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An tÚdaráis um Bóithre Náisiúnta
National Roads Authority
Archaeology



Date: February 2010

Client: Kildare County Council

Project code: KCK06

**N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 5 – Resolution, Kilcullen to
Moone and Athy Link Road.**

**Final Report on archaeological investigations at Site E2990, in the
townland of Burtown Little, Co. Kildare.**

By: Colm Moloney

National Monuments Section Registration Number: E2990

Director: Caitriona Gleeson

NGR: 275707/194641

Report Status: Final



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CONTENTS	PAGE
Executive Summary	3
1 Introduction	4
2 Site description and location	5
3 Aims and methodology	5
4 Excavation results	6
5 Discussion	8
6 Archive quantities	9
References	10
Acknowledgements	10

List of Figures

Figure 1	Site location
Figure 2	Extract from RMP
Figure 3	Site layout
Figure 4	Detailed plan and section of lime kiln (027)
Figure 5	Detailed plan and section of cereal-drying kiln (014)
Figure 6	Copper alloy strap-end

List of Plates

Plate 1	Pre-excavation shot of (014), facing north
Plate 2	Post excavation shot of (014), facing west
Plate 3	Mid-excavation shot of (027), facing north
Plate 4	Mid-excavation shot of (027), facing north
Plate 5	Copper alloy strap-end

Appendices

Appendix 1	Context Register
Appendix 2	Finds Register
Appendix 3	Sample Register
Appendix 4	Photo Register
Appendix 5	Drawing Register
Appendix 6	Site Matrix
Appendix 7	Environmental Analysis
Appendix 8	Faunal Remains
Appendix 9	Radiocarbon dates and certificates
Appendix 10	Medieval Pottery
Appendix 11	Metal Object

Executive Summary

This final report presents the results of the archaeological resolution works carried out on behalf of Kildare County Council and the National Roads Authority as part of the Archaeological Services Contract No. 5 - Resolution, Kilcullen to Moone and Athy Link Road. The works were undertaken prior to the commencement of construction of the N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. The Minister of the Environment, Heritage & Local Government, following consultation with the National Museum of Ireland, issued Directions to Kildare County Council on 8 March 2007 for archaeological resolution works relating to the road development. The registration number E2990 was allocated by the Department for the excavation of the present site in Burtown Little townland under the directorship of Caitriona Gleeson of Headland Archaeology (Ireland) Ltd.

An Environmental Impact Assessment was published in 2003 for the Kilcullen to Powerstown Scheme, with Valerie J Keeley Ltd preparing the Archaeological, Architectural and Cultural Heritage Assessment. This formed Chapter 10 of the EIS produced by the Roughan and O'Donovan - Faber Maunsell Alliance. Geophysical prospection was carried out on certain areas of high archaeological potential by Bartlett-Clark Consultancy as part of the Environmental Impact Assessment, on behalf of Valerie J. Keeley Ltd/Kildare County Council.

Aerial photography was undertaken along the entire route selection as part of the non-invasive assessment after the EIA stage. This work was carried out in April 2004 by Markus Casey.

Archaeological testing carried out by CRDS Ltd under N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 2 – Test Excavations, Mullamast to Prumplestown and Athy Link Road under Ministerial Direction Number A021/185 on this site between 3rd April and 9th August 2006 identified a series of linear features interpreted as medieval furrows. An assemblage of medieval pottery was also recovered.

Full archaeological resolution was conducted on this site between 18 April 2007 and 18 May 2007. The features identified during testing were re-identified along with a lime kiln and a cereal-drying kiln. The earliest feature identified on the site was a lime kiln of medieval date. A late medieval / early post-medieval cereal-drying kiln was subsequently constructed adjacent to the location of the lime kiln. A network of linear features, containing medieval and post-medieval pottery, represents the final phase of activity and may be the result of agricultural activity. A Preliminary Report of works on the site was completed by Headland Archaeology (Ireland) Ltd in April 2009.

1 Introduction

The N9/N10 Kilcullen to Waterford Road Scheme, of which the Kilcullen to Powerstown Scheme forms part, was proposed as a High Quality Dual Carriageway/Motorway, forming the Major Inter Urban route between Dublin and Waterford. The Kilcullen to Powerstown Scheme was advanced as a single entity up to the Compulsory Purchase Order/Environmental Impact Statement and was subsequently divided into two separate construction contracts: the Carlow By-pass (Phase 1) and the Kilcullen to Carlow Scheme (Phase 3). Kildare County Council, National Roads Design Office, has responsibility for overseeing the project management of these two schemes. The entire road scheme from Kilcullen to Waterford has now been designated as Motorway.

An Environmental Impact Assessment was published in 2003 for the Kilcullen to Powerstown Scheme, with Valerie J Keeley Ltd preparing the Archaeological, Architectural and Cultural Heritage Assessment. This formed Chapter 10 of the EIS produced by the Roughan and O'Donovan - Faber Maunsell Alliance. Geophysical prospection was carried out on certain areas of high archaeological potential by Bartlett-Clark Consultancy as part of the Environmental Impact Assessment, on behalf of Valerie J. Keeley Ltd/Kildare County Council.

Aerial photography was undertaken along the entire route selection as part of the non-invasive assessment after the EIA stage. This work was carried out in April 2004 by Markus Casey.

Construction commenced on Phase 1, the Carlow By-pass, in January 2006 and the road was completed and opened in May 2008. Construction of Phase 3, the Kilcullen to Carlow Scheme, which also includes a new single carriage link road to Athy town, commenced in January 2008.

Archaeological test-trenching was undertaken in advance of Phase 1, the Carlow By-pass, by Headland Archaeology (Ireland) Ltd between June and August 2005 (Archaeological Services Contract No. 3). This work identified 64 archaeological sites, which required archaeological excavation in advance of road construction. The resolution works for these sites were undertaken by Headland Archaeology (Ireland) Ltd between January and August 2006 (Archaeological Services Contract No. 4).

Archaeological test-trenching was undertaken in advance of the construction of Phase 3, the Kilcullen to Carlow Scheme, by IAC Ltd and CRDS Ltd, between October to November 2005 and May to August 2006 (Archaeological Services Contracts No. 1 and No. 2, respectively). This work resulted in the identification of 102 archaeological sites, which required resolution in advance of construction. The resolution works for these sites were undertaken by Headland Archaeology (Ireland) Ltd between March and December 2007 (Archaeological Services Contracts No. 5 and No. 6). This report details the results of one of those excavations, undertaken under NMSR Number E2990.

The project was funded by the Irish Government and the European Union through Kildare County Council/National Roads Authority, under the National Development Plan 2000-2006 and 2007-2013.

Construction Phases 2 and 4 relate to the section of road between Powerstown, Co. Carlow and the Waterford city By-pass and are project managed by Waterford County Council, National Roads Design Office.

2 Site description and location

The townland of Burtown Little is situated approximately 3 km south-west of Ballitore within the civil parish of Moone in the barony of Kilkea and Moone, Co. Kildare (Ordnance Survey 6" Sheets 35 & 36). In the Civil Survey *Little Birton* is listed as belonging to William Fitz Gerrald and Brian Fitz Gerrald of Little Birton. There were two castles on the lands, one valued at eight pounds and the other at fourteen pounds (Simington 1952, 117). In the census of 1659 the number of people in the townland of *Litle Birton* is given as 42 (Pender 1939, 404).

Site E2990 was located at NGR 275707/194641 (Figure 1) on level arable land, immediately west of a third class road between Ballitore and Athy (approximately 100 m OD). The final extent of the excavation area measured 692 square metres. The site was 100 m east of a graveyard (RMP KD035-030001) and the site of a church (RMP KD035-030); 500 m northeast of a ploughed out tumulus (RMP KD035-041) and 1.1 km southwest of cist site (RMP KD036-012001) (Figure 2). Site E2989 was located approximately 60 m to the northeast, where significant Bronze Age funerary archaeology was identified. A concentration of medieval pottery was also identified in the ploughsoil immediately west of site E2989 which was consequently extended. A complex of linear features was identified in this area most of which are believed to relate to agricultural activity.

A possible circular cropmark was identified by Markus Casey in 2004 approximately 250 m to the northeast of site E2990. No corresponding enclosure was subsequently identified although a series of pits and post-holes of prehistoric date were recorded in the general location of the cropmark.

3 Aims and methodology

The objective of the work was the preservation by record of any archaeological features that would be impacted by the proposed development, in advance of the road construction programme.

Topsoil stripping of the site was conducted using a 360° tracked machine fitted with a 1.9 m wide ditching (toothless) bucket under constant archaeological supervision. A total area of 692 m² was exposed. The resulting surface was cleaned and all potential features investigated by hand. Archaeological contexts were recorded by photograph and on *pro forma* record sheets. Plans and sections were drawn at scales of 1:20 and 1:10 respectively. Registers are provided in the appendices (Appendices 1-5). Ordnance Datum levels and feature locations were recorded using Penmap and a total station theodolite.

Environmental samples, including charred/waterlogged wood and animal bone samples, were taken from any deposits suitable for analysis or dating as per Headland archaeology (Ireland) Ltd environmental guidelines and following consultation with environmental archaeologist and archaeobotanist Karen Stewart and zooarchaeologist Dr. Auli Tourunen. Artefacts recovered during the excavation were assigned unique numbers and treated in accordance with National Museum of Ireland guidelines. A total of 100% of the soil samples taken during the excavation were selected for processing and environmental assessment/analysis (Appendix 7).

Full archaeological resolution was conducted on this site between 18 April and 18 May 2007. The crew on site E2967 consisted of 1 director, 1 deputy site manager and between 15 and 20 site assistants.

Following excavation, artefacts were analysed by the appropriate specialists and reports produced on the findings for incorporation into this report (see appendices).

4 Excavation results

Three main phases of activity were identified on site:

Phase 1 – Medieval Lime Kiln

The earliest feature identified on site consisted of a lime kiln. The kiln (027) consisted of an oval bowl constructed of squared stone blocks, coursed and mortar bonded and built into an oval cut which measured 2.52 m by 2.92 m and 0.7 m deep (Figure 4; Plates 3 and 4). Two opposing flues were located in the east and west walls. The primary fill within the bowl consisted of a charcoal deposit (045) which contained lumps of lime and large charcoal fragments. While abundant charcoal was recovered from samples taken for palaeoenvironmental analysis, only a single fragment could be identified to species. This proved to be hazel. A radiocarbon date of cal AD 1290-1440 (2 σ) (SUERC-25911) was achieved from this sample of charcoal (Appendix 9). The secondary fill consisted of compact white/yellow lime (044) with fragments of heat shattered limestone and charcoal pockets. The upper fill consisted of loose mid-brown silty clay (028) which contained frequent mollusc shells and was heavily disturbed by roots. A significant assemblage of animal bone was recovered from this deposit (Appendix 8). Of the 163 fragments of bone recovered 109 could not be identified to species. The recognisable fragments were identified as pig, sheep/goat, cattle, horse and cat which may indicate the kiln was backfilled with domestic refuse once abandoned. Pottery recovered from this deposit included Leinster Cooking Ware, Dublin-type ware and Kildare type-ware (Appendix 10).

A possible trackway/path was identified running north from the kiln (Figure 4). This consisted of a linear cut (025) which was recorded for a length of 8.57 m to the edge of the excavated area. The feature was 1.1 m wide and 0.38 m deep with a gradual break of slope from surface, gently sloping sides and a flat base. This is more likely to have been formed through erosion than excavation. The single fill consisted of compact mid-greyish brown sand (026). Pottery from this deposit consisted of Dublin-type ware and Kildare-type ware (Appendix 10). Palaeoenvironmental samples from the fill of the trackway (026) contained abundant charred cereal grain which was similar to the assemblage identified in the Phase 2 cereal-drying kiln described below (Appendix 7). However it is likely the fill of the trackway (026) was contaminated by activity undertaken at the cereal-drying kiln which truncated it.

Phase 2 – Late medieval cereal-drying kiln

The possible trackway associated with the lime kiln was subsequently truncated by a key-hole shaped pit which has been interpreted as a cereal-drying kiln (014). This comprised of a key-hole shaped cut (014) in plan with its long axis orientated east to west and dimensions of 1.5 m wide and 3.12 m long (Figure 5; Plates 1 and 2). The cut was divided between the bowl at the east and the flue at the west. The cut for the bowl had a sharp break of slope from surface, concave sides, a concave base and a maximum depth of 0.39 m. The flue had a gradual break of slope from surface, gradually sloping sides, a concave base and a maximum depth of 0.25 m. The primary fill consisted of dark grey/black sandy silt (024) with frequent charcoal inclusions and heat affected clay lumps. This material was restricted to the bowl at the east side of the feature and had a maximum depth of 0.05 m. A calibrated radiocarbon date of cal AD 1480-1690 (2 σ) (SUERC-25910) was achieved from a sample of charcoal from this deposit (Appendix 9). Thirteen fragments of animal bone were recovered from this deposit although this could not be identified to species (Appendix 8). The secondary fill (015) consisted of mid-brown sandy silt with frequent charcoal flecks. A large stone recovered from this deposit at the junction of the flue and bowl may be the disturbed baffle stone. Thirty two fragments of animal bone were recovered from this deposit, thirty of which could not be identified to species with one fragment of sheep/goat and one fragment of dog (Appendix 8). Other finds included a flat burnt stone and a copper alloy strap end (Appendix 11). The palaeoenvironmental samples taken from the fills of the kiln were dominated by hulled barley with significant amounts of club/bread wheat (Appendix 7).

Phase 3 – Late medieval / post-medieval boundary system

A complex of linear features was identified crossing the site (Figure 3). At the north end of the site ditch (005) crossed the site obliquely from northwest to southeast for a length of 21.13 m. The cut had a sharp break of slope from surface, gradually sloping sides and a u-shaped base. It varied between 1.3 m and 1.8 m in width and had a maximum depth of 0.5 m. The fill consisted of moderately compact orange brown silt clay (004) which included a small iron nail, snail shell and fragments of medieval pottery including Dublin-type ware and Kildare-type ware (Appendix 10). A contemporary ditch was situated at a right angle to ditch (005). The cut (046) ran from the east side of ditch (005) in a north-easterly direction to the edge of the excavation trench. It had a sharp break of slope from surface, steeply sloping sides and a flat base. The fill was orange brown silt clay (047) and was identical to fill (004) and included three fragments of bone identified as dog (Appendix 8). An irregular linear feature was identified to the southwest of ditch (005). The cut (022) was recorded for a length of 0.95 m and was orientated east to west. It was 0.9 m wide and 0.44 m deep. The break of slope from surface was sharp with gradually sloping sides and flat base. The fill consisted of dark brown silty clay (023) which contained occasional fire cracked stone. To the south of feature (022) a further linear feature (006) crossed the site from west-northwest to east-southeast for 9.97 m. The break of slope of the cut (006) from surface was gradual, it had concave sides and a flat base and had dimensions of 0.8 m wide and 0.16 m deep. The fill consisted of mid-yellow brown sandy silt (007). A more substantial ditch was identified running obliquely across the site from just south of feature (006) at the northwest to the southeast corner of the excavation trench. This was recorded for a length of 19.08 m and had dimensions of 1.8 m in average width by 0.54 m deep. In profile the cut (008) had a gradual break of slope from surface, concave sides and an irregular base. The fill consisted of mid orange brown silty clay (009) with occasional charcoal flecks and one iron nail. A number of features cut into the top of this fill are likely to be caused by horticultural activity (020, 031, 033, 035, 037, 039 and 041). This ditch (008) may be the same linear feature identified to the north as linear feature (202) in site E2989. A linear feature ran west from ditch (008) to the edge of excavation. This consisted of a cut (012) with a sharp break of slope from surface, concave sides and an irregular base and with dimensions of 1.1m wide and 0.42 m deep. The fill consisted of brown orange silty sand (013) with mollusc shells and two fragments of medieval Dublin-type ware included (Appendix 10).

Two further linear features (019 and 010) were identified in an extension to the main trench that was opened to allow a full investigation of the cereal-drying kiln (014). Both of these features contained modern finds and are deemed to be non archaeological. An inner non-differentiated flake (E2990: 016:001) was recovered during environmental processing of the soil samples retrieved from deposit (016) which was the fill of ditch (019). The find, which measures less than 5 mm in length and width, with a slight thickness of 0.3 mm, is fractured and patinated. As no other technologically diagnostic attributes were recorded, it can be considered as an undiagnostic knapping by-product (S. Mallia-Guest pers. comm.).

5 Discussion

The earliest feature identified on the site consisted of a lime kiln. Limestone is a plentiful resource in Ireland and lime kilns are the most numerous and widely distributed industrial monument in the Irish landscape (Rynne 2006, 156-7). Lime kilns were used for processing lime for the production of mortar and for use as a fertiliser. Blocks of limestone would have been placed in the bowl interleaved with layers of charcoal. The contents of the bowl would be lit and the entire structure covered by turf. Two opposing flues evident in the enclosing wall of the Burtown Little example would have allowed air to be drawn into the bowl in order to fuel the fire. The kiln would then be left to burn for a couple of weeks during which time the fire would continue to burn converting the limestone blocks to quick lime. A possible pathway was identified leading away from the kiln to the north which may have provided access. A kiln of similar form and dimensions was identified during an archaeological investigation in advance of the N9 / N10 Carlow Bypass by Headland Archaeology (Ireland) Ltd in the townland of Moyle Big (Hughes and Doyle 2009). The Moyle Big example was interpreted as possibly relating to the construction of a nearby medieval castle.

A cereal-drying kiln truncated the pathway associated with the lime kiln indicating it was most likely constructed after the lime kiln was abandoned. Cereal-drying kilns were in use from the early centuries AD through to the early 19th century. These consist of three main components; a stoking area, a flue and a bowl or drying chamber (Monk and Kelleher 2005, 80). The purpose of the kiln was to dry and ripen the crop, particularly during periods of damper weather or in areas with generally wetter climates, and also to assist with processing as drying made the crop brittle and facilitated the removal of the chaff. The grain was spread over a permeable membrane located over the bowl and the heat was drawn through the flue from the fire spot thus avoiding burning the grain. The bowl was covered by a clay dome in order to retain the heat. The base of such a dome was identified at a site in Killalane in County Tipperary (Long 2009, 21). As would be expected a large quantity of charred cereal grain was recovered from the Burtown Little cereal-drying kiln. This was dominated by hulled barley but with significant amounts of club/bread wheat and a moderate amount of oat. The dominance of hulled barley in the assemblage is significant given the late date for the kiln. In a recent survey of keyhole-shaped kilns in Ireland, Monk and Kelleher (2009) note that oat is usually the dominant cereal found and that where one species is dominant (in this case barley) there is often only a small amount of other cereal types present. However, the kiln from Burtown Little contains a significant amount of bread/club wheat together with the barley and oat is only present in small quantities within the kiln. The dominance of barley within kiln assemblages is usually related to kilns of an early medieval date with a switch to oat in the later medieval period (Monk, 1991). Thus, the kiln is providing a possibly unique grain assemblage, which will be of interest to other archaeobotanical kiln studies (Appendix 7).

The final phase of activity at site E2990 is represented by a complex of linear features of later medieval date. These are believed to form part of a complex of field/property boundaries which would have extended across the local landscape. Ditch (008) appears to be on the same alignment as ditch (202) identified further north on site E2989 indicating it is part of the same field system. This would suggest that the later medieval landscape was enclosed in the locality.

All of the archaeology identified at this site fits into the medieval and early post-medieval period and provides evidence of human agricultural activity in the locality during this time. The presence of two castles in the townland would indicate that the region was of considerable importance and the nearby deserted medieval village of Mullamast would have required substantial resources to be supplied from its hinterland and provided a ready market for local farmers.

The evidence from this site provides an important insight into rural medieval agricultural practices and will assist with understanding the wider context of the medieval village of Mullamast and its hinterland as excavated as part of the N9/N10 archaeological investigations (Stephenson in prep).

6 Archive quantities

The site archive is comprised of the following materials:

Item	Quantity
Context Sheets	46
Plans	9
Sections	28
Photographs	218
Registers	5
Notebooks	0

The archive material is contained within 1 box.

Storage of the archive in a suitable format and location is required in order to provide for any future archaeological research. It is proposed that in addition to the paper archive a digital copy is prepared. The archive is currently stored in the offices of Headland Archaeology (Ireland) Ltd., Unit 1, Wallingstown Business Park, Little Island, Co. Cork. It is proposed that following completion of post-excavation analysis, the archive is appropriately deposited in consultation with the National Museum of Ireland.

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- Post-excavation Manager Åsa Carlsson Headland Archaeology (Ireland) Ltd.
- Graphics department, Headland Archaeology (Ireland) Ltd.
- Teresa Bolger, Editor, Headland Archaeology (Ireland) Ltd.
- The excavation team.

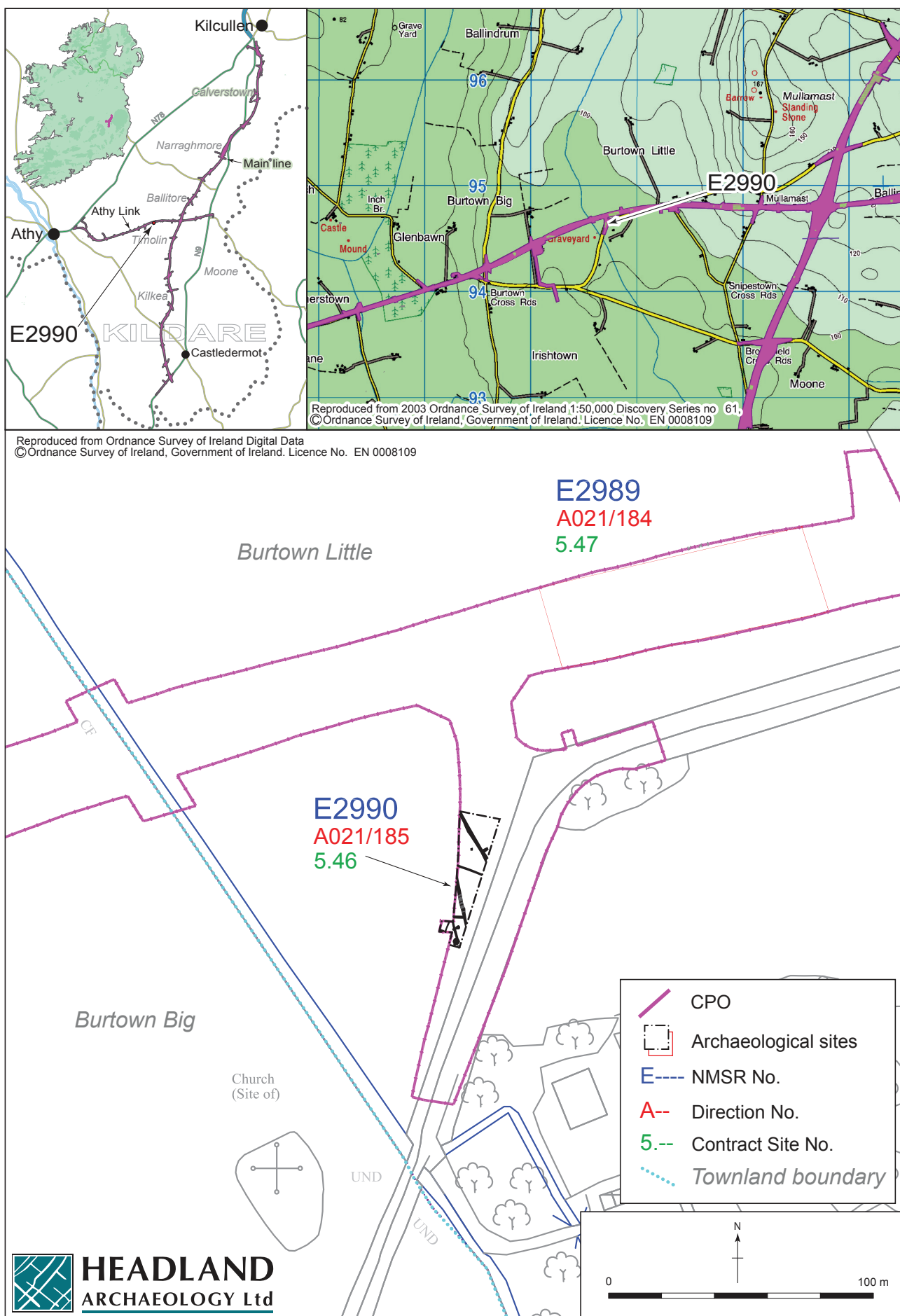


Figure 1 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 5 - Resolution, Kilcullen to Moone and Athy Link Road: E2990 site location.

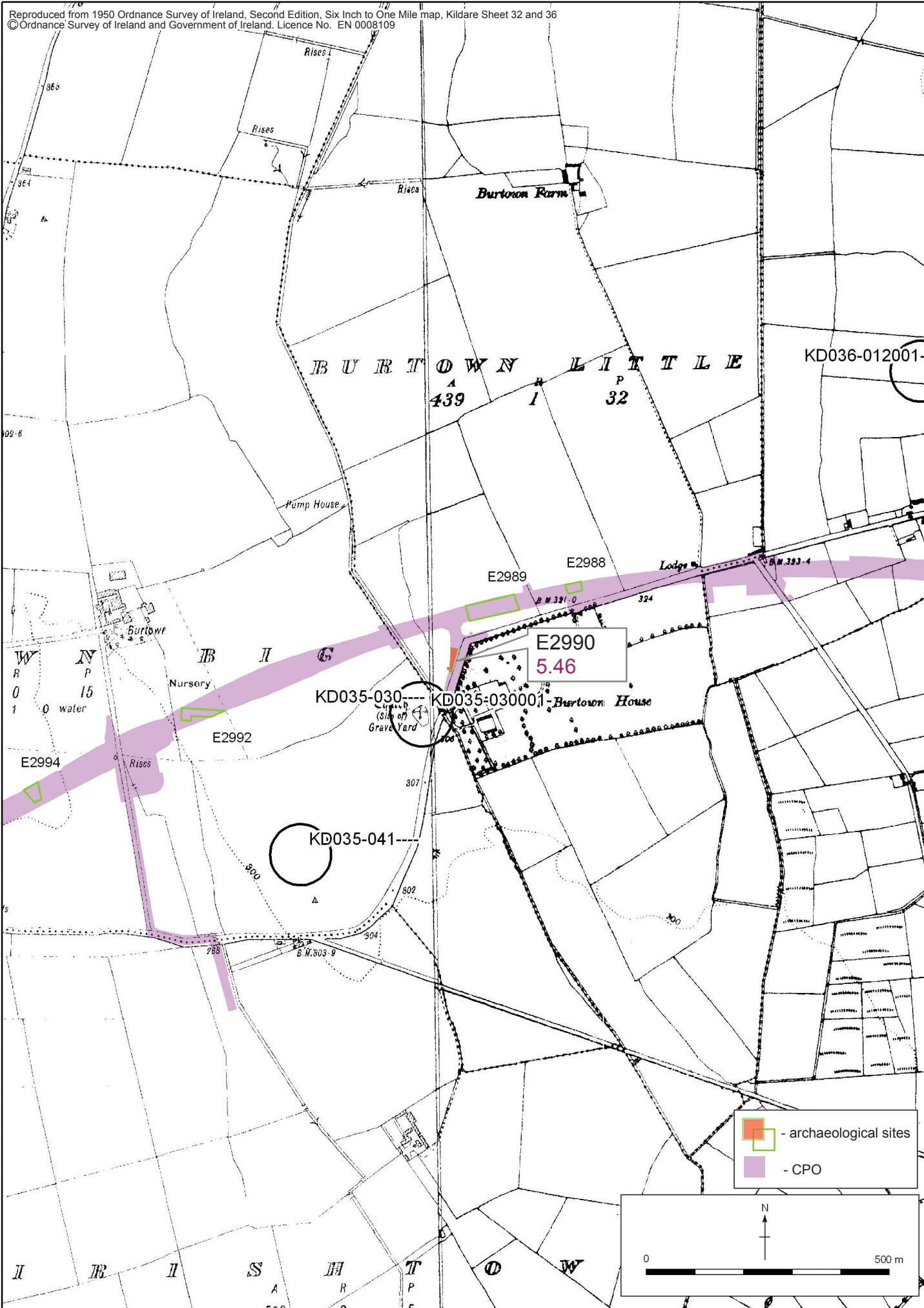


Figure 2 - N9/N10 Kilcullen to Waterford Scheme; Phase 3: Kilcullen to Carlow. Archaeological Services Contract No. 5 - Resolution, Kilcullen to Moone and Athy Link Road: E2990 extract from RMP.

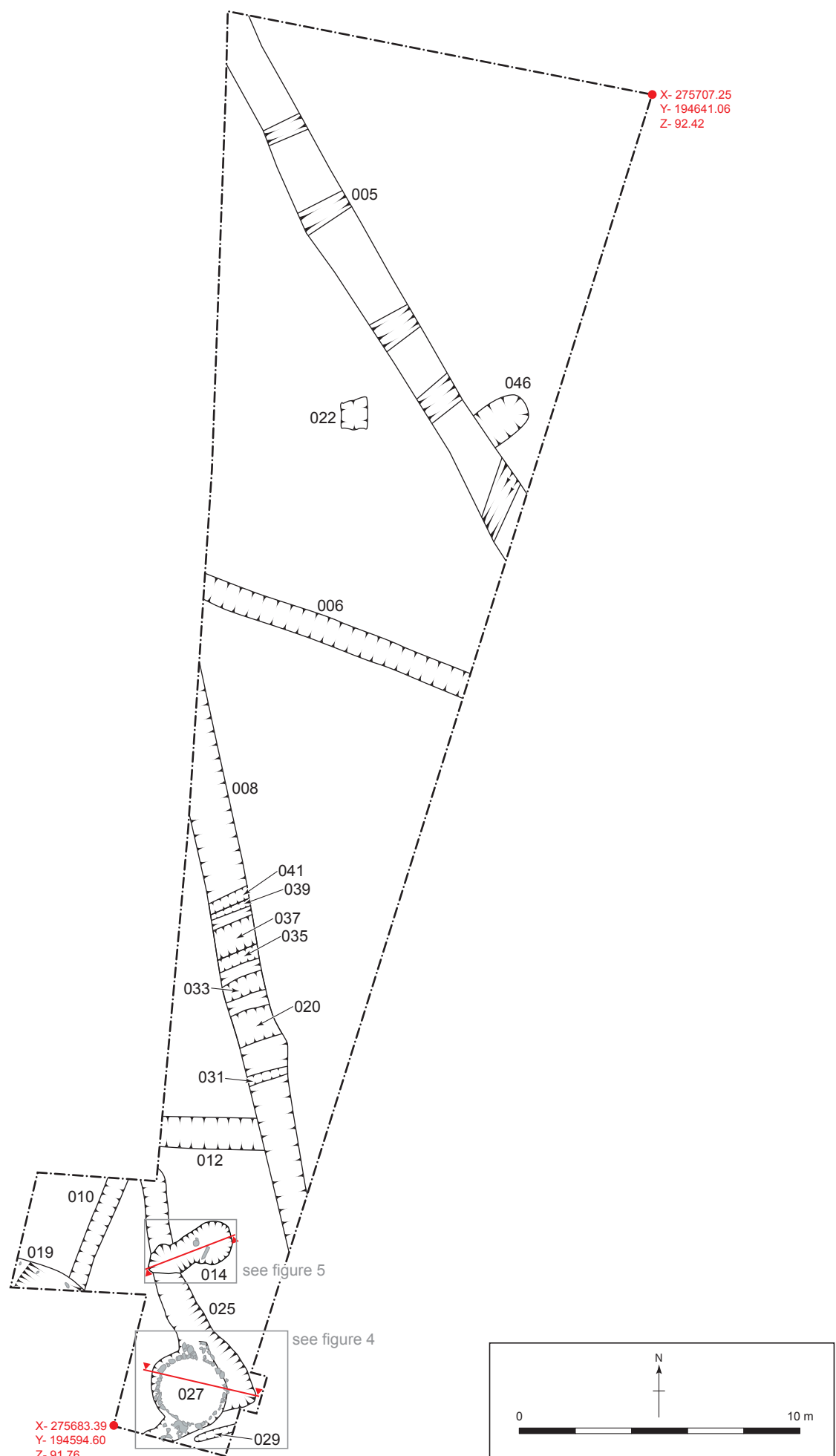


Figure 3 - N9/N10 Killcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 5 - Resolution, Killcullen to Moone and the Athy Link Road: E2990 site layout.

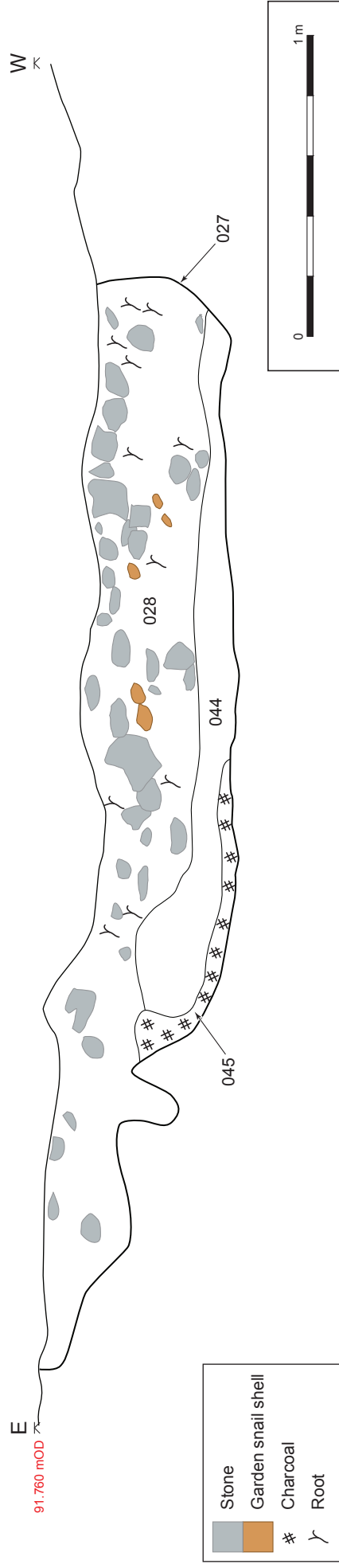
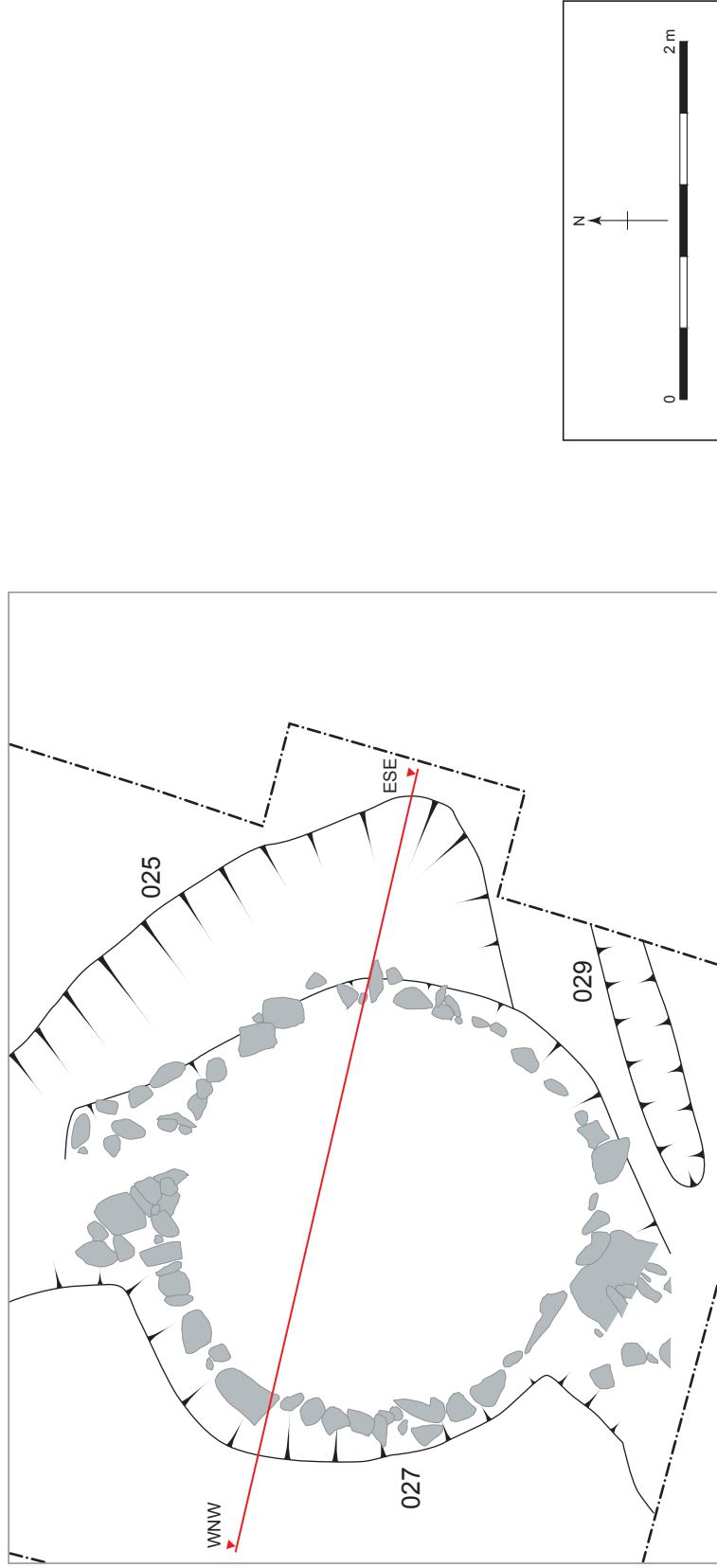


Figure 4 - N9/N10 Killcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 5 - Resolution, Killcullen to Moone and the Athy Link Road:
E2990 detailed plan and section of lime kiln (027).

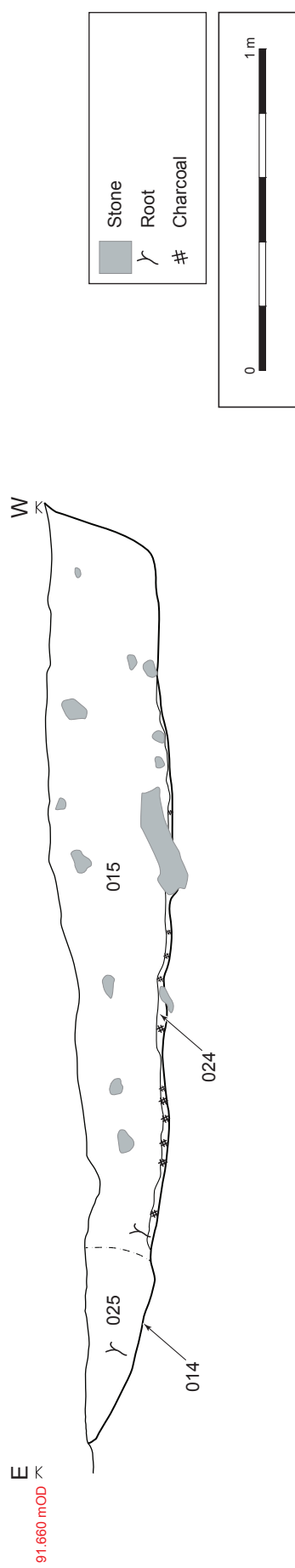
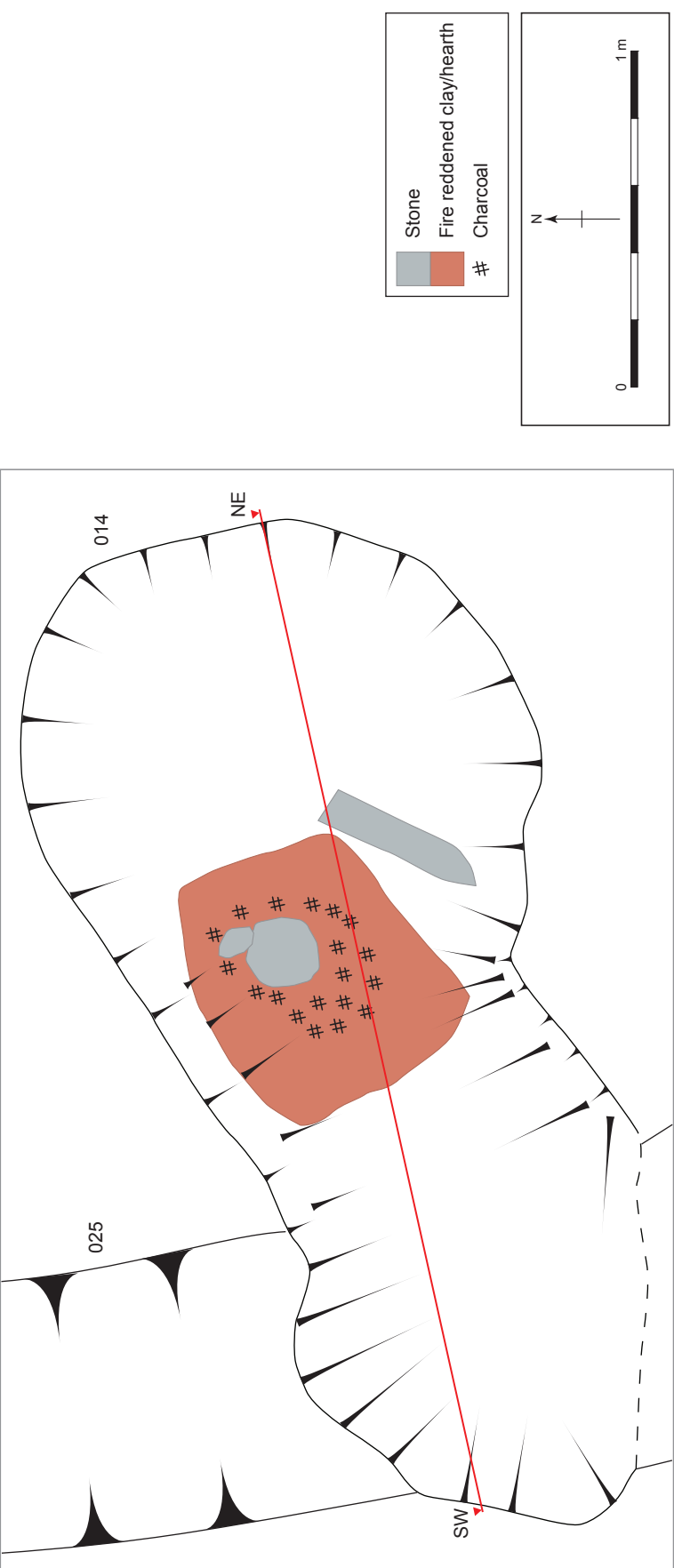


Figure 5 - N9/N10 Killcullen to Waterford Scheme: Phase 3, Killcullen to Carlow.
Archaeological Services Contract No. 5 - Resolution, Killcullen to Moone and the Athy Link Road:
E2990 detailed plan and section of cereal-drying kiln (014).



E2990:015:001
copper alloy object

0 1.5 cm
Drawn by: Hannah Sims

2 cm



Figure 6 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 5 - Resolution, Kilcullen to Moone and Athy Link Road:
E2990, Illustration and photo of copper alloy strap end (E2990:015:001).



Plate 1 - Pre-excavation shot of (014), facing north.



Plate 2 - Post-excavation shot of (014), facing west



Plate 3 - Mid-excavation shot of (027), facing north.



Plate 4 - Mid-excavation shot of (027), facing north.

Appendix 1 – Context Register for Site E2990

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
001	Deposit	-	-	-	-	0.25	Dark brown silty sandy clay.	Topsoil
002	Deposit	-	-	-	-	0.05	Mid-brown silty sandy clay.	Subsoil
003	Deposit	-	-	-	-	-	Light brownish beige clay.	Natural
004	Deposit	(005)	-	-	1.90	0.58	Brownish orange, loose silty clay with frequent sub-angular stones and snail shell, very occasional fragments of bone, charcoal flecking and hair roots.	Upper fill of (005)
005	Cut	-	(004)	-	1.90	0.58	Curvilinear feature with a moderate break of slope at top, slightly irregular, convex sides, a gradual break of slope at bottom and a rounded, irregular base. Extended beyond the limits of excavation.	Cut of a curvilinear ditch
006	Cut	-	(007)	-	0.80	0.16	Linear feature with a moderate break of slope at top, convex sides, a gradual break of slope at bottom and a flat, slightly uneven base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
007	Deposit	(006)	-	-	0.80	0.16	Mid-yellowish brown, moderate sandy silt with very occasional sub-angular stones and hair roots.	Fill of (006)
008	Cut	-	(009)	-	1.35	0.54	Irregular feature with imperceptible breaks of slope, irregular, gently sloping sides and an uneven base. Extended beyond the limit of excavation. Orientated north/south.	Cut of an irregular feature
009	Deposit	(008)	-	-	1.35	0.54	Dark brown, loose silty clay with charcoal flecking, small to large stones and hair roots.	Fill of (008)
010	Cut	-	(011)	-	0.86	0.20	Linear feature with a moderate break of slope at top, convex sides, a gradual break of slope at the bottom and a flat base. Extended beyond the limits of excavation. Orientated north/south.	Cut of a linear feature

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
011	Deposit	(010)	-	-	0.86	0.20	Yellowish grey, firm sandy silt with frequent sub-angular stones, snail shell and fragments of animal bone.	Fill of (010)
012	Cut	-	(013)	-	1.10	0.42	Linear feature with moderate breaks of slope, convex sides and an uneven base. Extended beyond the limit of excavation. Orientated east/west.	Cut of a linear feature
013	Deposit	(012)	-	-	1.10	0.42	Brownish orange, firm silty sand with frequent sub-angular stones and roots.	Fill of (012)
014	Cut	-	(015) (024)	3.12	1.50	0.39	Keyhole-shaped feature with an imperceptible to sharp break of slope at top, concave sides, a gradual to imperceptible break of slope at bottom and a sub-oval base. Orientated east/west.	Cut of a possible kiln
015	Deposit	(014)	-	2.30	1.48	0.39	Mid-brown, loose sandy silt with frequent charcoal flecking, snail shell and sub-angular pebbles.	Fill of (014)
016	Deposit	(019)	-	-	0.90	-	Black deposit with small roots and bone inclusions.	Fill of (019)
017	Deposit	(019)	-	-	-	-	Dark greyish black, loose deposit with charcoal flecking, small stones, animal bone and roots.	Fill of (019)
018	Void	Void	Void	Void	Void	Void	Void	Void
019	Cut	-	(016) (017) (043)	-	1.0	0.57	Irregular feature with a sharp break of slope at top, gently sloping sides, a gradual break of slope at the bottom and a flat base. Extended beyond the limits of excavation.	Cut of a possible pit
020	Cut	-	(021)	-	1.06	0.36	Linear feature with a sharp break of slope at top, gently sloping, slightly irregular sides, a gradual break of slope at bottom and a tapered rounded base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
021	Deposit	(020)	-	-	1.06	0.36	Mid-brown, firm sandy silt with occasional sub-angular stones, animal bone, snail shell and roots.	Fill of (020)

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
022	Cut	-	(023)	0.95	0.90	0.44	Irregular feature with gradual to sharp breaks of slope, irregular sides and an irregular base. Orientated east/west.	Cut of an irregular pit
023	Deposit	(022)	-	0.95	0.90	0.44	Dark brown, loose sandy silt with occasional stones, charcoal flecking and animal bones.	Fill of (022)
024	Deposit	(014)	-	1.75	1.10	0.05	Blackish grey, loose sandy silt with frequent charcoal flecking and moderate pebbles and stones.	Fill of (014)
025	Cut	-	(026)	-	1.11	0.38	Linear feature with a sharp break of slope at top, moderately sloping sides, a gradual break of slope at bottom and a rounded base. Extended beyond the limits of excavation. Orientated north/south.	Cut of a linear feature
026	Deposit	(025)	-	-	1.11	0.38	Mid-greyish brown, firm medium sand with occasional sub-angular stones, snail shell, animal bone, charcoal flecking and roots.	Fill of (025)
027	Cut	-	(028) (044) (045)	2.92	2.52	0.70	Sub-circular feature with a sharp break of slope at top, concave sides, a gradual break of slope at bottom and a flat base. Orientated northeast/southwest.	Cut of a stone-lined kiln
028	Deposit	(027)	-	2.92	2.52	0.40	Mid-brown, moderate silt with frequent snail shell, sub-angular stones, mortar pieces and roots.	Fill of (027)
029	Cut	-	(030)					Cut of a linear feature
030	Deposit	(029)	-					Fill of (029)
031	Cut	-	(032)	-	0.52	0.16	Linear feature with a sharp break of slope at top, slightly concave sides, a gradual break of slope at bottom and a rounded base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
032	Deposit	(031)	-	-	0.52	0.16	Mid-greyish brown, firm sandy silt with occasional sub-angular stones and roots.	Fill of (031)

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
033	Cut	-	(034)	-	0.88	0.24	Linear feature with a sharp break of slope at top, slightly concave sides, a gradual break of slope at bottom and a tapered rounded base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
034	Deposit	(033)	-	-	0.88	0.24	Mid-greyish brown, firm sandy silt with occasional sub-angular stones and roots.	Fill of (033)
035	Cut	-	(036)	-	0.54	0.18	Linear feature with a sharp break of slope at top, slightly concave sides, a gradual break of slope at bottom and a slightly rounded base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
036	Deposit	(035)	-	-	0.54	0.18	Mid-greyish brown, firm sandy silt with occasional sub-angular stones and roots.	Fill of (035)
037	Cut	-	(038)	-	1.72	0.44	Linear feature with sharp breaks of slope, concave sides and a flat base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
038	Deposit	(037)	-	-	1.72	0.44	Mid-greyish brown, loose sandy silt with moderate sub-angular stones, roots and a lense of redeposited natural.	Fill of (037)
039	Cut	-	(040)	-	0.55	0.20	Linear feature with a sharp break of slope at top, gently sloping sides, an imperceptible break of slope at bottom and a rounded base. Extended beyond the limits of excavation. Orientated east/west.	Cut of a linear feature
040	Deposit	(039)	-	-	0.55	0.20	Mid-greyish brown, firm sandy silt with very occasional sub-angular stones and roots.	Fill of (039)
041	Cut	-	(042)	-	0.30	0.24	Linear feature with a sharp break of slope at top, steeply sloping sides, an imperceptible break of slope at bottom and a tapered rounded base. Extended beyond the limits of excavation. Orientated east-west.	Cut of a linear feature
042	Deposit	(041)	-	-	0.30	0.24	Mid-greyish brown, firm sandy silt with occasional pebbles and very occasional roots.	Fill of (041)

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
043	Deposit	(019)	-	2.55	1.00	-	Brown, loose silty clay with small stones, animal bones and roots.	Fill of (019)
044	Deposit	(027)	-	3.80	1.35	0.30	Yellowish white lime/mortar with small sub-angular stones, charcoal pockets and roots.	Fill of (027)
045	Deposit	(027)	-	3.80	0.95	0.25	Black, loose deposit with charcoal pieces, fire-reddened clay, lime flecking and roots.	Fill of (027)
046	Cut	-	(047)	-	1.65	0.41	Linear feature with sharp breaks of slope, steeply sloping sides and a flat base. Extended beyond the limits of excavation. Orientated northeast-southwest.	Cut of a ditch
047	Deposit	(046)	-	-	1.65	0.41	Mid-orangey brown, loose silty sand with occasional sub-angular stones, snail shell roots and redeposited natural.	Fill of (046)

Appendix 2 – Finds Register for Site E2990

Find Number	Description
E2990:004:001	Small iron nail possibly from a horseshoe
E2990:004:002	Sherd of pottery
E2990:004:003	Sherd of pottery
E2990:004:004	Sherd of pottery
E2990:004:005	Sherd of pottery
E2990:004:006	Sherd of glazed pottery
E2990:004:007	Sherd of glazed pottery
E2990:004:008	Sherd of glazed pottery
E2990:004:009	Sherd of glazed pottery
E2990:009:001	Possible coal/charcoal
E2990:009:002	Metal object
E2990:013:001	Sherd of post-medieval pottery
E2990:013:002	Sherd of post-medieval pottery
E2990:013:003	Fragment of brown glass
E2990:015:001	Metal object
E2990:015:002	Possible baffle stone from kiln (014)
E2990:015:003	Large flat stone from centre of hearth in kiln (014)
E2990:015:004	Fire cracked stone from hearth in kiln (014)
E2990:026:001	Sherd of glazed pottery
E2990:026:002	Sherd of pottery
E2990:028:001	Small metal nail
E2990:028:002	Sherd of glazed pottery
E2990:028:003	Sherd of glazed pottery
E2990:028:004	Sherd of glazed pottery
E2990:028:005	Sherd of glazed pottery
E2990:028:006	Sherd of glazed pottery
E2990:028:007	Sherd of pottery
E2990:028:008	Sherd of pottery
E2990:028:009	Possible piece of mortar
E2990:028:010	Piece of mortar
E2990:028:011	Sherd of pottery
E2990:028:012	Sherd of pottery
E2990:028:013	Sherd of pottery
E2990:028:014	Sherd of pottery
E2990:028:015	Sherd of pottery
E2990:028:016	Sherd of pottery
E2990:028:017	Sherd of pottery
E2990:028:018	Sherd of pottery
E2990:028:019	Sherd of pottery
E2990:028:020	Three possibly worked stones
E2990:028:021	Sherd of glazed pottery

Appendix 3 – Sample Register for Site E2990

Sample Number	Context Number	Description
E2990:001	004	Animal bone from (005)
E2990:002	004	Animal teeth from (005)
E2990:003	004	Animal bone from (005)
E2990:004	009	Dark brown, loose silty clay with charcoal flecking, small to large stones and hair roots from (008)
E2990:005	004	Brownish orange, loose silty clay with frequent sub-angular stones and snail shell, very occasional fragments of bone, charcoal flecking and hair roots from (005)
E2990:006	004	Possible animal bones from (005)
E2990:007	021	Mid-brown, firm sandy silt with occasional sub-angular stones, animal bone, snail shell and roots from (020)
E2990:008	021	Mid-brown, firm sandy silt with occasional sub-angular stones, animal bone, snail shell and roots from (020)
E2990:009	004	Animal bone from (005)
E2990:010	016	Black deposit with small roots and bone inclusions from (019)
E2990:011	017	Dark greyish black, loose deposit with charcoal flecking, small stones, animal bone and roots from (019)
E2990:012	043	Brown, loose silty clay with small stones, animal bones and roots from (019)
E2990:013	009	Animal bone from (008)
E2990:014	024	Blackish grey, loose sandy silt with frequent charcoal flecking and moderate pebbles and stones from (014)
E2990:015	015	Animal bone from (014)
E2990:016	024	Blackish grey, loose sandy silt with frequent charcoal flecking and moderate pebbles and stones from (014)
E2990:017	026	Mid-greyish brown, firm medium sand with occasional sub-angular stones, snail shell, animal bone, charcoal flecking and roots from (025)
E2990:018	015	Mid-brown, loose sandy silt with frequent charcoal flecking, snail shell and sub-angular pebbles from (014)
E2990:019	016	Animal bone from (019)
E2990:020	017	Animal bone from (019)
E2990:021	011	Yellowish grey, firm sandy silt with frequent sub-angular stones, snail shell and fragments of animal bone from (010)
E2990:022	038	Mid-greyish brown, loose sandy silt with moderate sub-angular stones, roots and a lense of redeposited natural from (037)
E2990:023	043	Animal bone from (019)
E2990:024	028	Mid-brown, moderate silt with frequent snail shell, sub-angular stones, mortar pieces and roots from (027)
E2990:025	015	Mid-brown, loose sandy silt with frequent charcoal flecking, snail shell and sub-angular pebbles from (014)
E2990:026	044	Yellowish white lime/mortar from (027)
E2990:027	045	Black, loose deposit with charcoal pieces, fire-reddened clay, lime flecking and roots from (027)
E2990:028	028	Animal bone from (027)

Sample Number	Context Number	Description
E2990:029	028	Mid-brown, moderate silt with frequent snail shell, sub-angular stones, mortar pieces and roots from (027)
E2990:030	045	Charcoal pieces from (027)
E2990:031	028	Animal bone from (027)
E2990:032	004	Animal bone from (005)
E2990:033	026	Animal bone from (025)
E2990:034	028	Mortar from (027)
E2990:035	004	Animal bone from (005)
E2990:036	047	Mid-orangy brown, loose silty sand with occasional sub-angular stones, snail shell roots and redeposited natural from (046)
E2990:037	045	Black, loose deposit with charcoal pieces, fire-reddened clay, lime flecking and roots from (027)
E2990:038	004	Animal bone from (005)

Appendix 4 – Photographic Register for Site E2990

Shot No.	Direction Facing	Description
E2990:2:004	E	Mid-excavation shot of NE part of the site
E2990:2:005	E	Mid-excavation shot of NE part of the site
E2990:2:006	S	Mid-excavation shot of NE part of the site
E2990:2:014	S	N-facing section of (005), slot 5
E2990:2:015	S	N-facing section of (005), slot 4
E2990:2:016	N	S-facing section of (005), slot 4
E2990:2:017	N	Mid-excavation shot of (003)
E2990:2:018	N	S-facing section of (005), slot 3
E2990:2:021	S	N-facing section of (005), slot 1
E2990:2:022	N	S-facing section of (005), slot 1
E2990:2:029	S	Mid-excavation shot of linear feature (006)
E2990:2:030	S	E- and W-facing section of linear feature (006)
E2990:2:032	SE	NW-facing section of (005)
E2990:2:033	NW	SE-facing section of (005)
E2990:2:034	NW	SE-facing section of (005)
E2990:2:046	NW	SE-facing section of (005) slot "0"
E2990:2:047	SE	NW-facing section of (005), slot "0"
E2990:2:049	NE	Pre-excavation shot of kiln (014)
E2990:2:050	W	Pre-excavation shot of kiln (014)
E2990:2:051	NE	Pre-excavation shot of kiln (014)
E2990:2:052	NE	SW-facing section of (019)
E2990:2:053	NE	SW-facing section of (019)
E2990:2:054	E	W-facing section of (012)
E2990:2:055	E	W-facing section of (012)
E2990:2:056	E	W-facing section of (012)
E2990:2:057	W	E-facing section of (012)
E2990:2:058	W	E-facing section of (012)
E2990:2:059	W	E-facing section of (012)
E2990:2:060	NW	SE-facing section of (010)
E2990:2:061	NW	SE-facing section of (010)
E2990:2:062	NW	SE-facing section of (010)
E2990:2:064	E	W-facing section A-B of (008)
E2990:2:065	E	W-facing section B-C of (008)
E2990:2:066	E	W-facing section C-D of (008)
E2990:2:067	E	W-facing section D-E of (008)
E2990:2:068	E	W-facing section E-F of (008) and (020)
E2990:2:069	E	W-facing section F-G of (008)
E2990:2:070	E	W-facing section G-H of (008)
E2990:2:071	E	W-facing section H-I of (008)
E2990:2:072	E	W-facing section I-end of (008)
E2990:2:073	NW	SE-facing section of (014)
E2990:2:074	N	Mid-excavation shot of (014)
E2990:2:078	S	Pre-excavation shot of (027)
E2990:2:079	N	Pre-excavation shot of (027)
E2990:2:080	E	W-facing section of (022)
E2990:2:081	W	E-facing section of (022)

Shot No.	Direction Facing	Description
E2990:2:082	W	E-facing section J-K of (008)
E2990:2:083	W	E-facing section K-L of (008)
E2990:2:084	W	E-facing section L-M of (008)
E2990:2:085	W	E-facing section M-N of (008) and (020)
E2990:2:086	W	E-facing section N-O of (008) and (020)
E2990:2:087	W	E-facing section O-P of (008)
E2990:2:089	W	E-facing section P-Q of (008)
E2990:2:090	W	E-facing section Q-R of (008)
E2990:2:091	W	E-facing section R-end of (008)
E2990:2:092	S	Mid-excavation shot of (019)
E2990:2:093	S	Mid-excavation shot of (019)
E2990:2:110	S	Mid-excavation shot of (019), showing animal jaw and tooth
E2990:2:111	S	Mid-excavation shot of (019), showing animal jaw and tooth
E2990:2:115	S	Mid-excavation shot of (019)
E2990:2:116	S	Mid-excavation shot of (019)
E2990:2:117	S	Mid-excavation shot of (019)
E2990:2:127	N	Post-excavation shot of (014)
E2990:2:128	W	Post-excavation shot of (014)
E2990:2:129	E	Post-excavation shot of (014)
E2990:2:130	E	Post-excavation shot of (014)
E2990:2:136	NW	Post-excavation shot of (014)
E2990:2:137	NW	Post-excavation shot of (014)
E2990:2:138	W	Post-excavation shot of (014)
E2990:2:139	NE	Working shot of (027)
E2990:2:140	NE	Working shot of (027)
E2990:2:141	NE	Working shot of (027)
E2990:2:145	S	Post-excavation shot of (019), within an excavation area
E2990:2:146	S	Post-excavation shot of (019), within an excavation area
E2990:2:167	NW	Mid-excavation shot of (027)
E2990:2:168	NW	Mid-excavation shot of (027)
E2990:2:169	NW	Mid-excavation shot of (027)
E2990:2:170	NW	Mid-excavation shot of (027)
E2990:2:171	NW	Mid-excavation shot of (027)
E2990:2:172	NW	Mid-excavation shot of (027)
E2990:2:173	NW	Mid-excavation shot of (027)
E2990:2:174	NW	Mid-excavation shot of (027)
E2990:2:175	NW	Mid-excavation shot of (027)
E2990:3:002	S	N-facing section of linear feature (025)
E2990:3:003	S	N-facing section of linear feature (025)
E2990:3:004	E	Post-excavation shot of kiln (014)
E2990:3:005	E	Post-excavation shot of kiln (014)
E2990:3:006	W	Post-excavation shot of kiln (014)
E2990:3:007	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:008	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:009	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:010	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:011	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:012	NE	Mid-excavation shot of (027), Quad. A excavated

Shot No.	Direction Facing	Description
E2990:3:013	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:014	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:015	NE	Mid-excavation shot of (027), Quad. A excavated
E2990:3:029	NE	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:030	NE	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:031	NE	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:032	E	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:033	E	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:034	E	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:035	NE	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:036	NE	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:037	NE	Mid-excavation shot of (027), Quad. A and B excavated
E2990:3:043		Working shot
E2990:3:044		Working shot
E2990:3:045	NE	SW-facing section of (027) with Quad. A and B excavated
E2990:3:046	NE	SW-facing section of (027) with Quad. A and B excavated
E2990:3:047	NE	SW-facing section of (027) with Quad. A and B excavated
E2990:3:048	E	SW-facing section of (027) with Quad. A and B excavated
E2990:3:049	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:050	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:051	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:052	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:053	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:054	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:055	E	W-facing section of (027) with Quad. A and B excavated
E2990:3:056	NE	Mid-excavation shot of (027) with Quad. A and B excavated
E2990:3:057	NE	Mid-excavation shot of (027) with Quad. A and B excavated
E2990:3:068	NE	Mid-excavation working shot of (027)
E2990:3:069	NE	Mid-excavation working shot of (027)
E2990:3:070	NE	Mid-excavation working shot of (027)
E2990:3:071	NE	Mid-excavation working shot of (027)
E2990:3:072	NE	Mid-excavation working shot of (027)
E2990:3:073	NE	Mid-excavation working shot of (027)
E2990:3:074	NE	Mid-excavation working shot of (027)
E2990:3:075	NE	Mid-excavation working shot of (027)
E2990:3:076	NE	Mid-excavation working shot of (027)
E2990:3:077	NE	Mid-excavation working shot of (027)
E2990:3:078	NE	Mid-excavation working shot of (027)
E2990:3:079	NE	Mid-excavation working shot of (027)
E2990:3:086	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:087	N	Mid-excavation working shot of lime kiln (027)
E2990:3:088	N	Mid-excavation working shot of lime kiln (027)
E2990:3:089	N	Mid-excavation working shot of lime kiln (027)
E2990:3:090	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:091	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:092	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:093	N	Mid-excavation working shot of lime kiln (027)
E2990:3:094	N	Mid-excavation working shot of lime kiln (027)

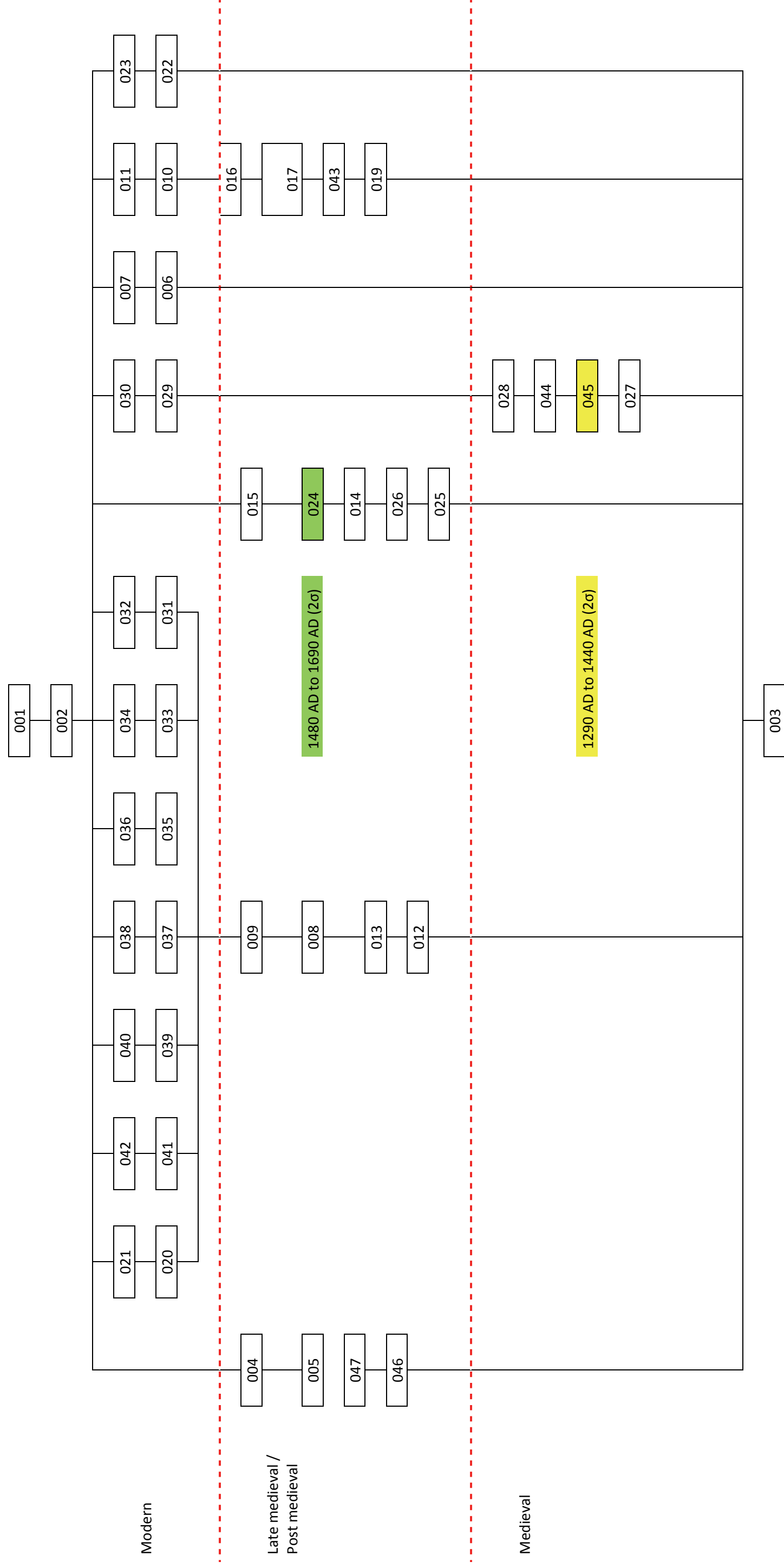
Shot No.	Direction Facing	Description
E2990:3:095	N	Mid-excavation working shot of lime kiln (027)
E2990:3:096	N	Mid-excavation working shot of lime kiln (027)
E2990:3:097	N	Mid-excavation working shot of lime kiln (027)
E2990:3:098	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:099	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:100	NE	Mid-excavation working shot of lime kiln (027)
E2990:3:104	E	W-facing wall of lime kiln (027), showing lime layer
E2990:3:105	SW	Detail of charcoal <i>in situ</i> (027)
E2990:3:111	NE	Mid-excavation shot of lime kiln (027)
E2990:3:112	NE	Mid-excavation shot of lime kiln (027)
E2990:3:113	NE	Mid-excavation shot of lime kiln (027)
E2990:3:114	NE	Mid-excavation shot of lime kiln (027)
E2990:3:115	NE	Mid-excavation shot of lime kiln (027)
E2990:3:116	N	Mid-excavation shot of lime kiln (027)
E2990:3:117	N	Mid-excavation shot of lime kiln (027)
E2990:3:118	N	Mid-excavation shot of lime kiln (027)
E2990:3:119	N	Mid-excavation shot of lime kiln (027)
E2990:3:120	E	Mid-excavation shot of lime kiln (027)
E2990:3:121	E	Mid-excavation shot of lime kiln (027)
E2990:3:122	E	Mid-excavation shot of lime kiln (027)
E2990:3:123	E	Mid-excavation shot of lime kiln (027)
E2990:3:124	NE	Mid-excavation shot of lime kiln (027)
E2990:3:125	S	Mid-excavation shot of lime kiln (027)
E2990:3:126	W	Mid-excavation shot of lime kiln (027)
E2990:3:144	NE	SW-facing section of (046)
E2990:3:152	W	Close-up at stone-lined wall of (027). Points A-B
E2990:3:153	W	Close-up at stone-lined wall of (027). Points B-C
E2990:3:154	W	Close-up at stone-lined wall of (027). Points C-D
E2990:3:155	N	Close-up at stone-lined wall of (027). Points D-E
E2990:3:156	NE	Close-up at stone-lined wall of (027). Points E-F
E2990:3:157	E	Close-up at stone-lined wall of (027). Points F-G
E2990:3:159	E	Close-up at stone-lined wall of (027). Points G-H
E2990:3:160	E	Close-up at stone-lined wall of (027). Points H-I
E2990:3:161	S	Close-up at stone-lined wall of (027). Points I-J
E2990:3:162	S	Close-up at shot of stone-lined wall of (027). Points J-A
E2990:3:181	NE	Mid-excavation shot of lime-kiln (027)
E2990:3:182	NE	Mid-excavation shot of lime-kiln (027)
E2990:3:183	NE	Mid-excavation shot of lime-kiln (027)
E2990:3:184	NE	Mid-excavation shot of lime-kiln (027)
E2990:3:185	N	Mid-excavation shot of lime-kiln (027)
E2990:3:186	N	Mid-excavation shot of lime-kiln (027)
E2990:3:187	N	Mid-excavation shot of lime-kiln (027)
E2990:3:188	NE	Mid-excavation shot of lime-kiln (027), (025) and (014)
E2990:3:189	NE	Mid-excavation shot of lime-kiln (027) and (025)
E2990:3:190	SE	Mid-excavation shot of lime-kiln (027)
E2990:3:191	E	Mid-excavation shot of lime-kiln (027)
E2990:3:192	E	Mid-excavation shot of lime-kiln (027)
E2990:3:194	W	Working shot of (027)

Shot No.	Direction Facing	Description
E2990:3:196	W	Mid-excavation shot of lime-kiln (027) showing both flues (014) and (025)
E2990:3:197	S	Mid-excavation shot of (027) showing both flues (014) and (025)
E2990:3:198	NE	Mid-excavation shot of (027) showing S flue
E2990:3:199	SE	Post-excavation shot of (027) showing S flue
E2990:4:002	SE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:003	SE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:004	SE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:005	SE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:006	NE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:007	NE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:008	NE	Post-excavation shot of (027) showing adjacent (025)
E2990:4:009	NE	Post-excavation shot of (027) showing adjacent (013)
E2990:4:010	NE	Post-excavation shot of (027) showing adjacent (013)
E2990:4:011	N	Post-excavation shot of (027) showing adjacent (013)
E2990:4:012	N	Post-excavation shot of (027) showing adjacent (013)
E2990:4:013	N	Post-excavation shot of (027) showing adjacent (013)
E2990:4:014	SE	Post-excavation shot of (014), showing (025) and (027)
E2990:4:015	NE	Post-excavation shot of (027) and (025)
E2990:4:016	NE	Post-excavation shot of (027) and (025) and (014)
E2990:4:021	NW	Working shot. Removal of stones from (027)
E2990:4:022	NE	Working shot. Removal of stones from (027)
E2990:4:042	SW	Post-excavation shot of (027), (stones removed)
E2990:4:043	NE	Post-excavation shot of (027), (stones removed)
E2990:4:044	S	Post-excavation shot of (027), (stones removed)
E2990:4:045	SW	Post-excavation shot of (027), (stones removed)
E2990:4:047		Working shot
E2990:4:048	W	Post-excavation shot of (027), (stones removed)
E2990:4:049	SW	Post-excavation shot of (027), (stones removed)

Appendix 5 – Drawing Register for Site E2990

Drawing Number	Type	Scale	Description
001	Plan	1:50	Pre-excavation plan of area A-B
002	Section	1:10	North-facing section of (005) slot 4
003	Section	1:10	South-facing section of (005) slot 4
004	Section	1:10	Northeast-facing section of (005) slot 5
005	Plan	1:100	Mid-excavation plan of curvilinear ditch (005) slots 1-5
006	Section	1:10	South-facing section of (005) slot 3
007	Section	1:10	North-facing section of (005) slot 3
008	Section	1:10	South-facing section of (005) slot 1
009	Section	1:10	North-facing section of (005) slot 1
010	Section	1:10	East-facing section of (006)
011	Section	1:10	West-facing section of
012	Section	1:10	Northwest-facing section of (005) slot 2
013	Section	1:10	Southeast-facing section of (005) slot 2
014	Section	1:10	East-facing section of (005) slot 0
015	Section	1:10	West-facing section of (005) slot 0
016	Void	Void	Void
017	Section	1:10	East-facing section of (012)
018	Section	1:10	West-facing section of (012)
019	Section	1:10	Northeast-facing section of (019)
020	Section	1:10	West-facing section of (022)
021	Section	1:10	East-facing section of (022)
022	Section	1:10	Southeast-facing section of (010)
023	Section	1:10	South-facing section of (014)
024	Plan	1:20	Pre-excavation plan of (027)
025	Section	1:20	West-facing section of (008)
026	Section	1:20	East-facing section of (008)
027	Plan	1:20	Post-excavation plan of (014)
028	Section	1:10	Profile of (019)
029	Plan	1:20	Post-excavation plan of (019)
030	Plan	1:20	Mid-excavation plan of (027)
031	Section	1:10	North-facing section of (025)
032	Section	1:20	Mid-excavation of (027)
033	Plan	-	Post-excavation plan of (027)
034	Plan	-	Post-excavation plan of (005)
035	Section	1:10	West-facing section of (046)
036	Elevation	1:10	Elevation of (027)
037	Elevation	1:10	Elevation of (027)
038	Plan	1:20	Post-excavation plan of (027)

Appendix 6 – Site matrix for Site E2990



Appendix 7 – Palaeoenvironmental Evidence

By: David Masson and Scott Timpany

Introduction

Twenty environmental samples were taken during the excavation of Burtown Little, Co. Kildare E2990. The site consists of a lime kiln and trackway, a cereal-drying kiln and a late medieval/early post-medieval boundary system. All of the samples were processed in order to retrieve any palaeoenvironmental material that may aid in the interpretation of the site.

Methodology

Samples were processed in laboratory conditions using a standard flotation method (cf. Kenward *et al.*, 1980). This was then sorted by eye and any material of archaeological significance removed. All plant macrofossil samples were analysed using a stereomicroscope at magnifications of x10 and up to x100 where necessary to aid identification. Identifications were confirmed using modern reference material and seed atlases including Cappers *et al.* (2006).

Results

The results are summarised below in Table 1 (radiocarbon dating results), Table 2 (flot samples) and Table 3 (retent samples). All plant material was preserved by charring. One sample (29) was found to be archaeologically sterile.

Results of radiocarbon dating

To place this site within a chronological framework two samples were submitted for radiocarbon dating (see Table 1). Sample 016 consisted of charred barley from the fill (024) of a cereal-drying kiln (014) which was dated to cal AD 1480-1690 (SUERC-25910; 260±50 BP). Sample 027 consisted of hazel charcoal from the fill (045) of a stone-lined lime kiln (027) which was dated to cal AD 1290-1440 (SUERC-25911; 570±50 BP).

Charred plant remains

Thirteen samples were found to contain charred cereal grain, with grain absent within three samples (007, 008, and 029) (see Table 2 and 3). The charred grain assemblage includes hulled barley (*Hordeum vulgare*), oat (*Avena* sp.) and club/bread wheat (*Triticum aestivo-compactum*) with six samples (011, 012, 016, 017, 018 and 025) in particular containing abundant quantities of charred grain. Weed seeds were generally sparse throughout the samples (see Table 2). The taxa present are species associated with agricultural fields and disturbed ground including those of the fat hen family (*Chenopodium* sp.), docks (*Rumex* sp) and common fumitory (*Fumaria officinalis*). Other charred plant remains of interest include a small assemblage of fruits of the pea family (*Fabaceae* sp).

Wood charcoal

In most cases, the concentrations of charcoal were low and found to be either rare (+) or occasional (++) with only two samples (027 and 030), found to contain an abundant amount (see Tables 2 and 3). Charcoal fragments within the flot samples were all found to be of small size (<1cm, see Table 1), while five samples (010, 018, 024, 027 and 037) did contain charcoal of a sufficient size for identification and/or Accelerated Mass Spectrometry (AMS) radiocarbon dating (see Table 3), with charcoal from one of these samples (027) providing a date for the site (see Table 1).

Other finds

Land snails were found in all the samples, mammal bone was found in thirteen samples and wood fragments were found in eight samples (see Tables 2 and 3). The land snails and uncharred wood are believed to be modern.

Discussion

The discussion focuses on those features which produced abundant grain; namely the corn-drying kiln (014), large pit (019) and trackway (025) associated with the lime kiln (027). The small quantity of largely poorly preserved grain in those remaining samples, which relate to the curvilinear and other linear features, ditch (046) and lime kiln (027) (see Table 2) is suggestive of grain having been blown, washed or redeposited into these features over time from the surrounding area; the most likely source being the corn drying kiln (014).

Corn drying kiln (014); cal AD 1480-1690

Three samples (016, 018 and 025) were taken from the keyhole-shaped corn drying kiln (014). One of the samples (016) failed to produce a flot sample, but the remaining two samples (018 and 025) produced flots rich in charred cereal grain (see Table 2). The grain assemblage from the kiln is dominated by hulled barley with significant amounts of club/bread wheat with Sample 18 also containing a moderate amount of oat grain. Charred hulled barley grains from [retent] Sample 016 have been radiocarbon dated to cal AD 1480-1690 (SUERC-25910; 260±50 BP). This date is towards the modern end of the radiocarbon curve and thus there is a wide date range for this feature. Keyhole-shaped kilns have been used in Ireland from the early centuries AD through to the early 19th century (Monk and Kelleher 2009) and thus the date for this kiln would suggest it was in use towards the latter part of this period. The damp climate in Ireland meant that drying kilns were in frequent use in order to dry grain ready for storage (Kelly 1998). Through decreasing the moisture content of grain the risk of spoilage through fungal attack or germination could be lessened (Watson and Moore, 1962).

The dominance of hulled barley in the assemblage is also of interest given the late date for the kiln. In a recent survey of keyhole-shaped kilns in Ireland, Monk and Kelleher (2009) note that oat is usually the dominant cereal found and that where one species is dominant (in this case barley) there is often only a small amount of other cereal types present. However, the kiln from Burtown Little contains a significant amount of bread/club wheat together with the barley and oat is only present in small quantities within the kiln. The dominance of barley within kiln assemblages is usually related to kilns of an early medieval date (and has been found at sites such as E0534, Lower Drakeland, Co. Kilkenny) with a switch to oat in the later medieval period (Monk, 1991). Thus, the kiln is providing a possibly unique grain assemblage, which will be of interest to other archaeobotanical kiln studies.

Together with the charred cereal grain a small number of agricultural weed species (ruderals) were also recovered from the kiln assemblage. Members of the pea family and common fumitory were recovered from the samples (see Table 2). Both of these plants are commonly found on cultivated ground (Clapham *et al*, 1962; Stace, 1997) and are likely to have been gathered with the cereals during harvesting. Peas were cultivated during the medieval periods (Monk 1985/86; Kelly 1998), however, the small size of the fruits in the assemblage suggests they are unlikely to represent the cultivated field pea (*Pisum sativum*).

Pit (019)

Three samples (010, 011 and 012) from pit (019) were found to contain abundant amounts of charred cereal grain (see Table 2). The assemblage from the pit shows large quantities of hulled barley, club/bread wheat and oat are present in the pit together with smaller amounts of indeterminate cereal grain. The large numbers of grain in the pit fills suggest this pit was used as for storing grain. The similarity of the assemblage with that from the kiln suggests they were both in use at the same time and that grain dried in the kiln was then stored in this pit. The pit does contain a higher incidence of oat than the kiln and this may be a result of less oat grain being dried in the final phase of kiln activity, which has been captured in the kiln samples. Together with the grain, the wild taxa assemblages are also similar, in particular the presence again of species of the pea family in all of the pit samples, while other ruderals of cultivated ground are present in docks and goosefoots (Clapham *et al*, 1962; Stace, 1997).

The location of pit (019) close to the kiln indicates that cereal grain would not have to be transported far for storage once dried in the kiln. Pits have been shown (e.g. Reynolds, 1979) to have made effective places to store grain. The large number of charred grains within pit (019) indicates it was 'cleansed' by burning in order to avoid spoilage of all the grain in the pit. Such spoilage of grain may occur should the grain become wet following torrential rainfall or from the spread of fungal diseases (Reynolds, 1979; Dark and Gent, 2001).

Track way; cal AD 1290-1440

Another sample, which was found to contain abundant charred cereal grain, is Sample 017 (see Table 2). This sample was taken from the fill (026) of a trackway (025) that is associated as an access track to lime kiln (027). The lime kiln has been dated from hazel charcoal within one of its fills (045) to cal AD 1290-1440 (SUERC-25911; 570±50 BP). Lime kilns are generally associated with the post-medieval period in Ireland (O'Sullivan and Downey 2005), but due to recent archaeological discovery (to which this adds) there is now a growing body of evidence for their existence in the medieval period.

The high incidence of grain in the trackway deposit, however, would not seem to relate to the lime kiln activity. The assemblage from Sample 017 appears to match strongly to that from kiln (014) with similar quantities of the same cereal grain and again the presence of fruits of the pea family (see Table 2). It is suggested here that this sample has probably been taken extremely close to the later kiln activity rather than through the trackway itself and is therefore showing evidence of the grain-drying activity rather than that associated with the lime-kiln.

Conclusions

- A large quantity of cereal grain was recovered from the site, which is likely to relate to the corn drying activity associated with kiln (014).
- A large pit (019) was found to contain abundant grain and is suggested to be a grain storage pit connected to the use of the kiln.
- The charred plant assemblage is dominated by the grains of hulled barley with substantial amounts of oat and club/bread wheat also represented. Ruderals such as common fumitory, docks and members of the pea family were also recovered.
- The presence of charred grain in the trackway samples is likely a result of sampling too close to the corn drying kiln (014).

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E- Number	Lab code	Sample ID	Material	$\sigma^{13}\text{C}$	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E2990	SUERC- 25910	Sample 16, Context (024)	Charred barley	No value	260 \pm 50	cal AD 1520 – 1600	27.8	cal AD 1480 - 1690	72.7
						cal AD 1620 – 1670	28.7	cal AD 1730 - 1810	17.5
						cal AD 1780 – 1800	9.2	cal AD 1920 - 1960	5.2
						cal AD 1940 – 1960	2.4		
E2990	SUERC- 25911	Sample 27, Context (045)	Hazel charcoal	-25.4	570 \pm 50	cal AD 1310 – 1360	41.6	cal AD 1290 - 1440	95.4
						cal AD 1380 – 1420	26.6		

Table 1 – Radiocarbon dates

Context Number	Sample Number	Feature	Total flot Vol (ml)	Cereal grain: sp.	<i>Avena vulgare</i>	<i>Triticum aestivo-compactum</i>	<i>Cerealia</i> indet.	Other plant remains	Charcoal Quantity	Charcoal Max size (cm)	Material available for AMS	Comments
Kiln 014												
24	16	Fill of kiln (014)	-									No flot produced
15	18	Fill of kiln (014)	150		++	+++	+	<i>Fumaria officinalis</i> +			Charred cereal ++++	
15	25	Fill of kiln (014)	10			+++	++	Fabaceae sp. +++	+++	<1cm	Charred cereal ++++	
Pit 019												
16	10	Fill of pit (019)	750		++++	++++		Fabaceae sp. +, <i>Rumex</i> sp. +	+++	<1cm	Charred cereal ++++	Contained a small mammal bone and land snails
17	11	Fill of pit (019)	550		++++	++++	+++	Fabaceae sp. +++, <i>Chenopodium</i> +		<1cm	Charred cereal ++++	Contains modern wood fragments and land snails
43	12	Fill of pit (019)	20		+++	++++	++	<i>Fabaceae</i> sp. +	++	<1cm	Charred cereal ++++	
Linear Features												
21	7	Fill of linear feature (020)	15						+	<1cm		
21	8	Fill of linear feature (020)	10						++	<1cm		
26	17	Fill of linear feature (26)	15		+	++++	++	Fabaceae sp. +			Charred cereal ++++	Contains modern wood fragments and land snails
11	21	Fill of linear feature (010)	30									Contains modern wood fragments and land snails
38	22	Fill of linear feature (037)	15									
Curvilinear Features												
4	5	Upper fill of curvilinear feature(005)	75			+	+	<i>Rumex</i> sp.	+	<1cm		Contains modern wood fragments and land snails
Lime Kiln 027												
28	24	Fill of lime kiln (027)	20			+		<i>Chenopodium</i> sp +	+	<1cm	Charred cereal ++	Contains modern wood fragments and land snails
44	26	Fill of lime kiln (027)	20		+	+			+	<1cm		
45	27	Fill of lime kiln (027)	-									No flot produced
28	29	Fill of lime kiln (027)	5									Contains modern wood fragments and land snails
45	30	Fill of lime kiln (027)	10						++++	<1cm		
45	37	Fill of a lime kiln (027)	50		+				++	<1cm		Contains modern wood fragments and land snails
Ditch 046												
47	36	Fill of a ditch (046)	15		+		+		++	<1cm		
Stone Find 3												
24	14	Fill from under Stone Find 3	-									No flot produced

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant
NB charcoal over 1cm is suitable for identification and AMS dating

Table 2 – Composition of flot material

Context number	Sample number	Retent vol (L)	Context/ Sample description	Wood charcoal		Mammal bone		Plant		Shell	Industrial/ Metallic	Worked Stone	Ceramic	Building Material	Comments
				Qty	AMS	Burnt	Unburnt	Burnt	Unburnt						
Kiln 014															
24	16	11	Dark brown and black soil with charcoals fill of [14]	+			+	+ Grain		+					
15	18	22	Fill of kiln (14)	+	*		+			+					
15	25	1	Mid brown sandy silt fill of kiln [14] beneath Bafflestone Find # 2	+			+			+					
Pit 019															
16	10	10	Black charcoal rich fill of [19]	+++	*		++	+ Grain	+ Grain	+		++ Flint			
17	11	9	Dark brown black silty lens fill of [19]	+			+	+ Grain		+					
43	12	4	Brown silty clay fill of [19]	+			+			+					
Linear Features															
21	7	2	Mid brown sandy silt fill of [20]				++								
21	8	2	Mid brown sandy silt fill of [20]				+++			+					
26	17	2	Greyish brown sandy silty soil. Fill of Ditch [26]	+			+	+ Grain		+					
11	21	2	Dark brown silty clay fill of Linear [10]				++			+					
38	22	2	Greyish brown sandy silt fill of Linear [37]					+ Grain	++ Grain	++					
Curvilinear Features															
4	5	10	Dark brown sandy silt fill of [5]	+			+			+					
Lime Kiln 027															
28	24	0.6	Mid brown rooty sandy soil fill of lime kiln [27]	+	*		+++			+					
44	26	12	Yellowish white lime/mortar fill of lime kiln [27]	+				+ Grain	+	+					
45	27	2	Charcoal rich fill of Lime Kiln [27]	++++	*						+ Nails			+++ Lime/ Mortar	
28	29	1.1	Light grey cement like lens from Lime Kiln [27]												Archaeologically Sterile
45	30	1.2	Charcoal from edge of stone lining at base of lime kiln [27]	++++				+ Grain						+ Lime/ Mortar	
45	37	1	Charcoal rich sample from flue of lime kiln [27]	+	*										
Ditch 046															
47	36	1.5	Mid orangey brown silty sand from ditch [46]				++	+ Grain		+					
Stone Find 3															
24	14	0.8	Dark brown black charcoal rich filll from underneath Stone Find # 3												

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant
NB charcoal over 1cm is suitable for identification and AMS dating

Table 3 – Composition of retent material

Appendix 8 –The faunal remains from Burtown Little (E2990), Co. Kildare

By: Auli Tourunen PhD and Albína Hulda Pálsdóttir MA

Introduction

This report discusses the results of the animal bone analysis from Burtown Little, Co. Kildare (E2990). The resolution of the site revealed a series of linear features, a corn-drying kiln and a lime kiln. Medieval and post-medieval pottery was recovered from the ditches (Moloney 2009, 2). The animal bone specimens were recovered by hand-picking and from soil samples by sieving. The animal bones analysed for this report derive from fills (004, 047) of ditches (005, 046), fill (009) of irregular feature (008), fills (015, 024, 028) of kiln and possible kiln (014, 027), fills (016, 017, 043) of possible pit (019) and fills (011, 021, 026) of linear features (010, 020, 025).

Methodology

During the analysis each specimen was identified and recorded according to species, skeletal element, age and sex where possible. The animal bone reference collection located in Headland Archaeology (Ireland) Ltd, Unit 1 Wallingstown Business Park, Little Island, Co. Cork was utilised. The York System bone database program was used for recording (Harland *et al.* 2003). The material was quantified by using the number of identified specimens (NISP). Distinctions made between sheep and goat follow Boessneck (1969) and Prummel & Frisch (1986). The categories “large mammal” (lm) and “medium mammal” (mm) were used for specimens (mainly ribs and vertebrae) which could not be assigned to a species. The category “small mammal” (sm) includes mammal bones from animals smaller than cat. The specimens categorised as large mammal are likely to belong to either cattle or horse; red deer was absent in the assemblage. Medium mammal specimens are most likely to consist of sheep, goat and pig bones.

Tooth eruption and wear were recorded according to Grant (1982). Mandibles were further divided into age groups presented by O'Connor (2003, 160). For ages of tooth eruption and epiphyseal fusion, Silver's (1969) figures were followed. Measurements were taken following von den Driesch (1976). In addition, during the analysis pathological changes, carnivore and rodent gnawing, signs of burning and butchery marks were recorded. All data is stored in digital and written form in Headland Archaeology (Ireland) Ltd, Unit 1 Wallingstown Business Park, Little Island, Co. Cork.

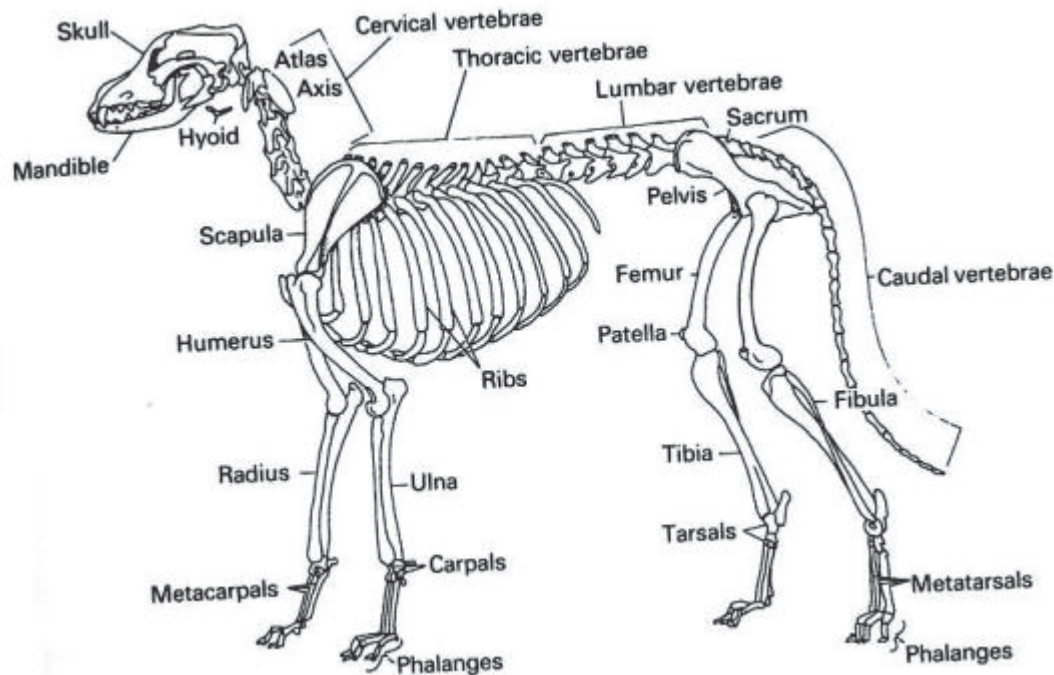


Figure 1 – Location on animal skeleton of terms referred to in text (Davis 1987, 54, in Reitz & Wing 1999)

Results

A total of 636 bone specimens were analysed from the site (Table 1). Fill (004) of ditch (005) included cattle, sheep or goat, pig, horse, dog, cat and mouse bones. The cat bones could all derive from one individual; one of the cat bones, a humerus, exhibited signs of root etching. A pig femur exhibited signs of a probable trauma: there was extra bone growth on the caudal side of the shaft. The bones from fill (004) represent both high and low utility skeletal elements so both slaughter and food waste are represented. Cattle malleolae and a piece of skull as well as sheep or goat radius were recovered from fill (009) of irregular feature (008). Only one identifiable bone, a horse calcaneus, was found in fill (011) of linear feature (010). Sheep or goat axis and dog tooth were identified from fill (015) of kiln (014). Another fill (024) of the same kiln included only unidentified bone. Fills (016, 017, 043) of pit (019) included goat, sheep or goat, horse, dog and fish bones. Horse, sheep or goat and dog are only represented by teeth or mandible fragments. Goat bone was a large metacarpal with distal breadth of 32.4 mm. A pig male mandible and sheep or goat radius was recovered from fill (021) of linear feature (020). Fill (026) of linear feature (025) included cattle calcaneus, radius and sheep or goat pelvis. Fill (028) of kiln (027) included cattle, sheep, pig, horse and cat bones. Most of the pig bones are juvenile, possibly deriving from only one individual of approximately of 4-6 months of age (M1 visible but not erupted, Silver 1969). Two horse bones (femur and tibia) derive from a foetal foal. One sheep or goat mandible could be used for age determination. This animal derives from sub-adult individual (M3 erupting, according to O'Connor 2003). One cattle tibia exhibited carnivore gnawing marks. There was also one (unidentified) burnt bone from this fill. The rest of the sample consists of both high and low utility elements. Fill (047) of ditch (046) included dog skull, mandible and pelvis fragments. The dog mandibular first molar (M1) could be measured: its length was 21.9 mm and breadth 9.9 mm.

Context	Cattle	Sheep	Goat	Sh/g	Pig	Horse	Dog	Cat	Mouse	Lm	Mm	Sm	Fish	Unid	NISP
004	7			19	3	4	2	21	1	7	3	1		175	243
009	2			1										6	9
011						1								13	14
015				1			1							30	32
016						1							1	10	12
017						1								25	26
021				1	6					1				85	93
024														13	13
026	2			1										7	10
028	7	2		8	20	5		1		1	9	1		109	163
043			1	3			1				1			12	18
047							3								3
Total	18	2	1	34	29	12	7	22	1	9	13	2	1	485	636

Table 1 – Species representation of sample (NISP). Sh/g = sheep or goat, lm = large mammal, mm = medium mammal, sm = small mammal, unid = unidentified

Discussion

The bone material from Burtown Little, Co Kildare is too small for conclusive comparison against other assemblages. However, some general observations can be made. The sample included all the principle domestic animals, cattle, sheep, goat, pig, horse, dog and cat. The only identified wild animal was an unidentified fish vertebrate. The represented species are typical for the time period. The proportion of animals not likely included in the diet such as horse, dog and cat, is relatively high. Therefore the sample is likely to represent a mixture of domestic waste and more specialised waste relating to e.g. disposal of inedible animal carcasses or skinning.

Context	Sample	Species	Element	Nisp	Side	Gt50	Proxfus	Distfus	Age	Modifications	Notes	%	Texture	Burning	Recovery
004	001	unid	m/p	1							carnivore or leporidae		2		hc
004	001	unid	Ui	7									2		hc
004	002	cow	Iso teeth	2							M mand, M frag				hc
004	002	lm	Mand	4							one in 2 pieces		3		hc
004	002	unid	Iso teeth	9											hc
004	002	unid	m/p	1							dog?		2		hc
004	002	unid	Ui	32									3		hc
004	003	dog	Rib	1							in 2 pieces, prox		2		hc
004	003	pig	Hum	1	l	789A					in 4 pieces		3		hc
004	003	sh/g	Rad	1	r	8							3		hc
004	003	unid	Rib	1							dog?		2		hc
004	003	unid	Ui	17									3		hc
004	005	cat	Rad	1	l	4		f					2		1
004	005	cat	Lumb	1	b		f	f				90	2		1
004	005	cat	Caud	1	b		f	f				90	2		1
004	005	cat	St	1	b							90	2		1
004	005	mouse	Fem	1									2		1
004	005	sm	Rib	1							cat?		2		1
004	005	unid	Ui	28									2		1
004	006	sh/g	Iso teeth	5							all probably from one mandible: 2 M mand, 2 PM mand		2		hc
004	006	sh/g	Mand	11							all probably from same mandible		2		hc
004	006	unid	Ui	15									3		hc
004	009	cat	Ulna	1	l	123	f				in 3 pieces		2		hc
004	009	cat	Tib	1	r	3456		f			in 2 pieces		2		hc
004	009	cat	Rad	1	l	23					in 2 pieces		2		hc
004	009	cat	m/t	2		123		f					2		hc
004	009	cat	m/p	5									2		hc
004	009	cat	Astr	1	l							90	2		hc
004	009	cat	Calc	1	r			f			in 2 pieces		2		hc
004	009	mm1	Sha	1									2		hc
004	009	mm1	Rib	1									2		hc
004	009	unid	Ui	17									2		hc
004	032	horse	Ulna	1	r	CDE					in 2 pieces, the shaft frag was originally from sample 35.		3		hc
004	032	horse	Calc	1	l	2345	u						2		hc
004	032	horse	m/c	1	r	34							3		hc
004	032	horse	m/t	1	r	345678		f					3		hc
004	032	sh/g	Hum	1	l	3578		f					3		hc
004	035	cat	Fem	1	r	1234	fg						2		hc
004	035	cat	Tib	1	l	456		f			in 2 pieces		3		hc
004	035	cat	Hum	1	r	23				rt	in 2 pieces		3		hc
004	035	cat	Pel	1	l								2		hc
004	035	cat	m/p	1									2		hc

Context	Sample	Species	Element	Nisp	Side	Gt50	Proxfus	Distfus	Age	Modifications	Notes	%	Texture	Burning	Recovery
004	035	cow	Isoteeth	4							2 M max, 2 pd max				hc
004	035	dog	Cerv	1	b		f				upper epi, in 2 pieces	50	2		hc
004	035	lm	Cerv	1	b		f				upper epi	30	3		hc
004	035	mm1	Sha	1									2		hc
004	035	pig	Tib	1	l	5689A		fg			in 4 pieces		3		hc
004	035	sh/g	Isoteeth	1							M max				hc
004	035	unid	Skull	5									2		hc
004	035	unid	Ui	35									2		hc
004	038	cow	m/t	1	l	1256							3		hc
004	038	lm	Scap	1									3		hc
004	038	lm	Rib	1									3		hc
004	038	pig	Fem	1	r	78							3		hc
004	038	unid	Ui	7									3		hc
009	013	cow	Skull	1	l						zyg nuchal 40%, in 2 pieces		3		hc
009	013	cow	Mal	1								50	2		hc
009	013	sh/g	Rad	1	r	346789K		f					2		hc
009	013	unid	Ui	6									3		hc
011	021	horse	Calc	1	l	2345					in 3 pieces		2		1
011	021	unid	Ui	13									2		1
015	015	dog	Isoteeth	1							Pm 3 max				hc
015	015	sh/g	Ax	1	b						dens	30	3		hc
015	015	unid	Skull	1									2		hc
015	015	unid	Ui	7									2		hc
015	018	unid	Ui	15									3		1
015	025	unid	Ui	7									2		1
016	010	fish	V	1	b							90	2		1
016	010	unid	Ui	10									2		1
016	019	horse	Mand	1	r	6DE					in 8 pieces, loose teeth		2		hc
017	011	unid	Ui	23									2		1
017	020	horse	Isoteeth	1							PM/M mand				hc
017	020	unid	Ui	2									2		hc
021	007	pig	Mand	1	b	127BCD					C male, in numerous pieces		2		1
021	008	lm	Rib	1							in 3 pieces		2		1
021	008	pig	Isoteeth	2							M				1
021	008	pig	Mand	3									2		1
021	008	sh/g	Rad	1	r	6789K					in 3 pieces		2		1
021	008	unid	Phal	1							bird?		2		1
021	008	unid	Ui	84									2		1
024	016	unid	Ui	13									3		1
026	017	cow	rad	1	l	349K		f			in 3 pieces		2		1
026	017	unid	ui	7									2		1
026	033	cow	calc	1	l	4							3		hc
026	033	sh/g	pel	1	l	2							2		hc
028	024	cow	tib	1	l	89				c			2		1
028	024	cow	hum	1	r	78							2		1

Context	Sample	Species	Element	Nisp	Side	Gt50	Proxfus	Distfus	Age	Modifications	Notes	%	Texture	Burning	Recovery
028	024	horse	tib	1	l	56A		f					2		1
028	024	mm1	sha	2									2		1
028	024	pig	hum	1	r	7					pd max, PM max		2		1
028	024	sh/g	isoteeth	2											1
028	024	unid	ui	11									2		1
028	024	unid	ui	10									2		1
028	024	unid	ui	10									2		1
028	028	cat	skull	1	b						almost complete skull, sutures open and in pieces		2		hc
028	028	cow	pel	1	r	12							2		hc
028	028	cow	astr	1	r	1234							2		hc
028	028	cow	skull	1	r						premaxilla 50% oral		2		hc
028	028	cow	skull	1	l						fossa mand		2		hc
028	028	cow	hum	1	r	9A							2		hc
028	028	horse	scap	1	l	12345	f						2		hc
028	028	horse	fem	1	l	235678	u	u	neo		fetal: the is only appr. 3 cm long		2		hc
028	028	horse	tib	1	l	789A	u	u	neo		fetal: the bone is only appr. 3 cm long		2		hc
028	028	lm	sha	1									2		hc
028	028	mm1	sha	7									2		hc
028	028	pig	mand	1	l	1356AC			j		in 3 pieces, all the following juvenile pig bones could come from a same individual		2		hc
028	028	pig	hum	1	l	56789AB	u	u	j		in 3 pieces		2		hc
028	028	pig	rad	1	l	56789K	u	u	j				2		hc
028	028	pig	ulna	1	l	BCDE	u						2		hc
028	028	pig	ulna	1	r	CD							2		hc
028	028	pig	fem	1	r	78		u					2		hc
028	028	pig	scap	1	l	2345	u		j		in 3 pieces		2		hc
028	028	pig	m/c	1		13		u	j				2		hc
028	028	pig	vert	3	b				j				2		hc
028	028	pig	isoteeth	4							3 i mand, 1 i max				hc
028	028	pig	rib	4					j		one prox		2		hc
028	028	sh/g	mand	1	l	12BCDE							2		hc
028	028	sh/g	isoteeth	1							M max				hc
028	028	sh/g	tib	1	l								2		hc
028	028	sh/g	tib	1	l	A							2		hc
028	028	sh/g	m/c	2									2		hc
028	028	sheep	m/t	1	r	5678							2		hc
028	028	sm	rib	1							prox, cat?		2		hc
028	028	unid	ui	68									2		hc
028	028	unid	isoteeth	1											hc
028	028	unid	skull	2									2		hc
028	028	unid	rib	6									2		hc
028	028	unid	ui	1							in 3 pieces			cal	hc

Context	Sample	Species	Element	Nisp	Side	Gt50	Proxfus	Distfus	Age	Modifications	Notes	%	Texture	Burning	Recovery
028	031	horse	isoteeth	1							PM/M mand				hc
028	031	sheep	skull	1	b						two small horn cores, skull around them, in numeous pieces		2		hc
043	012	unid	ui	7									2		1
043	023	dog	isoteeth	1							C				hc
043	023	goat	m/c	1	r	34					large individual		2		hc
043	023	mm1	calc	1									2		hc
043	023	sh/g	isoteeth	3							2 M max, I				hc
043	023	unid	ui	4									2		hc
043	023	unid	isoteeth	1											hc
047	036	dog	pel	1	r								2		1
047	036	dog	skull	1	r						premaxilla and maxilla, I3, C, PM1-3		2		1
047	036	dog	mand	1	r	13					in 3 pieces		2		1

Table 2 – Complete list of animal bones

Key to complete list of animal bones:

Species

cow = cattle

lm = large mammal

mm1 = medium mammal (sheep, goat, pig)

sh/g = sheep/goat

sm = small mammals

Elements

Mammals:

astr = astragalus

ax = axis

calc = calcaneum

caud = caudal vertebrae

cerv = cervical vertebrae

fem = femur

hum = humerus

isoteeth = isolated teeth

lumb = lumbar vertebrae

mal = malleolare

mand = mandible

m/c = metacarpal

m/p = metapodial

m/t = metatarsal

pel = pelvis

phal = phalanx

rad = radius

scap = scapula

sha = shaft

st = sternum

tib = tibia

ui = unidentified mammal

vert = vertebra

Fish:

v = vertebra

Side

r = right

l = left

b = both

GT50

For mammal and bird diagnostic zones, the York System (Harland et al. 2003) follows the Environmental Archaeology Unit's (EAU) recording protocol (Dobney, Jaques and Johnstone 1999) with minor re-coding.

Fusing proximal and distal

f = fused

u = unfused

fs = fusing

Age

neo = neonatal

j = juvenile

Modification

c = carnivore gnawing

rt = root etching

Texture

1 = excellent

2 = good

3 = fair

4 = poor

Burning

cal = calcified

char = charred

Recovery

hc = hand-picked

1 = sieved with 1 mm sieve

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Appendix 9 – Radiocarbon dates and certificates

E-Number	Lab code	Sample ID	Material	δ13C	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E2990	SUERC-25910	Sample 16, Context (026)	Charred barley	No value	260±50	cal AD 1520 - 1600	27.8	cal AD 1480 - 1690	72.7
						cal AD 1620 - 1670	28.7	cal AD 1730 - 1810	17.5
						cal AD 1780 - 1800	9.2	cal AD 1920 - 1960	5.2
						cal AD 1940 - 1960	2.4		
E2990	SUERC-25911	Sample 27, Context (045)	Hazel charcoal	-25.4	570±50	cal AD 1310 - 1360	41.6	cal AD 1290 - 1440	95.4
						cal AD 1380 - 1420	26.6		



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RADIOCARBON DATING CERTIFICATE

20 October 2009

Laboratory Code	SUERC-25910 (GU-19743)
Submitter	Karen Stewart Headland Archaeology (Ireland) Ltd. Unit 1 Wallingstown Business Park Little Island Co. Cork, Ireland.
Site Reference	KCK06 E2990
Context Reference	24
Sample Reference	16
Material	charred grain : Hordeum sp.

$\delta^{13}\text{C}$ relative to VPDB No value- insufficient carbon

Radiocarbon Age BP 260 ± 50

- N.B.**
1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.
 2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).
 3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- *R. Anderson* Date :- 20-10-09

Checked and signed off by :- *E. Dunbar* Date :- 20/10/09

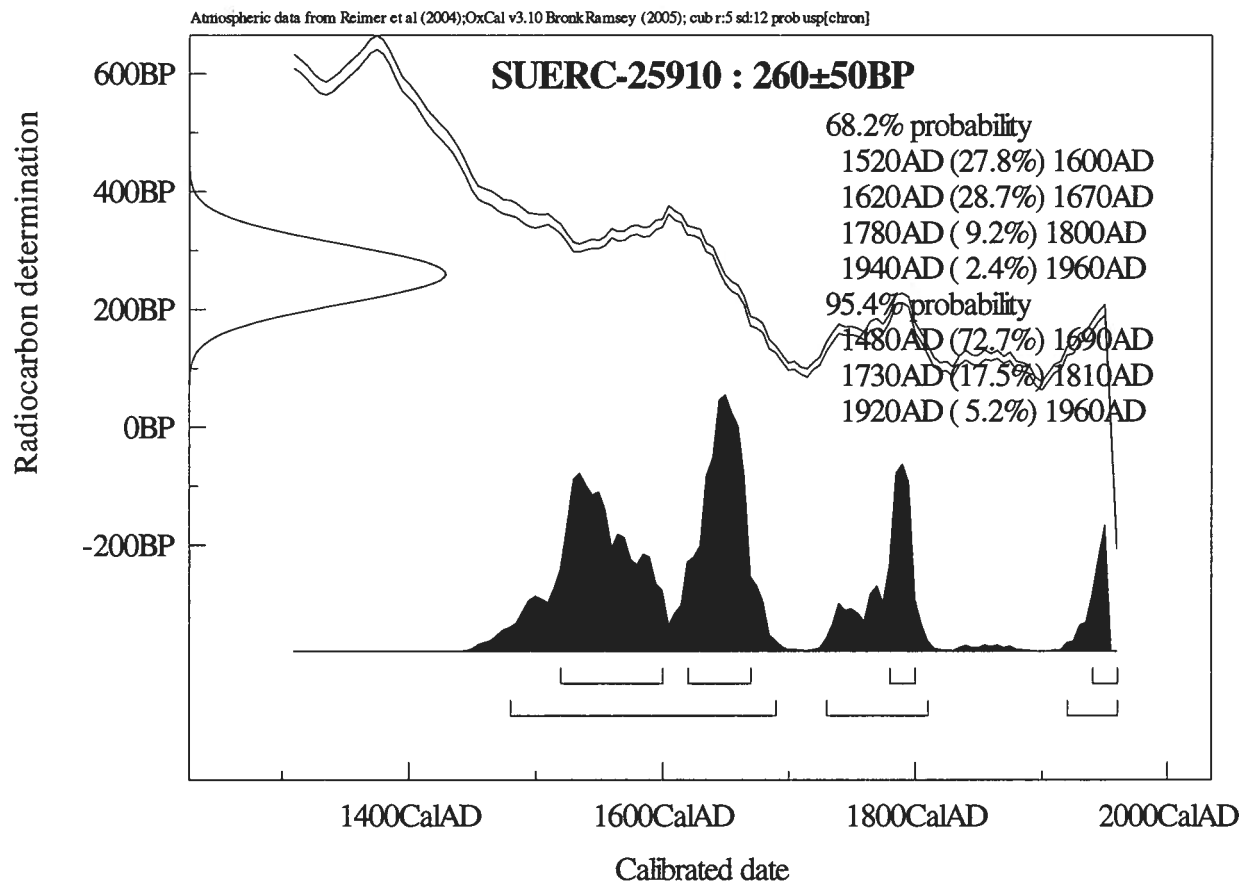


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Calibration Plot





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RADIOCARBON DATING CERTIFICATE

20 October 2009

Laboratory Code SUERC-25911 (GU-19744)

Submitter Karen Stewart
Headland Archaeology (Ireland) Ltd.
Unit 1 Wallingstown Business Park
Little Island
Co. Cork, Ireland.

Site Reference KCK06 E2990
Context Reference 45
Sample Reference 27

Material charcoal : hazel

$\delta^{13}\text{C}$ relative to VPDB -25.4 ‰

Radiocarbon Age BP 570 ± 50

- N.B.**
1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.
 2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).
 3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- *R. Anderson* Date :- *20-10-09*

Checked and signed off by :- *E. Dunbar*

Date :- *20/10/09*

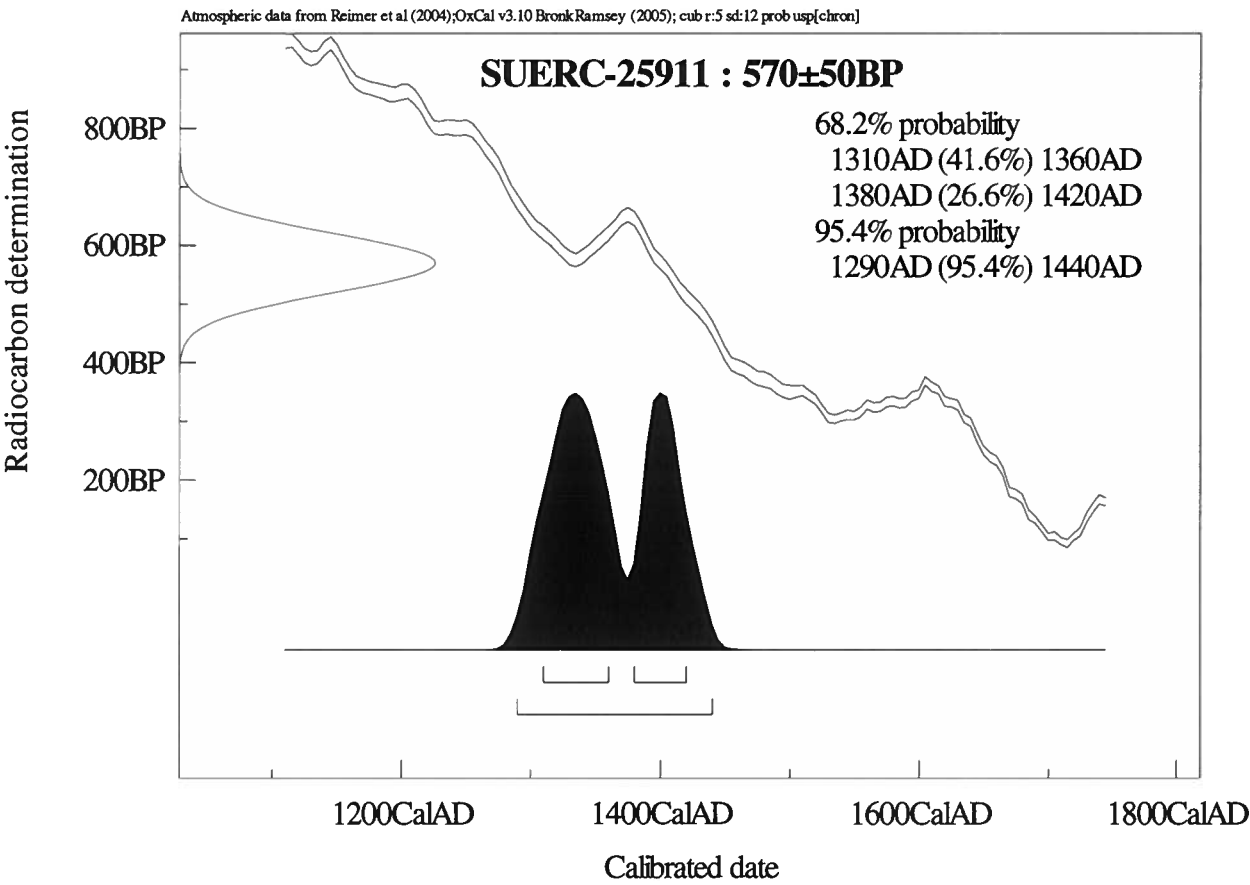


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Calibration Plot



Appendix 10 – The medieval pottery

Clare McCutcheon MA MIAI

Introduction:

A total of 28 sherds of medieval pottery were presented for study. Following identification this was slightly reduced to 27 sherds. The assemblage dates broadly to the 13th century although a few sherds could have come on site from the end of the 12th century.

Methodology:

The material was identified visually and the information is presented in Tables 1 & 2. The identification of each sherd has been entered on a database (Access format) as per the requirements of the National Museum of Ireland, the body responsible for the material remains from excavations within the state. The database shows the *licence*, *context* and *finds* number; the *links* of reassembled sherds within and between contexts; the *category* and *type* of material i.e. ceramic and pottery; the *identification* of the fabric type and the *diagnostic description* i.e. rim, handle etc. The final two fields contain *habitat* numbers, firstly the box number where each sherd is stored and secondly the location of the box within the storage system of the National Museum of Ireland. The database is easily searchable for particular types of pottery, vessels parts and the links within and between contexts.

The pottery identification presented in Table 1 shows the quantity of sherds in each fabric type and the minimum number of vessels (MNV), an objective number based on the presence of rim/handle sherds in the assemblage. The more subjective minimum number of vessels represented (MVR) is also listed and is based on the numbers of diagnostic pieces such as differently shaped rims, quantity of handle etc. The most likely form of the vessels represented by the sherds and the known date of distribution of the fabric type are included in the table.

Following the identifications, the type and quantity of pottery present in each feature is listed in Table 2. This describes the features in numerical as they are listed in the draft stratigraphic report.

Fabric	Sherds	MNV	MVR	Form	Date
Leinster Cooking Ware	9	-	1	Cooking jar	L12th-14th
Dublin-type ware	12	-	2	Jug, storage jar	L12th-E13th
Kildare-type ware	6	-	1	Jug	13th-14th
Total medieval	27	-	4		

Table 1 – Medieval pottery, Burton Little, Co. Kildare (E2990)

Leinster Cooking Ware

Leinster Cooking Ware is the single most widespread medieval pottery type in Leinster' (Ó Floinn 1988, 340). The ware is heavily micaceous, hand built and fired in clamp or bonfire kilns, giving an uneven colour ranging from grey to red, sometimes within the same vessel. The most characteristic feature of these vessels is the sand-gritted base, a result of using sand to stop the hand-built vessels from sticking to the working surface.

The most typical vessel in Leinster Cooking Ware is the cooking jar with everted rims, ovoid bodies and slightly stepped base. The rim on the cooking jar has light pinching on the outside of the rim.

Dublin-type wares:

The designation of a fabric with the suffix *-type* is recommended pottery practice to indicate that a ware has been consistently found in a particular area while evidence for a production centre or kiln which has not yet been discovered (Blake and Davey 1983, 39-40). The general term London-type, for example, has been adopted to describe wares that share general traditions and clay sources (Pearce *et al* 1985, 2). A fuller discussion of the names of the Dublin-type wares has been detailed elsewhere (McCutcheon 2000, 120-23; 2006) and only a general outline is included in this report.

The relative dating of the Dublin-type wares has been developed as a result of consistent recovery in the stratigraphic levels of the Dublin excavations, and the absolute dating is developing by the association of imported wares, and the dating information from coins and dendrochronology. To date no pottery production site has been found in Dublin along Crocker Street at the west of the medieval city. Pottery wasters have been recovered at excavations in the Iveagh Markets to the south of the medieval wall (McCutcheon forthcoming), and ridge tile production, in clay similar to Dublin-type coarseware has been recovered at the Cornmarket (Wren forthcoming).

Dublin-type ware: This is a less coarse micaceous fabric, the vessels are generally wheel-thrown, and the production and use appears to date broadly from the early 13th to early 14th century (McCutcheon 2000, 122; 2006).

The base of the jug has evidence of thumbing but it is not possible to state that this was continued around the entire base. The rim of a storage jar is also present. These are shaped in the same form as the cooking jars but with a shorter neck.

Kildare-type ware:

The very broad term Kildare-type ware has been applied to the locally made pottery from this site for several reasons. The clay is generally a more yellow firing colour although this is by no means consistent and the clay can also be pink/red or have calcareous inclusions. The forms and shapes are those of the standard Anglo-Norman glazed pottery in Ireland.

Assemblages at Castledermot, Moone Abbey and Ballitore (McCutcheon forthcoming (b-d) and Blackcastle (Hurley 1987) provide the comparative material for the area. The lack of regional variation in styles and decorative motifs on locally made wares in Anglo-Norman Ireland makes identification difficult and so the generic terms of Kildare-type should suffice for the moment. Similar patterns of decoration are to be found all over the country and only occasionally can a fabric be said to be distinctive to an area, more often being described as consistent with the underlying geology. Thin-section analysis of sherds from Castledermot indicated that the sherds presented 'may all be from fairly local but different clay sources' (McCorry forthcoming). The material from the moated site at Blackcastle was sub-divided into eight groups but it was noted that 'the above pottery sub-groups need not necessarily have originated from eight different sources. The fabric, temper and glaze may have differed in each batch of pots produced at one particular kiln' (Hurley 1987, 104).

A large sherd shows the base of a handle with wide thumbing at the attachment to the body. In addition, an unusual feature is the two horizontal rounded ridges

Context	Context description	Pottery
4	Upper fill of curvilinear feature (5)	Dublin-type ware x5; Kildare-type ware x2
13	Fill of linear feature (12)	Dublin-type ware x2
26	Fill of linear feature (25)	Dublin-type ware x1; Kildare-type ware x1
28	Fill of stone-lined kiln (27)	Leinster Cooking Ware x9; Dublin-type ware x4; Kildare-type ware x3

Table 2 – Pottery identification by context.

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Appendix 11 – Report on Metal Artefact from Site E2990 at Burtown Little, Co. Kildare

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Introduction

One copper alloy object (E2990:015:001) was recovered from the excavations at site E2990, Burtown Little, Co. Kildare. The item is catalogued as a possible mount or strap-end and is discussed below.

Possible Mount or strap-end

The possible mount/strap-end from site E2990 was recovered from the fill (015) of a corn drying kiln (014). Although now broken into two pieces, the object originally consisted of a folded thin strip of metal, perforated at either end. A small rivet is extant in one perforation and may have functioned by securing the object to a leather strap or similar item. Mounts were used during the medieval period on a variety of items such as leather straps, textile and horse trappings. They usually had a decorative function and were rarely used singly. Their decorative effect was therefore as a result of their repetition on the strap or other item (Egan and Pritchard 2002, 162).

Strap-ends, as the name suggests, were attached to the ends of straps such as girdles, belts, spur leathers and shoe straps (*ibid.*, 126-7). Similar items to that from Burtown Little were recovered from excavations in London and are classified as strap-ends made from folded sheet metal (*ibid.*). These items differ from the Burtown Little example, however, in that they are somewhat wider and do not display any perforations at the fold.

Possible mount/strap-end. E2990:015:001. *Cu Alloy.* L. 48.6 mm, W. 6.8 mm, Th. 0.5 mm, Wt. 1 g. Complete? Thin copper alloy object, originally folded, now in two pieces (broken at fold). Rectangular in section. Where folded has rectangular perforation. Rivet hole at either end, rivet extant in one.

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