, six shallow possible pits, an isolated possible posthole and three small cut features (Figures 4, 5, 6 and 7). To facilitate in the scientific chronological interpretation of the site a total of three charcoal samples, retrieved from a process of targeted bulk soil sample sieving, were sent for identification (O Carroll, Appendix 2.2) and subsequent AMS radiocarbon dating (UBA, Appendix 2.3).

The six charcoal production kilns (C6, C11, C37, C47, C74, C78) and their relevant fills (Figures 4, 5 and 6; Plates 2, 3, 5, 7, 8, 9 and 10), were positioned around the perimeter of the site. These kilns conform to the general typology described in Section 3.2 above. There was no discernible pattern to the distribution of these pits however as the site had been truncated heavily by agricultural plough furrows it is possible that more features did at one time exist which may have added to the distribution pattern of the features. All of the kilns were roughly sub-oval in plan with flat bases. The largest kiln (C6) however was sub-rectangular and measured 2.74m by 1.58m by 0.21m and had oxidised clay at its base (Plate 6). Its fill (C7) consisted of a loose dark grey sandy silt with moderate charcoal, burnt clay and small stones and returned a 2 Sigma date range of AD 989–1148 (UBA 9149, Appendix 2.3). It is possible that these features represent ‘failed’ charcoal production kilns, as a relatively high concentration of charcoal was left *in-situ*. In these cases it is probable that the charcoal become wet rendering it useless as a fuel (see typology section Cf. Section 3.3).

The metallurgical furnace (C25) contained a single fill (C26) consisting of greyish black sandy silt with charcoal and slag (Plate 4). Analysis of the metallurgical samples produced from this feature concluded that the samples were most likely indicative of iron smelting. These were identified as being an amorphous black clinker slag which can be the by-product of any iron making process but is usually associated with smelting. The presence of a complete smithing hearth bottom in this fill could be indicative of this feature being a small furnace however there is also a possibility that the object could be a failed smelting bloom which may alter the interpretation of this feature slightly (Appendix 2.1). A charcoal sample, identified as young oak, retrieved from the fill C26 was sent for AMS radiocarbon dating the results of which placed the deposit within an early medieval 2 Sigma date range of AD 992–1148 (UBA 9150, Appendix 2.3).

The possible hearth feature C17 and its associated fill C18 was identified in isolation. Evidence to support the interpretation of its function was in the form of burnt or oxidised clay at the base around the cut (Figure 6). A charcoal sample, identified as willow, retrieved from the fill C18 was sent for AMS radiocarbon dating the results of which placed the deposit within an early medieval 2 Sigma date range of AD 895–1016 (UBA 9151, Appendix 2.3).

The five isolated pits (C3, C51, C58, C66, C70) and their associated fills did not conform to any discernible pattern of distribution which may have indicated their function (Figures 4, 5 and 6). There was also no direct stratigraphical relationship between these features. The fills were largely similar consisting of brown sandy silty clay with occasional charcoal flecking. None of the features produced any artefacts or ecofacts to further their interpretation.

As with the five features above the single isolated posthole C21 and its fill C22 did not produce any evidence to further its interpretation and its assigned function was based upon its form and dimensions. It is possible that this posthole may have had associated features beyond the limit of excavation.

The final group of features within this phase of activity were the identified remains of three ambiguous features (C23, C62 and C64) and their associated fills. The features were generally shallow in nature and sterile in terms of artefacts, ecofacts and any indicators of functionality. It is possible that these features were originally deposits rather than cut features and that over time through compression associated with the topsoil covering they sunk into the natural subsoil creating a false cut effect. The function of these features collectively is unknown.

The surrounding environment

A comprehensive assessment was undertaken on the charcoal remains from the majority of the features (Appendix 2.2). Six hundred and twenty nine fragments from 12 samples were identified including alder (*Alnus* sp.), oak (*Quercus* sp.), hazel (*Corylus avellana*), pomoideae, birch (*Betula*), willow (*Salix* sp.), and ash (*Fraxinus excelsior*). The dominant taxon was oak which was exclusively present in charcoal production kilns C48 and C74, otherwise the dominant taxon in kilns C6, C11 and C37 was alder. O'Carroll notes that this is unusual and suggests that alder coppice as well as oak woods/coppice was being used interchangeably on the site (Appendix 2.2). Furthermore this may be an indication that oak was in short supply at this time or that the kilns that produced alder charcoal were indicative of a different function or activity at the site. O'Carroll suggests that the oak and alder was probably selected from nearby coppiced woods. This is evident by the presence of some brushwood charcoal aged between 6 and 20 yrs. The identified species are suggestive of a wetland environment and a more scrubland area with ash seen as the primary woodland tree.

A number of similar, broadly contemporary charcoal production kiln sites have been found in advance of this road scheme. These include most notably Curries 1 (located 100m to the west) (Lynch 2009b), Ballinderry Big 3 (Lynch 2009a), Russagh 4 (O'Carroll 2009), Tonaphort 3 (Coughlan 2009c), and perhaps Culleenagower 1 (Whitty 2009) located further to the east.

As with all charcoal production kilns the positive identification of these features are generally of those that 'failed'. Meaning, that as their function was to produce charcoal for use as fuel in metalworking furnaces or cereal drying kilns, the fact that the charcoal was not removed means that the charcoal was not useful. It is generally believed that the charcoal became wet before the process finished and the remaining

charcoal was left within the kiln. To avoid this it was preferable to locate these on well-drained soils/geology, such as the gravel ridge at Curries.

3.4.3 Phase 3: Post-Medieval Activity

Phase 3 represents the remains of features interpreted as being predominantly related to modern agricultural activity on the site consisting of nine plough furrows and a single possible pit (Figure 7). Whilst the features in this phase are non-archaeological in nature they do help to assist in the chronological interpretation of a site and for this reason were included in the discussion of this site. This is evident in how the pit in this phase truncates the furrow C57.

3.4.4 Phase 4: Topsoil

This phase represents the topsoil that sealed all of the archaeological deposits and features on site (Figure 7). Whilst a number of objects were recovered from the topsoil on this site, none of the objects was archaeological in nature.

There were no artefacts or ecofacts recovered from the features on this site which hindered greatly the process of identification of feature functionality.

4 CONCLUSIONS

Curries 2 comprised a small rural industrial site dating to 10th to 12th Centuries AD. The remains of several charcoal production kilns and a single metalworking furnace which contained a smithing hearth bottom were identified. Charcoal production kilns are often found associated with metalworking furnaces, which require the charcoal for fuel. The kilns are generally located away from major settlement foci and are instead found close to the source of the raw material (woodland). Oak charcoal is the most common wood species identified in kilns of this type. At Curries 2 it seems that alder coppice as well as oak woods/coppice was being used interchangeably on the site. This may be an indication that oak was in short supply at this time or that the kilns that produced alder charcoal were indicative of a different function or activity at the site. The site at Curries 1, c. 100m to the west, is evidence of similar, although slightly earlier charcoal production activity.

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Hayden, A 2003 Site 1, Kilbeggan, Co. Westmeath.

<http://excavations.ie/Pages/Details.php?Year=&County=Westmeath&id=10802>

McDermott, C 2004 Stonehousefarm 3, Co. Westmeath, charcoal production pits.

<http://excavations.ie/Pages/Details.php?Year=&County=Westmeath&id=12708>

Murphy, D 1998 Ballicknahee, Co. Offaly, cemetery.

<http://excavations.ie/Pages/Details.php?Year=&County=Offaly&id=1470>

Sullivan, E 1997 The Quay, Athlone, Co. Westmeath, urban medieval.

<http://excavations.ie/Pages/Details.php?Year=&County=Westmeath&id=4094>

Sweetman, D 2004 Old Relic Road, Kilbeggan, Co. Westmeath.

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Wallace, A 2002 Gneevebeg, Co. Westmeath, multi-period.

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PLATES



Plate 1: E2670: Pre-excavation of site, facing west



Plate 2: E2670: Charcoal Production Kiln C6, pre-excavation, facing west



Plate 3: E2670: Charcoal Production Kiln C11, mid-excavation, facing west



Plate 4: E2670: Metalworking furnace/pit C25, during excavation, facing southwest



Plate 5: E2670: Charcoal Production Kiln C6, mid-excavation, facing north



Plate 6: E2670: Possible posthole C21, mid-excavation, facing north



Plate 7: E2670: Charcoal Production Kiln C74, pre-excitation, facing northwest



Plate 8: E2670: Charcoal Production Kiln C74, mid-excitation, facing northwest



Plate 9: E2670: Charcoal Production Kiln C37, mid-excavation, facing east



Plate 10: E2670: Charcoal Production Kiln C47, pre-excavation, facing east

APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
1	N/A	N/A	N/A	N/A	Topsoil	Loose, mid brown silty sand.	N/A
2	N/A	N/A	N/A	N/A	Subsoil	Firm yellow clay.	N/A
3	N/A	0.8	N/A	0.29	Possible pit.	Oval shaped, aligned N/S, sharp break of slope at top, gradual sides, gradual break of slope to a concave base.	N/A
4	C3	0.85	N/A	0.18	Upper fill of possible pit.	Oval, medium to loose, mid brown sandy silt with moderate small stones.	N/A
5	C3	0.85	N/A	0.11	Lower fill of possible pit.	Oval, firm, medium grey clayey silt with occasional small stones.	N/A
6	N/A	2.74	1.58	0.21	Burning pit with a scorched base.	Sub rectangular, orientated E/W, rounded corners, sharp breaks of slope and sides to the west, gradual to the east and a flat base.	N/A
7	C6	2.54	1.58	0.06	Charcoal rich base fill of pit with oxidised clay at base.	Sub rectangular, firm charcoal layer with infrequent small stones and oxidised natural at the base.	N/A
8	N/A	2.5	0.5	0.05	Very shallow furrow, possibly related to C49.	L-shaped, orientated NW/SE, gradual top break of slope, non perceptible sides, gradually sloped to the flat base.	N/A
9	C8	2.5	0.5	0.05	Fill of furrow.	L-shaped, orientated NW/SE, loose mid brown clay sand with no inclusions.	N/A
10					Void		N/A
11	N/A	1.25	0.7	0.17	Pit with evidence of burning episode.	Oval cut, orientated N/S, gradual top break of slope, gradual sides, gradual break of slope to a rounded base.	N/A
12	C11	1.25	1.7	0.17	Fill of pit.	Oval shaped, aligned N/S, loose brownish black sandy silt with 10% small stone inclusions (0.03–0.04m). Moderate amounts of charcoal.	N/A
13	N/A	1.35	N/A	0.12	Probably the remains of a furrow.	Rectangular cut, orientated E/W, gradual break of slope at top, gradual sides and breaking gradually to a flat irregular base.	N/A
14	C13	1.35	N/A	0.12	Fill of probable remains of furrow.	Rectangular shaped, orientated E/W, medium, mid brown silty sand, 10% stone inclusions.	N/A
15					Void.		N/A
16	C6	2.74	1.58	0.15	Upper fill of burning pit.	Sub rectangular, orientated E/W, loose dark grey sandy silt with moderate charcoal, burnt clay and small stones.	N/A
17	N/A	0.96	0.98	0.3	Possibly hearth, at base was large flat stone with burnt clay also. Cut by C19.	Oval cut, orientated NE/SW, gradual break of slope at top, gradual sides and breaking gradually to a flat irregular base.	N/A

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
18	C17	0.96	0.98	0.28	Fill of possible hearth.	Oval, orientated NE/SW, moderately firm, dark brown to black charcoal rich silty clay (approx. 30% charcoal).	N/A
19	N/A	5	1.08	0.22	Furrow.	Linear cut, orientated NW/SE, gradual break of slope at top, gradual sides and breaking gradually to a flat irregular base.	N/A
20	C19	5	1.08	0.22	Fill of furrow.	Linear shaped, orientated NW/SE, moderately firm, dark yellow brown sandy silt with occasional small stones (approx. 6%).	N/A
21	N/A	0.4	0.41	0.28	Possible posthole.	Circular cut, sharp break of slope at top, steep sides and breaking sharply to a concave base.	N/A
22	C21	0.4	0.41	0.28	Fill of possible posthole.	Circular shaped, loose, dark grey brown sandy silt with charcoal flecking.	N/A
23	N/A	0.25	0.36	0.02	Very shallow charcoal rich deposit rather than a cut.	Circular cut, gradual break of slope at top, gradual sides, breaking gradually to a flat base.	N/A
24	C23	0.25	0.36	0.02	Very shallow charcoal rich deposit rather than a cut.	Circular shaped, firm dark grey black, charcoal rich silt with moderate pebbles and possible burnt clay.	N/A
25	N/A	0.2	0.58	0.21	Pit containing a large amount of slag and <i>in-situ</i> burning.	Sub circular cut, break of slope at top sharp, steep sides and sharp break of slope to a flat base.	N/A
26	C25	0.2	0.58	0.21	Fill of pit containing slag.	Sub circular, firm greyish black, sandy silt with charcoal, slag and small stone inclusions.	N/A
27	N/A	0.53	0.63	0.2	Furrow.	Linear cut, orientated NE/SW, gradual break of slope at top, gradual sides and breaking gradually to a flat irregular base.	N/A
28	C27	0.53	0.63	0.2	Fill of furrow.	Linear shaped, orientated NE/SW, compact to loose medium brown, silty clay with occasional pebble inclusions.	N/A
29	N/A	20	0.6	0.38	Furrow.	Linear cut, orientated NW/SE, gradual to sharp break of slope at top, gradual to steep sides and breaking gradually to sharp in places to a flat irregular base.	N/A
30	C29	20	0.6	0.38	Fill of furrow.	Linear shaped, orientated NW/SE, moderately firm yellow brown, sandy silt, occasional small stones.	N/A
31	N/A	0.35	0.76	0.05	Furrow.	Linear cut, orientated NW/SE, gradual break of slope at top, gradual sides and breaking gradually to a flat irregular base.	N/A
32	C31	0.35	0.76	0.05	Fill of furrow.	Linear shaped, orientated NW/SE, compact to loose medium brown, silty clay with occasional pebble inclusions.	N/A
33					Non-archaeological.		N/A
34					Non-archaeological.		N/A
35	N/A	0.5	0.5	0.15–0.2	Possible pit or part of furrow C57.	Circular, sharp break of slope at top, gradual sides, breaking gradually to a concave base.	N/A

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
36	C35	0.5	0.5	0.15–0.2	Fill of possible pit or part of furrow C57.	Circular, medium dark brown, silty sand.	N/A
37	N/A	1.26	1.22	0.16	Charcoal rich pit, cut by C58.	Sub oval cut, sharp break of slope at top and base on east and west edge, gradual on north and south edge, sides are sharp on east and west, gradual on north and south, and flat base.	N/A
38	C37	1.26	1.22	0.16	Charcoal rich fill of pit.	Sub oval, friable black to dark brown, charcoal rich silt with burnt pebble elements.	N/A
39					Void		N/A
40					Void		N/A
41					Non-archaeological.		N/A
42					Non-archaeological.		N/A
43	N/A	0.6	0.32	0.13	Small charcoal rich pit.	Oval cut, orientated E/W, sharp break of slope at top, gradual sides and breaking gradually to a concave base.	N/A
44	C43	0.6	0.32	0.13	Fill of small pit.	Oval, orientated E/W, firm dark grey to black, charcoal rich sandy silt with pebble inclusions.	N/A
45					Void		N/A
46					Void		N/A
47	N/A	0.4	0.66	0.12	Charcoal rich pit, possibly truncated.	Oval cut, orientated N/S, gradual break of slope at top, gradual sides and breaking gradually to a concave base.	N/A
48	C47	0.4	0.66	0.12	Fill of pit.	Oval, orientated N/S, firm black grey gritty charcoal rich clay with pebble inclusions.	N/A
49	N/A	4	0.5	0.13	Furrow, part of a series of furrows throughout this site.	Linear, orientated NW/SE, sharp break of slope at top and base at north end, gradual at south end, steep sides at south, gradual at north, concave base.	N/A
50	C49	4	0.5	0.13	Fill of furrow.	Linear, orientated NW/SE, medium compaction, light medium brown gritty sandy clay with pebble inclusions (10%).	N/A
51	N/A	1.25	0.95	0.34	Possible pit or natural depression.	Sub square, orientated E/W, rounded corners, gradual break of slope at top, gradual sides and breaking gradually to a concave base.	N/A
52	C51	1.25	0.95	0.16	Fill of possible pit.	Sub square, orientated E/W, moderately firm, light-medium brown gritty clay. Estimated 20% grit content, 10% pebble inclusions. Charcoal flecked also.	N/A
53	C51	1.25	0.46	0.18	Fill of possible pit, although probably natural.	Sub square, orientated EW, loose grey, silty sand. (80% gritty texture).	N/A
54					Non-archaeological.		N/A
55	N/A	N/A	0.5	0.18	Furrow.	Linear cut, orientated E/W, gradual break of slope at top, gradual sides and sloping gradually to a concave base.	N/A
56	C55	N/A	0.5	0.18	Fill of furrow.	Linear, orientated E/W, loose grey, silty sand with no inclusions.	N/A
57	N/A	6.5	0.2	0.05	Furrow.	Linear, orientated NE/SW, gradual break of slope at top, gradual sides and sloping gradually to a concave base.	N/A

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
58	N/A	1.21	1.12	0.04	Possible pit, which cut pit C37.	Sub oval cut, orientated NE/SW, gradual break of slope at top, gradually sloping sides and breaking gradually to a irregular flat base.	N/A
59	C58	1.21	1.12	0.04	Fill of pit.	Sub oval, orientated NE/SW, soft mid brown, sandy silt with occasional charcoal flecking and pebble inclusions.	N/A
60	N/A	11.93	0.67	0.11	Furrow.	Linear cut, orientated NE/SW, sharp break of slope at top, steep sides and breaking sharply to a flat base.	N/A
61	C60	11.93	0.67	0.11	Fill of furrow.	Linear, orientated NE/SW, soft light brown, sandy silt with occasional pebble inclusions.	N/A
62	N/A	0.94	0.58	0.22	Probably a deposit more than a cut. Interpretation is unclear.	Sub oval cut, orientated south, gradual break of slope at top, gradual sides and breaking gradually to flat, irregular base.	N/A
63	C62	0.94	0.58	0.22	Probably a deposit.	Sub oval, orientated N/S, firm light grey, silty sand with no inclusions.	N/A
64	N/A	1.13	0.66	0.3	Probably a deposit more than a cut. Interpretation is unclear.	Sub oval cut, orientated south, gradual break of slope at top, gradual sides and breaking gradually to flat, irregular base.	N/A
65	C64	1.13	0.66	0.3	Probably a deposit.	Sub oval, orientated N/S, firm light grey, silty sand with no inclusions.	N/A
66	N/A	0.69	0.44	0.28	Possible pit.	Circular cut, gradual break of slope at top, gradual sides and breaking gradually to an irregular base.	N/A
67	C66	0.69	0.44	0.28	Fill of possible pit.	Circular, firm light grey, silty sand.	N/A
68					Non-archaeological.		N/A
69					Non-archaeological.		N/A
70	N/A	1.32	0.9	0.15	Possible charcoal deposit or truncated pit.	Oval cut, orientated N/S, gradual break of slope at top, gradual sides and breaking gradually to a flat base.	N/A
71	C70	1.32	0.9	0.15	Fill of possible truncated pit.	Oval, orientated N/S, firm light to dark grey, silty sand with small stones and charcoal inclusions.	N/A
72					Non-archaeological.		N/A
73					Non-archaeological.		N/A
74	N/A	1.50	0.9	0.5	Charcoal rich pit.	Oval cut, orientated NE/SW, gradual break of slope at top, steep sides and breaking sharply to a concave base.	
75	C74	0.6	0.7	0.15	Top fill of pit.	Oval, orientated NE/SW, firm mid grey silt with no inclusions.	
76	C74	0.65	0.8	0.15	Middle fill of pit.	Irregular, orientated E/W, medium black grey, clayey silt with charcoal flecking and 10% stone inclusions.	
77	C74	1.5	0.9	0.4	Base and primary fill of charcoal rich pit.	Oval, orientated NE/SW, black charcoal rich, sandy silt. Charcoal inclusions 30%.	
78	N/A	1.84	1.26	0.12	Charcoal rich pit.	Sub oval, orientated N/S, sharp to gradual break of slope at top, steep to gradual sides, breaking sharply to a flat base.	

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
79	C78	1.84	1.26	0.12	Fill of charcoal rich pit.	Sub oval, orientated N/S, friable dark brown to black, sandy silt with frequent charcoal and burnt stone inclusions.	N/A
80					Non-archaeological.		N/A
C81	C57	6.5	0.2	0.05	Fill of furrow.	Light brown sandy silt.	

Appendix 1.2 Catalogue of Artefacts

There were no artefacts recovered from this site.

Appendix 1.3 Catalogue of Ecofacts

A total of 14 bulk soil samples were taken during the course of excavation at this site. Of these 12 were processed by means of flotation and sieving through a 250/300µm mesh. The resulting retrieved samples of this process are listed below. No other ecofacts were recovered. Two metallurgical samples were also retrieved.


1.3.1 Charcoal

Context number	Sample number	Feature	Sample weight (g)
7	1	Fill of C6 burnt pit/hearth	209.3g
12	2	Fill of C11 pit	114.7g
26	4	Fill of C25 kiln/furnace	7.7g
44	6	Fill of C43 small charcoal rich pit	9.9g
22	7	Fill of C21 isolated posthole	2.8g
38	8	Fill of C37 charcoal rich pit	71.9g
18	9	Fill of C17 hearth	52.8g
48	10	Fill of C37 charcoal rich pit	39.7g
75	11	Fill of C74 charcoal rich pit	6.7g
76	12	Fill of C74 charcoal rich pit	48.3g
77	13	Fill of C74 charcoal rich pit	95.2g
79	14	Fill of C78 charcoal rich pit	8.1g

1.3.2 Metallurgical Waste

Context number	Sample number	Feature	Sample weight (g)
26	4	Metalworking furnace/pit C25	132.5g
26	3	Metalworking furnace/pit C25	1375g

Appendix 1.4 Archive Checklist

Project: N6 Kilbeggan – Athlone	Irish Archaeological Consultancy Ltd	
Site Name: Curries 2		
NMS Number: E2670		
Ministerial Direction No.: A016/042		
Site director: Patricia Lynch		
Date: December 2008		
Field Records	Items (quantity)	Comments
Site drawings (plans)	2	Digitised
Site sections, profiles, elevations	30	Digitised
Other plans, sketches, etc.	0	
Timber drawings	0	
Stone structural drawings	0	
Site diary/note books	0	
Site registers (folders)	1 folder	Digitised
Survey/levels data (origin information)	120	
Context sheets	75	
Wood Sheets	0	
Skeleton Sheets	0	
Worked stone sheets	0	
Digital photographs	113	On IAC Server
Photographs (print)	0	
Photographs (slide)	0	
Finds and Environ. Archive		
Flint/chert	0	
Stone artefacts	0	
Pottery (specify periods/typology)	0	
Ceramic Building Material (specify types eg daub, tile)	0	
Metal artefacts (specify types - bronze, iron)	0	
Glass	0	
Other find types or special finds (specify)	0	
Human bone (specify type eg cremated, skeleton, disarticulated)	0	
Animal bone	0	
Metallurgical waste	2	Slag
Enviro bulk soil (specify no. of samples)	14	
Enviro monolith (specify number of samples and number of tins per sample)	0	
Security copy of archive	1	On IAC Server

Appendix 1.5 Copy of Registration No. Document from DoEHLG

National Monuments
Acts (1930-2004)
Ministerial Directions
Record Number for
archaeological activity



File: Direction No. A16

Registration Number: E2670

Directions have been issued to Murty Hanly on behalf of Westmeath County Council in order to regulate archaeological activities carried out on N6 Kilbeggan to Athlone (Phase 2).

Application having been duly made to me by Ms. Patricia Lynch of c/o ADS Ltd., Windsor House,, 11 Fairview Strand,, Fairview, Co. Dublin.

For a registration number to record excavation at the site of Curries 042 being part of the townland of in the County of Westmeath.

This registration is not an archaeological licence or consent but it is issued solely for archive purposes and to allow for the material from the activity to be registered with the National Monuments Service and the National Museum.

Signed

31 October 2006

Appendix 1.6 Copy of Ministerial Direction Document

Section 14A(2) National Monuments Acts 1930-2004

Directions to Westmeath County Council for the carrying out of archaeological works on the N6 Kinnegad to Athlone dual carriageway road scheme (Phase 2 * Kilbeggan to Athlone).

1. Introduction

The project is an approved road development, having been approved by An Bord Pleanála on 26th March 2004.

The development will consist of a dual carriageway that will run for a distance of approximately 57.5km.

In line with recommendations in the Environmental Impact Assessment for the scheme, archaeological investigations included site specific testing followed by a centreline test trench with staggered offsets. The request for directions has an attached strategy document that covers the proposed resolution works

These directions relate to Phase 2 works and are issued following the receipt by the Minister of reports on the testing work carried out in Phase 1.

2. Directions

All aspects of the archaeological works should be conducted in accordance with provisions of the policy and advice notes on archaeological excavations issued by the Department and in line with the provisions of the Code of Practice agreed with the National Roads Authority. Archaeological works shall be carried out in accordance with the Strategy for Proposed Works submitted with the application seeking Directions.

3. Project Archaeologist

The Project Archaeologist appointed for the road development should ensure that the archaeological works are carried out in accordance with the terms of the directions.

- Any changes to the agreed method statement for the excavations should be submitted to the National Monuments Section for approval.
- Any proposal to change any named director of a specific excavation should firstly be notified to the National Monuments Section for approval.

4. Conduct of Archaeological Excavations:

- a) The archaeological excavations should be carried out in accordance with the specifications set out in the strategy document submitted to the Minister.
- b) The National Monuments Section should be notified of the commencement date of the works on site.
- c) The names of the archaeological consultants, including site directors should be submitted to the National Monuments Section in advance of the works commencing.
- d) Where necessary the layout of the archaeological trenches should be adjusted to include additional archaeological features and deposits or areas of archaeological potential.
- e) All archaeological objects recovered in the course of the test excavations should be treated and conserved in line with the advice notes and guidelines issued by the National Museum of Ireland.
- f) A report on the progress of the archaeological works shall be submitted to the National Monuments Section every 4 weeks.

5. Record Number for the scheme:

The record number for the recording of archaeological works is A016/000. Sub-numbers may be allocated by the Project Archaeologist to the additional works. These numbers should be notified to the National Monuments Section for agreement with full details of the archaeological works involved.

6. Detection Device:

Detection devices may be used as appropriate in the course of archaeological works to recover archaeological objects. Details of proposed methodologies should be notified to the National Monuments Section.

7. Reports:

1. A report on the results of the archaeological excavations should be submitted to the National Monuments Section within 4 weeks of the completion of the works on site. Should additional time be required to complete the report the National Monuments Section should be notified before the expiration of the 4-weeks period. A copy of the report should be sent to the National Museum of Ireland.
2. A summary of the excavation results for the site should be published in the Excavations Bulletin for the year when works are undertaken.

8. National Monuments (Subsection 14A(4)):

If during the carrying out of the archaeological excavations a site should prove to be a National Monument within the meaning of the National Monuments Acts (1930-2004) all works should stop and the National Monuments Section should be informed immediately.

9. Inspection of Works

Officers, servants or agents of the Minister may inspect the archaeological works at any time and full co-operation should be given to them in carrying out the inspections.

APPENDIX 2 SPECIALIST REPORTS

Appendix 2.1 Metallurgical Appraisal Report – Dr. Effie Photos-Jones

Appendix 2.2 Charcoal and Wood ID Report – Ellen O’Carroll

Appendix 2.3 Radiocarbon Dating Results – QUB Laboratory

METALLURGICAL APPRAISAL REPORT
FOR
CURRIES 2, A016/042

DR EFFIE PHOTOS-JONES

SASAA no	Sample	Context	Typology	Description	Weight (g)	Dimensions
303.3	4	26	Slag	Amorphous, black, non-porous, light, siliceous material; clinkery slag the result of any iron making process, usually smelting	132.5g	Small frgt <1cm
303.13	3	26	SHB or bloom	Probably a complete smithing hearth bottom (SHB) of the 'bird's nest' type; it could also be a bloom from a failed smelt but this is less likely	1375g	17x13x7cm (at its deepest)

CHARCOAL IDENTIFICATIONS

N6 KINNEGAD – ATHLONE SCHEME
PHASE 2: KILBEGGAN TO ATHLONE
DUAL CARRIAGEWAY

MINISTERIAL DIRECTION NUMBER: A016/042
NMS REGISTRATION NUMBER: E2670
CURRIES 2

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Introduction

Twelve samples were submitted for analysis. The charcoal was sent for species identification prior to ¹⁴C dating and also to give an indication of the range of tree species, which grew in the area at the time of use of the site. Charcoal analyses may provide information on the utilization of certain species for various functions. Wood used for fuel at pre-historic sites would generally have been collected at locations close to the site. Therefore charcoal identifications may, but do not necessarily, reflect the composition of the local woodlands. Larger pieces of charcoal, when identified, can provide information regarding the use of a species for certain structural requirements or particular functions.

This site is located in the townland of Curries, c. 1km south of Moate town, Co. Westmeath. The site at Curries 2 consisted of numerous charcoal production kilns, possible hearths, and plough furrows which truncated the site. A single pit with slag inclusions providing evidence of metal working was also recorded at site Curries 2. This isolated feature is located adjacent to the western limit of excavation. Three features from the excavations have been dated to the 10th and 11th Centuries AD.

The samples analysed were retrieved from the fill of a hearth C18, charcoal rich pits C17, C77, C12, C38, C75, C48, C76, C44, C79 associated with industrial activities, a posthole C22 and a slag pit C26.

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 along its three sections (transverse, tangential and radial) so clean sections of the wood pieces can be obtained. This charcoal is then identified to species under a Nikon SMZ800 zoom stereomicroscope at magnifications x 10–190 and a transmitted light compound microscope at magnifications of x 10–400. By close examination of the microanatomical features of the samples the species were 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. The charcoal samples were identified by weight and fragment count whereby each species was grouped together and a total weight and fragment count was obtained.

Results

Table 1: Results from charcoal identifications

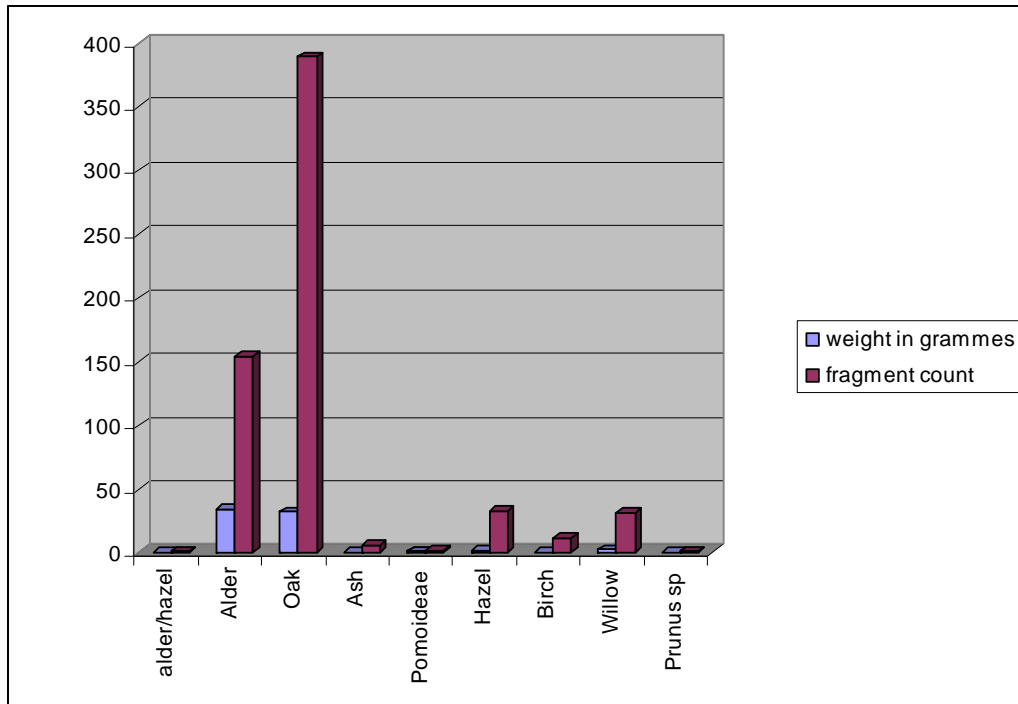
Site Number	Context Number	Context Type	Sample Number	Species	Comment
A016-42	18	Hearth	9	Willow (1g)	Dating sample AD895–1016
A016-42	26	Fill of slag pit	4	All oak (7.7, 100f)	Extracted 0.2g of young oak wood for dating
A016-42	7	fill of pit	1	Alder brushwood (10.2g, 40f), Oak (0.5g, 10f), Hazel (0.1g, 2f), Pomoideae (0.1g, 1f),	AD 989–1148
A016-42	77	Fill of charcoal rich pit	13	Hazel (1g, 10f), Oak (4.2g, 53f)	
A016-42	12	Fill of charcoal rich pit	2	Alder brushwood (10g, 50f), Hazel (0.1g, 3f),	
A016-42	22	Posthole	7	Alder/hazel (0.01g, 1f), Oak (0.6g, 28f) Hazel	Hazelnut shell also present

				(0.1g, 5f), Birch (0.2g, 10f), Willow (0.01g, 1f), Ash (0.01g, 1f)	
A016-42	38	Fill of charcoal rich pit	8	Alder (13g, 50f), Ash (0.1g, 1f), Hazel (0.1g, 2f)	Alder brushwood
A016-42	75	Fill of charcoal rich pit	11	Oak (2.5g, 50f), Prunus spp (0.3g, 2f), Willow (3f, 0.05g), Alder (1f, 0.01g), Hazel (1f, 0.01g)	small, some brushwood, branch
A016-42	48	Fill of charcoal rich pit	10	Oak (3.5g, 50f), Pomoideae (0.01f, 1f)	
A016-42	76	Fill of charcoal rich pit	12	Oak (10.4g, 45f), Alder (1g, 5f), Ash (0.1g, 1f), Hazel (0.01g, 1f)	
A016-42	44	small pit	6	Oak (2.8g, 50f), Ash (0.01g, 1f)	
A016-42	79	Fill of pit	14	Alder (0.2g, 8f), Oak (0.04g, 2f), Ash (0.2g, 3f), Hazel (0.2g, 4f), Willow (1.4g, 25f), Birch (0.03g, 2f)	Iron stained charcoal

* = grammes

* = fragment count

Figure 1: Results from charcoal identifications



Discussion

Six hundred and twenty nine fragments from 12 samples were identified. There were nine taxa identified from the identifications (Figure 1). Oak (*Quercus* sp) was the dominant taxon identified from the charcoal remains (Table 1 & Figure 1). Oak was nearly exclusively present in the charcoal rich pits C26, C44, C48, C75, C76, C77 and was also the dominant taxon present in the posthole C22. Alder was the dominant taxon identified from pits C7, C12 & C38. Willow was present in larger

quantities at the pit C79 and hearth C18 and hazel, ash, pomoideae, birch and *Prunus* spp (cherry & blackthorn) were identified in lesser quantities from various fills analysed.

Based on the date and the size of these pits and also the association with large quantities of oak wood and slag it is probably true to say that these pits are associated with charcoal production or charcoal burning pits. The presence of large quantities of alder brushwood is interesting and may suggest that alder coppice as well as oak woods/coppice were being used interchangeably at the site. The oak woods may have been in short supply and alder was used as a fuel to turn into charcoal on occasions. Alternatively the pits that produced large quantities of alder in the identifications may be indicative of a different function or activity at the site.

Oak is a dense wood and is very suitable for charcoal production. It also makes good firewood when dried and will grow in wetland areas when conditions are dry. Oak also has unique properties of great durability and strength. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native to and common in 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 about 400 years.

The oak identified suggests that there was a supply of oak in the surrounding environment in the early medieval period although these may have been in shorter supply as alder was used in abundance in some of these pits. The oak may have been selected from a coppiced wood as the majority of the oak analysed showed evidence of being young wood, some aged between 16 and 20 years in age. A coppice tree is where the tree is cut down at its base and as a consequence several new shoots or straight growing trees will grow out of this one stump. The use of quickly renewable oak coppiced trees would have been the most efficient method of sustaining a continuous supply of fuel for use in these charcoal production pits.

The existence of these charcoal production pits conjures up many scenarios of an organized well-structured society which places our ancestors away from obvious settlement centres and refocuses attention into the broader landscape, in which so much of the day would have been spent. The charcoal burner would have roamed around from place to place in order to access new areas of coppiced woodlands as previously coppiced areas regenerated.

Oak may also have been used as post material as it was the dominant taxon identified from the posthole C22. Oak is shown to be the most constant wood type used for structural requirements throughout pre-history and historical times. The remaining taxa identified in the posthole may have been fallen into the hole post-depositional use.

Alder may have been used as firewood associated with industrial activities at the site. Alder is a widespread native tree and occupies wet habitats along stream and river banks. It is an easily worked and split timber and therefore quite commonly manufactured into planks. It was coppiced in the past for the production of gunpowder (Edlin 1956).

Hazelnut fragments as well as hazel charcoal were present in the post hole fill C22 and the fill of pits C7, C77, C12, C38, C75, C76, C79. Hazel is a native species and

was very common up to the end of the 17th century. McCracken (1971, 19) points out that “it was once widespread to a degree that is hard to imagine today”. With the introduction of brick, steel and slate the crafts associated with hazel became obsolete, and today the woods that supplied hazel have diminished rapidly. Hazel is normally about 3–5m in height and is often found as an understory tree in broadleaf woods dominated by oak. It also occurs as pure copses on shallow soils over limestone as seen today in The Burren in Co. Clare and survives for 30 to 50 years. Its main advantage is seen in the production of long flexible straight rods through the process known as coppicing. Hazel also makes good fuel.

Prunus spinosa (blackthorn) is sometimes difficult to differentiate with cherry and particularly in relation to charcoal. The sloe bush, as blackthorn is commonly referred to, is a very durable wood and is as strong as oak. It 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. It was present in the fill of the pit C79. There is very little archaeological evidence for the use of cherry wood in Ireland although the wild cherry tree is commonly found in many hedgerows (Nelson 1993, 167).

Birch charcoal were identified from the fill of the posthole C22 and the fill of the pit C75. Hairy birch (*Betula pubescens Ehrh*) and silver birch (*Betula pendula Roth*) cannot be distinguished microscopically. Silver birch requires light and dry soil while hairy birch grows on wet-marginal areas. Birch more often occurs on wet marginal areas and is one of the first trees to establish itself on raised bogs. The wood from birch trees is strong but it rots quickly when exposed to outdoor conditions.

Pomoideae charcoal was identified from the fill of pit C7 and C45. Pomoideae includes apple, pear, hawthorn and mountain ash. It is impossible to distinguish these wood species anatomically but as wild pear is not native and crab apple is a rare native species in Ireland it is likely that the species identified from the features are hawthorn or mountain ash (rowan) (Nelson 194–200, 1993). Hawthorn (*Crataegus monogyna*) is a native species, and is found in many hedgerows throughout Ireland. Mountain ash (*Sorbus aucuparia*) is also a common tree in Ireland growing particularly well in rocky and hilly mountainous places.

Willow is a very strong wood in tree form and is excellent for the use as posts. It was identified from the fill of the heath C18, the fill of the posthole C22 and the fill of pits C75 and C79. Willow is also a very flexible wood and was commonly used for the construction and weaving of baskets. It is a native species in Ireland and can be found in a tree and shrub form. According to Webb (1971, 160–2) 13 species of willow are found growing wild in Ireland, of which eight are certainly native. The wood of *salix* trees and shrubs cannot be differentiated to species on the basis of anatomical features.

Ash was present in smaller quantities from the fill of the posthole C22 and the fill of pits C38, C44, C79. Ash is a native species to Ireland preferring lime rich freely draining soils. It is not a very durable timber in waterlogged conditions but has a strong elastic nature and is easily worked. Ash appears to have colonised the open land after the first farmers removed much of the native woodland therefore it is frequently used as structural timber in the later Bronze Age periods. Ash is also abundant in native hedgerows and was quite common in the later historic period.

Comparative Material

Pits where oak is the main species identified from the charcoal remains suggests charcoal burning pits.

Recent excavations along the many road schemes have produced a large quantity of isolated pits some of which may have functioned as charcoal production pits. Pits where oak is the main species identified from the charcoal remains suggests charcoal-burning pits. Charcoal burning pits can in a lot of cases be isolated features and unassociated with any other structure types therefore the charcoal identifications can and has in the past helped the excavator in the interpretation of the site.

A series of isolated pits were uncovered during the construction of the Mayo-Galway Gas pipeline (05E0584) in Polraddy, Cloonsheen, Davros and Maltpool townlands. The identifications from the aforementioned sites produced thousands of grammes of oak-charcoal therefore based on the charcoal identifications as well as discussions with the director they have now been interpreted as charcoal-production pits. The pits were all of similar size and all produced oak as their dominant species when identified.

In another part of the country in Co. Meath there is a similar scenario where oak charcoal was identified from isolated pits determining their function as charcoal production pits. Two charcoal burning pits were excavated at Ardnamullan 1, Co. Meath (02E1147) by Stephen Linnane of ACS and were dated to AD1020–1250. These pits were isolated rectangular pits measuring approximately 20cm in depth. Over 250 grammes of oak charcoal were identified from one of the pits and 200 grammes from the second pit.

There were many charcoal production pits identified from the Charlestown by-pass in Co. Mayo (A020-46, Gortanure townland, Co. Roscommon). These pits also produced mainly oak charcoal.

Summary and Conclusions

The charcoal analysed is most likely to be representative of fuel used in a charcoal burning pit and possibly associated with industrial activities in the area.

There were nine taxa identified from the identifications. These were oak, alder, willow, hazel, ash, birch, pomoideae and *Prunus* sp (cherry/blackthorn). Oak (*Quercus* sp) was the dominant taxon identified from the charcoal remains (Table 1 & Figure 1). Alder was also present in large quantities from some of the charcoal rich pits. The presence of alder may suggest that alder along with oak was used for fuel and charcoal in industrial activities in the area of Curries.

The oak and alder wood selected for the charcoal-production pit was probably selected from nearby coppiced woods as evidenced by the presence of some brushwood charcoal aged between 6 and 20 yrs.

The high fragment count of oak from the posthole may suggest that oak wood was used a post material at the site.

The remaining taxa identified which included ash, willow, birch, pomoideae and blackthorn/cherry are associated with wetland environments (birch/alder) and a more scrubland area (pomoideae, *Prunus* spp & hazel). Ash is seen as primary woodland tree.

Further analysis, discussions and comparisons of results will form part of a final integrated charcoal and pollen study of the sites and the surrounding environment on this scheme which is being undertaken as part of the authors PHD thesis. These results will be published accordingly.

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RADIOCARBON DATING RESULTS
CURRIES 2

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14
CHRONO

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Queens University Belfast
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Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification: UBA-9149
Date of Measurement: 2008-05-22
Site: A016/042 Curries Co, Westmeath
Sample ID: S1 C7
Material Dated: Alder
Pretreatment: AAA
Submitted by: IAC

¹⁴C Date: 999±22
AMS δ¹³C: -20.8

Information about radiocarbon calibration

RADIOCARBON CALIBRATION PROGRAM*
CALIB REV5.0.2

Copyright 1986-2005 M Stuiver and PJ Reimer

*To be used in conjunction with:

Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.

Annotated results (text) - -

Export file - cl4res.csv

S1 C7		
UBA-9149		
Radiocarbon Age BP	999 +/- 22	
Calibration data set:	intcal04.14c	# Reimer et al. 2004
% area enclosed	cal AD age ranges	relative area under probability distribution
68.3 (1 sigma)	cal AD 997- 1005	0.128
	1012- 1037	0.872
95.4 (2 sigma)	cal AD 989- 1046	0.866
	1093- 1120	0.111
	1140- 1148	0.023

References for calibration datasets:

PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, C Bertrand, PG Blackwell, CE Buck, G Burr, KB Cutler, PE Damon, RL Edwards, RG Fairbanks, M Friedrich, TP Guilderson, KA Hughen, B Kromer, FG McCormac, S Manning, C Bronk Ramsey, RW Reimer, S Remmele, JR Southon, M Stuiver, S Talamo, FW Taylor, J van der Plicht, and CE Weyhenmeyer (2004), Radiocarbon 46:1029-1058.

Comments:

* This standard deviation (error) includes a lab error multiplier.
** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)
** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)
where ^2 = quantity squared.
[] = calibrated range impinges on end of calibration data set
0* represents a "negative" age BP
1955* or 1960* denote influence of nuclear testing C-14

NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

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Radiocarbon Date Certificate

Laboratory Identification: UBA-9150
Date of Measurement: 2008-05-19
Site: A016/042 Curries Co. Westmeath
Sample ID: S4 C26
Material Dated: Young Oak
Pretreatment: AAA
Submitted by: IAC

¹⁴C Date: 994±21
AMS δ¹³C: -25.7

Information about radiocarbon calibration

RADIOCARBON CALIBRATION PROGRAM*
CALIB REV5.0.2

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*To be used in conjunction with:

Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.

Annotated results (text) - -

Export file - cl4res.csv

S4 C26			
UBA-9150			
Radiocarbon Age BP	994 +/-	21	
Calibration data set: intcal04.14c			
% area enclosed	cal AD age ranges		# Reimer et al. 2004 relative area under probability distribution
68.3 (1 sigma)	cal AD 1014- 1041		0.923
	1109- 1116		0.077
95.4 (2 sigma)	cal AD 992- 1046		0.910
	1090- 1121		0.155
	1139- 1148		0.034

References for calibration datasets:

PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, C Bertrand, PG Blackwell,
CE Buck, G Burr, KB Cutler, PE Damon, RL Edwards, RG Fairbanks, M Friedrich,
TP Guilderson, KA Hughen, B Kromer, FG McCormac, S Manning, C Bronk Ramsey,
RW Reimer, S Remmele, JR Southon, M Stuiver, S Talamo, FW Taylor,
J van der Plicht, and CE Weyhenmeyer (2004), Radiocarbon 46:1029-1058.

Comments:

* This standard deviation (error) includes a lab error multiplier.

** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)

** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)

where ^2 = quantity squared.

[] = calibrated range impinges on end of calibration data set

0* represents a "negative" age BP

1955* or 1960* denote influence of nuclear testing C-14

NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

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Radiocarbon Date Certificate

Laboratory Identification: UBA-9151
Date of Measurement: 2008-05-19
Site: A016/042 Curries Co. Westmeath
Sample ID: S9 C18
Material Dated: Willow
Pretreatment: AAA
Submitted by: IAC

¹⁴C Date: 1082±23
AMS δ¹³C: -20.3

Information about radiocarbon calibration

RADIOCARBON CALIBRATION PROGRAM*
CALIB REV5.0.2
Copyright 1986-2005 M Stuiver and PJ Reimer
*To be used in conjunction with:
Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.
Annotated results (text) - -
Export file - cl4res.csv

S9 C18 UBA-9151			# Reimer et al. 2004
Radiocarbon Age BP 1082 +/- 23			relative area under
Calibration data set: intcal04.14c			probability distribution
% area enclosed	cal AD age ranges		
68.3 (1 sigma)	cal AD 899- 919		0.323
	951- 958		0.066
	961- 993		0.611
95.4 (2 sigma)	cal AD 895- 925		0.287
	936- 1016		0.713

References for calibration datasets:
PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, C Bertrand, PG Blackwell,
CE Buck, G Burr, KB Cutler, PE Damon, RL Edwards, RG Fairbanks, M Friedrich,
TP Guilderson, KA Hughen, B Kromer, FG McCormac, S Manning, C Bronk Ramsey,
RW Reimer, S Remmele, JR Southon, M Stuiver, S Talamo, FW Taylor,
J van der Plicht, and CE Weyhenmeyer (2004), Radiocarbon 46:1029-1058.

Comments:

* This standard deviation (error) includes a lab error multiplier.
** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)
** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)
where ^2 = quantity squared.
[] = calibrated range impinges on end of calibration data set
0* represents a "negative" age BP
1955* or 1960* denote influence of nuclear testing C-14

NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

APPENDIX 3 LIST OF RMP SITES IN THE AREA

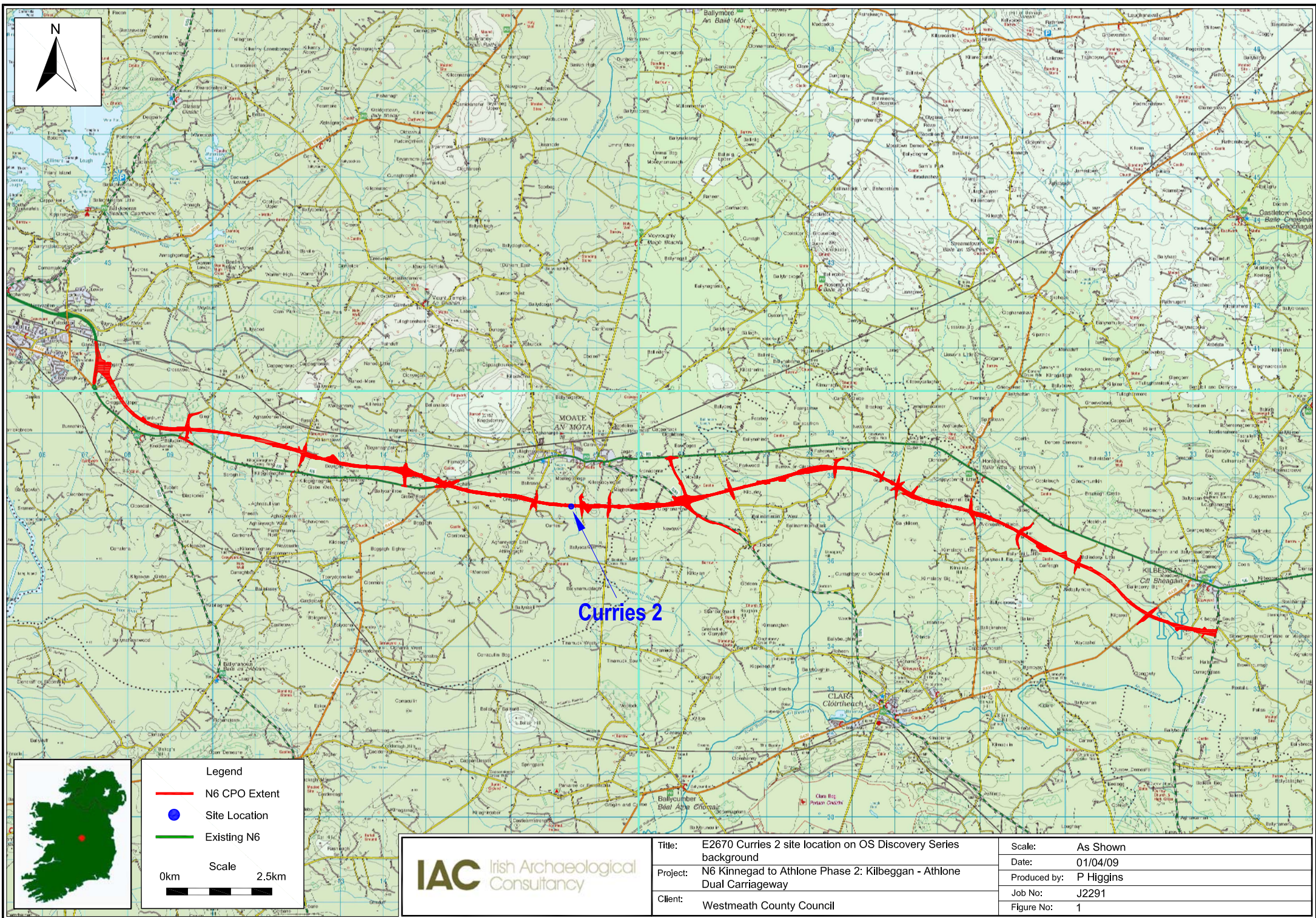
RMP No	Description
WM030-107	Ringfort
WM030-108	Ringfort
WM030-109	Castle - unclassified
WM030-111	Ringfort
WM030-112	Ringfort
WM030-11201	Sheela-na-gig
WM030-11202	Architectural fragment
WM030-113	Earthwork site
WM030-117	Ringfort
WM036-019	Bullaun stone
WM036-021	Ringfort
WM036-022	Earthwork site
WM036-030	Ringfort
WM036-034	Mound
WM036-043	Earthwork site

See Figure 2 for location.

APPENDIX 4 LIST OF N6 SCHEME SITE NAMES

Site Name	Ministerial Direction No.	NMS Registration Number
Seeoge 2	A016/007	E2635
Moyally 7	A016/015	E2643
Kilcurley 1	A016/019	E2647
Cappydonnell Big 1	A016/025	E2653
Ardballymore 2	A016/028	E2656
Creggan lower 1	A016/030	E2658
Creggan lower 2	A016/031	E2659
Williamstown 1	A016/032	E2660
Williamstown 3	A016/033	E2661
Williamstown 4	A016/034	E2662
Boyanaghcalry 1	A016/035	E2663
Seeoge 1	A016/036	E2664
Aghafin 1	A016/037	E2665
Cregganmacar 1	A016/038	E2666
Cregganmacar 2	A016/039	E2667
Cregganmacar 3	A016/040	E2668
Curries 1	A016/041	E2669
Curries 2	A016/042	E2670
Culleenagower 1	A016/043	E2671
Moyally 2	A016/044	E2672
Moyally 1	A016/046	E3274
Moyally 3	A016/047	E2674
Moyally 5	A016/048	E2675
Moyally 6	A016/049	E2676
Tober 1	A016/051	E2677
Burrow or Glennanummer 1	A016/052	E2678
Burrow or Glennanummer 2	A016/053	E2679
Burrow or Glennanummer 3	A016/054	E2680
Russagh 4	A016/055	E2681
Russagh 1	A016/056	E2682
Russagh 2	A016/057	E2683
Russagh 3	A016/058	E2684
Kilbeg 1	A016/059	E2688
Kilbeg 2	A016/060	E2689
Kilbeg 4	A016/062	E2691
Kilbeg 5	A016/063	E2692
Kilbeg 6	A016/064	E2693
Kilbeg 7	A016/065	E2694
Correagh 1	A016/066	E3374
Ballinderry Little 1	A016/067	E2695
Ardballymore 1	A016/068	E2696
Kilgaroan 1	A016/069	E2697
Kilgaroan 2	A016/070	E2698
Kilgaroan 3	A016/071	E2699
Kilgaroan 4	A016/072	E2700
Kilgaroan 6	A016/074	E2702
Ballinderry Big 1	A016/076	E3275
Ballinderry Big 2	A016/077	E3276
Ballinderry Big 3	A016/078	E3277
Tonaphort 1	A016/079	E3278
Tonaphort 2	A016/080	E3279
Tonaphort 3	A016/081	E3280

Site Name	Ministerial Direction No.	NMS Registration Number
Kilbeggan South 1	A016/082	E3281
Kilbeggan South 2	A016/083	E3282
Kilbeggan South 3	A016/084	E3283
Cregganmacar 4	A016/085	E2703
Williamstown 2	A016/086	E2704
Kilbeg 8	A016/087	E3966



Legend

- N6 CPO Extent
- Site Location
- Existing N6

Scale

0km 2.5km



Title: E2670 Curries 2 site location on OS Discovery Series background

Project: N6 Kinnegad to Athlone Phase 2: Kibeggan - Athlone Dual Carriageway

Client: Westmeath County Council

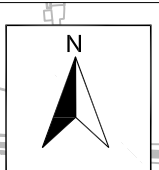
Scale: As Shown

Date: 01/04/09

Produced by: P Higgins

Job No: J2291

Figure No: 1



WM30-107

WM30-108

WM30-113
WM30-117
WM30-112

WM30-109

WM30-111

Cregganmacar 1
Cregganmacar 2
Cregganmacar 3
Cregganmacar 4

Curries 2

Curries 1

Culleenagower 1

WM036-019

WM036-021

WM036-043

WM036-030

WM036-034

WM036-022

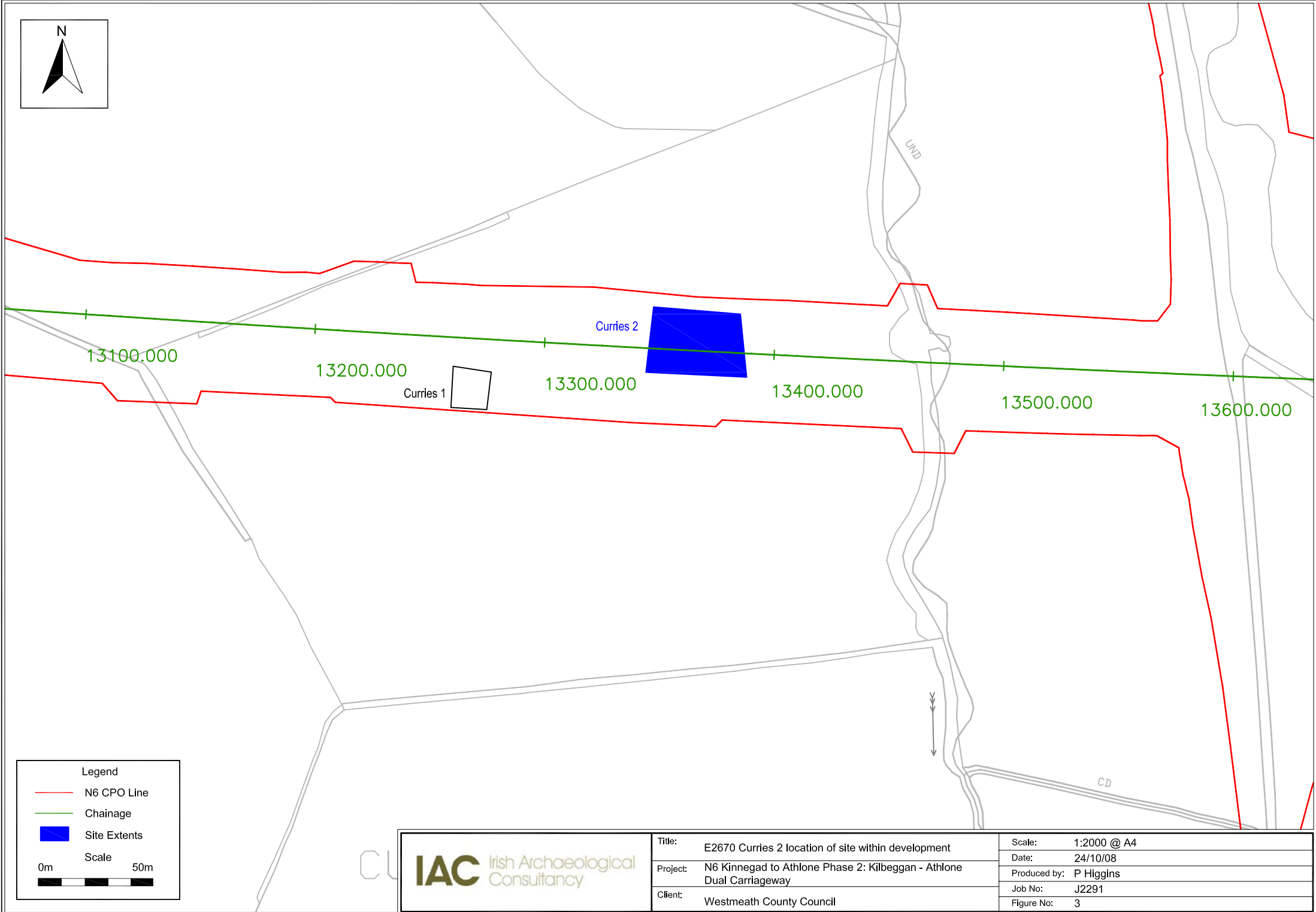
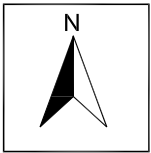
Legend

- N6 CPO Line
- RMPs

Scale

0m 250m

Title: E2670 Curries 2 showing RMPs with OS background	
Project: N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	
Client: Westmeath County Council	
Scale: 1:10000 @ A3	Job No: J2291
Date: 23/10/08	Figure No: 2
Produced by: P Higgins	



Legend

- N6 CPO Line
- Chainage
- Site Extents

Scale

0m 50m

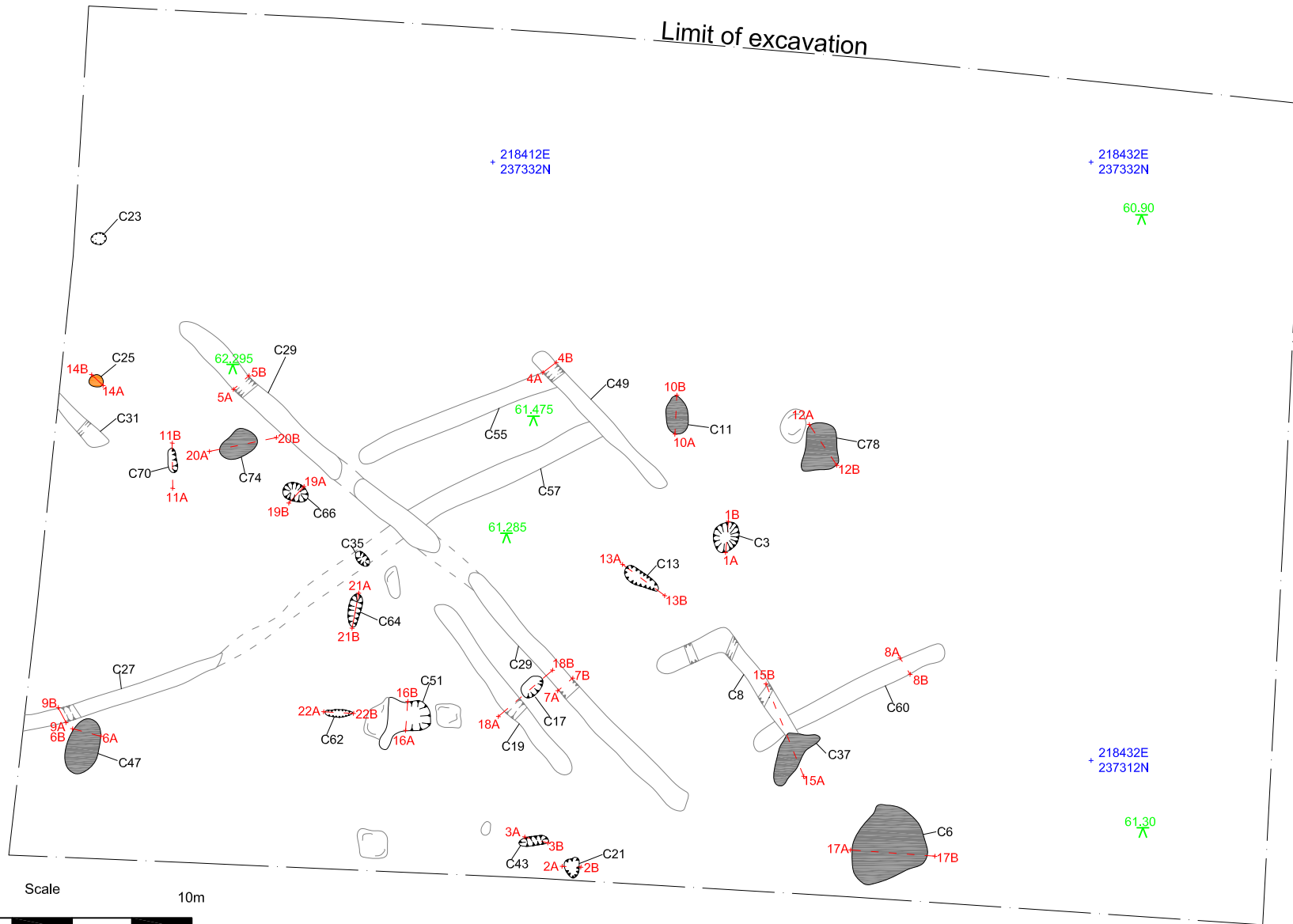
IAC Irish Archaeological Consultancy

Title:	E2670 Curries 2 location of site within development
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council

Scale:	1:2000 @ A4
Date:	24/10/08
Produced by:	P Higgins
Job No:	J2291
Figure No:	3



Limit of excavation

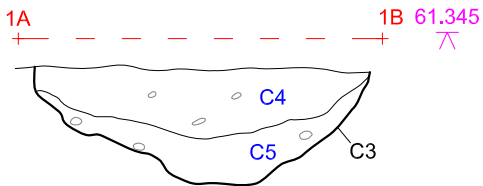


Legend	
	Limit of excavation
C##	Cut numbers
C##	Fill numbers
	Sections
	Stone
xx.xxx	Reduced Levels

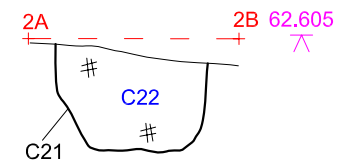
	Charcoal production kiln
	Metal working furnace

IAC Irish Archaeological Consultancy	Title: E2670 Curries 2 site plan	Scale: 1:200 @ A4
	Project: N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date: 23/10/08
	Client: Westmeath County Council	Produced by: G Kearney
	Job No: J2291	Figure No: 4

Curries 2
East facing section of C3



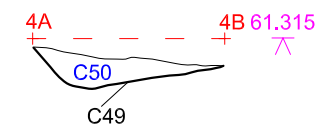
Curries 2
South facing section of C21



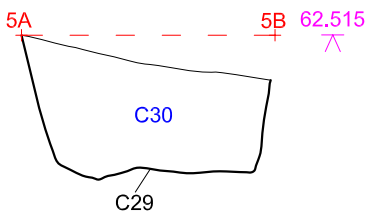
Curries 2
South facing section of C43



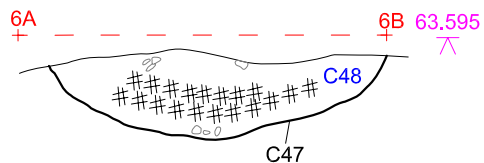
Curries 2
Southeast facing section of C49



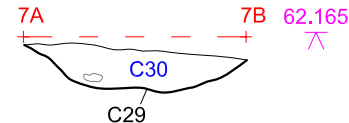
Curries 2
Southeast Facing section of C29



Curries 2
Northeast facing section of C47



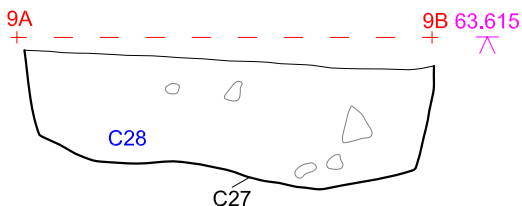
Curries 2
Southeast facing section of C29



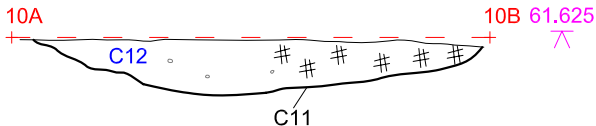
Curries 2
Southwest facing section of C60



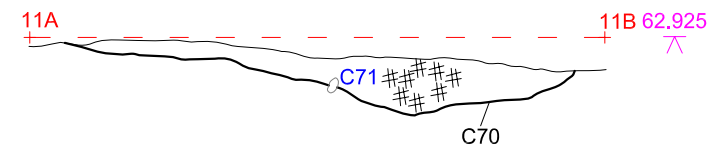
Curries 2
Northeast facing section of C27



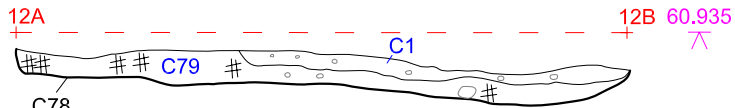
Curries 2
East facing section of C11



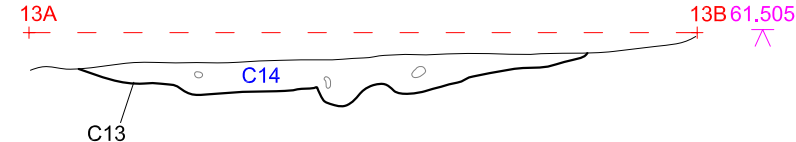
Curries 2
East facing section of C70



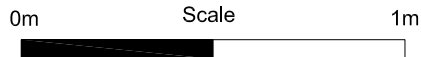
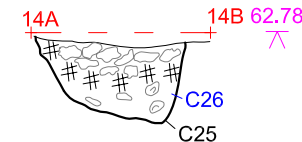
Curries 2
Southwest facing section of C78



Curries 2
Southwest facing section of C13



Curries 2
Northeast Facing Section of C25

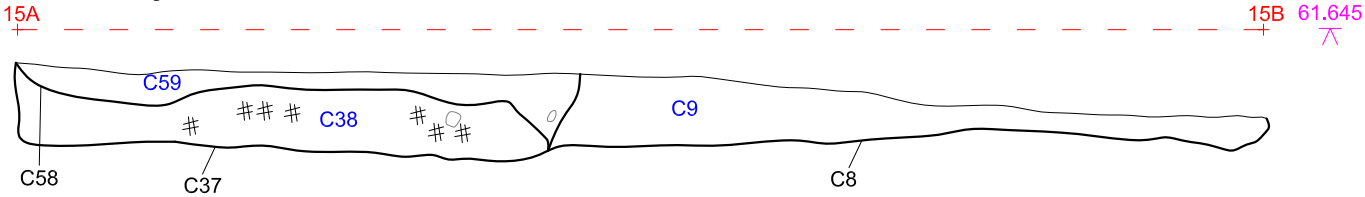


Legend	
C##	Cut numbers
C##	Fill Numbers
	Stone
#	Charcoal
###.##	Reduced Levels

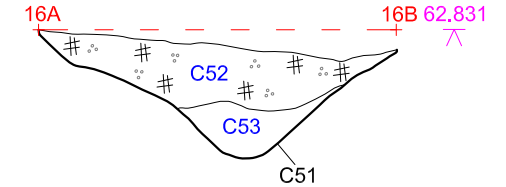


Title:	E2670 Curries 2 sections 1 - 14	Scale:	1:20 @ A4
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date:	23/10/08
Client:	Westmeath County Council	Produced by:	G Kearney
		Job No:	J2291
		Figure No:	5

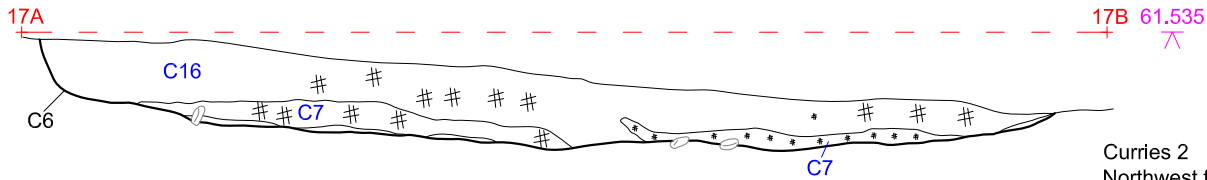
Curries 2
Northeast facing section of C37 and C58



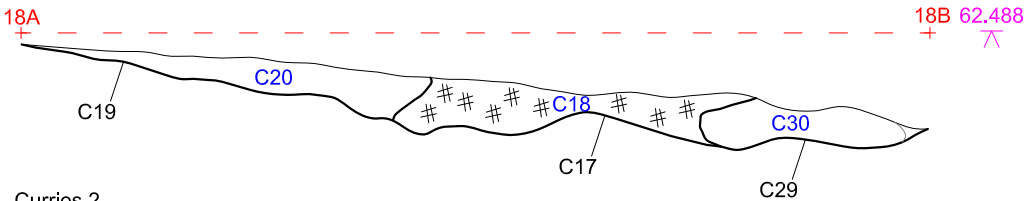
Curries 2
East facing section of C51



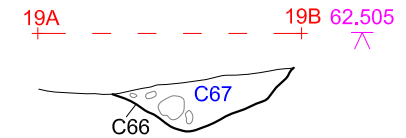
Curries 2
South facing section of C6



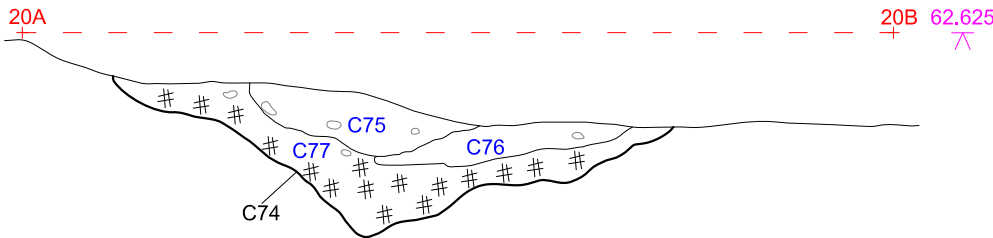
Curries 2
Southeast facing section of C17, C19, C29



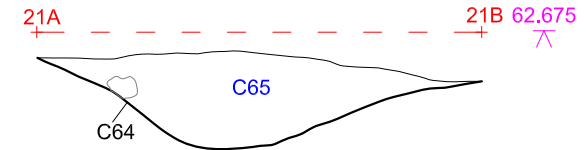
Curries 2
Northwest facing section of C66



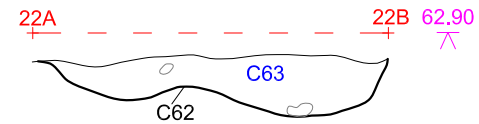
Curries 2
Southeast facing section of C74



Curries 2
West facing section of C64



Curries 2
South facing section of C62



Scale
0m 1m

Legend	
C##	Cut numbers
C##	Fill Numbers
	Stone
#	Charcoal
###.##	Reduced Levels

IAC Irish Archaeological Consultancy

Title:	E2670 Curries 2 sections 15 - 23
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council

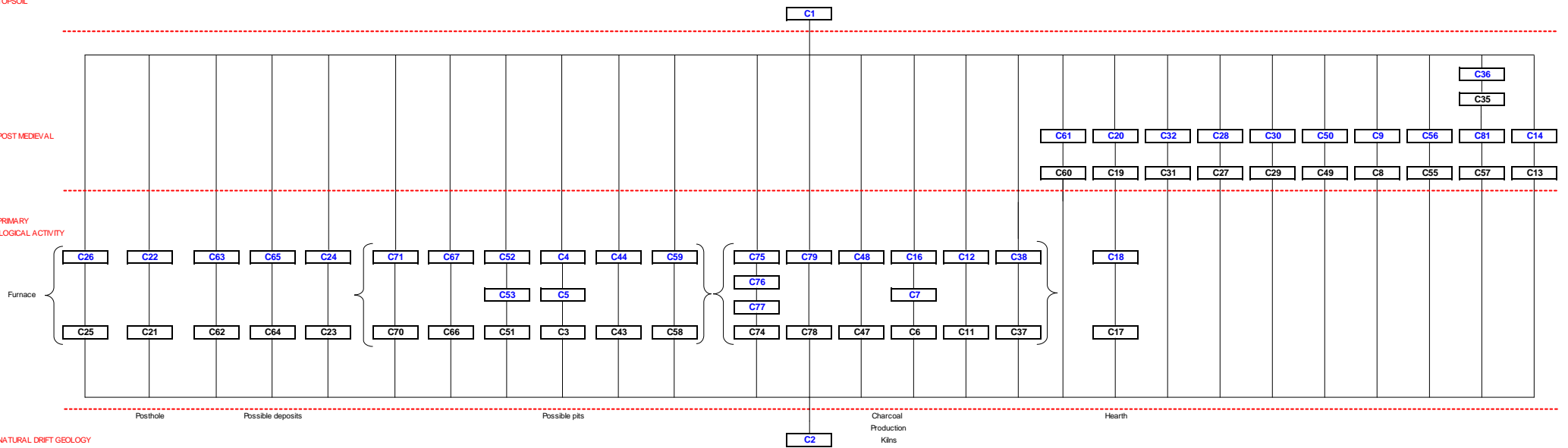
Scale:	1:20 @ A4
Date:	23/10/08
Produced by:	G Kearney
Job No:	J2291
Figure No:	6

PHASE 4: TOPSOIL

PHASE 3: POST MEDIEVAL ACTIVITY

PHASE 2: PRIMARY ARCHAEOLOGICAL ACTIVITY

PHASE 1: NATURAL DRIFT GEOLOGY



CXXX = SPREADS AND FILL CONTEXTS
 CXXX = CUT CONTEXTS



Title:	E2670 Curries 2 matrix	Scale:	N/A
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date:	25/03/09
Client:	Westmeath County Council	Produced by:	G Kearney
		Job No:	J2291
		Figure No:	7