N9/N10 KILCULLEN TO WATERFORD SCHEME, PHASE 4 – KNOCKTOPHER TO POWERSTOWN

Ministerial Direction Scheme Reference No.	A032
Registration No.	E3738
Site Name	AR128, Shankill 2
Townland	Shankill
County	Kilkenny
Excavation Director	Richard Jennings
NGR	265924 160651
Chainage	66150

FINAL REPORT

ON BEHALF OF KILKENNY COUNTY COUNCIL

JANUARY 2013

IAC Irish Archaeological Consultancy

PROJECT DETAILS

Project	N9/N10 Kilcullen to Waterford Scheme, Phase 4 – Knocktopher to Powerstown
Ministerial Direction Reference No.	A032
Excavation Registration Number	E3738
Excavation Director	Richard Jennings
Senior Archaeologist	Tim Coughlan
Consultant	Irish Archaeological Consultancy Ltd, 120b Greenpark Road, Bray, Co. Wicklow
Client	Kilkenny County Council
Site Name	AR128, Shankill 2
Site Type	Kiln
Townland(s)	Shankill
Parish	Shankill
County	Kilkenny
NGR (easting)	265924
NGR (northing)	160651
Chainage	66150
Height OD (m)	65
RMP No.	N/A
Excavation Dates	25 October–5 December 2007
Project Duration	20 March 2007–18 April 2008
Report Type	Final
Report Date	January 2013
Report By	Richard Jennings and Tim Coughlan
Report Reference	Jennings, R. and Coughlan, T. 2013 E3738 Shankill 2 Final Report. Unpublished Final Report. National Monuments Service. Department of Environment, Heritage and Local Government, Dublin.

ACKNOWLEDGEMENTS

This final report has been prepared by Irish Archaeological Consultancy Ltd in compliance with the directions issued to Kilkenny County Council by the Minister for Environment, Heritage and Local Government under Section 14A (2) of the National Monuments Acts 1930–2004 and the terms of the Contract between Kilkenny County Council and Irish Archaeological Consultancy Ltd.

CONSULTING ENGINEERS – N9/N10 KILKENNY CONSULT

James Eogan (NRA Senior Archaeologist), Ed Danaher (NRA Archaeologist) and Bernice Kelly (NRA Assistant Archaeologist)

Project Liaison Officer, Kilkenny Co. Council – Joe Gannon and Lisa Mulcahy

NATIONAL MONUMENTS, DOEHLG

Archaeologist – Martin Reid

IRISH ANTIQUITIES DIVISION, NATIONAL MUSEUM OF IRELAND

Assistant Keeper – Nessa O'Connor

ABSTRACT

Irish Archaeological Consultancy Ltd (IAC), funded by the National Roads Authority (NRA) through Kilkenny County Council, undertook an excavation at the site of AR128, Shankill 2 along the proposed N9/N10 Kilcullen to Waterford Scheme, Phase 4 – Knocktopher to Powerstown (Figure 1). The following report describes the results of archaeological excavation at that site. The area was fully excavated by Richard Jennings under Ministerial Direction A032 and Excavation Registration Number E3738 issued by the DOEHLG in consultation with the National Museum of Ireland for IAC. The fieldwork took place between the 25 October and 5 December 2007.

The main archaeological feature found at Shankill 2 was a keyhole shaped, stone lined medieval cereal-drying kiln set within an area that was possibly prone to flooding in the past. This was evident by the presence of silted-up stream channels and post-medieval field drains.

Thirty-seven sherds of medieval pottery were retrieved from the site. A total of 13 sherds were identified as Leinster Cooking Ware, the most widespread medieval pottery type in Ireland and 21 sherds were identified as Kilkenny-type Ware. A number of lithic artefacts, typologically dated to the Neolithic, were recovered from the site. No Neolithic features were recorded on the site or in the immediate vicinity so these artefacts represent stray finds.

Charcoal analysis of samples from the site recorded high oak concentrations from the kiln deposits that may represent the remains of the fuel chosen to be burnt as part of the kilning process. It is also possible that this oak charcoal reflects the remains of an internal structure or the superstructure of the kiln that had burnt down.

Three samples of plant remains (charred seeds) were examined from the flue of the kiln. Seeds, mostly cereal grains, were found in all of the samples but they were generally recovered in small quantities, and in the most part were not identifiable to species. It was possible to identify a small number of cereals from the richest sample, and all the identifiable grains were wheat, most likely a free threshing wheat. This was probably bread wheat (*Triticum aestivum*) which historical records suggest was a crop in Ireland from at least the early medieval period.

A single sample was sent for AMS radiocarbon dating. The results of the analysis dated holly charcoal from a deposit associated with the kiln. The 2 sigma calibrated date was AD1223–1274 (UBA 12237).

The excavation at Shankill 2 has identified the remains of a medieval cereal-drying kiln. The site is isolated and no other similarly dated monuments are recorded in the vicinity. The site is of local importance as it represents the first excavated evidence of medieval activity in the immediate area. The site conforms typologically with our understanding of medieval cereal-drying kilns, and this has been confirmed through dating.

CONTENTS

List of Figures

List of Plates

1 INTRODUCTION

1.1 General

This report presents the results of the archaeological excavation of Shankill 2, AR128 (Figure 1), in the townland of Shankill undertaken by Richard Jennings of IAC, on behalf of Kilkenny County Council and the NRA, in accordance with the Code of Practice between the NRA and the Minister for Arts, Heritage, Gaeltacht and the Islands. It was carried out as part of the archaeological mitigation programme of the N9/N10 Kilcullen to Waterford Road Scheme, Phase 4, which extends between Knocktopher in Co. Kilkenny to Powerstown in Co. Carlow. The excavation was undertaken to offset the adverse impact of road construction on known and potential subsoil archaeological remains in order to preserve the site by record.

The site measured 1204m^2 and was first identified during testing carried out between 27 March and 6 April 2007 by Richard Jennings (E3364) for IAC Ltd. on behalf of the National Roads Authority. Shankill 2 was excavated between 25 October and 5 December 2007 with a team of one director and six assistant archaeologists.

1.2 The Development

For the purposes of construction, the N9/N10 Kilcullen to Waterford Road Scheme has been divided into separate sections, known as Phases 1–4. Phase 2 of the scheme extends from the tie-in to the Waterford City Bypass at Dunkitt, to Knocktopher in Co. Kilkenny (Ch. 2+000–Ch. 25+400). Phase 4 continues from Knocktopher to Powerstown in Co. Carlow (Ch. 25+400–Ch. 76+000) and includes the Kilkenny Link Road.

The roadway of the entire scheme includes approximately 64km of mainline high quality dual carriageway and 6.2km of the Kilkenny Link Road, which will connect the road development to the Kilkenny Ring Road Extension. The road development requires the realignment and modification of existing national, regional and local roads where the mainline intersects them. It requires the acquisition of 305 hectares of land for its construction. A further link road will connect the scheme to Paulstown in County Kilkenny, while six new grade separated junctions and three roundabouts are part of the road development.

1.3 Archaeological Requirements

The archaeological requirements for the N9/N10 Kilcullen to Waterford Road Scheme, Phase 4: Knocktopher to Powerstown, are outlined in the Archaeological Directions issued to Kilkenny County Council by the Minister for Environment, Heritage and Local Government under Section 14A (2) of the National Monuments Acts 1930–2004 and in the terms of the contract between Kilkenny County Council and Irish Archaeological Consultancy Ltd. These instructions form the basis of all archaeological works undertaken for this development. The archaeological excavation works under this contract are located between the townlands of Knocktopher, Co. Kilkenny, and Powerstown, Co. Carlow.

The proposed N9/N10 was subjected to an Environmental Impact Assessment, the archaeology and cultural history section of which was carried out by Valerie J. Keeley Ltd and published in February 2005. The Record of Monuments and Places, the Site Monument Record, Topographical files, aerial photography, the Kilkenny and Carlow County Archaeological Urban Survey, and literary sources were all consulted. Two phases of geophysical survey were also conducted by Target (post-EIS geophysics carried out by ArchaeoPhysica) and an aerial survey was carried out by Margaret Gowen & Co. Ltd. As a result of the paper survey, field inspections and geophysical

survey, 35 sites were recorded in proximity to this section of the overall route alignment.

A previous archaeological assessment of Phase 2 of the scheme (test trenching conducted by Margaret Gowen & Co. Ltd. in 2006) extended into the lands acquired for Phase 4 to a point at Ch. 37+100 in the townland of Rathclogh, Co. Kilkenny. Thirty-four archaeological sites were identified within this area between Knocktopher and Rathclogh and subsequently excavated by Irish Archaeological Consultancy Ltd. as part of this archaeological contract.

Advance archaeological testing of the area between Rathclogh (Ch. 37+100) and Powerstown (Ch. 76+000) was completed by IAC during March–May 2007 and excavation of the sites identified during this process was also conducted by IAC between August 2007 and April 2008.

1.4 Methodology

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

All archaeological features were fully excavated by hand and recorded on *pro forma* record sheets using a single context recording system best suited to rural environment, with multi context plans and sections being recorded at a scale of 1:50, 1:20 or 1:10 as appropriate.

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

An environmental strategy was devised at the beginning of the excavation based on IAC in-house post-excavation and site methodologies and guidelines. Features exhibiting large amounts of carbonised material were the primary targets.

All artefacts uncovered on site were dealt with in accordance with the guidelines as issued by the NMI and where warranted in consultation with the relevant specialists. All archive is currently stored in IAC's facility in Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland.

All dating of samples from the site was carried out by means of AMS (Accelerator Mass Spectrometry) Radiocarbon Dating of identified and recommended charred plant remains samples. All calibrated radiocarbon dates in this report are quoted to two Sigma. Dating of the site also involved pottery analysis through typological study.

All excavation and post excavation works were carried out in accordance with the relevant approvals and in consultation and agreement with the National Roads Authority (NRA) Project Archaeologist, the National Monuments Section of the DoEHLG and the National Museum of Ireland. Where necessary licences to alter and export archaeological objects were sought from the National Museum of Ireland.

References to other sites excavated as part of the N9/N10 Phase 4: Knocktopher to Powerstown are referenced throughout this report only by their site name e.g.

Paulstown 1. A list of these sites and details including director's name and National Monuments Excavation Reference Number can be referenced in Appendix 4.

Final Report Date Ranges

The following date ranges for Irish prehistory and medieval periods are used for all final reports for the N9/N10 Phase 4: Knocktopher to Powerstown excavations.

Mesolithic: 7000–4000BC
Neolithic: 4000–2500BC
Early Bronze Age: 2500–1700BC
Middle Bronze Age: 1700–1200BC
Late Bronze Age: 1200–800BC
Iron Age: 800BC–AD500
Early medieval period: AD500–1100
Medieval period: AD1100–1600
Post-medieval: AD1600–1800

Source:
Carlin, N., Clarke, L. & Walsh, F. 2008 *The M4 Kinnegad-Enfield-Kilcock Motorway: The Archaeology of Life and Death on the Boyne Floodplain.* NRA Monograph Series No. 2, Wordwell, Bray.

2 EXCAVATION RESULTS

Shankill 2 was located on gently rolling landscape, in a field with a very gentle south-east aspect. There are some low lying hills to the north and west. The Blackstairs Mountains are visible in the distance to the south-east and Mount Leinster is the most prominent peak of these. A stream meanders from the hills in the northwest along the field boundary to the northwest of the site, on towards the River Barrow to the east. The field is marshy and wet next to the stream. Shankill 1 is situated *c*. 380m to the south-west and Shankill 3 is situated *c*. 480m to the north. A linear earthwork (KK016-006) is situated *c*. 400m to the south and a graveyard (KK016-008002) is situated *c*. 730m to the south-east.

2.1 PHASE 1 Natural Drift Geology

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C2	N/A	N/A	N/A	N/A	Yellowish sandy clay with gravel patches	Subsoil

The subsoil was predominantly yellow natural clay with occasional concentrations of stones and gravel. The subsoil was cut by a series of naturally formed channels containing grey marl.

2.1.1 Naturally Formed Channels

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C3	N/A	22	0.15–0.3	0.7–1.3	Meandering channel	Cut of natural channel
C5	C3	22	0.15–0.30	0.7–1.3	Mid-grey compact silty clay	Channel fill
C6	N/A	6	0.65– 1.1	0.25	Meandering channel	Cut of natural channel
C7	C6	6	0.65–1.1	0.25	Fairly compact mid-grey silty clay	Channel fill
C8	C25	9	1–2	0.01–0.2	Compact light grey silty clay	Channel fill
C25	N/A	9	1–2	0.01– 0.2	Shallow meandering channel	Cut of natural channel
C26	N/A	1.05	0.66	0.09	Irregular shallow depression	Cut of natural depression
C28	N/A	N/A	N/A	N/A	Grey marl covering most of the site	Natural siltation
C31	N/A	N/A	3	0.55	Meandering channel	Cut of natural channel
C32	C31	N/A	3	0.35	Soft mid-brown silty clay	Channel fill
C33	C31	N/A	3	0.35	Compact yellowish/brown silty sand	Channel fill
C34	C31	N/A	0.85	0.12	Charcoal rich lens	Channel fill
C35	C31	N/A	2.05	0.26	Loose mid-grey gritty/sandy material	Channel fill
C36	C31	N/A	1.15	0.3	Loose orange gritty/sandy material	Channel fill

Finds

Context	Find Number	Material	Period	Description
C5	E3738:005:1 – 2	Ceramic	Medieval	Pottery Sherds
C6	E3738:006:1	Ceramic	Medieval Pottery	Pottery Sherd (recovered during testing)
C8	E3738:008:1	Ceramic	Medieval	Pottery Sherd

The site was characterised by a series of channels which had almost certainly formed naturally because they meandered on a general northwest–southeast orientation from the north Kilkenny hills towards the River Barrow (Figure 4; Plate 1). They were also very varied in their depths and widths and appeared to have formed as a result of water action rather than human activity.

The largest of the channels was C31 (Figures 4–5). It was *c*. 3m wide and up to 0.55m deep in the western half of the site but thinned and became shallower in the eastern half before disappearing beneath grey marl C28. It was at least 25m long and filled with sterile, naturally formed deposits. A few finds were found at the base of topsoil / plough soil C1 on top of the channel. The depth and regularity of parts of the ditch raised the possibility that the sides of the channel had been artificially modified but this could not be proven.

The fills of three of the smaller ditches (C3, C6 and C25) were mid-grey silty clay marls (Plate 2). It was evident that channel C25 was truncated by C3. The relationship between C6 and C25 was not determined. Finds and charcoal were recovered from the excavated sections of channels C6 and C25. The medieval sherds were found at the top of the marl at the interface with the topsoil / plough soil horizon C1, and it is likely that the charcoal washed in from adjacent archaeological features. Parts of these channels were covered by a spread of grey marl, C28, which rested on top of the subsoil and beneath the topsoil. The spread was most extensive in the western half of the site and was significantly thinner or absent over the eastern half where the kiln was found.

Pottery sherds recovered from C5 and C6 have been identified as sherds of Leinster Cooking Ware, which dates to the late 12th–14th centuries. A single sherd recovered from C8 has been identified as Kilkenny-type ware and dates to the 13th–14th centuries (McCutcheon, Appendix 2.1).

Charcoal analysis of fill C28 (marl deposit) indicated a predominance of oak (*Quercus sp.*). Charcoal analysis of fill C34 (fill of charcoal rich lens in channel C31) also indicated a predominance of oak (*Quercus sp.*). The lack of *in situ* burning from C28 and C34 together with the high oak charcoal identified would suggest that these deposits were single dumping episodes of fuel debris from nearby firing events (Lyons, Appendix 2.3).

2.2 PHASE 2 Medieval Activity

2.2.1 Cereal Drying Kiln

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C9	N/A	4.55	1.2	0.35	Typical cut for kiln	Cut for kiln
C10	C9	4.55	1.2	0.35	Mid-grey silty clay	Main fill of kiln
C11	C9	0.15	0.5	N/A	Tabular stones	Lined the bowl of kiln
C12	N/A	6	1	0.22	Mid-grey silty clay	Natural siltation
C24	N/A	N/A	N/A	N/A	Same as C27	
C27	C50	1.6	0.6	0.2	Charcoal-rich layer	Burning, flue part
C47	C48	0.16	0.16	0.08	Charcoal-rich silty clay	Fill of posthole
C48	N/A	0.1	0.16	0.08	Circular cut	Cut of posthole
C49	C50	0.1	0.15	N/A	Angular stones, both sides of flue	Structural element
C50	N/A	1.6	0.6	0.2	Cut of flue	Linear cut for flue
C51	N/A	N/A	N/A	N/A	Burnt rotted wood	Heat adjustment

Finds: None

The main archaeological feature on the site was a keyhole shaped cereal drying kiln that was dated to the medieval period

The bowl of the cereal-drying kiln was circular in shape and measured 1.2m x 1.1m x 0.3m deep, and was located at the east end of the overall kiln structure (Figures 4–5; Plate 3). It was lined with large tabular stones (C11) that stood one to two courses high. These typically measured 0.3m x 0.2m x 0.1m thick. The entry to the flue, which was to the west, was marked by a deliberate gap in the stone lining. The two stones (C49) at either side of the flue entrance were more angular than the lining stones and had clearly been deliberately placed at this location. The entrance to the bowl was 0.35m wide at the top of the stones and 0.2m at the base. A piece of decayed wood, C51, which was potentially contemporary with the kiln, was found on the kiln floor in this area (Plate 4). The flue, C50, extended for 1.2m and was 0.60m wide, although it widened to 0.90m at the west end, possibly to facilitate cleaning/raking out. The bowl

and the flue were filled with yellow silty clay, C10. This was partially sealed by C12, a natural silt deposit. A concentration of charcoal, C27, at the west end of the flue may represent the remains of a hearth but is likely to represent rake-out material from the flue and kiln (Figure 4, Plates 5–6). This area was somewhat disturbed by channel C31. A small posthole, C48, cut into the base of the flue may have been associated with the kiln. The posthole measured *c*. 0.10m by 0.16m with the truncated depth of posthole recorded at 0.08m.

Charcoal analysis of fill C10 (fill of kiln C9) indicated a predominance of oak (*Quercus sp.*) however birch (*Betula sp.*) and willow (*Salix sp.*) were also recorded, in much lower incidences. Charcoal analysis of C27 (fill of kiln flue) also indicated a predominance of oak (*Quercus sp.*) which may represent the remains of the fuel chosen to be burnt as part of the kilning process, it is also possible that this oak charcoal reflects the remains of an internal structure or the superstructure of the kiln that had burnt down. Since the charcoal remained in the kiln, this suggests that either previous kiln fuel debris had accumulated within the structure or that the kiln had burnt down, become abandoned and was not re-used thereafter (Lyons, Appendix 2.3).

Plant remains analysis was carried out on three samples from site. One was taken from flue fill C24 and two from flue fill C27. Subsequent to excavation, C24 and C27 were identified as being the same fill of the kiln flue. These samples were found to contain free threshing wheat (*Triticum aestivum* L./*turgidum* Desf./*durum* L.) and probable free threshing wheat (*Triticum* cf *aestivum* L./*turgidum* Desf./*durum* L.) as well as a quantity of indeterminate cereal grains. This was probably bread wheat (*Triticum aestivum*) which historical records suggest was a crop in Ireland from at least the early medieval period (Kelly 1998, 220–221) (Johnston, Appendix 2.4).

A single burnt bone fragment (0.05g) representing a single skeletal element was identified within flue fill C24 (same as C27), however due to the small size of the fragment as well as its poor preservation, meant it was not possible to identify to animal species (McCarthy Appendix 2.5).

A small fragment (0.35g) of holly seed/shell from C24 (same as C27) was chosen for AMS dating and returned a result of 775±17 (UBA 12237). The 2 Sigma calibrated result for this was AD1223–1274 (QUB, Appendix 2.6) dating this feature to the medieval period.

2.2.2 Deposits/Spreads

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C4	N/A	0.7	0.4	0.02	Shallow charcoal spread	Spread
C26	N/A	1.05	0.66	0.09	Charcoal within a mid-grey silty clay	Charcoal spread
C37	C31	N/A	0.5	0.14	Loose mid-grey sandy silt	Redeposited subsoil
C39	N/A	5	0.6	0.21	Loose mid-grey silty clay	Spread
C40	N/A	1.3	1.1	0.13	Charcoal within a spread	Charcoal spread

Finds

Context	Find Number	Material	Period	Description
C4	E3738:004:1-3	Ceramic	Medieval	Pottery Sherd
C4	E3738:004:4	Stone	Neolithic	Convex End Scraper

Four spreads of charcoal-rich material and a deposit of redeposited subsoil were also recorded within the southern half of the site. Two spreads, C39 and C40, lay adjacent and south of channel C31. It appeared that charcoal-rich spread C40 slightly

truncated C31. Spread C39 overlay charcoal-rich spread C40 and was in turn truncated by field drain C44.

Three pottery sherds were recovered from C4. These have been identified as a base, handle and rim sherd of Kilkenny-type ware. These pottery sherds date to the 13th–14th centuries (McCutcheon, Appendix 2.1).

One lithic was recovered from C4. It has been identified as a possible convex end scraper. This artefact most likely dates to the first half of the Neolithic period based on its technological characteristics (Sternke, Appendix 2.2). No Neolithic features were recorded on the site or in the immediate vicinity so this artefact represents a stray find.

A total of eight burnt bone fragments were identified within the shallow charcoal spread C4, however, due to the level of fragmentation, poor preservation and small size of the individual burnt bone fragments, it was not possible to identify to animal species (McCarthy, Appendix 2.5).

2.3 PHASE 3 Post-Medieval Activity

2.3.1 Field Drains

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C13	N/A	21	1.2	0.2	Cut of field drain	Modern field drain
C14	C13	21	1.2	0.2	Stones	Stone fill of field drain
C15	C13	21	1.2	0.2	Mid-grey silty clay	Fill of field drain
C16	N/A	15	1.5	0.43	Cut of field drain	Manmade cut
C17	C16	15	1.5	0.43	Stones	Stone fill
C18	C16	15	1.5	0.43	Mid-grey silty clay	Fill of field drain
C19	N/A	30	0.6	0.2	Cut of field drain	Stone field drain
C20	C19	30	0.6	0.2	Mid-grey silty clay	Fill of field drain
C21	C19	30	0.6	0.2	Mid-grey silty clay	Fill of field drain
C38	C44	N/A	0.75	0.3	Mid-brown silty clay	Natural siltation
C41	N/A	N/A	0.5	0.35	Cut of field drain	Manmade cut
C42	C41	N/A	0.5	0.35	Mid-brown silty clay	Fill of field drain
C43	C41	N/A	0.5	0.35	Stones	Stone fill
C44	N/A	N/A	0.75	0.3	Cut of field drain	Manmade cut
C45	C44	N/A	0.75	0.3	Mid-brown silty clay	Fill of field drain
C46	C44	N/A	0.75	0.3	Stones	Stone fill
C52	C19	30	0.6	0.2	Stones	Stone fill

Finds

Context	Finds number	Material	Period	Description
C18	E3738:018:1–7	Ceramic	Medieval	Pottery Sherds

Three of the five field drains found on the site lay in a northeast-southwest direction, and two lay east-west (Figure 4). All of them continued outside the excavation area so their lengths shown in the above table are minimum values. Each was sectioned to reveal a concentration of stones at their bases. Seven pottery sherds found within the fill of drain C18 were almost certainly in a secondary context and not contemporary with its construction. They probably washed in from the surrounding landscape. The drains cut through the subsoil meandering features C3 and C31.

Seven sherds of pottery were recovered from C18. These have been identified as body and base sherds of Leinster Cooking Ware. These pottery sherds date to the late 12th–mid 14th centuries (McCutcheon, Appendix 2.1).

2.4 PHASE 4 Topsoil

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C1	N/A	N/A	N/A	0.3	Mid-greyish brown silty clay	Topsoil

Finds

Context	Find Number	Material	Period	Description
C1	E3738:001:1-23	Ceramic	Medieval	Pottery Sherds
C1	E3738:001:24	Flint	Prehistoric	Flake of Patinated Flint
C1	E3738:001:25	Flint	Prehistoric	Flake of Patinated Flint
C1	E3738:001:26	Stone	Prehistoric	Chert Debitage
C1	E3738:001:27	Stone	Prehistoric	Chert Blade
C1	E3738:001:28	Stone	Prehistoric	Chert Debitage
C1	E3738:001:29	Stone	Prehistoric	Utilized Piece of Quartzite
C1	E3738:001:30	Iron	Modern	Iron Nail

The topsoil and plough soil horizon rested directly on grey marl C28 or the subsoil C2. There were no obvious undisturbed natural soil horizons. The finds were recovered during the cleaning back of the site after the removal of the soil horizon by machine.

A total of 23 sherds of pottery were recovered from topsoil. Seven of these have been identified as body, rim and base sherds of Leinster Cooking Ware. These date to the late 12th–mid 14th centuries. The remaining 16 sherds have been identified as base, rim/handle and body sherds of Kilkenny-type Ware. These date to the 13th–14th centuries (McCutcheon, Appendix 2.1).

Six lithics were recovered from topsoil. They have been identified as two patinated flaked pieces of flint, two natural chunks of chert, one flaked piece of chert identified as a blade and one utilised piece of quartzite. The assemblage dates to the first half of the Neolithic period based on its technological characteristics (Sternke, Appendix 2.2). No Neolithic features were recorded on the site or in the immediate vicinity so these artefacts represent stray finds.

3 SYNTHESIS

The synthesis presents the combined results of all of the archaeological analysis carried out at Shankill 2. This includes the analysis of the physical and archaeological landscape, the compilation of information gathered during research into the site type, date, and function, and the results of the excavation and specialist analysis of samples taken during the course of on-site works.

3.1 Landscape Setting – compiled by Michelle Brick

3.1.1 The General Landscape

The topography of the region through which the route passes is generally flat with an average height of 70m O.D. The southern periphery of the route is bordered by Kilmacoliver (261m) and Carricktriss Gorse (314m), with Slievenamon (721m) further west. The Slieveardagh hills (340m) are visible on the western horizon in the south of the route and with the exception of Knockadrina Hill (140m), the enclosed landscape is made up of minor undulations. In the centre of the route Freestone Hill (130m) and Knocknagappoge (334m) further north are the significant uplands. A number of hills and mountains are visible in the distance to the east and west of this area of the landscape but the topography remains generally flat. To the north the Castlecomer Plateau influences a rise in the overall topography of the region. This expanse of terrain stretches along the north-east margins of Kilkenny, crosses the county border into Carlow and stretches northwards into Laois. This plateau consists of a variety of hills and peaks including Mountnugent Upper (334m), Baunreagh (310m), Knockbaun (296m), Brennan's Hill (326m) and Fossy Mountain (330m). These hills contain seams of anthracite coal as a result of millions of years of compression, and consequently Shales and Sandstones were formed which are evident throughout the plateau. Mining in the region began in the 17th century, continued for over 300 years and it is for what Castlecomer is best known. According to the Environmental Protection Agency soil maps of Ireland, the underlying bedrock of the entire region primarily consists of Carboniferous Limestone. However there is also a small amount of surface bedrock, sands, gravels, shales and sandstone Tills present along the route. The soil cover of the region is primarily composed of Grey Brown Podzolics, Renzinas and Lithosols. Additional soil types also present along the route include Brown Earths, surface Water Gleys and Ground Water Gleys.

The prevailing water courses within the landscape of the N9/N10 Phase 4 are the Rivers Nore and Barrow. The River Nore rises on the east slopes of the Devil's Bit in Co. Tipperary and flows eastwards through Borris-in-Ossory and then south through Co. Kilkenny, passing through the towns of Durrow (Laois), Ballyragget, Kilkenny, Bennettsbridge and Thomastown to join the River Barrow upstream of New Ross, Co. Wexford. It is 140 kilometres long and drains a total catchment of 1572 square kilometers and runs through the central and southern sections of the route. In the south of the route three main tributaries of the River Nore are evident. The Kings River flows east through Callan and Kells. It is joined by the River Glory which meanders on a north-south axis towards the western margins of the route landscape and the Little Arrigle River flows along the southern fringes. These rivers are flanked by low-lying valleys that are characterised by wet, marshy land. The condition of the soil improves further north beyond the King's River where the influence of these waterways declines. In the northern area of the route the River Dinin is a tributary of the River Nore flowing south-west from Brennan's Hill through the Castlecomer Plateau. The Plateau is the tableland that is the watershed between the Rivers Nore and Barrow (Lyng 1984). The River Barrow is the second longest river (193 kilometres) in Ireland after the River Shannon. It rises in the Slieve Bloom Mountains in Co Laois and flows east across bogs and lowlands and then turns south into the lowland immediately east of the Castlecomer Plateau. It passes through

Portarlington, Athy, Carlow, and Graiguenamanagh and runs through northern section of the route. It is joined by the River Nore at New Ross. The Maudlin River is the notable tributary of the River Barrow within the landscape of the route and flows east from Old Leighlin, with minor tributaries of it flowing through Banagagole. There are also streams and minor watercourses present throughout the entire landscape and these waterways would have been a valuable resource to past communities and would also have had a major influence on settlement and the surrounding land use.

The physical landscape through which the N9/N10 Phase 4 passes can be divided into three principal areas defined by the main rivers and their catchments. The southern area is located in the undulating landscape on the western flanks of the Nore Valley. The central area is dominated by the fertile watershed between the Barrow and Nore systems in the hinterland of Kilkenny City. The northern area is located on the western flanks of the Barrow Valley overlooked by uplands to the north and west. Shankill 2 is located in the northern landscape area.

3.1.2 The Northern Landscape

The northern landscape of the N9/N10 crosses the border from Kilkenny into Carlow and traverses the western side of the River Barrow; the Blackstairs Mountains, which are of granite formation, are located to the east of the Barrow. It includes 50 sites discovered during the Phase 4 excavations stretching from Rathcash 1 northwards to Tomard Lower 1. This northern landscape is overlooked to the west by the Castlecomer Plateau, and the excavated sites are all situated on contours of 50–100m OD. From the south-west of the Barrow, and encroaching into the northern landscape, the underlying limestone is dolomitized and consequently the permeability has been increased. The glacial drift comprises slightly sandy (20–60%) slightly gravely clays with a moisture content of 10–20%. There is therefore significantly less sand but higher moisture content than in the southern and central landscapes. This moisture occurs in the wetter deposits in the top 1–2m before ground level in localised areas with silty sand and gravel lenses indicating a high water table. To the east of the River Barrow, localised silty, laminated clays and peat occur. Soft ground was noted in the river's floodplain. The area is also classified as a minor aquifer in the Kilkenny Groundwater Protection Scheme (Buckley & Fitzsimmons, 2002) due to these thick sand and gravel deposits. Progressing northwards, the views become more expansive, and the rising high ground of the Castlecomer Plateau (50–300m OD) bounds the distant landscape. This plateau consists of a variety of hills and peaks, which contain seams of anthracite, the focus of coal mining in the region from the 17th century. The Blackstairs Mountains (735m) are visible on the horizon to the south-east, and most obvious of these is the peak of Mount Leinster (795m). There are impressive views from these plateaus and hills especially to the south, east and west over the Barrow and Nore Valleys.

The prevailing watercourse of this region is the River Barrow which travels north–south through the landscape. The Maudlin River is a tributary of the River Barrow and flows from the west through Old Leighlin; minor tributaries of this river flow through Bannagagole, directly north of Moanmore, and the River Dinin is a tributary of the River Nore which travels south-west from Brennan's Hill through the Castlecomer Plateau. The suffix 'comer' signifies a meeting of the rivers; it also signifies any deep gripe, such, for instance, as the channel formed by a mountain stream (Carrigan 1905). From the hinterland of Kilkenny and the confluence of the Nore and Barrow the Monefelim River contributes to the occurrence of wet grassland and broadleaf woodland. The narrow tributaries of the River Barrow, including the Monefelim River, as well as the Maudlin River, flow from the higher, steep, escarpment located to the west. Subsoils in this area consist of undifferentiated alluvium and soils of mineral alluvium. The route crosses into County Carlow where

at Moanmore (meaning 'great bog') a variety of archaeological features have been recorded. At the most northerly point of the N9/N10 the land is again characterised by its views; here they include the Barrow Valley, Mount Leinster, Brandon Hill, and the Blackstairs Mountains.

3.1.3 Site Specific Landscape

Shankill 2 is on land with a very gentle south-east aspect. The immediate terrain gently rolls towards the south and west. There are some low lying hills to the north and west. The Blackstairs Mountains are visible to the south-east and Mount Leinster is the most prominent peak of these. A stream meanders from the hills in the north-east through this site on towards the River Barrow to the east. It currently runs along the field boundary to the NNW and the field is marshy and wet next to the stream, particularly in the north-west corner of this field. There is a minor road travelling on an ESE–WNW axis immediately to the south. Further south is the Waterford–Dublin railway line that travels south-west–NNE. Further to the east is the N9, travelling NNE-SSW. Shankill 1 is situated *c.* 380m to the south-west and Shankill 3 is situated *c.* 700m to the north. A linear earthwork (KK016-006) is situated *c.* 400m to the south and a graveyard (KK016-008002) is situated *c.* 850 m to the south-east.

3.2 The Archaeological Landscape

As part of the general research relating to sites along the scheme and the specific research relating to Shankill 2, the known archaeology within the surrounding landscape was assessed in order to establish the level and type of activity in the surrounding area in the past. This included a review of information from the Record of Monuments and Places, previous excavations and other relevant documentary sources including mapping and other sites excavated as part of the N9/N10 Phase 4 scheme. The excavated archaeology at Shankill 2 has been identified as being medieval in date.

3.2.1 The General Medieval Landscape of the Scheme – compiled by Michelle Brick

The medieval period in Ireland is generally understood to have occurred between AD1100–1400. Direct evidence of medieval structural activity was located predominantly within the central landscape, and only peripheral settlement evidence was identified in the southern and northern landscapes. It is possible that the specific areas of Danesfort and Kilree that experienced continuity of place and function were ideally positioned. They were close to the expanding hinterland of Kilkenny town and close to the main arterial routes, in the form of the King's River and the River Nore, allowing these sites to function as viable focuses for settlement. The main settlements identified as part of the N9/N10 Phase 4, at Danesfort, Kilree 4 and Leggetsrath East 1 represented small farmsteads, with uncomplicated archaeological records, suggesting that they were relatively short-lived and supported small family or kin groups. These farmsteads were undoubtedly in the shadow of the large, more well-established settlements, such as Jerpoint and indeed Kilkenny, in the vicinity which were located in much more amenable land and closer to the larger route-ways. Despite this, the evidence of paths at three N9/N10 sites (Baysrath 2, Tinvaun 3 and Knockadrina 2) indicates that these smaller farmsteads were still an integral part of the wider community. There was a lack of medieval settlement activity in the southern and northern landscapes, suggesting that perhaps during the early medieval period, when population levels were relatively high, certain farmers were forced to inhabit the less well-drained lands and then in the later medieval period, when the population had decreased substantially, farmers had increased access to better land. In this period the issue of land ownership had changed dramatically from the preceding Iron Age and early medieval period. Division of the land by Anglo-Norman knights led to the introduction of land control by means of a feudal system.

William Marshal owned much of the lands within the central landscape, most notably around Danesfort (Crouch 2002, 101). The only medieval funerary activity excavated as part of the N9/N10 was derived from Kilree 4. Most of the metalworking features along the N9/N10 Phase 4 excavations were of Iron Age or early medieval date and it is likely that by the medieval period the processes of metalworking were controlled within Kilkenny or the ecclesiastical centres. There were, however, several kilns identified which were most likely of medieval date.

Medieval Activity in the Northern Landscape

Shankill Castle (KK016-012) lies *c.* 800m away from the sites excavated at Shankill and has its origins in the medieval period. It is likely that this tower house was constructed by relatively wealthy inhabitants, such as strong farmers and minor lords. Medieval activity excavated at Shankill 2 may be associated with this settlement. Further evidence from this period comes from a wooden cross found near St Brigid's well in Sliguff, providing evidence of ecclesiastical activity within this northern landscape. Kellymount Abbey, in the parish of Shankill, had also continued to function during the medieval period further indicating a medieval population in the area at this time. The ecclesiastical complex of St Mullins, *c.* 23km south of Shankill 2, which had its origins in the early medieval also continued in use throughout the medieval and additional buildings were erected at the site during this period. Today a medieval church ruin and a number of medieval domestic buildings are still evident at the complex. There was no evidence for medieval domestic structures as a result of excavations in the northern landscape and indeed the only medieval activity recorded as part of the N9/N10 excavations in the northern landscape consisted of a kiln at Shankill 2 which has been dated to the medieval period (AD1223–1274; UBA 12237). Several sherds of medieval pottery were recovered from this site, although the majority were derived from topsoil; the remainder included Leinster Cooking Ware and Kilkenny-type wares. The keyhole-shaped kiln was lined with one or two rows of stones; a deliberate gap (0.35m) in the stone lining marked where the flue and the bowl merged.

Conclusion

It seems apparent that by the medieval period the focus of settlement had shifted to the better land located outside this environment. Indeed, domestic settlement was becoming less dispersed than it had been in the preceding early medieval period and was instead focusing upon more centralised locations, such as at Newtown-Jerpoint and Knocktopher. The peripheral medieval evidence recovered as part of the N9/N10 Phase 4 excavations demonstrates this contraction and the areas which were inhabited and used in the prehistoric and early medieval periods were, with the exception of Knockadrina – to a limited extent – and Danesfort and Kilree, relatively abandoned in the medieval period. Knockadrina was positioned close to an old pathway between the hills, while Danesfort and Kilree were located adjacent to the King's River and the River Nore, respectively. The number of medieval kilns recovered from the N9/N10 Phase 4 was far less than those from the early medieval period and perhaps indicates a growing control over cereal production in towns and ecclesiastical centres and that the average independent farmer was not able to access such resources. The pattern of the castles and ecclesiastical centres within the landscape is also of note; these are predominantly, but not exclusively, found in the southern reaches of the N9/N10 Phase 4 and where they do not appear in the landscape is within the potential zone of influence around the monastic centres. Combined with the evidence from the surrounding towns, the excavated sites suggest that the area was a hospitable place during the medieval period, even for foreign settlers who had no need for defensive measures. It suggests a thriving market economy and relatively prosperous farmers living and trading with the Kilkenny City inhabitants. The city itself was ever-expanding and was even for a time

the capital of medieval Ireland and it traded with other Anglo-Norman towns such as Wexford, New Ross and Waterford in the south-eastern region.

3.2.2 The Site Specific Archaeological Landscape of Shankill 2

There are no previously recorded monuments dating to the prehistoric period in the vicinity of Shankill 2. A settlement hearth site (KK016-002) is recorded *c*. 750m to the north and a ringfort (KK016-004) is situated *c*. 530m to the north-east. To the east another ringfort (KK016-005) is recorded *c*. 850m away and to the ESE, an additional ringfort (KK016-007) is recorded *c*. 950m away. To the south-east, a church and graveyard complex (KK016-008) are situated *c*. 730m away and the site of a dwelling (KK016-012) is recorded *c*. 860m to the SSE. The site of a possible linear earthwork (KK021-006) is located *c*. 400m to the south and it has a northwest–southeast orientation. A *fulacht fiadh* (KK016-003) is recorded *c*. 600m to the north-west.

At Shankill 2 a medieval cereal drying kiln was excavated. A number of sites were excavated to the NNE and north-east of Shankill 2, as part of the N9/N10 Phase 4: Knocktopher to Powerstown works. At Shankill 3, located *c*. 450m to the NNE, an undated shallow pit/hearth containing three fills was excavated. Beyond this site at Shankill 4, *c*. 900m to the NNE of Shankill 2, an oval prehistoric hut structure made up of postholes and stakeholes and a few shallow outlying pits was excavated. An arc of stakeholes on its north side might have formed a separate sheltered space. The structure was partially covered by an occupation deposit. One of the outlying pits contained heat-shattered stones and the site therefore may have been a campsite linked to burnt mound activity. Sherds of middle Bronze Age pottery were recovered from the site and the site has been dated to the early Bronze Age period. Shankill 5 was situated *c*. 1.1km to the north-east and the possible remnants of a structure, comprising two parallel slot-trenches were excavated. The slot-trenches may have served as an entrance porch to a larger structure, no longer extant, or may have been part of a small platform unrelated to a habitation dwelling. A nearby group of four shallow postholes may have formed a similar structure. A large stone-filled pit and three other shallow pits, one of which has been dated to the early Iron Age period, four stakeholes and a pit filled with hearth waste which has dated to the medieval period were the only other features of note on the site. It is likely that this site had a number of occupation phases as a stone axe was recovered during the cleaning back of the site ahead of its excavation and one sherd of Beaker pottery was recovered from topsoil.

A number of sites were also excavated to the SSW and south-west of Shankill 2, as part of the N9/N10 Phase 4: Knocktopher to Powerstown works. Shankill 1 was located *c*. 400m to the SSW and a small portion of the linear earthwork known as the Rathduff Dyke (KK021-006) was excavated. At Kellymount 5 located *c*. 700m to the south-west, three phases of activity were recorded. A double ring-ditch with a central cremation pit and two probable cremation pits was identified as well as associated pits. An almost complete vessel of the Vase Tradition was recovered from one of the pits associated with this activity and the pit has been dated to the early-middle Bronze Age period. Additionally one of the cremation pits has returned a late Bronze Age date indicating the site was used as a funerary complex throughout the Bronze Age period. A burnt mound complex dating to the late Bronze Age was also excavated at the site and as well as early medieval activity in the form of ditches and associated features. Kellymount 4 was located *c*. 950m to the south-west and the remains of a probable cereal-drying kiln, from which charred seeds were retrieved which has been dated to the middle Iron Age, and a possible posthole were excavated. Kellymount 3 was located *c*. 1.15km to the south-west and a multi-phased burnt mound site was excavated here. It consisted of a large pit, interpreted as a waterhole / reservoir, five troughs and six circular-/oval-shaped pits. A possible

windbreak was identified, which was associated with one of the troughs. An early Bronze Age date and an early-middle Iron date has been returned for two of the troughs, and a middle Iron Age date has been returned for the basal fill of one of the pits.

3.3 Typological Background of Cereal Drying

Cereal-drying kilns were used for a variety of purposes, but were mostly related to the drying of cereals and other crops, and in Ireland the two basic purposes for which they were constructed seem to have been to dry grain and to harden it prior to grinding (O'Sullivan and Downey 2005, 32). The Irish 'corn-drying kilns' are frequently keyhole or dumb-bell shaped (*ibid. 33*). Oval- and sub-oval-shaped kilns are dated to the Iron Age and these are precursors for slightly later figure-of-eight and dumbbell types (Kinsella 2007, 4). Figure-of-eight and dumbbell kilns were early medieval (Monk and Kelleher 2005, 105–6; Kinsella 2007 6–7) and keyhole-shaped kilns functioned from approximately ninth or 10th century to the late medieval period (Monk and Kelleher 2005, 105; Kinsella 2007, 7). The basic kiln would comprise four main structural components: a *bowl*; *flue*; *stoke-hole*; and *drying platform* (*ibid.*). A fire would have been set at the *stoke hole* (which was either a natural depression or cut) at the mouth of the *flue*. This would be where the fire was burned to effect the drying (*ibid.*). The *flue* extends from the *bowl/drying platform*. The *drying platform* overlay the *bowl* and typically consisted of heavy timber supports overlain with wattles, carrying a layer of straw and/or straw mat, through which the heat was able to pass through from below to the grain/cereal (*ibid.*).

3.4 Summary of the Excavation Results

The main archaeological feature found at Shankill 2 was a keyhole shaped, stone lined medieval cereal-drying kiln, set within an area that was possibly prone to flooding in the past. This was evident by the presence of silted-up stream channels and post-medieval field drains.

3.5 Summary of the Specialist Analysis

A number of specialists provided analysis of samples and artefacts recovered from the site as part of the post-excavation works. This work in part formed the basis for the dating evidence for the site. The detailed reports on the results of all analysis are in Appendix 2.

Medieval Pottery Analysis

A total of 37 sherds of medieval pottery were presented for study. The majority of the material (21 sherds) was recovered from topsoil. Many of the sherds are very worn and may have been exposed to weathering for some time. A total of 13 sherds were identified as Leinster Cooking Ware, the most widespread medieval pottery type in Ireland. The remaining sherds were identified as Kilkenny-type Ware.

Lithics Analysis

The lithic finds from the archaeological excavation at Shankill 2, Co. Kilkenny are a chert blade, two flint flakes, one possible convex end scraper and a possible utilised quartzite pebble. The assemblage dates to the first half of the Neolithic period based on its technological characteristics. Together with the discarded scraper, the recovered blade and flakes most likely represent waste from the use and re-sharpening of lithic tools, possibly in domestic activities. No Neolithic features were recorded on the site or in the immediate vicinity so these artefacts represent stray finds.

Charcoal and Wood Species identification

The charcoal fragments from C10, C24/27, C28 and C34 were selected for charcoal analysis. Oak was recorded exclusively from C24/27, C28 and C34, with oak, birch and willow identified from C10. While the high oak presence from kiln deposits (C10 and C24/27) may represent the remains of the fuel chosen to be burnt as part of the kilning process, it is also possible that this oak charcoal reflects the remains of an internal structure or the superstructure of the kiln that had burnt down. Since the charcoal remained in the kiln, this suggests that either previous kiln fuel debris had accumulated within the structure or that the kiln had burnt down, become abandoned and was not re-used thereafter.

The lack of *in situ* burning from C28 and C34 together with the high oak charcoal identified would suggest that these deposits were single dumping episodes of fuel debris from nearby firing events. Whether they are contemporary with the activities surrounding kiln C9 however is difficult to ascertain.

Analysis of Plant Remains

A total of three samples were examined from the site; C27, C24 and C24. These samples were taken from the flue of the kiln. Seeds, mostly cereal grains, were found in all of the samples but they were generally recovered in small quantities. In general, the preservation quality was not good and it was not possible to determine what species of cereal these grains were from (they are labelled as 'indeterminate cereal grains'). It was possible to identify a small number of cereals from the richest sample, C27. All the identifiable grains were wheat, and were most likely a free threshing wheat. This was probably bread wheat (*Triticum aestivum*) which historical records suggest was a crop in Ireland from at least the early medieval period.

Animal Bone Analysis

Nine burnt bone fragments recovered from C4 and C24 from Shankill 2. It was not possible to identify any of the nine burnt bone fragments to species due to minute fragment size and poor preservation of the bone. Taphonomic alterations noted on the remains give us an insight into the processes that the assemblage went through before recovery. Each fragment displayed a degree of surface warping, cracking and colour change to white indicating contact with a high point of heat and an acceleration of the mineralisation process.

Radiocarbon Dating

A single sample was sent for AMS radiocarbon dating.

The results of the analysis dated holly charcoal from a deposit C24. The 2 sigma calibrated date was AD1223–1274 (UBA 12237).

4 DISCUSSION AND CONCLUSIONS

4.1 Discussion

The results of the excavation at Shankill 2 have identified the remains of a cereal drying kiln that has been dated to the medieval period. A stream meanders from the hills in the northwest along the field boundary to the northwest of the site, on towards the River Barrow to the east. The field is marshy and wet next to the stream. This physically wet environment is further evidenced during the excavation by the presence of up to four naturally formed drainage channels, which had naturally silted, and later field drains, inserted in an attempt to dry the land. The identification of a cereal drying kiln within this wet, poorly drained environment would not have been expected.

The nature and form of the main feature identified on the site, in conjunction with the analysis of plant remains has confirmed that this was the location of a cereal drying kiln. The presence of sherds of medieval pottery within associated deposits had indicated early in the excavation that the kiln was potentially dated to the medieval period and this has been confirmed through radiocarbon dating of a selected sample. The kiln can be best described as having a keyhole shaped plan, and this has been identified as being typologically dated from the ninth or tenth centuries AD into the later medieval period. There are no recorded monuments in the immediate vicinity of the site and as such there is no evidence of further medieval sites within the area. The site of the Rathduff Dyke (KK021-006) is located *c.* 350m to the south and a section of this linear earthwork was excavated as part of the N9/N10 Phase 4 works. The earthwork remains undated but is interpreted as possibly dating to the later Iron Age, so no direct links with the Shankill 2 kiln can be drawn.

A flint scraper and a chert blade found at the topsoil-subsoil interface suggest that prehistoric activity took place in the area although no features pertaining to this period were found. It is possible that further medieval features, including possible further kilns survive outside the limits of the N9/N10 scheme, but there is no visible above ground remains, so the site remains an isolated find.

4.2 Conclusions

The excavation at Shankill 2 has identified the remains of a medieval cereal drying kiln. The site is isolated and no other similarly dated monuments are recorded in the vicinity. The site is of local importance as it represents the first excavated evidence of medieval activity in the immediate area. The site conforms typologically with our understanding of medieval cereal drying kilns, and this has been confirmed through dating.

5 BIBLIOGRAPHY

5.1 References

Buckley, R. and Fitzsimmons, V. 2002 *Kilkenny Co Co Groundwater Protection Scheme*. Unpublished report for Kilkenny County Council.

Carlin, N., Clarke, L. & Walsh, F. 2008 *The M4 Kinnegad-Enfield-Kilcock Motorway: The Archaeology of Life and Death on the Boyne Floodplain*. NRA Monograph Series No. 2, Wordwell, Bray.

Carrigan, W. 1905 Parish of Castlecomer. *The History and Antiquities of the diocese of Ossary* ,Vol. II. Dublin: Sealy, Bryers & Walker, 156–159

Crouch, D. 2002 *William Marshal: Knighthood, War and Chivalry, 1147–1219*. Pearson Education, 101.

GSB Prospection Ltd 2003 *Geophysical Survey Report 2003/39, N9/N10 Kilcullen to Waterford – South: Powerstown to Waterford*.

Jennings, R. 2007 *Report on Test Area 6, N9/N10 Kilcullen to Waterford Scheme, Phase 4: Knocktopher to Powerstown*. Unpublished report prepared for Irish Archaeological Consultancy Ltd.

Kinsella, J. 2007 *Cereal Drying and Metallurgy at Lismullin, Co.Meath: A Preliminary Analysis.* Unpublished Report Prepared for Archaeological Consultancy Services Ltd.

Hamond, F. 1990 *An Industrial Archaeological Survey of County Kilkenny*. Kilkenny County Council Planning and Environment Section.

Keeley, V. J. Ltd 2005 *N9/N10 Kilcullen to Waterford Scheme: Waterford to Powerstown. Environmental Impact Statement.* Chapter 17: Archaeology and Cultural Heritage, Chapter 18: Architectural Heritage.

Lyng, T. 1984 *Castlecomer Connections: Exploring History, Geography and Social Evolution in North Kilkenny Environs* 217, 387, 410–413

Monk, M. and Kelleher, E. 2005 An assessment of the archaeological evidence for Irish corn-drying kilns in the light of results of archaeological experiments and archaebotanical studies. *The Journal of Irish Archaeology* **14**, 77–144.

O'Sullivan, M. and Downey, L. 2005 Corn Drying Kilns. *Archaeology Ireland* **19**, 32–35.

Roseveare, M and Roseveare, A. (ArchaeoPhysica Ltd) 2005 *N9/N10 Kilcullen to Waterford Scheme: Waterford to Powerstown Geophysical Survey Report*.

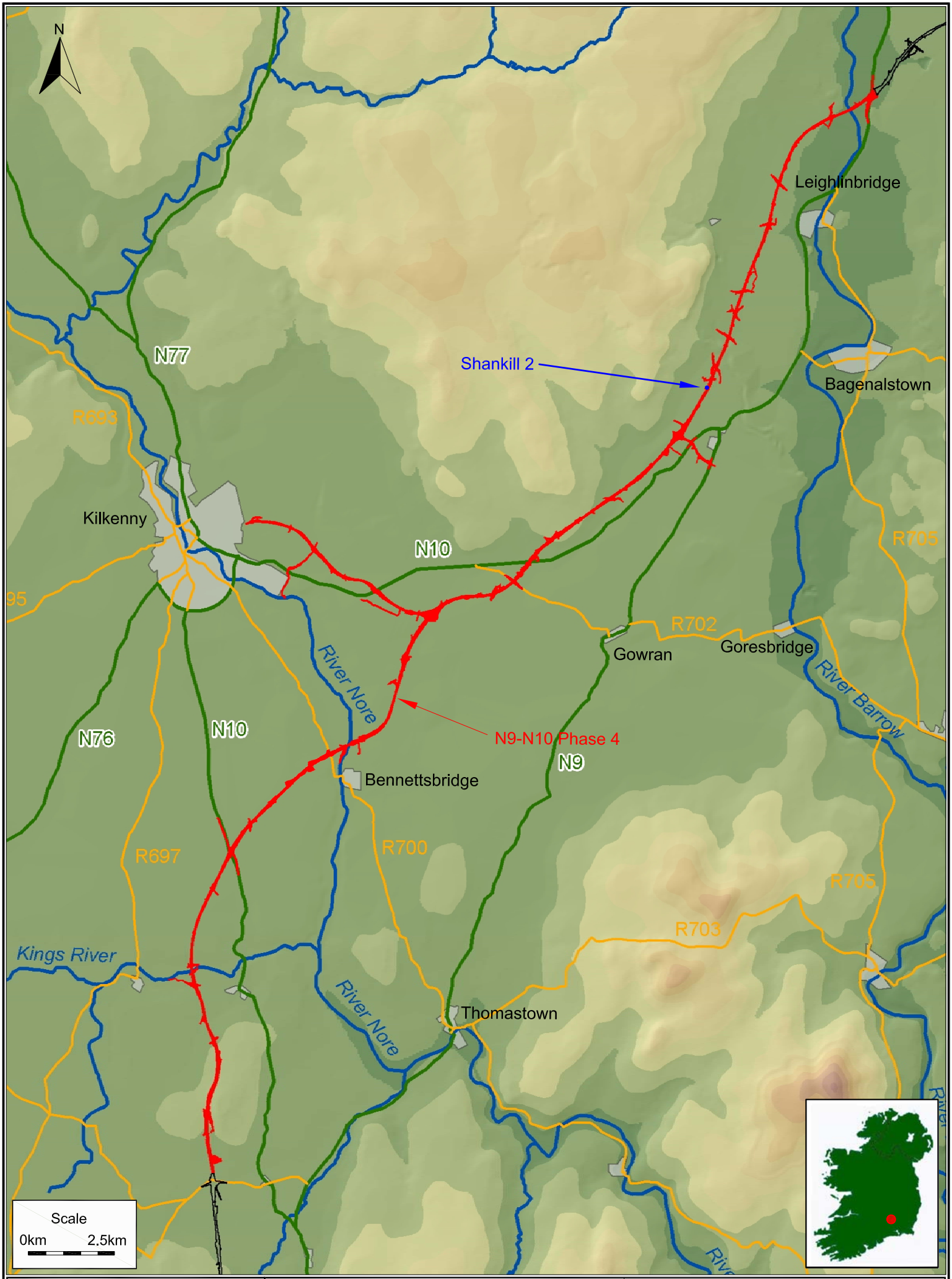
5.2 Other Sources

Record of Monuments and Places (RMP), The Department of the Environment, Heritage and Local Government, 7 Ely Place Upper, Dublin 2.

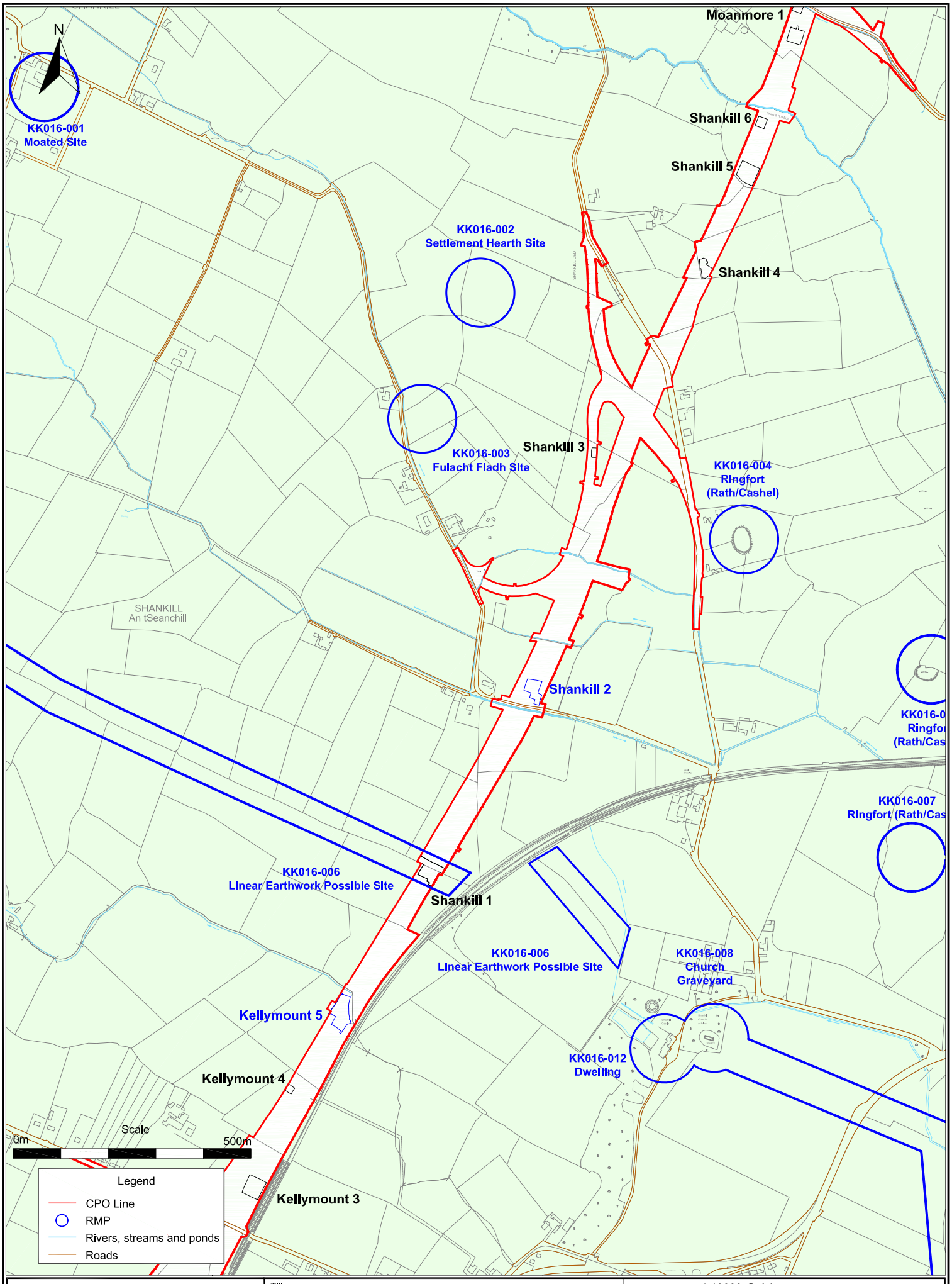
Topographical Files of the National Museum of Ireland, Kildare Street, Dublin 2.

Electronic references

ENVision; *Environmental Protection Agency* Soil maps of Ireland
http://www.epa.ie/InternetMapViewer/mapviewer.aspx



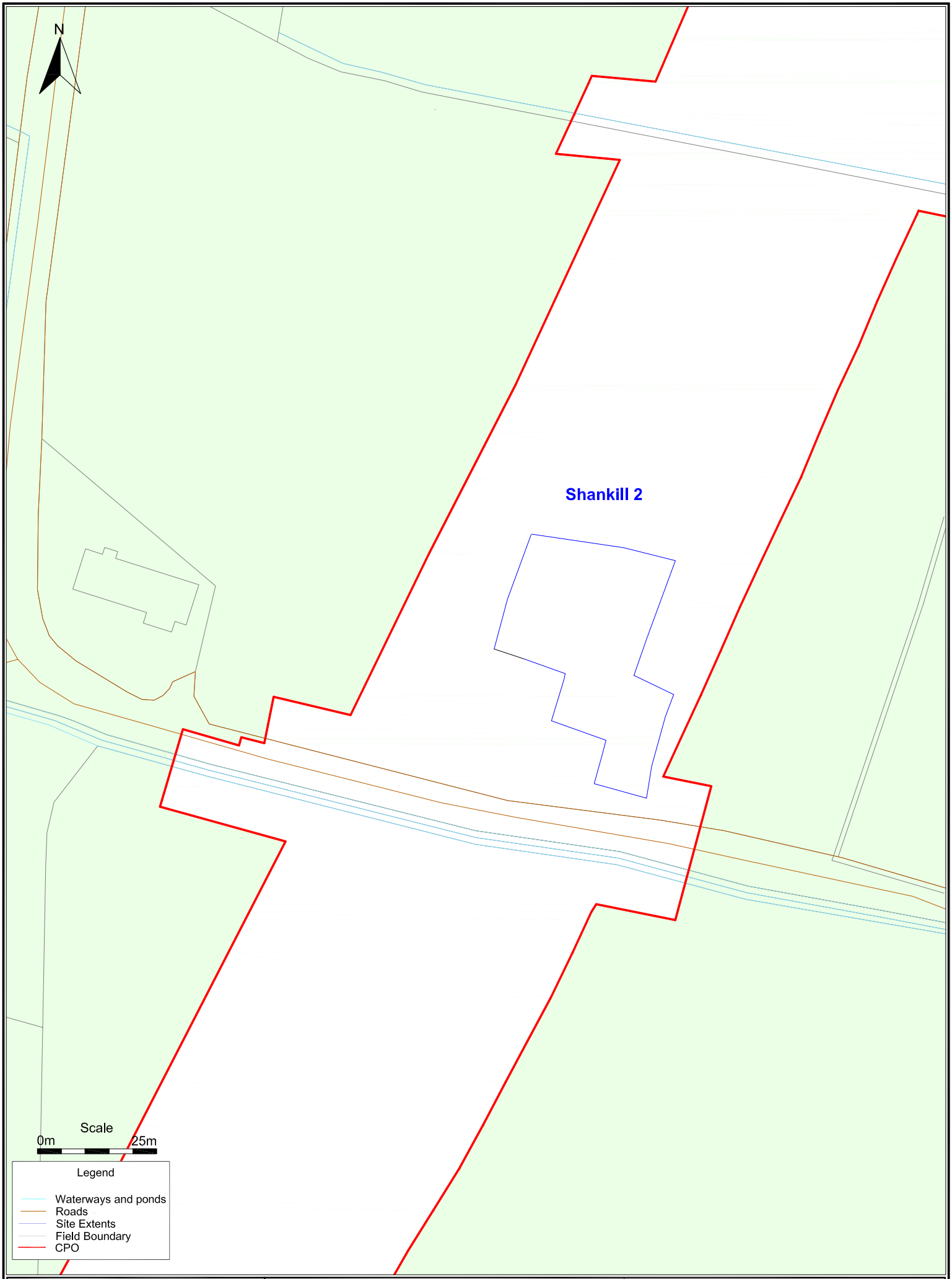
IAC Irish Archaeological Consultancy	Title:	Shankill 2 - General Site Location	Scale: As Shown
	Project:	N9-N10 Phase 4: Knocktopher to Powerstown	Date: 31/05/10
	Client:	Kilkenny County Council	Produced by: P Higgins
			Job No: J2432
			Figure No: 1



IAC Irish Archaeological Consultancy

Title:	Shankill 2 - Location of site showing RMPs
Project:	N9-N10 Phase 4: Knocktopher to Powerstown
Client:	Kilkenny County Council

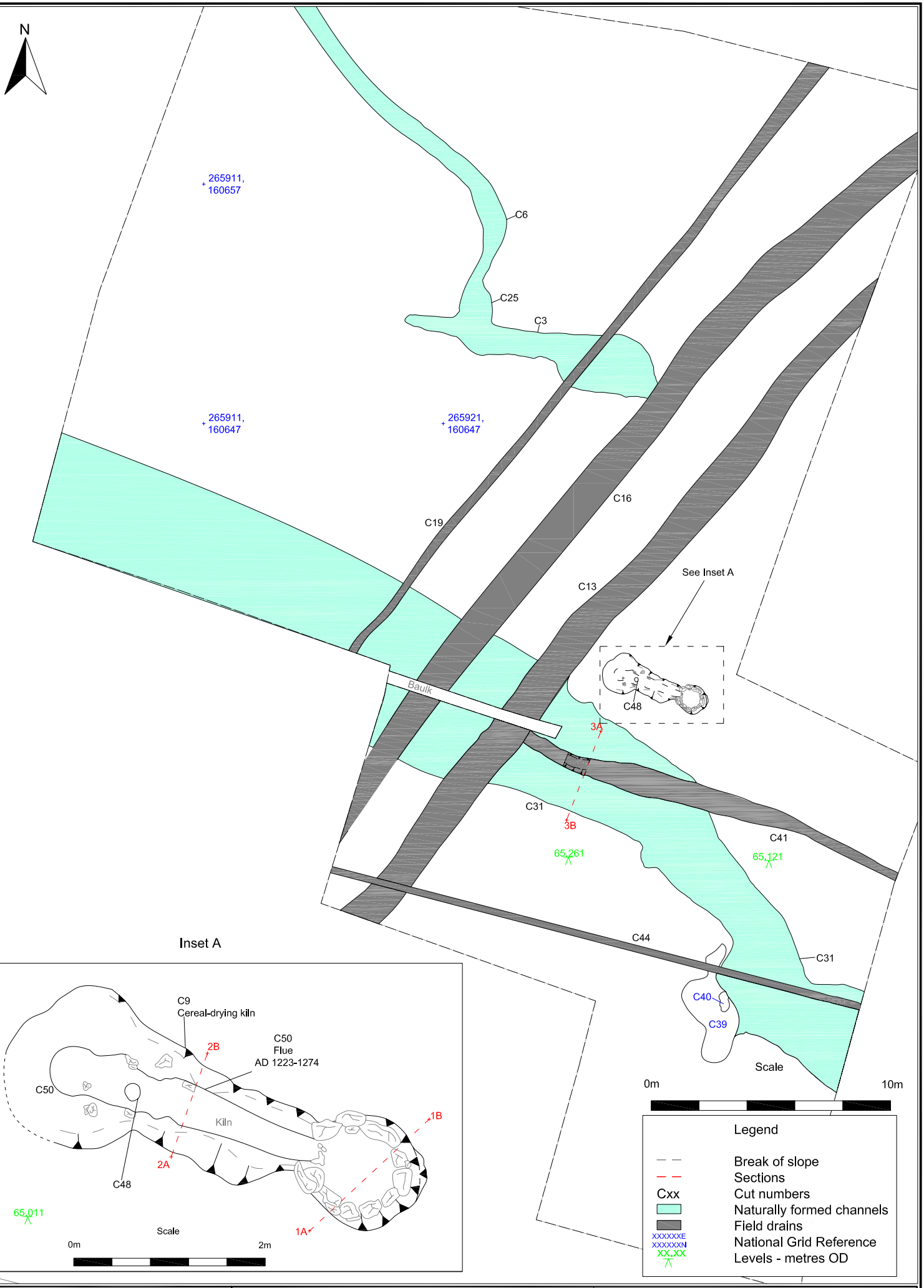
Scale:	1:10000 @ A4
Date:	16/08/12
Produced by:	P Higgins
Job No:	J2432
Figure No:	2



IAC Irish Archaeological Consultancy

Title:	Shankill 2 - Location of site within development
Project:	N9-N10 Phase 4: Knocktopher to Powerstown
Client:	Kilkenny County Council

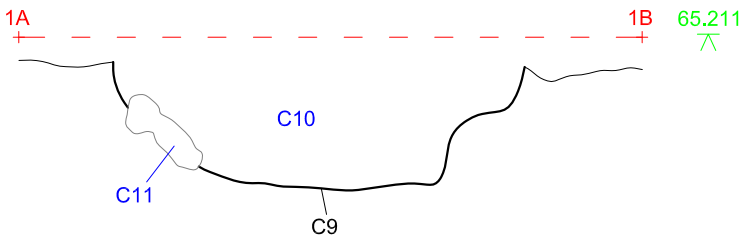
Scale:	1:1000 @ A4
Date:	10/05/10
Produced by:	P Higgins
Job No:	J2432.1
Figure No:	3



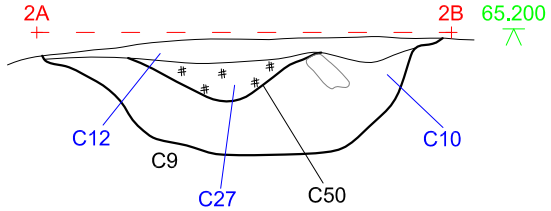
Inset A

IAC Irish Archaeological Consultancy	Title: Shankill 2 - plan of site	Scale:	1:200 @ A4
	Project: N9/N10 Phase 4: Knocktopher to Powerstown	Date:	16/08/12
		Produced by:	G Kearney
	Client: Kilkenny County Council	Job No:	J2432.1
		Figure No:	4

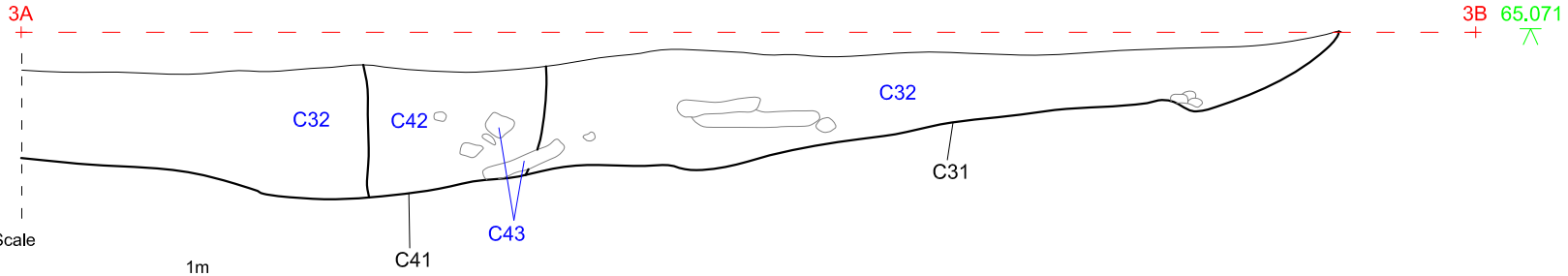
Southeast profile of C9



East facing section of C9, C50



West facing section of C31, C41



0m 1m

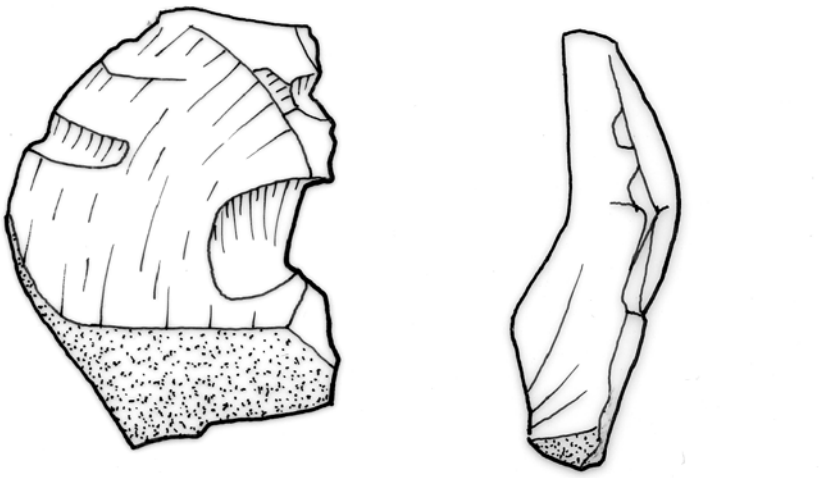
Legend

Cxx	Cut numbers
Cxx	Fill numbers
	Stone
#	Charcoal
xx.xx	Levels - metres OD

IAC Irish Archaeological Consultancy

Title:	Shankill 2 - sections 1-3
Project:	N9/N10 Phase 4: Knocktopher to Powerstown
Client:	Kilkenny County Council

Scale:	1:20 @ A4
Date:	28/05/10
Produced by:	G Kearney
Job No:	J2432.1
Figure No:	5



Scale

0mm 25mm

IAC Irish Archaeological Consultancy	Title:	Shankill 2 - illustration of convex end scraper E3738:4:4 (by Johnny Ryan)	Scale: As shown @ A4
			Date: 15/08/12
	Project:	N9/N10 Phase 4b	Produced by: P Higgins
	Client:	Kilkenny County Council	Job No: J2432.1
			Figure No: 6

PLATES

Plate 1: Channel C3, mid-excavation, facing west

Plate 2: Channel C3, mid-excavation showing distinctive grey marl, facing east

Plate 3: Kiln C9, mid-excavation, facing west

Plate 4: Burnt rotted wood remains C51 between two structural stones C49, mid-excavation, facing west

Plate 5: Flue fill C50 and Kiln C9, mid-excavation, facing east

Plate 6: Kiln C9 with flue fills, mid-excavation, facing east

APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
C1	N/A				Topsoil			
C2	N/A				Subsoil			
C3	N/A	22	0.15–0.3	0.7–1.3	Cut of meandering channel	Multi-sided cut. Big variation of shape and size but mainly sharp break of slope top and fairly flat base with sharp break of slope at base	C5	C2
C4	N/A	0.7	0.4	0.02	Modern charcoal spread	Shallow charcoal spread	C28	C3
C5	C3	22	0.15–0.3	0.7–1.3	Fill of meandering channel	Mid-grey with occasional orange flecks, fairly compact silty clay	C4	C3
C6	N/A	6	0.65– 1.1	0.25	Cut of meandering channel	Mainly sharp break of slope at the top and the base with a few variations. Fairly flat base	C7	C2
C7	C6	6	0.65–1.1	0.25	Fill of meandering channel	Fairly compact mid-grey silty clay	C28	C6
C8	C25	9	1–2	0.01–0.2	Fill of meandering channel	Compact light grey silty clay	C28	C25
C9	N/A	4.55	1.2	0.35	Cut of kiln	Cut of corn drying kiln. Mainly sharp break of slope at the top and the base. Fairly flat base. Typical cut for kiln	C11	C2
C10	C9	4.55	1.2	0.35	Main fill of kiln	Very hard and compact mid-grey silty clay with frequent flecks of decayed stone, occasional flecks of charcoal and moderate amount of stones	C12	C9
C11	C9	N/A	N/A	N/A	Stones	Stone lining within bowl for kiln	C10	C9
C12	N/A	6	1	0.22	Layer	Silty material that has been flushed in on top of the fills of the kiln. Natural process	C28	C10
C13	N/A	21	1.2	0.2	Cut of modern field drain	Concave cut with sharp break of slope at top at the west edge, east edge not perceptible	C14	C2
C14	C13	21	1.2	0.2	Stones	Stone fill of modern field drain	C15	C13
C15	C13	21	1.2	0.2	Upper fill of modern field drain	Fairly compact mid-grey silty clay, with frequent flecks of orange decayed stones	C28	C14
C16	N/A	15	1.5	0.43	Cut of modern field drain	Concave cut with V-shaped cut in the centre part of the feature. Sharp break of slope at the top and smooth stepped edges	C17	C4, C8
C17	C16	15	1.5	0.43	Stones	Stone fill of modern field drain	C18	C16
C18	C16	15	1.5	0.43	Upper fill of modern field drain	Fairly compact mid-grey silty clay	C28	C17
C19	N/A	30	0.6	0.2	Cut of modern field drain	Sharp break of slope top and at the base. Smooth sides that were almost vertical	C28	C52

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
C20	C19	30	0.6	0.2	Upper fill of modern field drain	Fairly loose mid-grey silty clay	C28	C52
C21	C19	30	0.6	0.2	Upper fill of modern field drain	Fairly loose mid-grey silty clay	C28	C52
C22	C26	1.05	0.66	0.09	Charcoal spread	Charcoal spread, probably deposit from weather and wind. Firm compaction, mid-grey silty clay	C28	C26
C23	N/A	N/A	N/A	N/A	N/A	Replaced by context number C28		
C24	N/A	N/A	N/A	N/A	N/A	Same as context number C27		
C25	N/A	9	1–2	0.01– 0.2	Cut of meandering channel	Naturally formed meandering channel, multi-sided cut with big variations	C8	C2
C26	N/A	1.05	0.66	0.09	Cut of naturally formed depression	Multi-sided cut. Big variation of shape and size	C22	C2
C27	C50	1.6	0.6	0.2	Fill of flue part of kiln	Remains from burning within the flue part. Charcoal-rich silty clay	C12	C50
C28	N/A	N/A	N/A	N/A	Grey marl, silted in covering the site	Natural siltation from meandering channels and water flushed in over the site from nearby hills, leaving the grey marl covering the site	C1	All features
C29	N/A	N/A	N/A	N/A	Variation of natural silted material	Natural siltation same as C2	C1	C9
C30	N/A	N/A	N/A	N/A	Variation of natural silted material	Natural siltation same as C2	C13, C27	C2
C31	N/A	N/A	3	0.55	Cut of meandering channel	Naturally formed channel, filled with natural silted material	C36	C2
C32	C31	N/A	3	0.35	Fill of meandering channel	Natural siltation that was flushed in to the channel, fairly loose mid-brown silty clay	C41, C44	C34, C37
C33	C31	N/A	3	0.35	Fill of meandering channel	Natural siltation that where flushed in to the channel, fairly compact yellowish/brown silty sand	C34	C36
C34	C31	N/A	0.85	0.12	Part of fill of meandering channel	Charcoal rich lens within the main fills of meandering channel. Probably natural deposit, that been flushed in to the channel, silty clay mixed with charcoal	C32	C33
C35	C31	N/A	2.05	0.26	Fill of meandering channel	Natural siltation consisting of fairly loose mid-grey gritty/sandy material	C37	C36
C36	C31	N/A	1.15	0.3	Fill of channel	Loose orangey gritty/sandy material	C35	C31
C37	C31	N/A	0.5	0.14	Redeposited subsoil	Natural siltation consisting of fairly loose mid-grey sandy silt	C32	C35
C38	C44	N/A	0.9	0.34	Top fill of modern field drain	Natural siltation on top of field drain, consisting of very loose light grey sandy silt	C28	C45
C39	C39	5	0.6	0.21	Spread	Naturally formed spread, fairly loose mid-grey silty clay	C28	C40
C40	C40	1.3	1.1	0.13	Charcoal-rich spread	Naturally formed spread consisting of stones, charcoal and silty clay. All mixed	C39	C2
C41	N/A	N/A	0.5	0.35	Cut of modern field drain	Linear field drain, sharp break of slope at top and at the base,	C43	C32

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
						almost vertical edges		
C42	C41	N/A	0.5	0.35	Fill of modern field drain	Fill consisting of fairly loose mid-brown silty clay with occasional charcoal inclusions	C28	C43
C43	C41	N/A	0.5	0.35	Stones	Stone fill of field drain	C42	C41
C44	N/A	N/A	0.75	0.3	Cut of modern field drain	Linear field drain, sharp break of slope at top. Break of slope at base not perceptible. Concave base and almost vertical sides	C46	C32
C45	C44	N/A	0.75	0.3	Fill of modern field drain	Fill consisting of fairly loose mid-brown silty clay	C38	C46
C46	C44	N/A	0.75	0.3	Stones	Stone fill of modern field drain	C45	C44
C47	C48	0.16	0.16	0.08	Fill of posthole	Fill consisting of fairly compact black charcoal-rich silty clay	C50	C48
C48	N/A	0.16	0.16	0.08	Cut of posthole	Circular cut with sharp break of slope at top. Break of slope at base not perceptible; the base is concave	C47	C51
C49	C50	N/A	N/A	N/A	Stones	Remains of aligned stones on each side of the flue. Probably used to support some kind of structural element	C27	C50
C50	N/A	1.6	0.6	0.2	Cut of flue	Linear cut with smooth convex sides and concave base, break of slope top and base was not perceptible	C49	C47
C51	C9	N/A	N/A	N/A	Wood	Burnt rotted wood situated at the inlet part of the bowl, probably the remains of some sort of valve that was used to adjust the heat from the flue in to the bowl part of the kiln	C10	C9
C52	C19	30	0.6	0.2	Stones	Stone fill of modern field drain	C20, C21	C19

Appendix 1.2 Catalogue of Artefacts

Registration Number	Context	Item No.	Simple Name	Full Name	Material	Description	No. of Parts
E3738:001:1	1	1	Jar	Rimsherd of Leinster Cooking Ware	Ceramic	A rimsherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:2	1	2	Jar	Rimsherd of Leinster Cooking Ware	Ceramic	A rimsherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:3	1	3	Jug	Basesherd of Kilkenny-type ware	Ceramic	A basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:4	1	4	Jug	Rimsherd of Kilkenny-type ware	Ceramic	Rimsherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:5	1	5	Jug	Rimsherd of Kilkenny-type ware	Ceramic	Rimsherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:6	1	6	Jug	Bodysherd of Kilkenny-type ware	Ceramic	Bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:7	1	7	Jug	Basesherd of Kilkenny-type ware	Ceramic	Basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:8	1	8	Jug	Rim / handle sherd of Kilkenny-type ware	Ceramic	Rim / handle sherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:9	1	9	Jar	Basesherd of Leinster Cooking Ware	Ceramic	A basesherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:10	1	10	Jug	Basesherd of Kilkenny-type ware	Ceramic	Basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:11	1	11	Jug	Basesherd of Kilkenny-type ware	Ceramic	Basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:12	1	12	Jug	Bodysherd of Kilkenny-type ware	Ceramic	Bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:13	1	13	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:14	1	14	Jug	Bodysherd of Kilkenny-type ware	Ceramic	Bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:15	1	15	Jug	Bodysherd of Kilkenny-type ware	Ceramic	Bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:16	1	16	Jug	Basesherd of Kilkenny-type ware	Ceramic	Basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A

Registration Number	Context	Item No.	Simple Name	Full Name	Material	Description	No. of Parts
E3738:001:17	1	17	Jug	Basesherd of Kilkenny-type ware	Ceramic	Basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:18	1	18	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:19	1	19	Jug	Bodysherd of Kilkenny-type ware	Ceramic	A bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:20	1	20	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:21	1	21	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:001:22	1	22	Jug	Bodysherd of Kilkenny-type ware	Ceramic	Bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:23	1	23	Jug	Bodysherd of Kilkenny-type ware	Ceramic	Bodysherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:001:24	1	24	Flake	Flint flake	Flint	A flint flake produced using the single-platform method.	N/A
E3738:001:25	1	25	Flake	Flint flake	Flint	A flint flake produced using the single-platform method. It shows traces of use-wear on its right edge.	N/A
E3738:001:26	1	26	Chunk	Natural chert chunk	Chert	A natural chunk of chert	N/A
E3738:001:27	1	27	Blade	Chert blade	Chert	A chert blade produced on a single-platform core	N/A
E3738:001:28	1	28	Chunk	Natural chert chunk	Chert	A natural chunk of chert	N/A
E3738:001:29	1	29	Pebble	Quartzite pebble	Quartzite	A possible utilised, smoothened pebble	N/A
E3738:001:30	1	30	Nail	Iron nail	Iron	An iron nail	N/A
E3738:004:1	4	1	Jug	Basesherd of Kilkenny-type ware	Ceramic	Basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:004:2	4	2	Jug	Handle sherd of Kilkenny-type ware	Ceramic	Handle sherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:004:3	4	3	Jug	Rimsherd of Kilkenny-type ware	Ceramic	Rimsherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:004:4	4	4	Scraper	Flint scraper	Flint	A retouched artefact produced on a single-platform flake and used as a convex end scraper	N/A

Registration Number	Context	Item No.	Simple Name	Full Name	Material	Description	No. of Parts
E3738:005:1	5	1	Jar	Basesherd of Leinster Cooking Ware	Ceramic	A basesherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:005:2	5	2	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:006:1	6	1	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:008:1	8	1	Jug	Basesherd of Kilkenny-type ware	Ceramic	A basesherd of Kilkenny-type ware, part of a jug dating to the 13th / 14th century	N/A
E3738:018:1	18	1	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:018:2	18	2	Jar	Basesherd of Leinster Cooking Ware	Ceramic	A basesherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:018:3	18	3	Jar	Basesherd of Leinster Cooking Ware	Ceramic	A basesherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:018:4	18	4	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:018:5	18	5	Jar	Basesherd of Leinster Cooking Ware	Ceramic	A basesherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:018:6	18	6	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A
E3738:018:7	18	7	Jar	Bodysherd of Leinster Cooking Ware	Ceramic	A bodysherd of Leinster Cooking Ware, part of a cooking jar dating to the late 12th - mid 14th century	N/A

Appendix 1.3 Catalogue of Ecofacts

During post excavation works specific samples were processed with a view to further analysis. A total of 10 soil samples were taken from features at Shankill 2 and were processed by flotation and sieving through a 250µm mesh. Only seven samples produced ecofacts. The following are the ecofacts recovered from these samples:

Context #	Sample #	Feature type i.e. Structure A, hearth C45	charcoal	seeds	burnt bone	animal bone	human bone	Heat-affected stone	Other
C4	5	Ditch/pit	7.2g		0.3g				
C4	13	Ditch/pit			0.8g				
C10	1	Pit C9	1.1g						
C10	2	Pit C9	2.3g						
C10	3	Pit C9	3.2g						
C12	4	Pit	17.7g						
C24	7	Deposit	164.6g	0.1g					<0.1g (insect)
C24	8	Deposit	46.4g	0.1g	<0.1g				
C27	6	Kiln	56.4g	0.6g					
C34	11	Channel	21.0g						

Appendix 1.4 Archive Index

Project: N9/N10 Phase 4 Knocktopher to Powerstown		
Site Name: AR128 Shankill 2		
Excavation Registration Number: E3738		
Site director: Richard Jennings		
Date: 30.05.08		
Field Records	**Items (quantity)**	**Comments**
Site drawings (plans)	16	
Site sections, profiles, elevations	5	
Other plans, sketches, etc.		
Timber drawings		
Stone structural drawings		
Site diary/note books	0	
Site registers (folders)	1	
Survey/levels data (origin information)		
Context sheets	52	
Wood Sheets		
Skeleton Sheets	0	
Worked stone sheets	0	
Digital photographs	117	
Photographs (print)	0	
Photographs (slide)	0	
Security copy of archive		

APPENDIX 2 SPECIALIST REPORTS

Appendix 2.1 Medieval Pottery Report – Clare McCutcheon

Appendix 2.2 Lithic Report – Dr. Farina Sternke

Appendix 2.3 Charcoal and Wood Report – Susan Lyons

Appendix 2.4 Plant Remains Analysis Report – Penny Johnston

Appendix 2.5 Burnt Bone Report – Aoife McCarthy

Appendix 2.6 Radiocarbon Dating Results – QUB Laboratory

Appendix 2.1 Medieval Pottery Report – Clare McCutcheon

The Medieval Pottery From
Shankill 2 (E3738)
N9/N10 Knocktopher to Powerstown, Co. Kilkenny

Clare McCutcheon MA MIAI

Introduction:
A total of 37 sherds of medieval pottery were presented for study. Following identification and some reassembly within and between contexts, this was reduced to 31 sherds. The majority of the material (21 sherds) was recovered from topsoil. Many of the sherds are very worn and may have been exposed to weathering for some time.

Methodology:
The material was identified visually and the information is presented in Table 1. 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.

Sherd links were established between the following contexts: C1+C5; C5+C18.

The pottery identification is presented in Table 1 showing 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.

Fabric	Sherds	MNV	MVR	Form	Date
Leinster Cooking Ware	13	-	2	Cooking jars	L12th-M14th
Kilkenny-type ware	18	-	2	Jugs	13th-14th
Total medieval	**31**	**-**	**2**		

Table 1: Pottery identification, Shankill 2 (E3738)

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 diagnostic feature of this ware is the sand-gritted base.

Two cooking jars are represented, one with a pinched decoration on the outside of the rim.

Kilkenny-type ware:
The use of the suffix *-type* is recommended in pottery studies to indicate that while a fabric has been found regularly in a particular area, as yet no production site has been located (Blake & Davey 1983, 39-40). The fabrics of the wheel-thrown ware labeled as Kilkenny-type ware range from lightly micaceous, hard fired finish to a more calcareous, softer finished fabric. 'In areas where the underlying geology is bland, pottery from widely separated sources can have a very similar appearance, while excavations at kiln sites of all dates have shown that a wide variation in colour,

texture and inclusions can be expected within the products of a single source' (Vince 1987, 203).

The locally-made pottery from three particular sites in the area provides the template for the material recovered from the sites on the N9/N10, i.e. Kilferagh, Kells Priory and Kilkenny. The first of these is the detailed description of the pottery fabrics material from the moated site at Kilferagh (Hurley 1988, 93-94). In the excavations at Kells Priory, the thin-section report describes a number of different local fabrics (McCorry 2007) and these were described as Kells-type A-G (McCutcheon 2007), although the consistency in manufacture, form and decoration make these a closely linked group. The recent excavation of a kiln at MacDonagh Station, Kilkenny may make it possible to identify particular fabrics and firings against the prototypes from the kiln (McCutcheon in prep). With the last firing of this kiln in the mid to later 14th century, however, it is likely that only one or two 'types' found in the area can be identified as coming from this specific kiln. Similar material, also described as Kilkenny-type ware, has been recovered at excavations at 29-33 Patrick Street and at Pudding Lane (McCutcheon forthcoming (a and b)).

The fabrics present are very varied while the only handle sherd present was undecorated. Two base sherds were decorated with thumbing while a third had a splayed edge to the base. The two jugs are represented by two rims with scars of detached handles. One of these (F1:8) was further decorated with three stab marks above the handle. This would indicate that the handle was also decorated.

References:

Blake, H. and Davey, P. (eds) 1983 *Guidelines for the processing and publication of medieval pottery from excavations*. Medieval Pottery Research Group, London.

Hurley, M. F. 1987 Kilferagh, Co. Kilkenny: Corn-drying kiln and settlement site. In R M Cleary, M F Hurley and E Twohig (eds), *Archaeological excavations on the Cork-Dublin gas pipeline (1981-82),* 88–100. Cork University Press, Cork.

McCorry, M. 2007 Petrological analysis of medieval pottery. In M Clyne, *Kells Priory, County Kilkenny: archaeological excavations by T. Fanning & M. Clyne,* 339–42. *Stationary Office,* Dublin.

McCutcheon, C. 2003 Pottery. In R M Cleary and M F Hurley (eds), *Excavations in Cork City 1984-2000*. 197–235. Cork City Council, Cork.

McCutcheon, C. 2006 *Medieval pottery from Wood Quay, Dublin: Medieval Dublin Excavations 1962-81*. Royal Irish Academy, Dublin.

McCutcheon, C. 2007 The medieval pottery. In M Clyne, *Kells Priory, County Kilkenny: archaeological excavations by T. Fanning & M. Clyne,* 339–42. *Stationary Office,* Dublin.

McCutcheon, C. forthcoming (a) The pottery. In J Carroll, *Excavations at 29–33 Patrick Street, Kilkenny.*

McCutcheon, C. forthcoming (b) The pottery. In J Carroll, *Excavations at Pudding Lane, Kilkenny.*

McCutcheon, C. in prep The pottery. In C Ó Drisceoil, *Excavation of a medieval pottery kiln at Highhays (MacDonagh Station), Kilkenny.*

Ó Floinn, R. 1988 Handmade medieval pottery in S E Ireland, Leinster Cooking Ware. In G MacNiocaill and P F Wallace (eds), *Keimelia*, 325–47. Galway University Press, Galway.

Vince, A. G. 1987 The study of pottery from urban excavations. In J Schofield and R Leech (eds), *Urban archaeology in Britain*. CBA Research report, **61**, 201–13.

Appendix 2.2 Lithic Report – Dr. Farina Sternke

Lithics Finds Report For E3738 Shankill 2 (A032/128), Co. Kilkenny
N9/N10 Road Scheme– Phase 4B

Farina Sternke MA, PHD

Contents

List of Tables

Introduction

A total of seven lithic finds from the archaeological investigations of a multi-period site at Shankill 2, Co. Kilkenny were presented for analysis (Table 1). The finds are associated with a possible corn-drying kiln.

Find Number	Context	Material	Type	Condition	Cortex	Length (mm)	Width (mm)	Thickness (mm)	Complete	Retouch
E3738:001:24	1	Flint	Flake	Patinated	Yes	31	22	6	Yes	No
E3738:001:25	1	Flint	Flake	Patinated	Yes	27	29	7	Yes	No
E3738:001:26	1	Chert	Natural Chunk							
E3738:001:27	1	Chert	Blade	Reasonably fresh	No	57	26	7	No	No
E3738:001:28	1	Chert	Natural Chunk							
E3738:001:29	1	Quartzite	Utilised? stone	Slightly weathered		40	37	30	No	No
E3738:004:4	4	Flint	Retouched Artefact	Patinated	Yes	26	22	7	Yes	Distal direct abrupt

Table 1 Composition of the Lithic Assemblage from Shankill 2 (E3738)

Methodology

All lithic artefacts are examined visually and catalogued using Microsoft Excel. The following details are recorded for each artefact which measures at least 20mm in length or width: context information, raw material type, artefact type, the presence of cortex, artefact condition, length, with and thickness measurements, fragmentation and the type of retouch (where applicable). The technological criteria recorded are based on the terminology and technology presented in Inizan *et al.* 1999. The general typological and morphological classifications are based on Woodman *et al.* 2006. Struck lithics smaller than 20mm are classed as debitage and not analysed further, unless they represent pieces of technological or typological significance, e.g. cores etc. The same is done with natural chunks.

Quantification

The lithics are three flaked pieces of flint, one flaked piece of chert, one utilised piece of quartzite. In addition, two natural chunks of chert were also presented for analysis (Table 1).

Five artefacts are larger than 20mm in length and width and were therefore recorded in detail.

Provenance

The lithic artefacts were recovered from the topsoil.

Condition:

The lithics survive in reasonably fresh (E3738:001:27), patinated (E3738:001:24-25 and E3738:004:4) and slightly weathered (E3738:001:29) condition. Two artefacts are incomplete and three flaked artefacts (E3738:001:24-25 and E3738:004:4) bear the remnants of cortex.

Technology/Morphology:

The artefacts represent three types of flaking products including one retouched artefact and one macro tool (Table 2).

TYPE	AMOUNT
Blade	1
Flake	2
Retouched Artefact	1
Macro Tools	1
Total	**5**

Table2 Assemblage Composition from Shankill 2 (E3738)

BLADES
One blade (E3738:001:27) was identified in the assemblage and is made of chert. It was produced on single-platform core. It measures 57mm long, 26mm wide and 7mm thick. The blade most likely dates to the first half of the Neolithic period.

FLAKES
The two flakes (E3738:001:24 and E3738:001:25) are made of flint. They were produced using the single-platform method. Flake E3738:001:25 shows traces of use-wear on its right edge.
The flakes measure 31mm and 27mm in length, 22mm and 29mm in width and 6mm and 7mm in thickness, respectively.
The flakes most likely date to the first half of the Neolithic period based on their technology.

Retouched Artefacts:
The retouched artefact (E3738:004:4) identified in the assemblage is a miscellaneous retouched form. It was produced on a single-platform flake and used as a convex end scraper. The artefact measures 26mm long, 22mm wide and 7mm thick. It is most likely dates to the first half of the Neolithic.

Macro Tools:
Artefact E3738:001:29 is a possible utilised, smoothened pebble which measures 40mm in length, 37mm in width and 30mm in thickness.

Dating:
The assemblage is technologically diagnostic and appears to date to the first half of the Neolithic period.

Conservation
Lithics do not require specific conservation, but should be stored in a dry, stable environment. Preferably, each lithic should be bagged separately and contact with other lithics should be avoided, so as to prevent damage and breakage, in particular edge damage which could later be misinterpreted as retouch. Larger and heavier items are best kept in individual boxes to avoid crushing of smaller assemblage pieces.

Discussion
Flint is available in smaller nodules along the Wicklow, Wexford and Waterford coast or in the glacial tills in Co. Kilkenny in the form of remanié pebbles. The use of a single platform and a bipolar technology on small to medium sized pebbles is in parts the result of this availability. The flint used at Shankill 2 is beach pebble flint which almost certainly derives from the Wicklow, Wexford or Waterford coast. The majority

of these flint nodules are rather small pebbles with an average dimension of 30–50mm and often only permit the use of a bipolar technology to efficiently reduce the nodule achieving a maximum outcome, i.e. the largest possible amount of suitable and usable blanks. The result is the regionally dominant split pebble bipolar (Neolithic and Bronze Age) character of the south-eastern lithic assemblages (O'Hare 2005). However, the assemblage of Shankill 2 also contains a single platform flakes and blades. Particularly, during the Neolithic period, flint was also introduced in the form of larger blanks, i.e. selected single platform flakes. These were produced on the coast, where flint was abundant and subsequently carried onto the inland settlement sites (Woodman pers. comm.).
The chert blade was probably introduced to the site from elsewhere locally or from as far as the Midlands.

Summary
The lithic finds from the archaeological excavation at Shankill 2, Co. Kilkenny are a chert blade, two flint flakes, one possible convex end scraper and a possible utilised quartzite pebble. The assemblage dates to the first half of the Neolithic period based on its technological characteristics. Together with the discarded scraper, the recovered blade and flakes most likely represent waste from the use and re-sharpening of lithic tools, possibly in domestic activities.

This site makes a minor contribution to the evidence for prehistoric settlement and land use in Co. Kilkenny.

Recommendations for Illustration

- Convex End Scraper (E3738:004:4)

References

Inizan, M-L, M Reduron-Ballinger, Roche, H. and Tixier, J. 1999 *Technology and Terminology of Knapped Stone* **5**. CREP, Nanterre.

O'Hare, M. B. 2005 The Bronze Age Lithics of Ireland. Unpublished PhD Thesis. Queen's University of Belfast.

Woodman, P. C., Finlay, N. and Anderson, E. 2006 The Archaeology of a Collection: The Keiller-Knowles Collection of the National Museum of Ireland. National Museum of Ireland Monograph Series 2. Wordwell, Bray.

Appendix 2.3 Charcoal and Wood Report – Susan Lyons

Client – Irish Archaeological Consultancy Ltd
Site Name- Shankill 2
Excavation number –E3738 AR128
County – Kilkenny
Job code –100.82
Author- Susan Lyons

Date –09/09/09

CHARCOAL IDENTIFICATION SUMMARY REPORT

Introduction
Four charcoal samples were identified and analysed from excavations associated with medieval deposits at Shankill 2 Co. Kilkenny as part of the resolution of the N9/N10 Kilcullen to Waterford Scheme, Phase 4B – Rathclogh to Powerstown. The archaeological excavation revealed the remains of a possible medieval cereal-drying kiln set within an area that was prone to waterlogging in the past. This was demonstrated by the presence of silted-up stream channels and a row of post-medieval field drains (Jennings, 2009).

It is generally considered that the principle reason for charcoal analysis is the hypothesis that wood used as firewood will be collected from as close to a site as possible and as such can help to reflect the local wooded environment in the area. It is also likely that abandoned structural timbers or wood brought to the site for uses in construction works or other activities are also reused as firewood. The charcoal identified can also go some way to interpreting the local woodland that grew in the vicinity of the site and possible changes to that woodland over time. This report serves as a summary report only for Shankill 2 and will later form part of an overall scheme-wide charcoal study for the N9/N10 (Lyons, *et al, forthcoming).*

Methodology (After IAC Ltd)
Processing

- A mechanical flotation tank using a pump and water recycling system is used for soil flotation
- The soil is washed using a 1mm mesh in the flotation tank and a 300 micron and 1mm sieve is used to catch floated material.
- The volume of all soil samples are recorded in litres using a measuring jug.
- The sample is then placed into the 1mm mesh in the flotation tank, the tank is then filled with water and the sample washed. Any large lumps of soil can be carefully broken down by hand, but the jets of water in the flotation tank gently clean the rest of the sample.
- Once the sample is clean (just stones, charcoal, artefacts remaining in the mesh) the tank is fill up with water and at this stage any floating material (charcoal, seeds etc) should flow over the spout and into the sieves.
- The retent is then gently poured into a labelled tray (containing site code, site name, sample number and context number) and place on a shelf to dry.
- The flots are securely packaged in tissue, labelled and hung up to dry. This prevents any loss of light material (seeds) which could result once the flots are dry and being moved (if they are dried on trays).
- Before washing a new sample all equipment used (measuring jugs, 1mm mesh, sieves etc) are thoroughly washed using clean water.
- The large black settling tanks (and water) are cleaned between every site, or if a large site is being processed, every 1-2 weeks.
- Any samples containing high clay content will be soaked in water for 1-2 days to aid the sieving process.

Charcoal identifications
Four charcoal samples from C10 (fill of kiln C9), C24 (fill of kiln flue C9), C28 (marl deposit) and C34 (fill of charcoal-rich lens C31) were selected for charcoal analysis.

The larger sized charcoal fragments (>3mm in width) are fractured to view the three planes [transverse, radial and tangential sections] necessary for microscopic wood identification. The wood species identifications are conducted under a binocular microscope using a trancident light and viewed at magnifications of 100x, 200x and 400x where applicable. Where possible the age and growth pattern of the wood fragments is also recorded by studying the transverse section at a magnification of up to 40x.

Wood species identifications are made using wood reference slides and wood keys devised by Franklin and Brazier (1961), Schweingruber (1978), Hather (2000) and the International Association of Wood Anatomists (IAWA) wood identification manuals and (www.lib.ncsu/edu/insidewood) by Wheeler, Bass and Gasson (1989).

Quantifying charcoal samples can be difficult as many wood species can be affected by heat is different ways and hence become fragmented into an arbitrary number of fragments. Due to the potential for a very high number of charcoal fragments from the samples, a representative sample of 50 charcoal fragments (Keepax, 1988) are randomly chosen from larger samples for identification and analysis. In the case of smaller samples all charcoal fragments within are identified. The charcoal fragments of each species identified are counted, weighted (grams) and bagged according to species.

Details of charcoal recording

The general age group of each taxa per sample is recorded, and the growth rates are classified as slow, medium, fast or mixed. It was not within the scope of this project to measure all the ring widths from the charcoal, however, some measurements are taken with a graticule in the microscope in order to make the scale of slow, medium and fast growth less subjective. Slow growth within the charcoal from this site is considered to be approximately 0.4mm per annum, medium approximately 1mm per annum and fast approximately 2.2mm per annum.

The ring curvature is also noted where applicable from each charcoal fragment. Weakly curved annual rings suggest the use of trunks or larger branches, while strongly curved annual rings indicate the burning of smaller branches or twigs **Fig. 1.** Tyloses within the vessels of species such as oak can denote the presence of heartwood. These are balloon-like outgrowths of adjacent parenchyma cells of xylem vessels (vascular tissue used to transport water and minerals). When the plant is subjected to stressful conditions, tyloses will develop and block the vascular tissue to prevent further damage to the plant.

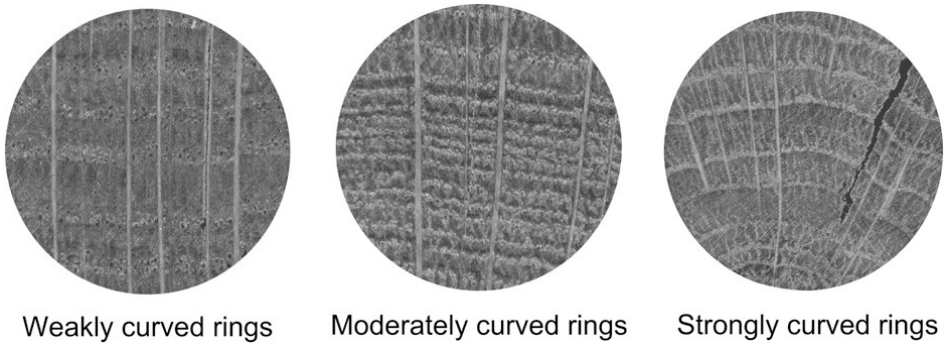


Fig. 1. Ring curvature (after Marguerie and Hunot 2007 1421, Fig. 3)

Results

The results of the charcoal identifications are summarized in **Table 1**

Three wood species totaling 175 identifications were recorded from the samples associated with AR128 Shankill 2. *Quercus* sp. (oak) was the dominant species recorded, especially from C24/27, C28 and C34. Oak was also the main wood species identified from C10, although just fourteen fragments were present in this sample. *Betula* sp. (birch) and *Salix* sp. (willow) were also recorded, in much lower incidences, and confined to C10 (Fig. 2).

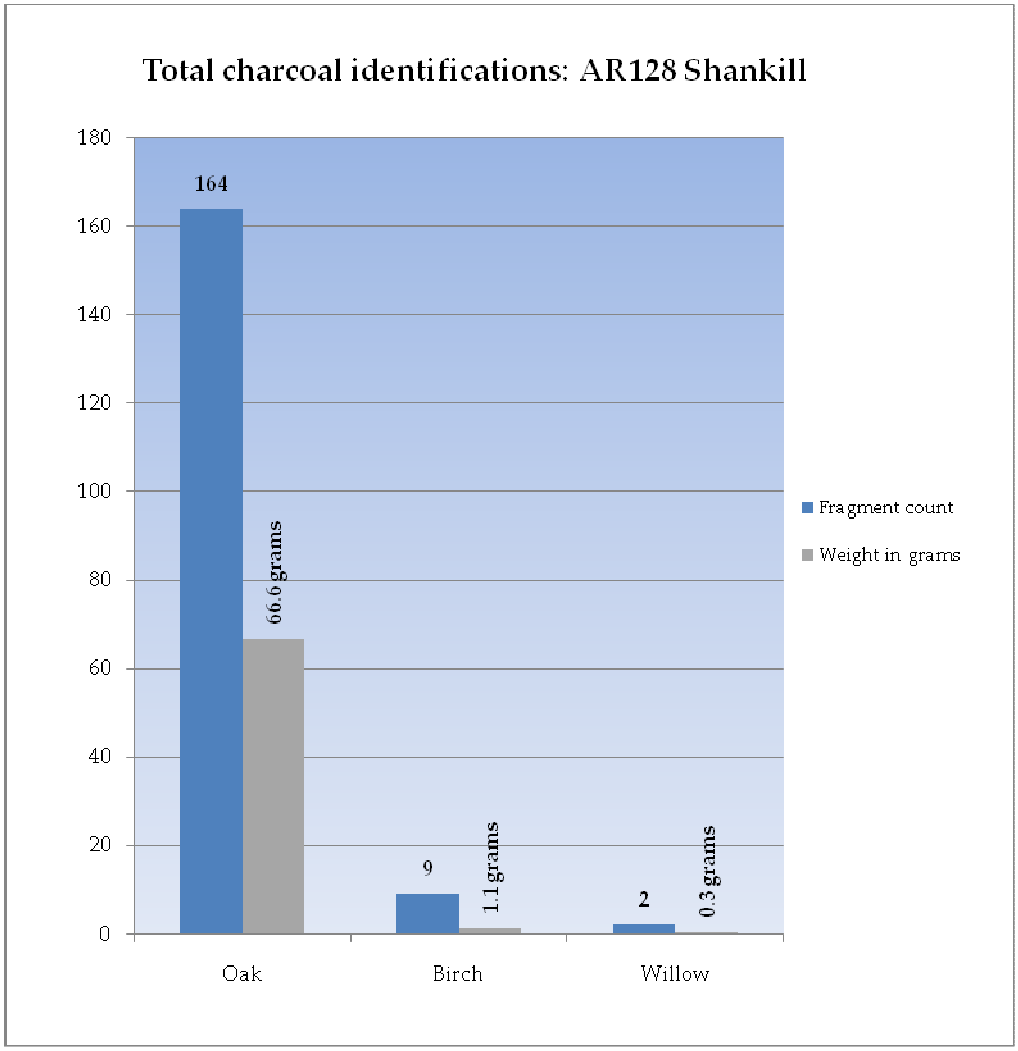


Fig. 2

Discussion

The number of identifiable charcoal fragments recovered from Shankill 2 were localised to just three features; kiln C9 (C10 and C24/27), marl deposit C28 and charcoal deposit from a channel/ditch C31 (C34). While the charcoal recorded represents just three features, it may not give a true reflection of the local woodland that surrounded the site since a wood selection bias has to be taken into account. It does however represent some of the wood species selected to use as fuel at the site and this can help to understand what species potentially grew in the area.

Oak clearly dominated the charcoal assemblage recorded from Shankill 2, especially from kiln deposits C10 and C24/27, marl deposit C28 and channel deposit C34. Oak is a tall deciduous woodland tree, often growing in association with hazel and ash. Most species prefer damp, non-calcareous soils on lowland or montane sites. Of the 27 European species, pedunculate oak (*Quercus robur)* and sessile oak (*Quercus petraea)* are native to Ireland. Pedunculate oak is common on heavy clay lowland soils whereas sessile oak thrives on the lighter loams characteristic of higher ground (Culter & Gale, 2000). The wood is easy to cleave both radially and tangentially and has provided one of the most important building materials since the prehistoric period (Gale & Culter, 2000). The heartwood timber is renowned for its durability but the paler sapwood is susceptible to beetle and fungal attack. The strength of the timber depends on the species and is influenced by climatic and edaphic factors (Edlin, 1951). When burnt, oak charcoal, particularly the dense heartwood, has higher calorific values than most European woods and this can make for good long-lasting fuel (Culter & Gale, 2000).

The only evidence for birch and willow was recorded from C10. Birch was one of the first tress to arrive to Ireland after the end of the last glaciation. It grows as trees or shrubs with a preference for light and thrives on non-calcareous soils. It is often associated with heathland and successional oak woods, but can rapidly form secondary woodland in cleared areas and on abandoned peat cuttings. Birch species are generally short-lived, although some examples have known to reach ages of up to 70 and 80 years. Through most of its woodland history, birch played a minor role since its timber was too weak for structural purposes and rots easily outdoors and therefore not greatly valued. Birch wood however, makes a hot but short-lived fuel and produces high quality charcoal (Lines cited in Gale & Culter, 2000). It is best suited in the manufacturing of fine objects, such as furniture, bowls and tool handles. Birch bark has also been used in making shoes and roofs.

There are a number of different species of willow which cannot be differentiated through wood anatomy. They grow rapidly, and can be easily propagated from cuttings. General comments only about the genus can be made, as there are different varieties of it. They are not naturally a woodland species, although shrubby growth may occur under light woodland cover. All willows appear to favour wet conditions, and it may be a pioneer species on wet soils. The use of willow depends on the species concerned, for some grow as shrubs and others as trees, and a species may be particularly suited to some purpose. In general, the flexibility of willow shoots has led to coppicing or pollarding to produce the raw materials for wattling, baskets, frames, hurdling etc. (Orme & Coles, 1985). The main Irish native willows are grey willow (*Salix cinera*), goat willow (*Salix caprea*) and eared willow (*Salix aurita*).

It seems that oak was the wood of choice burnt within kiln C9. The presence of predominantly oak may represent the specialized nature of this feature or that just one burning episode was undertaken here. In the authors experience, oak is commonly recorded from kiln deposits as it provides very good long lasting charcoal (Culter & Gale, 2001) and has also been recorded from similar features excavated at Flemingston, Co. Dublin (Lyons, 2008) and at Blackcastle (Lyons, 2009a) and Borris, Co. Tipperary (Lyons, 2009b).

The high oak charcoal content from kiln C9 may also represent the remains of an internal platform or superstructure which had burnt during a conflagration event. The regular use of fire as part of kiln use would have increased the risks of accidental burning occurring within these structures (Fenton, 1978, Evans, 1957, 123). As a result such features would have inevitably burnt down or become partially burnt from time to time. Whether the birch and willow recorded from C10 are also the remains of a burnt structure or part of is difficult to fully establish and may simply be the remains of the firewood used as kiln fuel. The high charcoal content from kiln C9 would also suggest that the kiln was either a) not cleaned after each kilning event and the fuel residue allowed to built up or b) that the kiln was left abandoned after it had burnt down. The accumulation of charcoal and charred grain debris would have inevitably build up and it would have been important to clean them out in order to keep them in operation (Monk, 1981).

The high charcoal content coupled with the lack of any obvious *in situ* burning from C28 and C31 suggests that these charcoal deposits were dumped or discarded into these features. The presence of exclusively oak may imply that these were single dumping episodes from nearby firing events, possibly kiln activity. It is difficult to fully establish however if the charcoal from C28 and C31 originated from the same oak assemblage as recorded from kiln C9 or whether the charcoal debris came from another source.

Summary

The charcoal fragments from C10 (fill of kiln C9), C24/27 (fill of kiln flue C9), C28 (marl deposit) and C34 (fill of charcoal-rich lens C31) were selected for charcoal analysis.

Oak was recorded exclusively from C24/27, C28 and C34, with oak, birch and willow identified from C10. While the high oak presence from kiln deposits (C10 and C24/27) may represent the remains of the fuel chosen to be burnt as part of the kilning process, it is also possible that this oak charcoal reflects the remains of an internal structure or the superstructure of the kiln that had burnt down. Since the charcoal remained in the kiln, this suggests that either previous kiln fuel debris had accumulated within the structure or that the kiln had burnt down, become abandoned and was not re-used thereafter.

The lack of *in situ* burning from C28 and C34 together with the high oak charcoal identified would suggest that these deposits were single dumping episodes of fuel debris from nearby firing events. Whether they are contemporary with the activities surrounding kiln C9 however is difficult to ascertain.

References

Brazier, J. D. and Franklin, G. L. 1961 *Identification of hardwoods: a microscopic key.* London: H.M Stationary Office

Edlin, H. L. 1951 *British plants and their uses.* London B T Batsford.

Evans, E. 1957 *Irish Folkway.,* London.

Fenton, A. 1978 *The Northern Isles: Orkneys and Shetland*. Edinburgh.

Gale, R. & Cutler, D. 2000 *Plants in Archaeology: Identification manual of artefact of plant origin from Europe and the Mediterranean.* Westbury and the Royal Botanic Gardens Kew

Greig, R. A. 1991 'The British Isles' in van Zeist, W Wasylikowa & K Behre (eds), *Progress in Old World Palaeoethnobotany,* 299–334. Rotterdam: A A Balkema,

Hather, J. G. 2000 *The Identification of the Northern European Woods. A guide for archaeologists and conservators*, London: Archetype Publications Ltd

Keepax, C. A. 1988 Charcoal Analysis with Particular Reference to Archaeological Sites in Britain. Unpublished PhD thesis, University of London

Jennings, R. 2009 E3738 Shankill 2 Stratigraphic Report. Unpublished Stratigraphic Report. National Monuments Service. Department of the Environment, Heritage and Local Government, Dublin.

Lyons, S 2008 'Analysis of the wood, charcoal and plant remains from the archaeological excavations at Flemingston, Co. Dublin (05E0663)', Unpublished technical report from MGL Ltd

Lyons, S 2009a 'Charcoal Identification Report for Site AR31 Blackcastle & Borris, Co. Tipperary (E2374) – N8(M8) Cullahill to Cashel Bypass', Unpublished technical report for VJK Ltd

Lyons, S 2009b 'Charcoal Identification Report for Site AR33 Borris, Co. Tipperary (E2376) – N8(M8) Cullahill to Cashel Bypass', Unpublished technical report for VJK Ltd

Lyons, S, O'Carroll, E and O'Donnell, L forthcoming, 'Charcoal analysis from the N9/N10- overall integrated report', Unpublished report for IAC Ltd

Marguerie, D. and Hunot, J.Y. 2007 Charcoal analysis and dendrology: data from archaeological sites in north-western France. *Journal of Archaeological Science* **34** 1417–1433

Monk, M. 1981 'Post Roman drying kilns and the problem of function: a preliminary statement'. In D. O'Corrain (ed.) *Irish Antiquity: Essays and Studies Presented to Prof. M.J. O'Kelly*, 216–230. Killane, Blackrock: Four Courts Press

Orme, B. J. and Coles, J. M. 1985 'Prehistoric woodworking from the Somerset levels: 2: Species selection and prehistoric woodlands'. *Somerset Levels papers,* **11**, 7–24

Schweingruber, F. H. 1978 *Microscopic wood anatomy*. Birmensdorf: Swiss Federal Institute for Forest, Snow and Landscape Research

Wheeler, E. A., Bass, P. & Gasson, P. E. 1989 *IAWA list of microscopic features for hardwood identification* IAWA Bulletin nos. **10** (3): 219–332. Rijksherbarium: Leiden

Appendix- Radiocarbon dating - identifications

Introduction

One fragment of charcoal was identified prior to Radiocarbon dating. This analysis was undertaken to extract the most suitable taxa type for AMS dating i.e. a shorter living tree type.

As oak can grow to be a very old tree (300-400 years) it is generally unsuitable for ^{14}C dating. As a result, the «old-wood effect» may need to be taken into consideration when ^{14}C dates are returned (Warner 1979, 159-172). The samples identified could be of a more recent date than the rings represented on the original tree. The old wood effect is particularly important in relation to later dated sites such as the transition from Early Christian to Viking to medieval. Since the time span of prehistoric periods are wider and less transparent, it is my belief that the old wood effect is not as significant when the ^{14}C dates are returned during these periods.

Results and Discussions

Results of identifications for dating

Site name	Site number	E number	Context number	Sample number	Identifications	Weight
Shankill 2	AR128	E3738	24	7	Holly	0.35g

Holly is a shrub found quite commonly in hedgerows alongside blackthorn and furze and in the understory of oak woods. The *Bretha Comaithchesa* (Laws of neighbourhood) which are listed in the ancient Irish law tracts records holly as one of the five nobles of the wood namely for its use in the construction of cart-shafts and its leaves were valuable as cattle fodder during the winter months (Nelson 1993, 43).

A date was returned for the holly identified from the deposit C24 which when calibrated to 2 sigma came in at Cal AD1223–1274 or the medieval period.

Bibliography

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

Table 1 Charcoal identification details from AR128 Shankill 2 (E3738)

Context number	Sample number	Flot volume (grams)	Context description	Wood Species Identifications	No. of fragments	Charcoal weights (grams)	Size of fragments (mm)	No. of growth rings	Growth ring curvature
010	003	3.2 grams	Main fill of kiln C9	Quercus sp. (oak)	14	2.3 grams	4mm - 10mm	4 - 11 rings	weak
				Betula sp. (birch)	9	1.1 grams	4mm - 8mm	3 - 6 rings	
				Salix sp. (willow)	2	0.3 grams	5mm	4 rings	
024/027	007	53.2 grams	Fill of kiln flue C9	Quercus sp. (oak)	50	18.1 grams	8mm - 70mm	5 - 13 rings	weak
028	007	111 grams	Grey marl deposit	Quercus sp. (oak)	50	28 grams	10mm - 50mm	4 - 13 rings	weak
034	011	21 grams	Fill of charcoal rich lens from channel C31	Quercus sp. (oak)	50	18.2 grams	8mm - 25mm	3 - 9 rings	weak

Appendix 2.4 Plant Remains Analysis Report – Penny Johnston

Client – Irish Archaeological Consultancy Ltd
Site Name- Shankill 2
Excavation number –E3738 AR128
County – Kilkenny
Author- Penny Johnston

Date –25/9/09

1 Introduction

This report details the analysis of plant remains recovered from the excavation at Shankill 2, E3738 in advance of the construction of the N9/N10 Knocktopher to Powerstown Road (Phase 4).

2 Methodology

The samples for this phase were processed by the client, who also carried out a preliminary sorting of the samples. This pre-selection of the plant remains may bias the final plant records from these sites, as it is possible that many small items, such as weed seeds and chaff, were not picked out. As a result, only limited interpretation of the plant remains from this site is possible.

The selected material was sent to Eachtra Archaeological Projects where it was examined under a low-powered binocular microscope (X6–X45). Suitable plant material was identified and the results of analysis are presented at the end of this report. Scientific names are mainly confined to the identification table in order to facilitate easy reading of the text. Nomenclature and taxonomic orders generally follows Stace (1997).

3 Results

A possible corn drying kiln was excavated at Shankill 2. Radiocarbon dates suggested a high medieval date of activity.

A total of three samples were examined from the site; C27 (S6), C24 (S7) and C24 (S8). These samples were taken from the flue of the kiln.

Seeds, mostly cereal grains, were found in all of the samples but they were generally recovered in small quantities (Table 1). In general, the preservation quality was not good and it was not possible to determine what species of cereal these grains were from (they are labelled as 'indeterminate cereal grains').

It was possible to identify a small number of cereals from the richest sample, C27 (S6). All the identifiable grains were wheat, and were most likely a free threshing wheat. This was probably bread wheat (*Triticum aestivum*) which historical records suggest was a crop in Ireland from at least the early medieval period (Kelly 1998, 220 – 221).

Table 1: Identified plant remains from Shankill 2

Context	**27**	**24**	**24**
Sample	**6**	**7**	**8**
Hazelnut shell fragments (*Corylus avellana* L.)			1
Free threshing wheat (*Triticum aestivum* L./*turgidum* Desf./*durum* L.)	13		
Probable free threshing wheat (*Triticum* cf *aestivum* L./*turgidum* Desf./*durum* L.)	12		
Wheat grains *(Triticum* L. species)	1		
Indeterminate cereal grains	9	4	3

References

Kelly, F. 1998 *Early Irish Farming.* Dublin, Institute for Advanced Studies.

Appendix 2.5 Burnt Bone Report – Aoife McCarthy

Osteoarchaeological Report of Burnt Bone from
E3738: Shankill 2 AR128
Co. Kilkenny
N9/N10 Kilcullen to Waterford Scheme
Phase 4b: Knocktopher to Powerstown
Author: Aoife McCarthy MA BA
Date: November 2009

1. Introduction

1.1 Introduction

This report details the osteological analysis of burnt bone recovered during excavations at Site E3738 AR128 Shankill 2 in the townland of Shankill, Co. Kilkenny as part of the archaeological mitigation programme of the N9/N10 Kilcullen to Waterford Road Scheme. Aoife McCarthy MA (Osteoarchaeology University of Southampton 2006) undertook the analysis on behalf of Irish Archaeological Consultancy Ltd. in November 2009. At the time of writing this report, background archaeological information was obtained from a draft interim excavation report (Jennings, R. 2009) and from consulting the original site register documents.

1.2 General Osteological Information

The osteological analysis of burnt bone recovered from Site AR128 was undertaken to provide an overview of the osteoarchaeological aspect of the site and determine if the material could provide further interpretation of site activity.

A total of 9 fragments from 8 possible skeletal elements and weighing 1.13g were recorded within the assemblage. The degree of preservation of the burnt bone assemblage recovered at Site AR128 varied from moderate to poor with a high degree of fragmentation.

The burnt bone assemblage recovered at Site AR128 Shankill 2 originated from two archaeological contexts; C4 a shallow charcoal spread and C24 the fill of flue from kiln feature C50. Material recovered from the shallow charcoal spread C4 accounted for a total of 8 (88.9%) burnt bone fragments or 1.08g of the total assemblage; whilst bone from flue fill C24 represented 1 (11.1%) bone fragment or 0.05g of the total assemblage. A sample of holly charcoal from C24 was sent for radiocarbon dating and returned a two sigma calibrated date of Cal. 2 sigma 1223-1274 AD.

Due to a high degree of fragmentation, poor preservation and small size of the individual bone fragments it was not possible to identify any of the 9 burnt bone fragments to species. Bone elements were identified where possible.

2. Methodology

SPECIES IDENTIFICATION: Identification of the bones involved reference to Schmid (1972) and Hillson (1992) as well as comparison with the author's own reference material.

- NISP: Number of Identified Specimens Indicates the total number of fragments found.

- MNI: Minimum Number of Individuals. Indicates the minimum number of individuals from every species that were present in the material. Estimating MNI is calculated on the specimen of the most abundant skeletal element present; whilst taking age, sex, size and archaeological context into account.

- MNE: Minimum Number of Elements. Indicates the minimum number of anatomical units that are present and what side they are from. To avoid getting a higher MNE all loose epiphyses have to be paired with all unfused diaphysis.

AGEING: Two main methods are used to determine the age of faunal remains; tooth eruption and degree of Epiphysial fusion (a less reliable method). Tooth eruption and wear stages were recorded for the following teeth where possible; dP4 (deciduous fourth premolar), P4 (fourth premolar), M1 (first molar), M2 (second molar) and M3 (third molar) of cattle, sheep/goat and pig (Grant 1982). The analysis of tooth wear patterns refers to the alteration of the enamel surface and exposure of inner dentine through use. Due to the nature of material recovered from site AR128 Shankill 2 ageing was not possible.

BIOMETRICAL DATA: Due to the high degree of fragmentation and nature of the burnt bone material recovered from Site AR128 measurements were not taken.

SEX DETERMINATION: Sex determination of animal remains is possible by analysis of certain sexually dimorphic elements. For example goat horncores may be classified as male or female based on their morphology and cattle metacarpals can be defined as male or female through calculation of the slenderness index (McCormick 1992). Sexual determination of species was not possible due to the high degree of fragmentation and nature of the burnt bone material recovered from Site AR128 Shankill 2.

BUTCHERY/GNAWING/BURNING: Evidence for butchery was recorded under the categories of cut, chopped, chopped and cut. All specimens were analysed for evidence of rodent or carnivorous gnawing as well as evidence of burning. Burnt bones were recorded in accordance with colour changes resulting from differing heat levels e.g. calcined bones acquire a bluish-whitish hue through exposure to high temperatures.

PATHOLOGY: The discovery of any injury and/or pathology was recorded for all specimens, where present.

3. Results

Context 4 Samples 5 & 13

A total of 8 burnt bone fragments (1.08g) representing 7 possible skeletal elements were identified within the shallow charcoal spread C4. The level of fragmentation, poor preservation and small size of the individual burnt bone fragments meant it was not possible to identify species. Four of the 8 burnt bone fragments recovered from C4 were identified as pieces of long bone diaphysis.

Indeterminate Vertebrate:

Due to a high degree of fragmentation and small size all 8 burnt bone fragments recovered from C4 on Site AR128 were classed as indeterminate vertebrate. All 8 fragments retrieved displayed evidence of exposure to heat with evident singeing as well as a level of calcination resulting from contact with high level of heat. This was recognised by an alteration of the bone texture and colour to grey/white. The structure of bone changes through exposure to heat. Contact of bone with heat diminishes its moisture content and results in the combustion of the organic or collagen component; the remaining structure of the bone after this process is mineral. Such distortion to the bone structure reduces its size and as detailed above alters bone colour (Luff R. & Pearce J. 1994).

Context 24 Sample 8

A single burnt bone fragment (0.05g) representing a single skeletal element was identified within flue fill C24. The small size of the possible vertebrae fragment as well as poor preservation meant it was not possible to identify species.

Indeterminate Vertebrate:
Due to poor preservation and the small size the single burnt bone fragment recovered from C24 on Site AR128 was classed as a possible vertebrae bone from indeterminate vertebrate. The possible vertebrae fragment displayed evidence of exposure to heat with a visible level of calcination resulting from contact with high temperature. Contact of bone with heat diminishes its moisture content and results in the combustion of the organic or collagen component; the remaining structure of the bone after this process is mineral. Such distortion to the bone structure reduces its size and as detailed above alters bone colour (Luff R. & Pearce J. 1994).

4. Summary
Nine burnt bone fragments recovered from two archaeological contexts on Site AR128 Shankill 2 were submitted for examination. It was not possible to identify any of the 9 burnt bone fragments to species due to minute fragment size and poor preservation of the bone.

Taphonomic alterations noted on the remains from Site AR128 give us an insight into the processes that the assemblage went through before recovery. As illustrated in the bone database none of the recovered bone fragments displayed evidence of gnawing or butchery. All 9 bone fragments displayed evidence of exposure to heat. Each fragment displayed a degree of surface warping, cracking and colour change to white indicating contact with a high point of heat and an acceleration of the mineralisation process (Luff R. & Pearce J. 1994).

The burnt bone assemblage retrieved from Site AR128 was recovered from a series of two archaeological contexts C4 and C24; which comprised a shallow charcoal deposit and flue fill respectively. No definite or statistically detailed conclusions could be drawn from the burnt bone assemblage recovered from Site AR128 Shankill 2 due to its limited size and low level of preservation. A single medieval pottery sherd was recovered from shallow charcoal deposit C4; whilst a two sigma calibrated radiocarbon date of AD 1223-1274 has been returned for a sample of holly charcoal from flue fill C24, placing activity within the medieval period.

Bone Database:

Spec	C	S	Taxa	Anat	Side	Prox	Dist	1	2	3	4	5	6	7	8	But	Bu	G	Q	Weight (g)	Comments
1	C4	13	Unid	Long Bone													W		1	0.78	Fragment of calcined long bone diaphysis. Bone surface is cracking. Fragment is 17mm long & 4mm wide
2	C24	8	Unid	Poss. Vert													W B		1	0.05	Poss. vertebrae fragment, calcined, blue hues visible. Bone is glossy in texture, 10mm long & 2mm wide
3	C4	5	Unid	Long Bone													W B		1	0.14	Long bone diaphysis fragment, partially calcined, fragment is also blackened. Surface is cracking. Fragment is 8mm long & 4mm thick
4	C4	5	Unid	Long Bone													W B		2	0.10	2 long bone diaphysis fragments partially calcined, fragment is also blackened. Surfaces are cracking
5	C4	5	Unid	Unid													W B		4	0.06	Series of tiny partially calcined bone fragments.

Key:

C= Context
S=Sample
Taxa=Taxon
But=Butchery
Bu=Burnt
Prox=Proximal
W=White
Unid=Unidentifiable
Q=Quantity of Pieces
Anat=Anatomical Element
G=Gnaw
B=Black
Dist=Distal

5. Bibliography:

Binford, L & Howell, F.C. 1981 *Bones, Ancient Men and Modern Myths*. Florida Academic Press Inc.

Boessneck, J. 1969 'Osteological Differences between Sheep and Goat' in D. Brothwell and E. Higgs (eds.), *Science in Archaeology*, 331–358, Thames & Hudson, London.

Davis, S.J. 1987 *The Archaeology of Animals*. New Haven & London: Yale University Press.

Fisher J.W. 1995 'Bone Surface Modifications in Zooarcheology' in *Journal of Archaeological Method and Theory* **2**(1), Springer, Netherlands.

Grant, A. 1982 'The use of tooth wear as a guide to the age of domestic ungulates' in B. Wilson, C. Grigson and S. Payne (eds.) *Ageing and sexing animal bones from Archaeological Sites*, 91–108, BAR 109, Oxford.

Haynes G. 1978 Morphological Damage and Alteration to Bone: Laboratory experiments, field studies and zoo studies. *American Quaternary Association 210*, Edmonton Alberta.

Hillson, S. 1992 *Mammal Bones and Teeth: An Introductory Guide to Methods and Identification*. London Institute of Archaeology: UCL, London.

Luff R. & Pearce J. 1994 'The Taphonomy of Cooked Bone' in *Whither Environmental Archaeology*, Oxbow Books Ltd, Oxford.

Lyman R.L 1994 *Vertebrae Taphonomy*, Cambridge University Press

McCormick, F. 1992 Early Faunal Evidence for Dairying. *Oxford Journal of* Archaeology **11**(2), 201–209.

McCormick F. & Murray E. 2007 *Knowth and the Zooarchaeology of Early Christian Ireland*, Royal Irish Academy, Dublin.

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

O'Connor T.P. 2000 *The Archaeology of Animal Bones*. Sutton.

Olsen P.S. 1988 'Surface Modification on Bone: Trampling versus Butchery' in *Journal of Archaeological Science* 15, 535–559.

Reitz, E.J and Wing, E.S. 2008 *Zooarchaeolgoy Second Edition*. Cambridge Manuals in Archaeology, Cambridge University Press.

Schmid, E. 1972 *Atlas of Animal Bones for Prehistorians, Archaeologists and Quaternary Geologists*. Amerstadam, London, New York, Elsevier Publishing.

Shaffer, B.S. & Sanchez, J.L.J 1994 Comparison of 1/8" and 1/4" mesh recovery of controlled samples of small-to-medium-sized mammals. *American Antiquity* **59**(3), 525–30.

Silver, I.A. 1969 'The Ageing of Domestic Animals' in D.R. Brothwell and E. Higgs (eds.) *Science in Archaeology*, 283–302, London.

Jennings, R. 2009 E3738 Shankill 2 Stratigraphic Report. Unpublished Stratigraphic Report. National Monuments Service. Department of the Environment, Heritage and Local Government, Dublin.

GLOSSARY OF TERMS:

BOS: Latin term for Cow
SUS: Latin term for Pig
CERVUS: Latin term for Deer
EQUUS: Latin term for Horse
OVIS: Latin term for Sheep
CAPRINAE: Latin term for Sheep/Goat
CANIS: Latin term for Dog
LEPUS: Latin term for Hare
AVES: Latin term for Bird
TAPHONOMY: The study of the processes affecting an organism after death from the time of burial until collection.
TRABECULAR BONE: Osseous tissues that fill the interior cavity of bones and resemble a sponge or honeycomb.
DIAPHYSIS: Bone shaft
CORPUS COSTAE: Body of Rib Bone

Appendix 2.5 Radiocarbon Dating Results – QUB Laboratory

The "Measured radiocarbon age" is quoted in conventional years BP (before AD 1950). The error is expressed at the one-sigma level of confidence.

The "Calibrated date range" is equivalent to the probable calendrical age of the sample material and is expressed at the two-sigma (95.4% probability) level of confidence

Calibration data set: intcal04.14c

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Calibrated date ranges	Measured radiocarbon age (BP)	13C/12C Ratio ‰
C24, Deposit	7	Seed/ shell	*Holly* / 0.35g	QUB	UBA 12237	AMS (Std)	AD1228–1271 (1 sigma), AD1223–1274 (2 sigma)	775±17	-24.1

References for calibration datasets:
PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, PG Blackwell, C Bronk Ramsey, CE Buck, GS Burr, RL Edwards, M Friedrich, PM Grootes, TP Guilderson, I Hajdas, TJ Heaton, AG Hogg, KA Hughen, KF Kaiser, B Kromer, FG McCormac, SW Manning, RW Reimer, DA Richards, JR Southon, S Talamo, CSM Turney, J van der Plicht, CE Weyhenmeyer (2009) Radiocarbon 51:1111–1150.

Comments:
* This standard deviation (error) includes a lab error multiplier.
** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)
** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)
where ^2 = quantity squared.
[ ] = calibrated range impinges on end of calibration data set
0* represents a "negative" age BP
1955* or 1960* denote influence of nuclear testing C-14
NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

Appendix 3 List of RMPs in Area

RMP No	Description
KK016-001	Moated site
KK016-002	Hearth
KK016-003	*Fulacht fiadh*
KK016-004	Ringfort
KK016-005	Ringfort
KK016-006	Linear earthwork
KK016-006003	Linear earthwork
KK016-007	Ringfort
KK016-008001	Church
KK016-008002	Graveyard

See Figure 2 for location.

APPENDIX 4 LIST OF SITE NAMES

Site Name	Site Code	E Number	Director	NGR
Baysrath 2	AR055	E3627	Fintan Walsh	251593/137855
Baysrath 3	AR056	E3628	Fintan Walsh	251672/138000
Baysrath 4	AR057	E3629	Fintan Walsh	251515/138280
Danganbeg 1	AR058	E3606	Emma Devine	251462/138754
Danganbeg 2	AR059	E3607	Emma Devine	251397/138939
Danganbeg 3	AR060	E3671	Emma Devine	251430/139245
Danganbeg 4	AR061	E3676	Emma Devine	251401/139372
Knockadrina 1	AR062	E3677	Ed Lyne	251422/139420
Tinvaun 1	AR063	E3678	Ed Lyne	251482/139625
Tinvaun 2	AR064	E3680	James Kyle	251445/139736
Tinvaun 3	AR065	E3608	James Kyle	251501/139832
Tinvaun 4	AR066	E3609	James Kyle	251508/139917
Stonecarthy West 1	AR067	E3610	James Kyle	251538/140023
Knockadrina 1	AR068	E3611	James Kyle	251647/140237
Rathduff 1	AR069	E3612	Ed Lyne	251286/142167
Rathduff Upper 1	AR070	E3613	Ed Lyne	251280/142559
Kellsgrange 1	AR071	E3575	James Kyle	250911/143732
Kellsgrange 2	AR072	E3577	James Kyle	250967/143861
Kellsgrange 3	AR073	E3576	James Kyle	250948/144003
Ennisnag 1	AR074	E3614	Richard Jennings	251416/145690
Ennisnag 2	AR075	E3615	Richard Jennings	251638/146068
Danesfort 12	AR076	E3616	Richard Jennings	251669/146186
Danesfort 13	AR077	E3617	Richard Jennings	251765/146384
Danesfort 2	AR078	E3540	Richard Jennings	251953/146745
Danesfort 4	AR079	E3539	Richard Jennings	251880/147579
Danesfort 3	AR080A	E3542	Richard Jennings	252221/146845
Danesfort 1	AR080B	E3541	Richard Jennings	252267/146707
Croan 1	AR081	E3543	Emma Devine	252280/147332
Danesfort 5	AR082	E3456	Emma Devine	252567/147767
Danesfort 6	AR083	E3538	Emma Devine	252764/147995
Danesfort 7	AR084	E3537	Emma Devine	252878/148099
Danesfort 8	AR085	E3461	Richard Jennings	253020/148246
Danesfort 9	AR086	E3458	Richard Jennings	253089/148345
Danesfort 10	AR087	E3459	Richard Jennings	253229/148414
Danesfort 11	AR088	E3460	Richard Jennings	253245/148462
Rathclogh 1	AR089	E3726	Patricia Lynch	253365/145515
Rathclogh 2	AR090	E3727	Patricia Lynch	253650/148848
Kilree 1	AR091	E3728	Patricia Lynch	254088/149310
Kilree 2	AR092	E3729	Patricia Lynch	254320/149500
Kilree 3	AR093	E3643	Patricia Lynch	254449, 149639
Kilree 4	AR094	E3730	Patricia Lynch	255330/150084
Dunbell Big 2	AR095	E3853	Yvonne Whitty	256684/151066
Holdenstown 1	AR096	E3681	Yvonne Whitty	256737/151253
Holdenstown 2	AR097/98	E3630	Yvonne Whitty	256891/151781
Holdenstown 3	AR099	E3854	Yvonne Whitty	256990/152085
Holdenstown 4	AR100	E3682	Yvonne Whitty	256828/152048
Dunbell Big 1	AR101	E3855	Yvonne Whitty	257034/152315
Rathcash 1	AR102	E3859	Tim Coughlan	258178/154199
Rathcash 2	AR103	E3860	Tim Coughlan	258294/154293
Rathcash East 1	AR104	E3892	Tim Coughlan	259419/154546
Rathcash East 2	AR105	E3893	Tim Coughlan	259555/154566
Rathcash East 3	AR106	E3861	Tim Coughlan	259821/154653
Blanchvillespark 1	AR107	E3894	Richard Jennings	260535/155212

Site Name	Site Code	E Number	Director	NGR
Blanchvillespark 2	AR108	E3895	Tim Coughlan	260637/155449
Blanchvillespark 3	AR109	E3913	Tim Coughlan	260785/155653
Blanchvillespark 4	AR110	E3914	Tim Coughlan	261442/156269
Blanchvillespark / Ballyquirk 1	AR111	E3862	Ruth Elliott	261531/156323
Ballyquirk 1	AR112	E3863	Ruth Elliott	261531/156323
Ballyquirk 2	AR113	E3864	Ruth Elliott	261811/156508
Ballyquirk 3	AR114	E3865	Ruth Elliott	261875/156559
Ballinvally 1	AR115	E3836	Emma Devine	263258/157521
Garryduff 1	AR116	E3852	Emma Devine	263933/157991
Kilmacahill 1	AR117	E3915	Tim Coughlan	264267/158369
Kilmacahill 2	AR118	E3833	Tim Coughlan	264380/158453
Jordanstown 1	AR119	E3834	James Kyle	264546/158643
Jordanstown 2	AR120	E3851	James Kyle	264893/159038
Kellymount 6	AR121	E3758	Przemaslaw Wierbicki	265130,159277
Jordanstown 3	AR122	E3916	Przemaslaw Wierbicki	265103/159227
Kellymount 1	AR123	E3756	Przemaslaw Wierbicki	265250/159397
Kellymount 2	AR124	E3757	Przemaslaw Wierbicki	265164/159463
Kellymount 3	AR125	E3856	Przemaslaw Wierbicki	265338/159597
Kellymount 4	AR126	E3857	Przemaslaw Wierbicki	265412/159803
Kellymount 5	AR127	E3858	Przemaslaw Wierbicki	265530,159977
Shankill 2	AR128	E3738	Richard Jennings	265924/160651.
Shankill 3	AR129	E3737	Richard Jennings	266052/161141
Shankill 4	AR130	E3838	Richard Jennings	266286/161526
Shankill 5	AR131	E3850	Richard Jennings	266374/161730
Shankill 6	AR132	E3840	Richard Jennings	266403/161836
Moanmore 1	AR133	E3835	Richard Jennings	266476/162016
Moanmore 2	AR134	E3843	Sinead Phelan	266756/162866
Moanmore 3	AR135	E3837	Sinead Phelan	266856/163259
Bannagagole 1	AR136	E3844	Sinead Phelan	266942/163569
Moanduff 1	AR137	E3839	Robert Lynch	267261/164397
Coneykeare 1	AR138	E3683	Sinead Phelan	267836/166209
Coolnakisha 1	AR139	E3768	Ellen O'Carroll	268175/167274
Coolnakisha 2	AR140	E3767	Ellen O'Carroll	268306/167559
Cranavonane 1	AR141	E3842	Tim Coughlan	268554/167895
Cranavonane 2	AR142	E3732	Ellen O'Carroll	268830/168154
Cranavonane 3	AR143	E3731	Ellen O'Carroll	269123/168362
Tomard Lower 1	AR144	E3733	Ellen O'Carroll	269349/168496
Paulstown 1	AR145	E3642	Ruth Elliot	265889/158499
Paulstown 2	AR146	E3632	Ruth Elliot	265664/158651
Rathgarvan or Clifden 1	AR147	E3760	Przemaslaw Wierbicki	257026/154123
Maddockstown 1	AR148	E3759	Przemaslaw Wierbicki	256886/154199
Templemartin 3	AR149	E3845	Emma Devine	255095/155200
Templemartin 4	AR150	E3841	Emma Devine	254920/155427
Templemartin 5	AR151	E3846	Emma Devine	254706/155636
Templemartin 1	AR152	E3849	Emma Devine	254504/155826
Templemartin 2	AR153	E3847	Emma Devine	254173/156236
Leggetsrath East 1	AR154	E3734	Emma Devine	253793/156484
Moanduff 2	AR155	E3735	Sinead Phelan	267470/164887
Moanduff 3	AR156	E3736	Sinead Phelan	267515/164979
Ballyquirk 4	AR157	E3848	Richard Jennings	262596/157025
Shankill 1	AR158	E3766	Przemaslaw Wierbicki	265707/160269
Rathgarvan or Clifden 2	AR159	E3921	Tim Coughlan	257095/154119
Ballynolan 1	AR160	E3755	Sinead Phelan	267714/165597
Stonecarthy West 2	UA2	E3974	Tim Coughlan	251372/142037
Rathduff Bayley 1	UA4	E4011	Tim Coughlan	251005/143564