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Date: July 2010
Client: Kildare County Council
Project code: KCK06

**N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 6 – Resolution, Moone to
Prumplestown.
Final report on archaeological investigations at Site E2995, in the
townland of Coolane, Co. Kildare.**

Author: Tara Doyle
National Monuments Section Registration Number: E2995
Director: Tara Doyle
NGR: E276600/N187460

Report Status: Final



HEADLAND
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Executive summary

This final report presents the results of archaeological investigations carried out on behalf of Kildare County Council and the National Roads Authority as part of the Archaeological Services Contract No. 6 - Resolution Moone to Prumplestown. The works were undertaken prior to the commencement of construction on this section of the N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. The Minister for the Environment, Heritage and Local Government, following consultation with the national Museum of Ireland, issued Directions to Kildare County Council on 8 March 2007 for archaeological resolution works relating to road development. The Monuments Section Registration Number, E2995 was allocated by the Department for the excavation of the site in Coolane townland under the directorship of Tara Doyle of Headland Archaeology (Ireland) Ltd.

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

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

Archaeological testing carried out on in May 2005 by CRDS Ltd under N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 2 – Test Excavations, Mullamast to Prumplestown and Athy Link Road under Ministerial Direction Number A021/191 on this site in 2005 identified a burnt mound that measure 6.90 m long by 5 m wide and was 0.20 m deep. A possible hearth located to the north of this.

Full archaeological resolution was conducted on this site between 10 and 21 September 2007. This revealed a small sub-circular burnt mound (008) that measured 10.25 m long by 6.75 m wide and was 0.14 m thick. Under the burnt mound deposits were three postholes (028), (030) (064), two troughs (012), (021), two pits (024), (062) and a stakehole (019). A total of twelve stakeholes were located at the base of one of the pits (024). This pit (024) returned an Early to Middle Bronze Age date. The only other activity on site comprised of two modern linear drainage ditches (003) and (015). There was no evidence of the hearth identified during archaeological testing, this was possibly shallow and removed during topsoil stripping. A flint thumbnail scraper (E2995:001:001; Appendix 11) was the only artefact recovered from site E2995.

A small area to the immediate southeast of site E2995 was archaeologically tested prior to archaeological resolution on the main part of the site. This was known as Testing Area 6.d. Three trenches were excavated in this area and no archaeology or artefacts were encountered.

A preliminary report of works on the site was completed and submitted by Headland Archaeology (Ireland) Ltd in April 2009.

1 Introduction

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

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

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

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

Archaeological test-trenching was undertaken in advance of Phase 1, the Carlow By-pass, by Headland Archaeology Ltd between June and August 2005 (Archaeological Services Contract 3). This work identified 64 archaeological sites, which required archaeological excavation in advance of road construction. The resolution works for these sites were undertaken by Headland Archaeology Ltd between January and August 2006 (Archaeological Services Contract 4).

Archaeological test-trenching was undertaken in advance of the construction of Phase 3, the Kilcullen to Carlow Scheme, by IAC Ltd and CRDS Ltd, between October to November 2005 and May to August 2006 (Archaeological Services Contracts 1 and 2, respectively). This work resulted in the identification of 102 archaeological sites, which required resolution in advance of construction. The resolution works for these sites were undertaken by Headland Archaeology Ltd between March and December 2007 (Archaeological Services Contracts 5 and 6). This report details the results of one of those excavations, undertaken under NMSR Number E2995.

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

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

2 Site description and location

Site E2995 was situated in the townland of Coolane, parish of Kilkea, barony of Kilkea and Moone and was located approximately 2 km northwest of Castledermot, Co. Kildare, national grid reference E276600/N187460 (Figure 1). The townland name is possibly derived from the old Irish word 'culán' meaning 'small back'. This could possibly refer to a topographical feature like a natural ridge. Site E2995 was situated on agricultural land that sloped gently from south to north; a drainage ditch was located to the immediate south. A hedgerow bordered the site to the northeast and north. A small area to the immediate southeast of site E2995 was archaeologically tested prior to archaeological resolution on the main part of the site. This was known as Testing Area 6d. Three trenches were excavated in this area and no archaeology or artefacts were encountered.

A miscellaneous site (RMP KD038-062) was situated approximately 350 m to the northeast of the site (Figure 2). A possible ringfort, rath or cashel (RMP KD038-036) was located approximately 400 m to the northwest. A further 800 m to the northwest was a ringfort (RMP KD038-035) and an urn burial site (RMP KD037-024). A church site (RMP KD038-037) was situated 900 m to the northeast and an undated enclosure (RMP KD038-034) was located 600 m to the northwest. Over 1 km to the northeast was an undated mound (RMP KD038-031). Four monuments were located just over 1 km to the northwest and include a field system (RMP KD037-023001), a road or trackway (RMP KD038-052), a further road or trackway (RMP KD037-023002) and an undated enclosure (RMP KD038-030001). There were no monuments located within 1 km to the southern extent of site E2995.

Several sites were excavated as part of this road scheme within 1 km of site E2995. Situated 600 m to the northeast of Site E2995 was Site E2939. Here, were the remains of a heavily truncated burnt mound (Doyle 2010a). A Mesolithic date was returned from humified wood taken from the burnt mound, however, this date was regarded as misleading (Doyle 2010a). Another site (E2938; Doyle 2010b) containing a small cereal-drying kiln, two stakeholes and two pits was identified approximately 550 m to the northeast of Site E2995. The kiln was dated to the Late Iron Age/early medieval period. Located 400 m to the northeast of Site E2995 was a previously unknown ringfort (Site E2996). This site was also excavated as part of this road scheme and approximately 75% of the enclosure ditch lay within the road corridor (Doyle, 2010c). A ring ditch was excavated as part of Site E2996. This was situated 200 m northeast of site E2995.

Beyond Site E2995 to the southwest was a further burnt mound site (E2940; Doyle 2010d). This site returned Early Bronze Age to Middle Bronze Age dates. A small bowl-shaped kiln (site E2941) was situated just over 500 m to the southwest of Site E2995. This small kiln returned an early medieval date (Doyle 2010e). Directly southwest of site E2941 were a further two sites with burnt mound activity (E2942 and E2943). The remains of three burnt mounds were identified on site E2942. These returned Middle to Late Bronze Age dates (Doyle 2010f). Also excavated on this site were three early medieval wells. A single burnt mound was excavated on site E2943. This was dated to the Early Bronze Age (Doyle 2010g).

A burnt mound site (99E0453) situated in the immediate vicinity of Site E2995 was excavated in 1999 on the Ballyvass to Athy gas pipeline scheme (Gregory, 1999, 121). Here, excavation revealed an Early Bronze Age fulacht with three shallow pits and two troughs. Two flint scrapers were recovered from the base of one of these pits (ibid).

3 Aims and methodology

The objective of the work was the preservation by record of any threatened archaeological features or deposits in advance of the proposed road construction.

Topsoil stripping of the site was conducted using a 360° tracked machine fitted with a 1.9 m wide ditching (toothless) bucket under archaeological supervision. A proposed area of 534 m² was extended slightly to the northwest to remove a hedge, increasing the site to a total area of 685 m². The resulting surface was cleaned and all potential features investigated by hand. Archaeological contexts were recorded by photograph and on *pro forma* record sheets. Plans were drawn at a scale of 1:50 and sections at 1:20 and 1:10. Registers are provided in the appendices (Appendices 1-6). Ordnance Datum levels and feature locations were recorded using Penmap and a total station theodolite.

Environmental samples and animal bone samples were taken on any deposits suitable for analysis or dating as per Headland Archaeology (Ireland) Ltd environmental guidelines and following consultation with environmental archaeologist and archaeobotanist Karen Stewart and zooarchaeologist Dr. Auli Tourunen. The single lithic artefact (E2995:001:001; Appendix 11) recovered during the excavation were assigned a unique number and treated in accordance with National Museum of Ireland guidelines. A total of 18 soil samples taken during the excavation were selected for processing and environmental assessment/analysis (Appendix 8).

Full archaeological resolution was conducted on this site between 10 and 21 September 2007. The crew on site E2995 consisted of 1 director, 1 supervisor and 7 site assistants.

4 Excavation results

Site E2995 was bounded by a modern field drainage ditch to the south and a hedgerow to the north and northwest. The main archaeological features were localized to the west of site (Figure 3). Here, two troughs (021) and (012), three postholes (028), (030), (064), two pits (024) and (062) and one stakehole (019) were identified under a small deposit of burnt mound material (008).

Burnt mound activity

The first of two troughs (021) (Figure 6) was orientated in a northeast/southwest direction and was sub-rectangular in shape. It had a sharp break of slope at the top, concave sides leading to a flat base. It measured 2.95 m long by 1.10 m wide and was 0.43 m deep. Two stakeholes (026) and (060) were located at the base of the cut and were placed 0.50 m from each other (Plate 1). The first stakehole (026) was located in the northeast of the trough and was circular in shape. It had a sharp break of slope at the top and vertical sides leading to an uneven base. It measured 0.07 m long by 0.05 m wide and was 0.15 m deep. It contained a single fill of firm dark brown clayey silt (027) with occasional inclusions of small stones. The second stakehole (060) was located to the southwest of the stakehole (026) described above. This was also circular in shape and had a sharp break of slope at the top, vertical sides leading to an uneven base. It measured 0.10 m in diameter and was 0.15 m deep. It contained a single fill of firm dark brown silty clay (061) with occasional small stone inclusions. The trough (021) contained two fills. The lowermost fill was a slump deposit that was located along the sides of the trough and consisted of firm yellow grey white ash (023) with inclusions of gravel. It measured 2.95 m long by 1.10 m wide and varied in thickness 0.07 m – 0.44 m. The upper fill (022) comprised loose black silty clay, with occasional gravel and frequent inclusions of heat-shattered sandstone. An abundant quantity of charcoal (E2995:007; Appendix 8) and a fragment of unidentifiable burnt bone (E2995:007; Appendix 9) were recovered from a soil sample taken of this fill.

A second trough (012) (Plate 2) was located approximately 3 m to the northeast of the first trough (021). It was orientated in an east/west direction and was also sub-rectangular in shape. It had a moderate break of slope at the top and concave sides leading to an uneven base. It measured 1.70 m by 0.55 m wide and 0.30 m deep. It contained two fills; the lowermost fill (014) comprised firm black silt, with frequent heat shattered sandstone and measured 1.70 m long by 0.55 m wide and was 0.20 m thick. The upper fill (013) consisted of moderately compact dark grey silt with occasional stone inclusions and measured 0.80 m long by 0.55 m wide and 0.10 m thick. A single stakehole (019) was identified 0.04 m southeast of the second trough (012) (Plate 3). It was positioned centrally, relative to the long axis of the trough, and was circular in shape, with a sharp break of slope at the top, vertical sides and a flat base. It measured 0.09 m long by 0.08 wide and was 0.20 m deep. It contained a single fill (020) of firm dark brown silt.

A posthole (064) (Plate 4) was identified approximately 0.80 m southwest of the second trough (012). This was circular in shape and had a sharp break of slope at the top with vertical sides leading to an irregular base. It measured 0.15 m by 0.14 m and was 0.24 m deep. It was filled with dark brown to black clayey silt with occasional small stones (065).

A large sub-oval pit (024) (Figure 3 and 4) was located 0.75 m southeast of the first trough (021). It was shallow with a gradual break of slope at the top, rounded concave sides leading to a flat base. It measured 1.70 m long by 1.32 m wide and was 0.35 m deep. A total of 12 stakeholes (036), (040), (042), (046), (048), (050), (052), (054), (056), (058), (032), (034) and two postholes (038), (044) roughly formed a circle around the interior perimeter at the base (Plate 5). The cut of each stakehole or posthole were similar in shape and size. All were circular with a sharp break of slope at the top and vertical sides leading to concave or tapered bases. The twelve stakeholes had an average diameter of 0.06 m – 0.08 m and a depth of 0.05 m – 0.12 m. Two postholes (038) and (044) were larger in size with a diameter of 0.10 m – 0.15 m and a depth of 0.17 m – 0.23 m. The fills within the stakeholes (037), (041), (043), (047), (049), (051), (053), (055), (057), (059), (033), (035) and the two postholes (039) and (045) comprised loose dark brown silty clay with inclusions of charcoal and small stones: These stakeholes and postholes may have formed a wind break or a support for structure or rack. Directly over the stakeholes/postholes lay a fill of dark brown black silty sand with frequent inclusions of heat shattered sandstones (025) (Plate 6). It measured 1.70 m long by 1.40 m wide and was 0.35 m deep. An abundant quantity of charcoal (E2995:014; Appendix 8) was recovered from a soil sample taken of this fill. This charcoal was suitable for radiocarbon dating and a date range of cal 1630-1410 BC (2σ) (SUERC- 25414, Appendix 10) was obtained.

A second pit (062) (Figure 3 and 5) was located approximately 1.85 m northeast of the pit (024) described above. It was a small oval-shaped pit that had a sharp break of slope at the top, vertical sides leading to an uneven flat base (Plate 7). It measured 0.35 m long by 0.25 m wide and 0.18 m deep. It was filled with loose black silt (063) with no inclusions. An abundant quantity of charcoal (E2995:004; Appendix 8) was recovered from a soil sample taken of this fill. Two further postholes, (030) and (028), were identified to the south of this pit. The first (030) was circular in shape and located 0.75 m southwest of the pit (062). It had a sharp break of slope at the top, vertical sides leading to a tapered base. It measured 0.11 m long by 0.09 m wide and was 0.16 m deep. It was filled with firm dark brown silt (031) with no inclusions. The second posthole (028) (Plate 8) was located 2 m east of the posthole (030). It was circular in shape with a sharp break of slope at the top and vertical sides leading to a tapered base. It measured 0.13 m long by 0.10 m wide and was 0.15 m deep. It was filled with firm black silt (029), with occasional inclusions of stone. The relationship between the pit (062) and the two postholes, (028) and (030), was unclear, yet the proximity of the three features may suggest a possible wind break or rack.

All of the features mentioned above were identified under a burnt mound deposit (Figure 6; Plate 9). The mound consisted of two main deposits. The lower deposit (010) comprised firm light grey silty sand with occasional inclusions of heat shattered stone and gravel. An abundant quantity of charcoal (E2995:005; Appendix 8) was recovered from a soil sample taken of this fill. It measured 10.25 m long by 6.75 m wide and was 0.14 m deep. The upper deposit (008) comprised a shallow layer of loose black silt with frequent inclusions of charcoal and heat shattered sandstone. It measured 6.90 m long by 5 m wide and was 0.06 m deep. Several soil samples were taken of this deposit. Recovered from the soil retent was a frequent amount of charcoal (E2995:001, 009-013; Appendix 8), two unidentified fragments of burnt bone (E2995:001; Appendix 9), a single charred oat (*Avena sp.*) grain (E2995:001; Appendix 8) and a single dock seed (*Rumex sp.*) (E2995:009; Appendix 8). Two irregular deposits were identified to the east of the burnt mound. The first (011) was irregular in shape and consisted of moderately compact dark brown silt with inclusions of stone. It measured 0.80 m long by 0.75 m wide and had a maximum thickness of 0.10 m. A small quantity of charcoal (E2995:006; Appendix 8) was recovered from a soil sample taken of this fill. The second deposit (009) measured 0.52 m long by 0.45 m wide and was 0.06 m thick and comprised of loose black silt with inclusions of gravel.

A direct relationship between the pits, troughs, postholes and stakeholes could not be established (Plate 10). However, as the fills within the features were similar and covered by a similar burnt mound deposit, they are most likely all contemporary.

Modern agricultural activity

Two linear drainage ditches (003) and (015) were identified to the immediate southwest and east of the burnt mound (Figure 7). The first ditch (003) appeared to truncate the burnt mound to the southwest. Excavation revealed this was not the case; the cut of ditch missed the burnt mound spread by a few centimeters. The ditch was orientated northwest/southeast direction and measured 23.25 m long by 1.76 m wide and was 0.58 m deep. It had a moderate break of slope at the top and concave sides leading to a slightly rounded base. Four fills were identified in this ditch (Plate 11). The lowermost fill (007) comprised of loose grey silt with occasional inclusions of mollusc remains. It measured 23.25 m long by 0.40 m wide and was 0.10 m deep. Above this lay loose grey brown silt (006), with occasional stone inclusions. It measured 23.25 m long by 1.36 m wide and was 0.10 m deep. Firm medium brown silt (005) with yellow and grey mottling throughout formed the upper middle fill of the ditch. This measured 23.25 m long by 1.40 m wide and was 0.12 m deep. The uppermost fill (004) consisted of firm medium brown silt with occasional stone inclusions. This measured 23.25 m long by 1.76 m wide and was 0.18 m thick. This ditch continued to the southeast and was identified in Test Trench 2 in Area 6d. A functioning drainage ditch was located 1 m to the south of this ditch.

A second ditch (015) was orientated in a north/south direction and was located approximately 6 m northeast of the burnt mound. It was a smaller ditch and measured 21 m long by 1.40 m – 2.20 m wide and was 0.40 m deep. It had a gradual break of slope at the top, concave sides, leading to a flat base. It contained three fills. The lowermost fill (018) consisted of firm medium grey silty clay with occasional inclusions of small to medium sized stones and mollusc remains. It measured 19.50 m long by 0.78 m wide and 0.11 m deep. The middle fill (017) comprised of firm medium grey silt with orange mottling throughout. It measured 19.50 m long by 1.24 m wide and was 0.15 m deep. The uppermost fill (016) was formed of moderately compact medium brown silt with inclusions of small stones. It measured 19.50 m long by 1.40 m wide and was 0.11 m deep.

Topsoil (001) sealed all of the above features and had an average thickness of 0.35 m across site E2995. No diagnostic finds were recovered from any of the features associated with the burnt mound, however a thumbnail scraper (Figure 8; E2995:001:001; Appendix 11) was retrieved from the lower part of the topsoil in the northeast corner of the site. A disturbed area of stone and topsoil was

identified to the north and northwest of the burnt mound deposit. This was potentially connected with activity during the construction of a Bord Gáis pipe line, which crossed the proposed road corridor several meters to the north of site. It was deduced during the course of the excavation that some of the features initially thought to be archaeological in nature were in fact backfilled sockets of dislodged or removed stones. These were half sectioned and not recorded or included in the site archive.

5 Testing results, Area 6d

Testing Area 6d was a square-shaped area that jutted out from the proposed linear road corridor. It was located approximately 50 m to the southeast of site E2995; a drainage ditch separated the testing area into two parts. A total of three test trenches were excavated. Test Trenches 1 and 2 were located to the northeast of an open ditch, Test Trench 3 to the southwest. No archaeological features or deposits were identified in any of the three trenches.

Test Trench 1:6d was orientated northeast/southwest and measured 10.30 m long by 2 m wide and had a depth between 0.37 m – 0.39 m. The underlying subsoil (C horizon) consisted of grey to yellow boulder clay with frequent angular stones. Patches of peat lay on the natural surface and were on average 0.03 m – 0.05 m thick. Above the peat was grey silty clay subsoil (B horizon) that was 0.10 m– 0.12 m deep. Directly over this was the topsoil (001) (A horizon). This had a depth of 0.29 m – 0.27 m and consisted of dark brown silty clay. No features were identified within this trench.

Test Trench 2:6d (Plate 12) was orientated northwest-southeast and measured 28.30 m long by 2 m - 2.30 m wide with an average depth of 0.38 m. The underlying subsoil (C horizon) consisted of grey to yellow boulder clay, with frequent small stones located to the east. Again, patches of peat lay on the natural surface. A modern drainage ditch (003) identified within the main site of E2995 continued across the field and was identified within this trench also. The subsoil (B horizon) comprised of grey silty clay with a thickness of 0.10 m – 0.12 m. The topsoil (001) (A horizon) comprised dark brown silty clay with a depth of 0.26 m – 0.27 m.

Test Trench 3:6d was orientated northwest/southeast and measured 18.90 m long by 2 m wide and was 0.35 m – 0.47 m deep. The underlying subsoil (C horizon) consisted of grey to yellow boulder clay with frequent angular stone and patches of peat throughout the trench. The subsoil (B horizon) was formed of grey silty clay and had a depth of 0.10 m– 0.12 m. A modern ceramic drainage pipe orientated northwest/southeast was located to the west of the trench. A hardcore stone drain orientated northeast/southwest was identified to the east of test trench. Both drains were modern. The topsoil (001) (A horizon) comprised dark brown silty clay with a thickness of 0.25 m – 0.35 m. No archaeological features were identified in this trench.

6 Discussion

The results of the excavation at Site E2995 are discussed here following stratigraphic, environmental, dating and artefactual analysis. The site is then discussed on a local level and related to other sites known in the vicinity (including those discovered on the current scheme). Finally the site is discussed on a national level in an attempt to place it in context and assess how it contributes to the archaeological record in general.

The archaeological material at site E2995 comprised several features situated under a small burnt mound. These features included 15 stakeholes, five postholes, two pits and two troughs. Two sub-rectangular troughs (021) and (012) and a sub-oval pit (024) formed the main features beneath the burnt mound deposits. Each of these features had associated stakeholes and/or postholes. Two stakeholes were located at the base of the one of the troughs (021). These stakes may have functioned as a spit or a hanging line. A stakehole (019) was situated to the immediate south of the smaller second trough (012). Again, the position of the stake suggests it performed a specific task and possibly functioned as a hanging spit over the trough. A total of 12 stakeholes and two postholes were identified at the base of the sub-oval pit (024). The presence of so many stakeholes and postholes suggests a possible rack, spits or hanging spits. The remaining features under the burnt mound were isolated and included a small pit (064) two stakeholes (030) and (028) and a posthole (064). The pit may have been used for storage and the post and stakes as a hanging line, rack or possible wind break. The amount of identified stakes and posts on Site E2995 suggests the pit and two troughs possibly formed a specific task that required items to be hung or suspended. Also given the close proximity of these features to each other and mound of burnt material that universally covered them, these features may have been used simultaneously as part of some small industrial or domestic activity.

Environmental evidence

Unfortunately, apart from abundant quantities of charcoal, very little environmental evidence was recovered from soil samples taken within these fills to determine or suggest a possible use for these features (Appendix 8). Five samples (E2995:001, 004, 005, 007, 009 and 014) contained charcoal suitable for AMS dating. Alder charcoal was recovered from a fill (025) in this pit (024) and a calibrated radiocarbon date of 1630-1410 BC (2 σ) (SUERC- 25414, Appendix 10) was returned. Common alder is a very hardy species found in all parts of Ireland on a wide range of sites, from sheltered mountain sides to lake shores and river banks to wet sandy soils and gravels. Its occurrence increases in the higher rainfall areas of the west and southwest of the country. Common alder does not usually suffer from late spring frosts and is hardy to early autumn frosts. It makes a useful shelterbelt tree and is moderately resistant to salt spray (Savill 1991). It is a light-demanding pioneer species, which easily regenerates naturally to form small pure stands on areas of freshly exposed soil in wet localities. It is commonly utilised for making stakes, posts and small item wood turning (*ibid.*). Two deposits (010) and (008) formed the irregular sub-circular burnt mound. This suggests that the burnt mound on Site E2995 had been used on more than one occasion, with the lower deposit formed in the initial phase(s) of use and the upper deposit reflecting a later phase or phases.

A single charred oat grain was recovered from a sample (E2995:001; Appendix 8) taken from the upper burnt mound deposit (008). Also recovered from this deposit was a single dock seed (E2995:009; Appendix 8). It is likely these charred plant remains are not associated with the mound activity and became incorporated into the sample material by much later agricultural activities or natural processes.

An unidentifiable fragment of burnt bone (E2995:007; Appendix 9) was recovered from the soil retent recovered from the upper fill (022) of one of the troughs (021). A further two fragments of

unidentifiable burnt bone (E2995:001, Appendix 9) were recovered from the soil retent of a burnt mound deposit (008). No further faunal information could be deduced from the three fragments.

Artefactual evidence

A single lithic artefact (E2995:001:001, Appendix 11) was recovered from the natural surface of Site E2995. It was identified as a convex sub-circular scraper and is traditionally known as a thumbnail scraper (Appendix 11). This type of lithic is thought to have emerged during the Final Neolithic but is more commonly associated with the Bronze Age period in Ireland (*ibid*).

The technology associated with burnt mounds/fulachtaí fia

The technology associated with burnt mounds is well known. Stones were heated in a nearby fire and placed in a water-filled trough or pit. The pit was sometimes lined with timber, stones, clay or reed matting. The heat from the stones would then bring the water to boil. Once cool, the stones were removed from the trough or pit and discarded, creating a characteristic burnt mound or spread of heat-shattered stones. How the boiled water was subsequently utilized, however, is more difficult to ascertain.

Grogan *et al.* have concluded from the quantities of heat-shattered stone forming most spreads and mounds that sites were likely used multiple times on separate occasions and that most sites would have had an extended, if periodic, use history (2007, 91). Using digital terrain modeling, they calculated that the average number of uses per site was approximately 250 (*ibid.*). They also noted that spoil was occasionally present on top of earlier mounds indicating that troughs had possibly been repositioned (*ibid.*).

Water was an essential component in the function of a burnt mound. The sitting of this monument type is noteworthy as they are almost invariably located close to a water source (e.g. O'Neill 2000). This was well demonstrated during the North Munster Project (Grogan 2005) where burnt mounds identified were located along the margins of wetland, small lakes, turloughs, bog and marsh as well as the edges of river estuaries and on the banks of rivers and streams. The burnt mound on Site E2995 was located in a low lying area where water would have naturally collected. Modern drainage surrounding the site would indicate water may still have accumulated quite easily, possibly indicating a high water table. The site was excavated at the end of the summer during a dry spell and no water was present in any of the features. Again the natural water course may have been altered to improve drainage of the land.

Burnt mounds excavated in the vicinity of E2995

It has been well documented that *fulachtaí fia* or burnt mounds can be densely concentrated in areas that were suitable for their construction. O'Driscoll (1988, 676) described that they are often found in groups, some of up to 10 or more. Evidence for burnt mound clusters can be found within the immediate area of Site E2995. Located 200 m to the immediate southwest of this site (E2995) was site E2940. Here, two separate burnt mounds, a burnt spread and several underlying and associated features were excavated (Doyle 2010a). The earlier of the two burnt mounds returned a calibrated radiocarbon date of 1960-1690 BC (2 σ) (SUERC- 25418) from hazel charcoal recovered from a pit under the burnt mound. A later Bronze Age date of 1400-1050 BC (2 σ) (SUERC- 25416) was returned from alder charcoal recovered from a trough under the burnt mound. The burnt spread returned a date of 1440-1190 BC (2 σ) (SUERC- 25416) (*ibid.*). Approximately 300 m southwest of this site (E2940) in the adjacent townland of Hallahoise, a further two sites with burnt mound activity were excavated on this road scheme. One of these, site E2942 identified the remains of three burnt mounds with a possible truncated and ploughed out fourth burnt mound (Doyle 2010c). The least disturbed burnt mound on this site returned a date of 2140-1770 BC (2 σ) (SUERC- 25409) from alder charcoal. A pit

located under what was a possible fourth burnt mound returned a calibrated radiocarbon date of 1750-1500 BC (2σ) (SUERC- 25410) from pomoidea charcoal (*ibid*).

A burnt mound was also excavated in an adjacent field to this (E2942) on Site E2943 (Doyle 2010d). Here, a calibrated radiocarbon date of 1940-1680 BC (2σ) (SUERC- 25438) was returned from ash charcoal. On site E2943, a much smaller version of the sub-circular pit (024) excavated on site E2995 was identified. This pit was sub-circular in shape with five stakeholes located around the circumference of the pit at the base. The pit was also filled with heat shattered sandstone (Doyle 2010b). A fourth burnt mound was located approximately 500 m to the northeast of Site E2995 on Site E2939. Here, a heavily truncated burnt mound was excavated (Doyle 2010d). Some humified wood returned a calibrated radiocarbon date of 4550-4370 BC (2σ) (SUERC- 25323). The early date is possibly due to disturbance throughout the burnt mound deposits. All four sites (E2939, E2940, E2942 and E2943) described above were situated on low-lying land. A further burnt mound Site (99E0434) situated in the immediate vicinity of Site E2995 was excavated in 1999 on the Ballyvass to Athy gas pipeline (Gregory, 1999, 121). Excavation revealed an Early Bronze Age fulacht with three shallow pits and two troughs. Two flint scrapers were recovered from the base of one of these pits (*ibid*).

Burnt mounds in Ireland

In general burnt mounds or *fulachtaí fia* have been identified in almost every part of the country and are the most common prehistoric monument in Ireland (Waddell 2000, 174). The number of identified burnt mounds or *fulachtaí fia* in the country is constantly increasing and there are at least 7,000 currently known (Grogan *et al.* 2007, 81). In recent years large infrastructural projects have identified many more of these sites. They formed the majority of sites identified in advance of the gas pipeline to the west (*ibid.*) A total of 75 sites were excavated in 2007 on the N7 Nenagh to Limerick HQDC, 41 of these were attributed to burnt mound or *fulachtaí fia* activity (Paul O'Keeffe, pers. comm.). The proportion of recently excavated burnt mounds on infrastructural projects in the east of the country appears to be lower. In advance of the N9/N10 Kilcullen to Waterford Road Scheme: Kilcullen to Powerstown, a total of 15 sites out of a total of 64 were associated with burnt mound activity. On this particular part of the same road scheme, N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow, 15 burnt mounds were excavated out of a total of 102 sites. Within Ireland the majority of dates returned from burnt mounds range from the Final Neolithic to the late medieval period; however the majority of burnt mounds were Bronze Age in date (Brindley and Lanting 1990).

Historical evidence as to the function of burnt mounds/ fulachtaí fia

References to these archaeological features can be found in early literature as well as in more recent folk memory. The earliest recorded reference to the term *fulacht* occurred in *Cormac's Glossary* from approximately AD900 (O'Drisceoil 1988, 673). The earliest description of burnt stone technology, where a basin of gruel is cooked with fire-heated stones, is from the medieval latin Life of St. Munnu and dates to before the 15th century (O'Neill 2004, 79). The term '*fulacht fiadh*' is composed of two Irish words. The first means 'recess' or 'cavity' and came to be associated with pits specifically used for cooking, the act of cooking and sometimes even the food itself (Ó Drisceoil 1988, 673; Ó Drisceoil 1990, 158). Ó Drisceoil (1990, 158) cautions associating every mention of '*fulacht*' with the archaeological monument given the wide range of possible meanings. The second word has two possible interpretations: *fiadh*, of the deer or of the wild, and *fian*, a roving band of hunters or warriors, occasionally 'of the *Fianna*' or Fionn Mac Cumhail" in reference to a mystical army who hunted and lived outdoors (Ó Drisceoil 1988, 673). In Geoffrey Keating's early 17th century *The History of Ireland* (Foras Feasa ar Eirinn) detail is given as to how the '*Fian*' would cook their quarry over pits of hot stones and in water filled pits, heated by hot stones. In this account the hunters would use a second pit of boiling water to bathe (*ibid.* 80).

The traditional interpretation of these monuments is that they were cooking sites, a view supported both by the early texts and folk memory (Ó Drisceoil 1988; Ó Drisceoil 1990) and experimentation (O'Kelly 1954). The texts presented above frequently give a dual function of cooking and bathing for the sites. However, other theories about their use have also been put forward. These include: bathing, brewing, leather working, and use as sweathouses or as multifunctional sites. It is most likely that burnt mounds were multifunctional or that different sites were used for different purposes.

Conclusion

Like the majority of Burnt mounds excavated throughout the country, the exact function of the Burnt mound on Site E2995 remains speculative. Yet, we can possibly conclude that due to the amount of stakeholes, postholes and associated pits and troughs, this Burnt mound may have carried out a different activity to the Burnt mounds excavated in the immediate vicinity (E2940, E2942, E2943, E2939 and 99E0434). This is speculated by the lack or intensity of features identified beneath these Burnt mounds.

We can also conclude that dates achieved from the cluster of Burnt mounds surrounding E2995 suggest contemporary activity. Site E2995 places activity at the site in the Early to Middle Bronze Age period. The burnt mound excavated as part of the gas pipeline, Ballyvass to Athy also returned an Early Bronze Age date (Gregory, 1991, 121) and, with the exception of Site E2939, all of the burnt mounds in the immediate vicinity of Site E2995 (E2940, E2942 and E2943) returned Early to Middle Bronze Age dates. This possibly supports the theory that burnt mounds in this area were multifunctional or that different sites were used for different purposes.

It is anticipated that the information gathered about the burnt mound on site E2995 will contribute to an overall study and analysis of the distribution of burnt mounds on this road scheme, in this part of Co. Kildare, the surrounding counties and throughout Ireland.

7 Archive

The site archive is comprised of the following materials:

Item	Quantity
Context Sheets	65
Plans	10
Sections	10
Photographs	51
Registers	05
Notebooks	01

The archive material is contained within 1 box.

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

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- Graphics department, Headland Archaeology (Ireland) Ltd.
- Patrycja Walczak, Site Supervisor, Headland Archaeology (Ireland) Ltd.
- The excavation team.

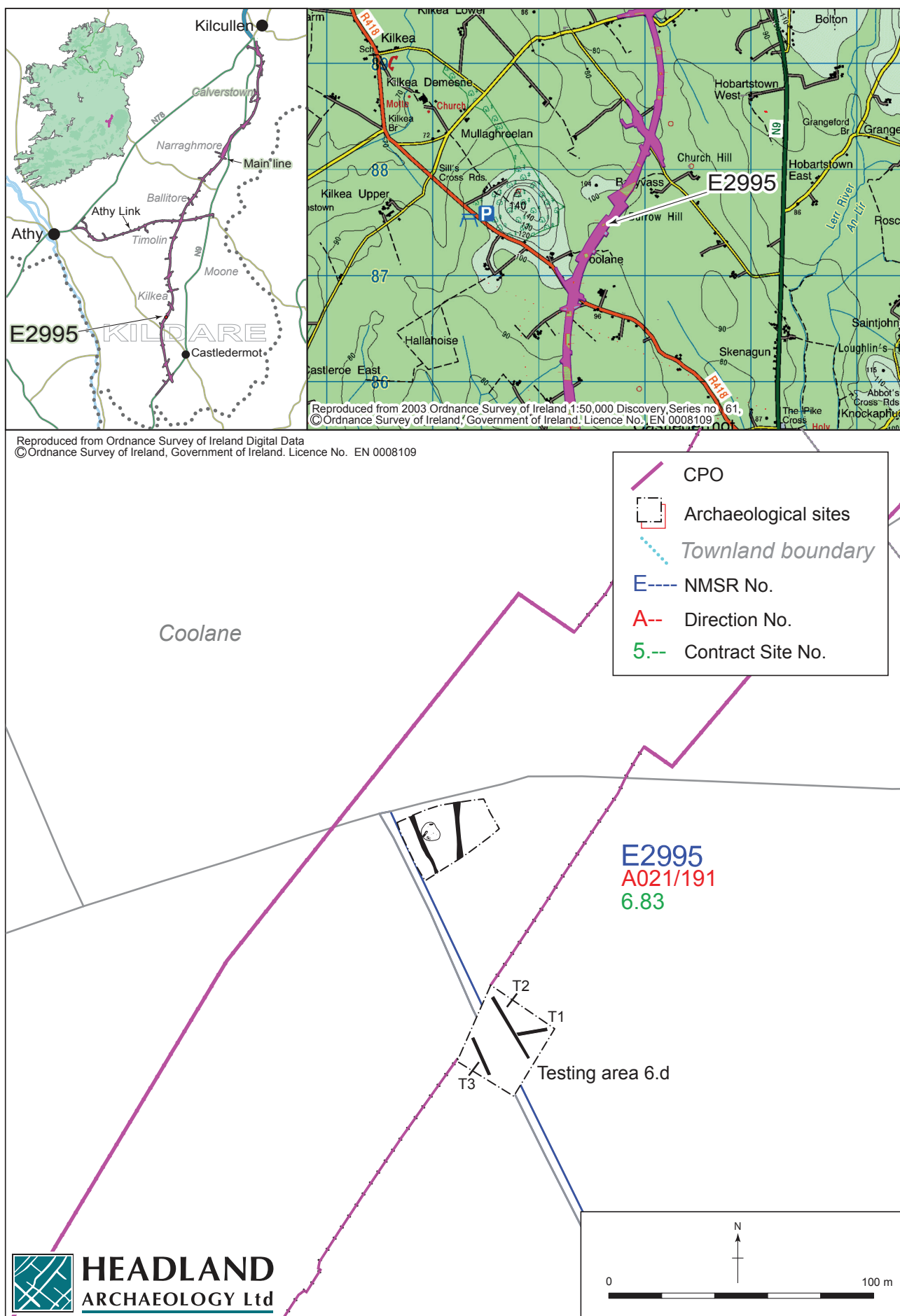


Figure 1 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
 Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown:
 E2995, Site location.

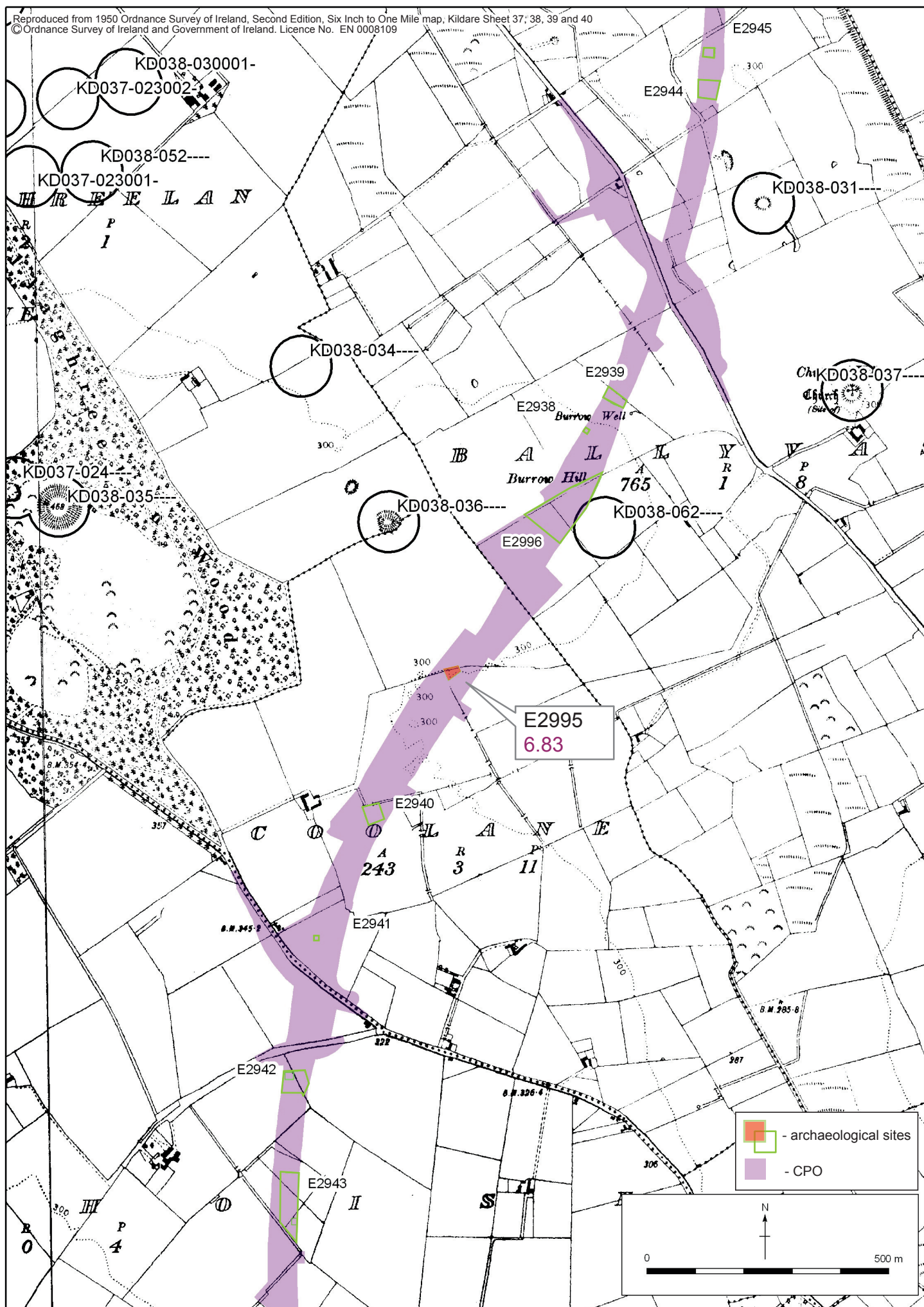
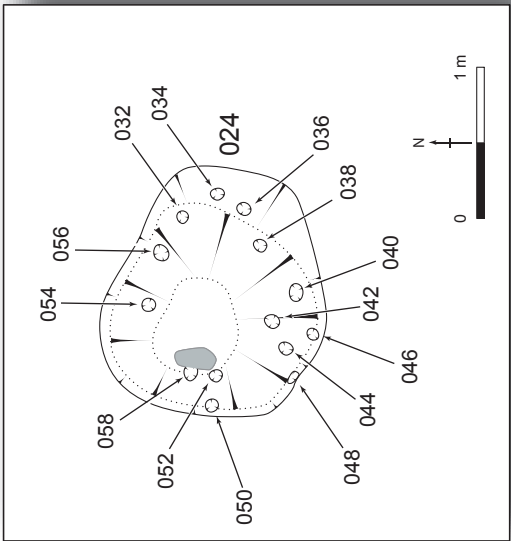
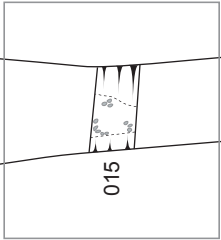


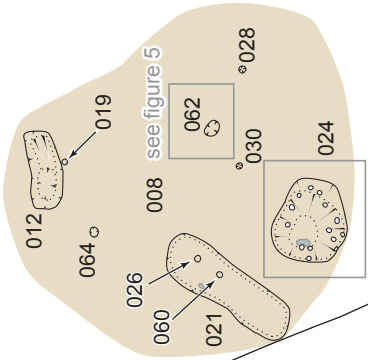
Figure 2 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2995, Extract from RMP.



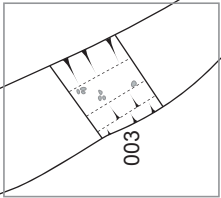
X= 276613.75 Y= 187471.88 Z= 88.88



see figure 7A



see figure 4 & inset



see figure 7B

X= 276591.76 Y= 187441.03 Z= 87.89

Burnt mound

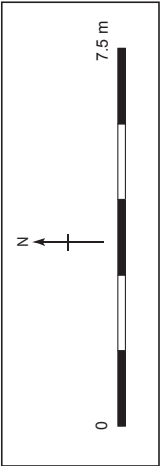


Figure 3 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown:
E2995, Site layout.

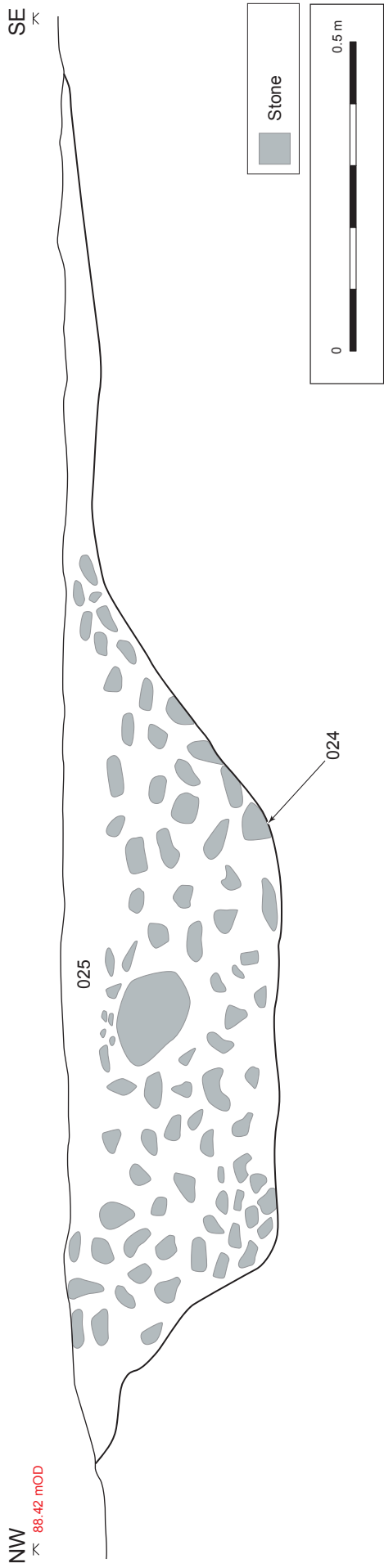
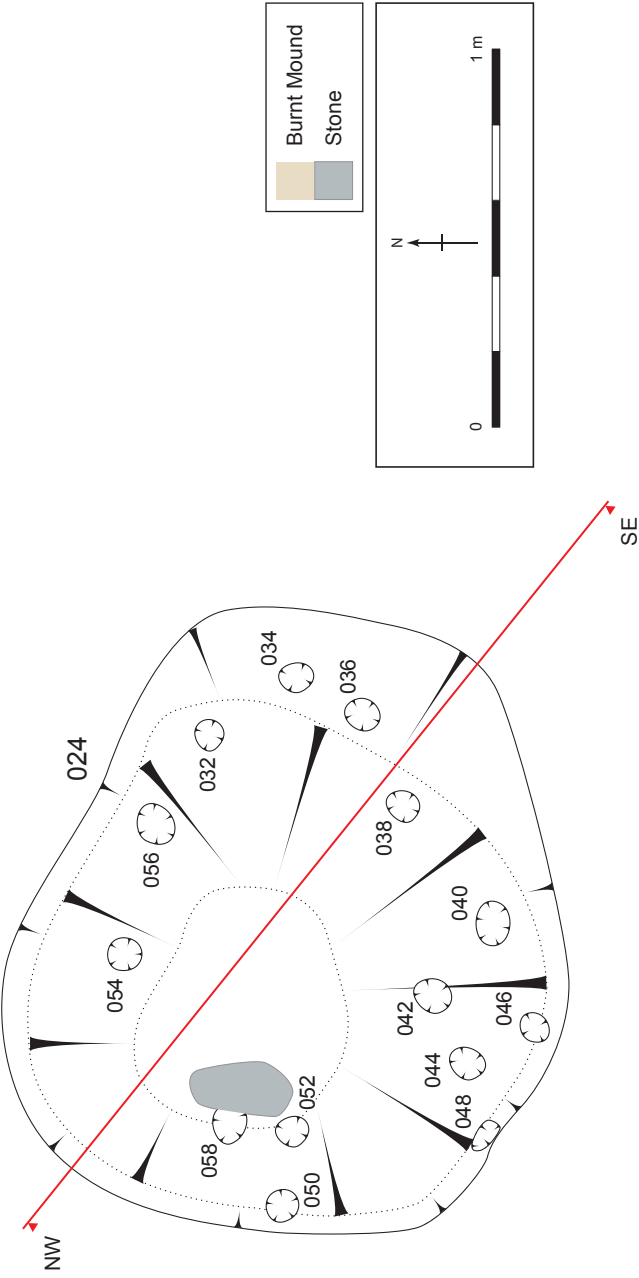
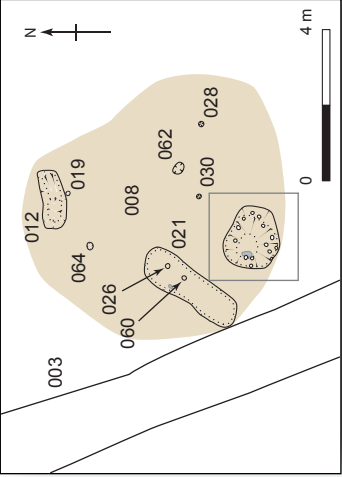


Figure 4 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown:
E2995, Plan and southwest facing section of pit (024).

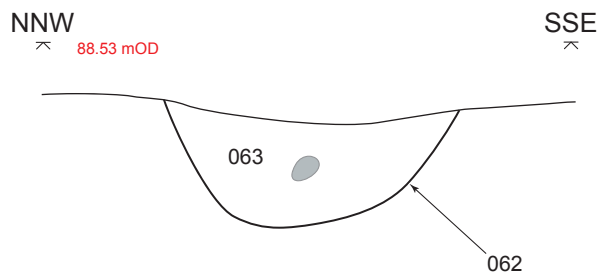
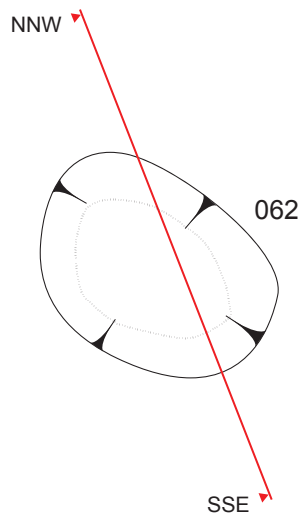
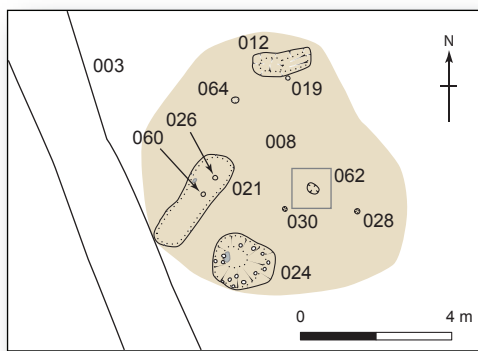
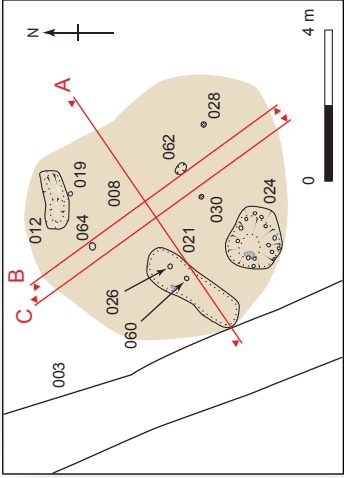
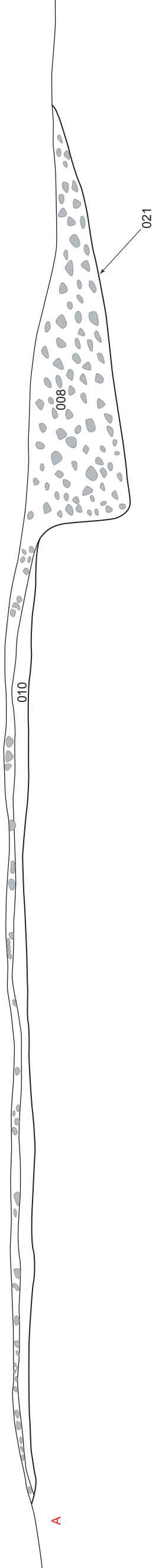


Figure 5 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2995, Plan and west-southwest facing section of small pit (062).



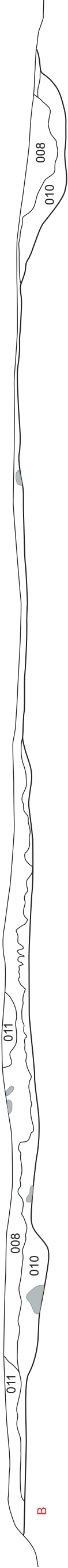
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88.49 mOD

SW



NW
88.39 mOD

SE



SSE
88.38 mOD

NNW

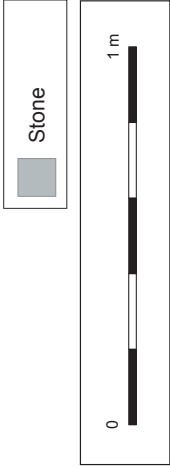
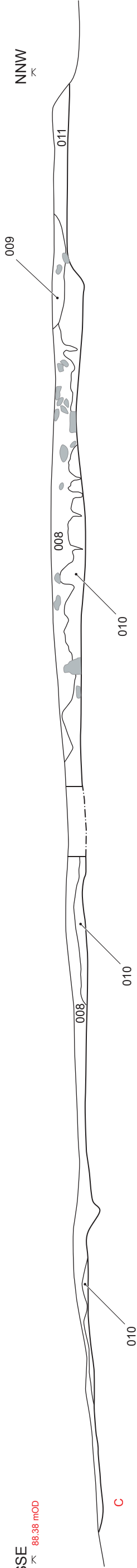


Figure 6 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown:
E2995, (A) Northwest facing section, (B) southwest facing section and (C) east-northeast facing section of burnt mound .

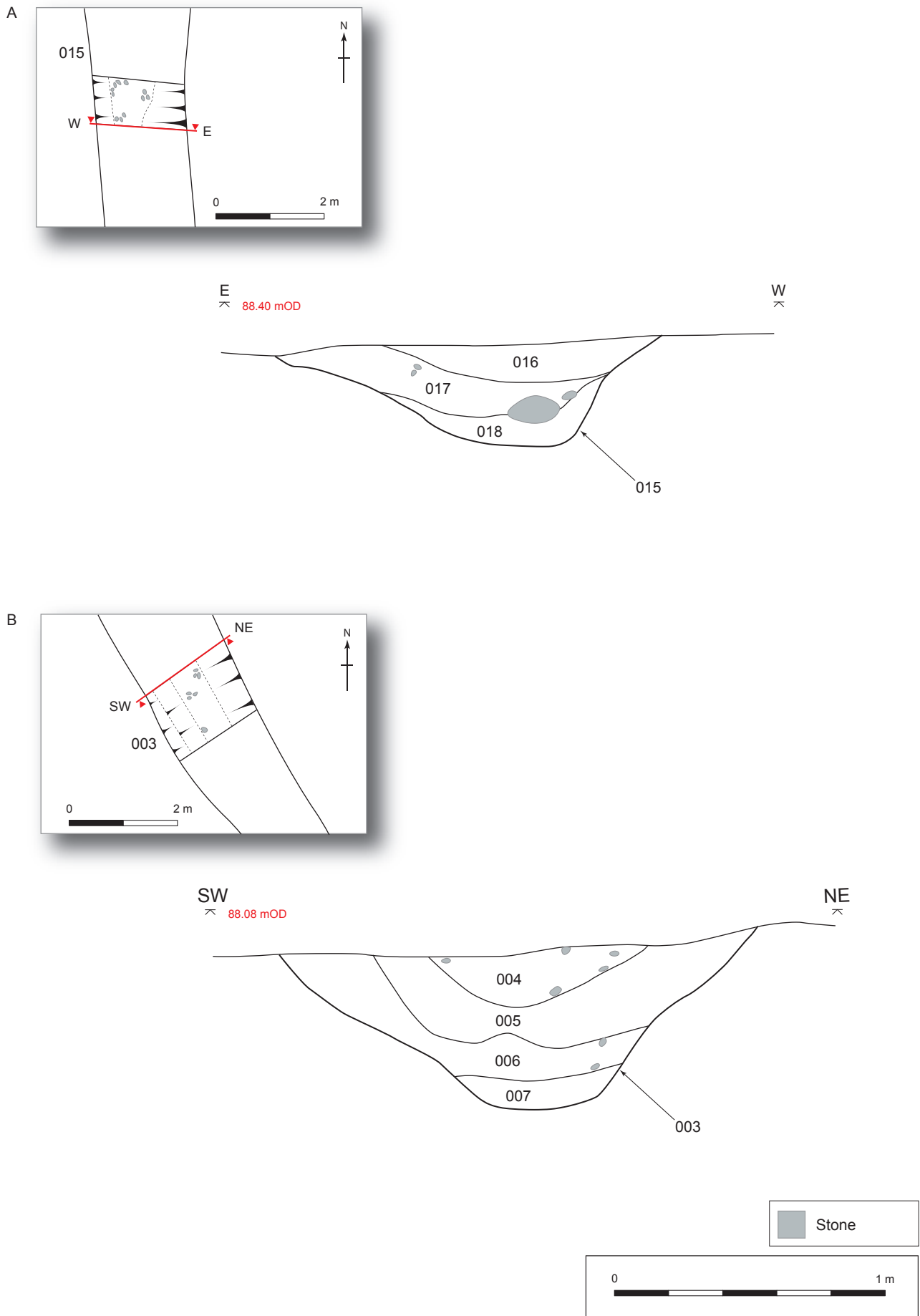
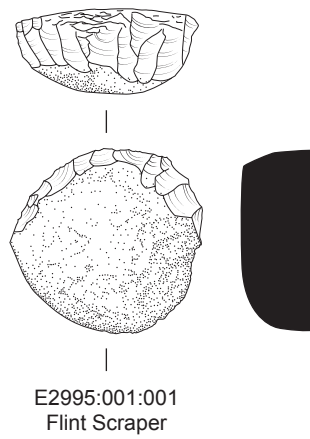


Figure 7 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2995, (A) North facing section of ditch (015) and (B) southeast section of ditch (003).



0 3 cm
Drawn by: Hannah Sims

Figure 8 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow.
Archaeological Services Contract No. 6 - Resolution, Kilcullen to Moone and Athy Link Road:
E2995, Finds illustration.



Plate 1 - Post-excavation of stakeholes (026) and (060) within trough (021), southeast facing.



Plate 2 - Mid-excavation section of trough (012), north facing.



Plate 3 - Post-excavation of trough (012) and stakehole (019), northwest facing.

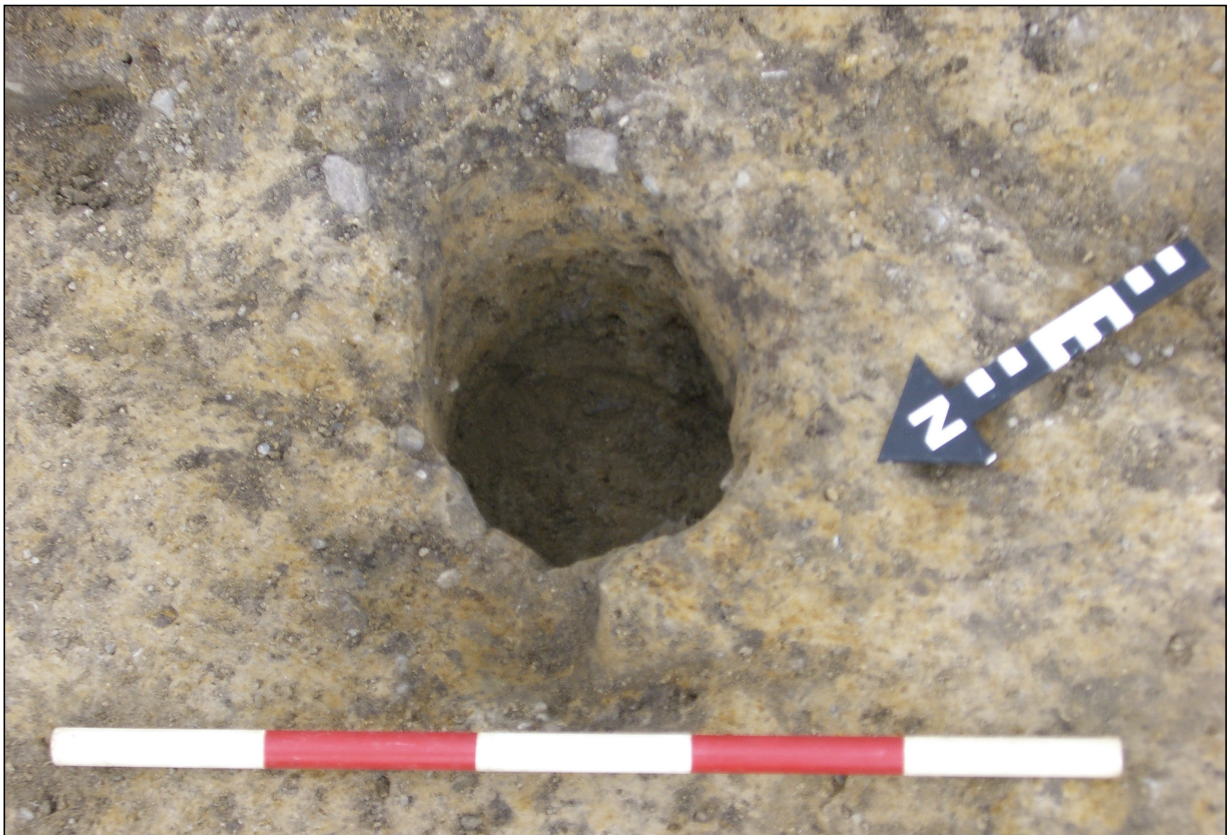


Plate 4 - Post-excavation of posthole (064), southeast facing.



Plate 5 - Post-excavation of pit (024) with 14 stakeholes, northwest facing.

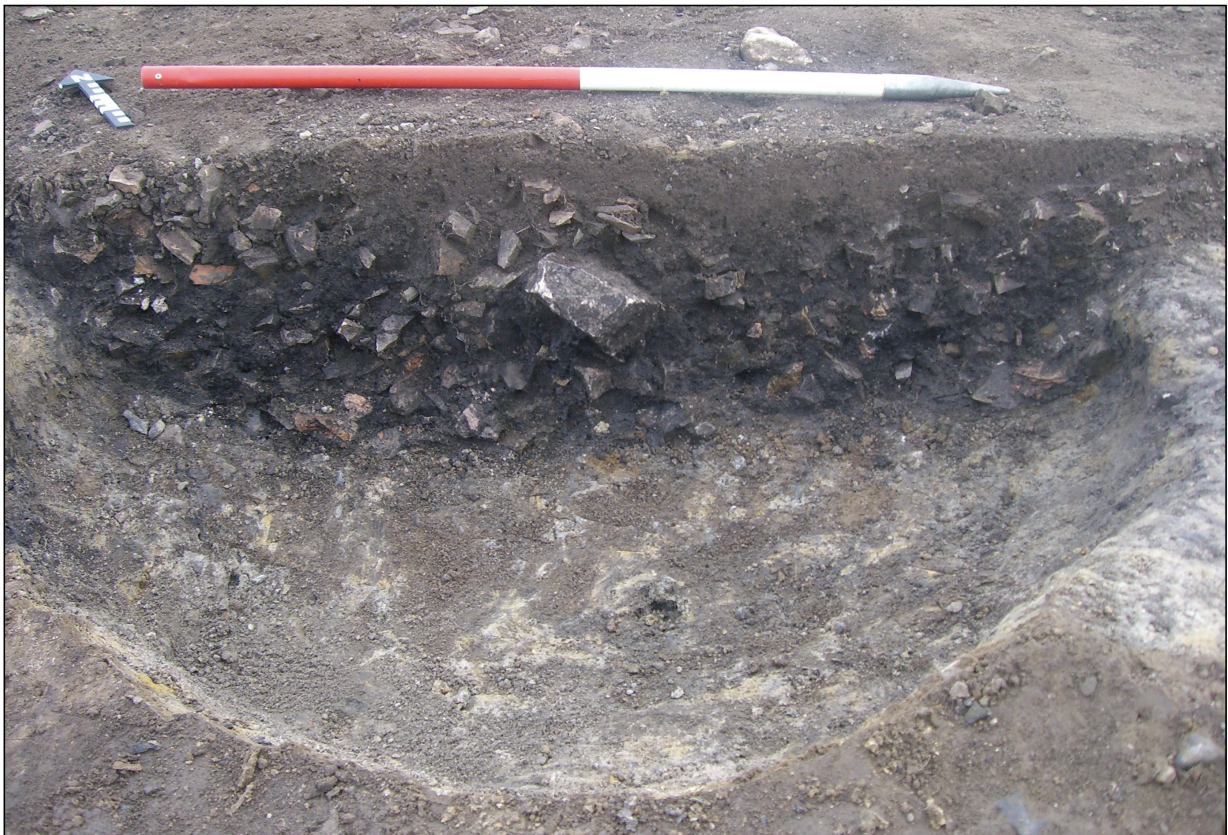


Plate 6 - Mid-excavation of pit (024), northeast facing.



Plate 7 - Post-excavation of small pit (062), north-northeast facing.

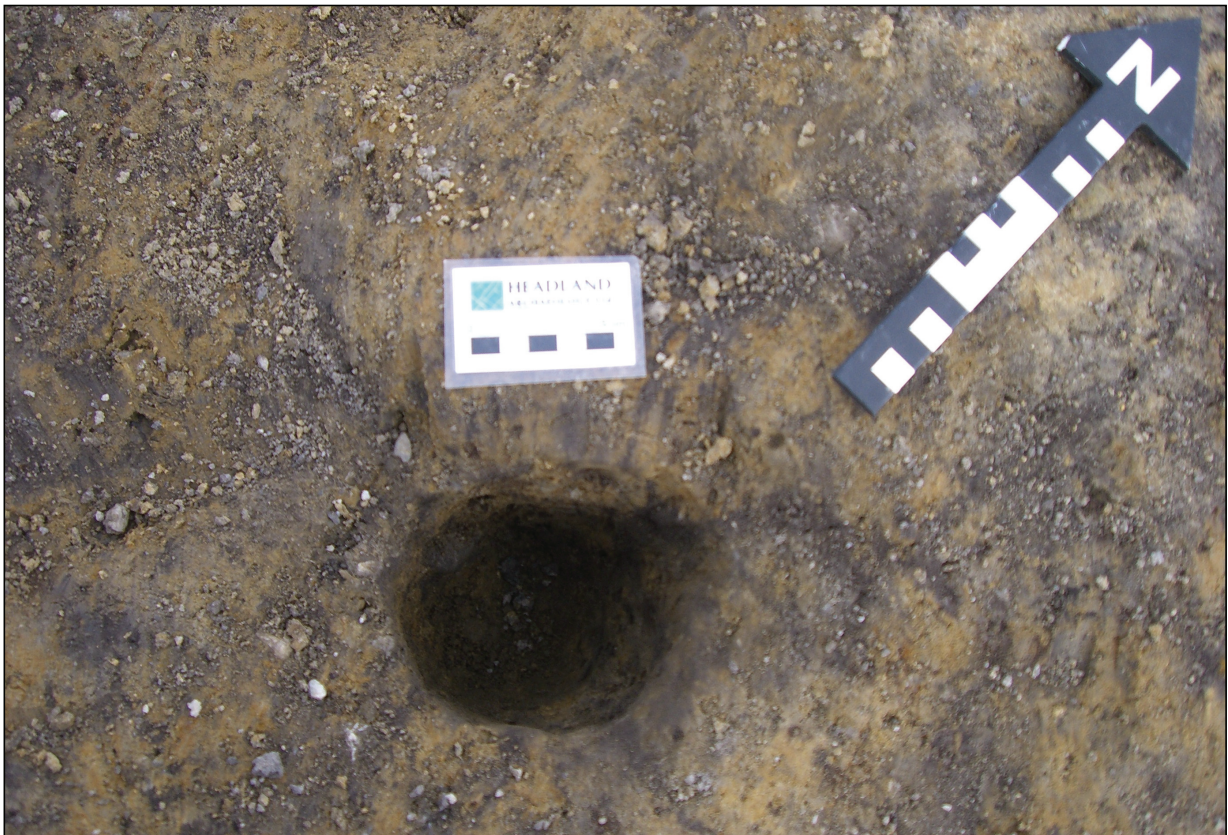


Plate 8 - Post-excavation of posthole (028), southeast of trough (021), northwest facing.



Plate 9 - Mid-excavation of burnt mound (008) and pit (012), north facing.

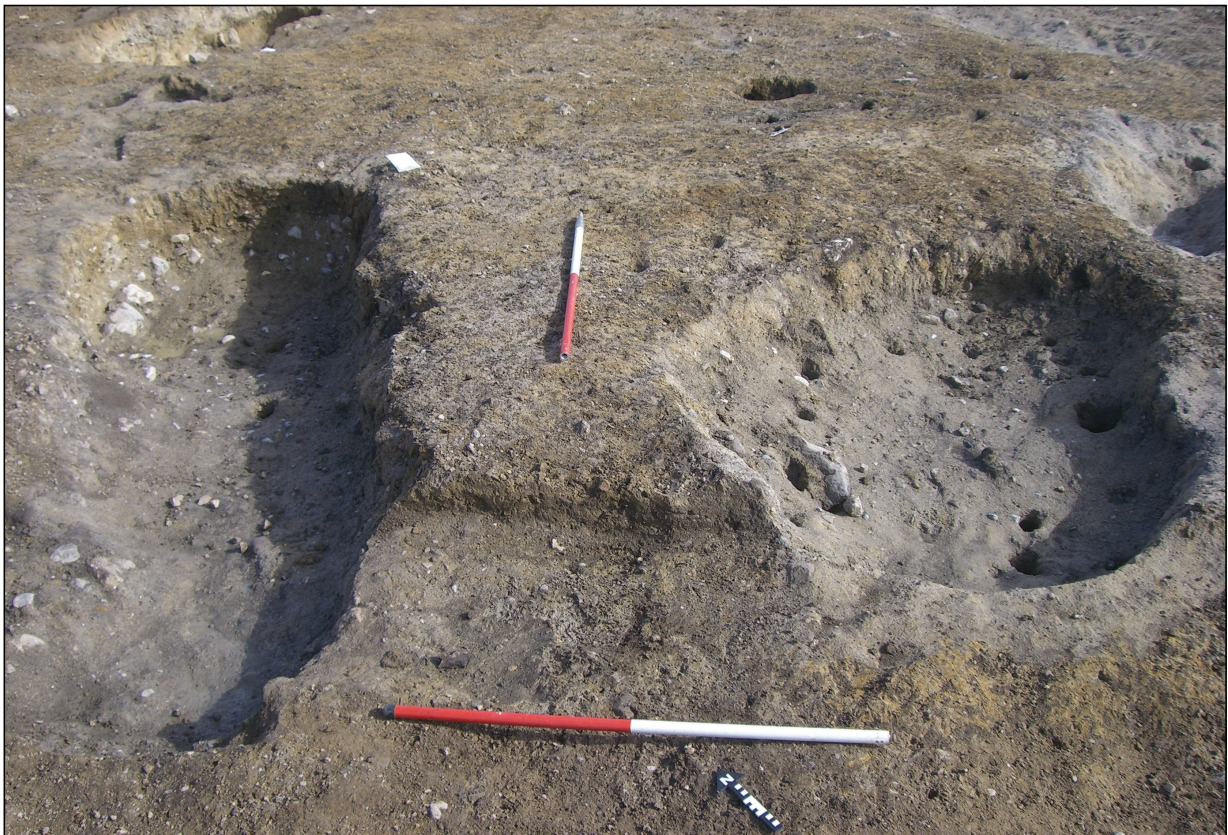


Plate 10 - Post-excavation of burnt mound (008), with (012), (021) and (024), northeast facing.



Plate 11 - Mid-excavation section of ditch (003), southeast facing.



Plate 12 - Test trench 2, with ditch (003), Testing area 6.D, southeast facing.

Appendix 1 – Context Register for Site E2995

Context No	Type	Length (m)	Width (m)	Depth (m)	Description	Interpretation
001	Topsoil	N/A	N/A	0.35	Moderately compact medium brown silty clay with frequent inclusions of pebbles and smaller stones and gravels. Located across the site. A thumbnail scraper was recovered from the topsoil (E2995:001:001).	Topsoil
002	Natural	N/A	N/A	N/A	Firm light brown yellow sandy clay with frequent inclusions of sub-angular stones.	Natural subsoil
003	Cut	23.75	1.76	0.58	Linear in plan, orientated northwest-southeast direction. It had a moderate break of the slope at the top and concave sides leading to a slightly rounded base. It contained four fills (004), (005), (006) and (007).	Cut of modern drainage ditch
004	Fill	23.75	1.76	0.18	Firm medium brown silt with occasional stone inclusions.	Uppermost fill in modern drainage ditch (003)
005	Fill	23.75	1.40	0.12	Firm medium brown silt with yellow and grey flecking.	Middle fill of modern drainage ditch (003)
006	Fill	23.75	1.36	0.10	Loose grey brown silt with occasional stone inclusions	Middle fill of modern drainage ditch (003), under fill (005)
007	Fill	23.75	0.40	0.10	Loose grey silt with inclusions of mollusc shell.	Lowermost fill of modern drainage ditch (003)
008	Deposit	6.90	5.00	0.06	Located on the western part of the site. Loose black silt with frequent inclusions of charcoal and heat shattered sandstones. It overlay troughs (012) and (021), pits (024) and (062), postholes (064), (030) and (028). Deposit (008) was also found in natural hollows on the western part of the site.	Burnt mound deposit
009	Deposit	0.52	0.45	0.06	Loose black silt with inclusions of gravel. Uppermost deposit in burnt mound located on the eastern side.	Uppermost deposit in burnt mound
010	Deposit	10.25	6.75	0.14	Firm light grey silty sand with occasional inclusions of heat shattered stone and gravel.	Lowermost deposit in burnt mound under (008)

Context No	Type	Length (m)	Width (m)	Depth (m)	Description	Interpretation
011	Deposit	0.80	0.75	0.10	Moderately compact dark brown silt with inclusions of stones. It was located on the eastern part of the burnt mound.	Deposit over burnt mound (008)
012	Cut	1.70	0.55	0.30	Sub-rectangular in shape, orientated in an east-west direction. It had a moderate break of the slope at the top and concave sides leading to uneven base. It contained two fills (013) and (014).	Cut of trough under burnt mound
013	Fill	0.80	0.55	0.10	Firm dark grey silt with occasional inclusions of stone.	Uppermost fill in trough (012)
014	Fill	1.70	0.55	0.20	Firm black silt with frequent inclusions of heat shattered sandstones.	Lowermost fill in trough (012)
015	Cut	19.50	1.40	0.40	Linear in plan, orientated north-south. It had a gradual break of slope at the top and concave sides leading to flat base. It had three fills (016), (017), and (018).	Cut of modern drainage ditch
016	Fill	19.50	1.40	0.11	Moderately compact medium brown silt with inclusions of small stones.	Upper fill of modern drainage ditch (015)
017	Fill	19.50	1.24	0.15	Firm medium grey silt with orange mottling throughout.	Middle fill of modern drainage ditch (015)
018	Fill	19.50	0.78	0.11	Firm medium grey silty clay with inclusions of small to medium stones and mollusc shells.	Lowermost fill in modern drainage ditch (015)
019	Cut	0.09	0.08	0.20	Circular in shape, located 0.04 m south of trough (012). It had a sharp break of slope at the top and vertical sides leading to a flat base. It contained one fill (020).	Cut of stakehole associated with trough(012)
020	Fill	0.09	0.08	0.20	Firmly compact dark brown silt. It measured 0.09 m long by 0.08 m wide and 0.20 m deep.	Fill of stakehole (019)
021	Cut	2.95	1.10	0.43	Rectangular in plan, situated west of the burnt mound. It had a sharp break of slope at the top, concave sides leading to a flat base. It contained two fills (022) and (023).	Cut of trough
022	Fill	2.80	0.90	0.43	Loose black silty clay with frequent inclusions of heat shattered sandstones and gravel.	Upper fill in trough (021)

Context No	Type	Length (m)	Width (m)	Depth (m)	Description	Interpretation
023	Fill	2.95	1.10	0.42	Firm yellow grey white ash with inclusions of gravel. It measured 2.95 m long by 1.10 m wide and 0.42 deep.	Slump deposit in trough (021)
024	Cut	1.70	1.40	0.35	Sub-oval in shape. It had a gradual break of slope at the top and concave sides leading to a flat base. It had one fill (025). A total of 14 stakeholes/postholes were cut into the base of the pit: (032), (034), (036), (038), (040), (042), (044), (046), (048), (050), (052), (054), (056) and (058).	Cut of pit
025	Fill	1.70	1.40	0.35	Loose dark brown black silty sand with frequent inclusions of heat shattered sand stones.	Fill in pit (024)
026	Cut	0.07	0.05	0.15	Circular in shape, located to the northeast of the trough. It had a sharp break of slope at the top and vertical sides leading to an uneven base.	Cut of stakehole within (021) trough
027	Fill	0.07	0.05	0.15	Firm dark brown clayey silt with occasional inclusions of small stones.	Fill in stakehole (026)
028	Cut	0.13	0.10	0.15	Circular in shape, located 1.05 m southeast of small pit (062). It had a sharp break of slope at the top and vertical sides leading to a tapered base.	Cut of posthole
029	Fill	0.13	0.10	0.15	Firm black silt with occasional inclusions of stones.	Fill in posthole (028)
030	Cut	0.11	0.09	0.16	Circular in shape, located 0.75 m southwest of small pit (062). It had a sharp break of slope at the top, vertical sides leading to tapered base.	Cut of posthole
031	Fill	0.11	0.09	0.16	Firm dark brown silt, no inclusions.	Fill in posthole (030)
032	Cut	0.06	0.06	0.07	Circular in shape, located in the northeastern corner of pit (024). It had a sharp break of slope at the top, vertical sides leading to a rounded base.	Cut of stakehole within pit (024)
033	Fill	0.06	0.06	0.07	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (032)
034	Cut	0.06	0.05	0.07	Circular in shape, located to the northeast of pit (024). It had a sharp break of slope at the top and vertical sides leading to a concave base.	Cut of stakehole within pit (024)

Context No	Type	Length (m)	Width (m)	Depth (m)	Description	Interpretation
035	Fill	0.06	0.05	0.07	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (034)
036	Cut	0.05	0.04	0.05	Circular in shape, located to the southeast of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit (024)
037	Fill	0.05	0.04	0.05	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (036)
038	Cut	0.15	0.12	0.23	Circular in shape, located to the southeast of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of posthole within pit (024)
039	Fill	0.15	0.12	0.23	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in posthole (038)
040	Cut	0.06	0.05	0.07	Circular in shape, located to the south of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit (024)
041	Fill	0.06	0.05	0.07	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (040)
042	Cut	0.07	0.06	0.12	Circular in shape, located to the south of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit(024)
043	Fill	0.07	0.06	0.12	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (042)
044	Cut	0.11	0.10	0.17	Circular in shape, located to the southwest of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of posthole within pit (024)
045	Fill	0.11	0.10	0.17	Loose dark brown silty clay with occasional inclusions of charcoal.	Fill in posthole (044)
046	Cut	0.06	0.05	0.10	Circular in shape, located to the southwest of pit (024). It had a sharp break of slope at the top, vertical sides leading to a tapered rounded point base.	Cut of stakehole within pit (024)
047	Fill	0.06	0.05	0.10	Loose brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (046)

Context No	Type	Length (m)	Width (m)	Depth (m)	Description	Interpretation
048	Cut	0.08	0.08	0.10	Circular in shape, located to the southwest corner of pit (024). It had a sharp break of slope at the top and vertical sides leading to a concave base.	Cut of stakehole within pit (024)
049	Fill	0.08	0.08	0.10	Loose grey brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (048)
050	Cut	0.06	0.07	0.08	Circular in shape, located to the west of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit (024)
051	Fill	0.06	0.07	0.08	Loose brown silty clay with occasional inclusions of charcoal and small stones.	Fill in stakehole (050)
052	Cut	0.06	0.06	0.09	Circular in shape, located to the west of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit (024)
053	Fill	0.06	0.06	0.09	Loose dark brown silty clay with occasional inclusions of charcoal and small stones.	Fill in stakehole (052)
054	Cut	0.06	0.06	0.09	Circular in shape, located to the north of pit (024). It had a sharp break of slope at the top and vertical sides leading to a concave base.	Cut of stakehole within pit (024)
055	Fill	0.06	0.06	0.10	Loose brown silty clay with occasional inclusions of charcoal and small stones.	Fill in stakehole (054)
056	Cut	0.06	0.06	0.08	Circular in shape, located to the northeast of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit (024).
057	Fill	0.06	0.06	0.08	Loose dark brown silty clay with occasional inclusions of small stones and charcoal.	Fill in stakehole (056)
058	Cut	0.10	0.06	0.09	Circular in shape located to the northwest of pit (024). It had a sharp break of slope at the top, vertical sides leading to a concave base.	Cut of stakehole within pit (024)
059	Fill	0.10	0.06	0.09	Loose brown silty clay with occasional inclusions of charcoal.	Fill in stakehole (058)
060	Cut	0.10	0.10	0.15	Circular in shape, located 0.50 m southwest of stakehole (026) in trough (021). It had a sharp break of slope at the top, vertical sides leading to an uneven base.	Cut of stakehole within pit (021)

Context No	Type	Length (m)	Width (m)	Depth (m)	Description	Interpretation
061	Fill	0.10	0.10	0.15	Firm dark brown silty clay with occasional inclusions of small stones.	Fill in stakehole (060)
062	Cut	0.35	0.25	0.18	Oval in shape and orientated in a northwest-southeast direction. It had a sharp break of slope at the top and vertical sides leading to an uneven base.	Cut of small pit
063	Fill	0.35	0.25	0.18	Loose black silt.	Fill in small pit (062)
064	Cut	0.15	0.14	0.24	Circular in shape, located 0.80 m southwest of trough (012). It had a sharp break of slope at the top, vertical sides leading to an irregular base.	Cut of posthole
065	Fill	0.15	0.14	0.24	Firm dark brown black clayey silt with occasional inclusions of small stones.	Fill in posthole (064)

Appendix 2 – Finds Register for Site E2995

Find No.	Material	Type	Identification	Description	Habitat
E2995:001:001	Stone	Flint	Thumbnail Scraper	Small, thumbnail shaped, rounded on one side, almost flat on the other side. With visible tool marks (retouching).	Headland office

Appendix 3 – Sample Register for Site E2995

Sample no.	Context no.	Amount	Description	Type
E2995:001	008	10 L Bucket	Soil from burnt mound (008) with charcoal	Environmental
E2995:002	006	2 L Bag	Medium brown silty clay fill of drain (006)	Environmental
E2995:003	017	2 L Bag	Medium brown silt from drain (017)	Environmental
E2995:004	063	2 L Bag	Black silt from small pit (062)	Environmental
E2995:005	010	2 L Bag	Light grey ash from burnt mound (008)	Environmental
E2995:006	011	2 L Bag	Dark brown silt from burnt mound(008)	Environmental
E2995:007	022	2 L Bag	Black soil from trough (021)	Environmental
E2995:008	008	2 L Bag	Black silt from burnt mound (008)	Environmental
E2995:009	008	2 L Bag	Black silt from burnt mound (008)	Environmental
E2995:010	008	2 L Bag	Black silt from burnt mound (008)	Environmental
E2995:011	008	2 L Bag	Black silt from burnt mound (008)	Environmental
E2995:012	008	2 L Bag	Black silt from burnt mound (008)	Environmental
E2995:013	008	2 L Bag	Black silt from burnt mound (008)	Environmental
E2995:014	025	2 L Bag	Dark brown silty sand from pit (024)	Environmental
E2995:015	010	0.5 L Bag	Charcoal from burnt mound (008)	Environmental
E2995:016	008	0.5 L Bag	Charcoal from burnt mound (008)	Environmental
E2995:017	009	0.5 L Bag	Charcoal from burnt mound (008)	Environmental
E2995:018	023	2 L Bag	Yellow grey ash from trough (021)	Environmental

Appendix 4 – Photographic Register for Site E2995

Photo No.	Direction Facing	Description
E2995:001	Southeast	Mid-excavation of ditch (003)
E2995:002	North	Mid-excavation of burnt mound (008) and pit (012)
E2995:003	North	Mid-excavation of pit (012)
E2995:004	Northwest	Mid-excavation of drain (015)
E2995:005	Northwest	Post-excavation of pit (012) and stakehole (019)
E2995:006	Northwest	Mid-excavation of burnt mound (008), with (012) and (021)
E2995:007	Northwest	Pre-excavation of trough (021), southwest quadrant
E2995:008	East	Mid-excavation of burnt mound (008), southwest quadrant
E2995:009	Northwest	Mid-excavation of burnt mound (008), with (021), southeast quadrant
E2995:010	South	Mid-excavation of burnt mound (008), southwest quadrant
E2995:011	West	Mid-excavation of burnt mound (008)
E2995:012	West	Mid-excavation of burnt mound (008), southeast quadrant
E2995:013	East	Mid-excavation of burnt mound (008) and trough (012)
E2995:014	East	Mid-excavation of burnt mound (008) and related features
E2995:015	West	Mid-excavation of burnt mound (008) with (012)
E2995:016	West	Mid-excavation of burnt mound (008) with (012)
E2995:017	Southwest	Mid-excavation of burnt mound (008) with (012)
E2995:018	Southwest	Mid-excavation of burnt mound (008) with (012)
E2995:019	Southwest	Mid-excavation of trough (021)
E2995:020	Southwest	Mid-excavation of trough (021)
E2995:021	Northeast	Mid-excavation of pit (024)
E2995:022	South	Post-excavation of trough (021) with stakehole (026)
E2995:023	East	Post-excavation of trough (021) with stakehole (026)
E2995:024	East	Post-excavation of posthole (026) in trough (021)
E2995:025	Northeast	Post-excavation of burnt mound (008), with posthole (064), southeast quadrant
E2995:026	Southeast	Mid-excavation of burnt mound (008), with posthole (064), southeast quadrant
E2995:027	Northwest	Mid-excavation of burnt mound (008), with posthole (064), southeast quadrant
E2995:028	Northwest	Post-excavation of posthole (028), southeast quadrant of pit (021)
E2995:029	Northwest	Post-excavation of posthole (030), southwest quadrant of pit (021)
E2995:030	Northwest	Post-excavation of pit (024) with 14 stakeholes at base
E2995:031	North	Post-excavation of pit (024) with 14 stakeholes at base
E2995:032	East	Post-excavation of pit (024) with 14 stakeholes at base
E2995:033	Southeast	Post-excavation of stakeholes (026) and (060) within pit (021)
E2995:034	Southeast	Post-excavation of posthole (064)
E2995:035	East	Mid-excavation of small pit (062)
E2995:036	West	Post-excavation of burnt mound (008), with (021), (024), (012) and (062)
E2995:037	Southwest	Post-excavation of burnt mound (008), with (021), (024), (012) and (062)
E2995:038	East	Post-excavation of burnt mound (008), with (021), (024), (012) and (062)
E2995:039	Northwest	Post-excavation of burnt mound (008) and (024)
E2995:040	Northeast	Post-excavation of burnt mound (008) and (021) and (024)
E2995:041	Northeast	Post-excavation of burnt mound (008), with (021), (024) and (012)
E2995:042	South	Post-excavation of burnt mound (008), with (021), (024) and (012)

Photo No.	Direction Facing	Description
E2995:043	Southwest	Post-excavation of trough (012) and natural hollows
E2995:044	Southeast	Post-excavation of burnt mound (008), with (021) and (024)
E2995:045	Northeast	Post-excavation of small pit (062)
E2995:046	East	Post-excavation of test trench 1, testing area 6.D
E2995:047	West	Post-excavation of test trench 1, testing area 6.D
E2995:048	Northwest	Post-excavation of test trench 2, testing area 6.D
E2995:049	Southeast	Post-excavation of test trench 2, with ditch (003). Testing area 6.D
E2995:050	Southeast	Post-excavation of test trench 3, testing area 6.D
E2995:051	Northwest	Post-excavation of test trench 3, testing area 6.D

Appendix 5 – Drawing Register for Site E2995

Draw No.	Sheet No.	Section	Plan	Scale	Description
1	1	N/A	YES	1:50	Pre-excavation plan of E2995, northwest corner of site.
2	2	N/A	YES	1:50	Pre-excavation plan of E2995, northern area of site.
3	3	N/A	YES	1:50	Pre-excavation plan of E2995, eastern area of site.
4	4	N/A	YES	1:50	Pre-excavation plan of E2995, southwest corner of site.
5	5	N/A	YES	1:50	Pre-excavation plan of E2995, eastern area of site.
6	6	N/A	YES	1:50	Pre-excavation plan of E2995, southeast corner of site.
7	7	YES	N/A	1:20	Southeast facing section of drainage ditch (003).
8	7	YES	N/A	1:20	East facing section of burnt mound (008).
9	7	YES	N/A	1:20	Southeast facing section of trough (012).
10	7	YES	N/A	1:20	Northwest facing section of ditch (015).
11	8	YES	N/A	1:10	North facing section of trough (021).
12	8	YES	N/A	1:20	Southwest facing section of burnt mound (008).
13	9	YES	N/A	1:10	Southwest facing section of pit (024).
14	9	YES	N/A	1:20	Northwest facing section of burnt mound (008).
15	9	YES	N/A	1:20	Southeast facing section of burnt mound (008).
16	7	YES	N/A	1:20	West facing section of small pit (062).
17	10	N/A	YES	1:50	Post-excavation plan of E2995, eastern area of site.
18	11	N/A	YES	1:50	Post-excavation plan of E2995, northern area of site.
19	12	N/A	YES	1:50	Post-excavation plan of E2995, northwest corner of site.
20	13	N/A	YES	1:50	Post-excavation plan of E2995, southwest corner of site.

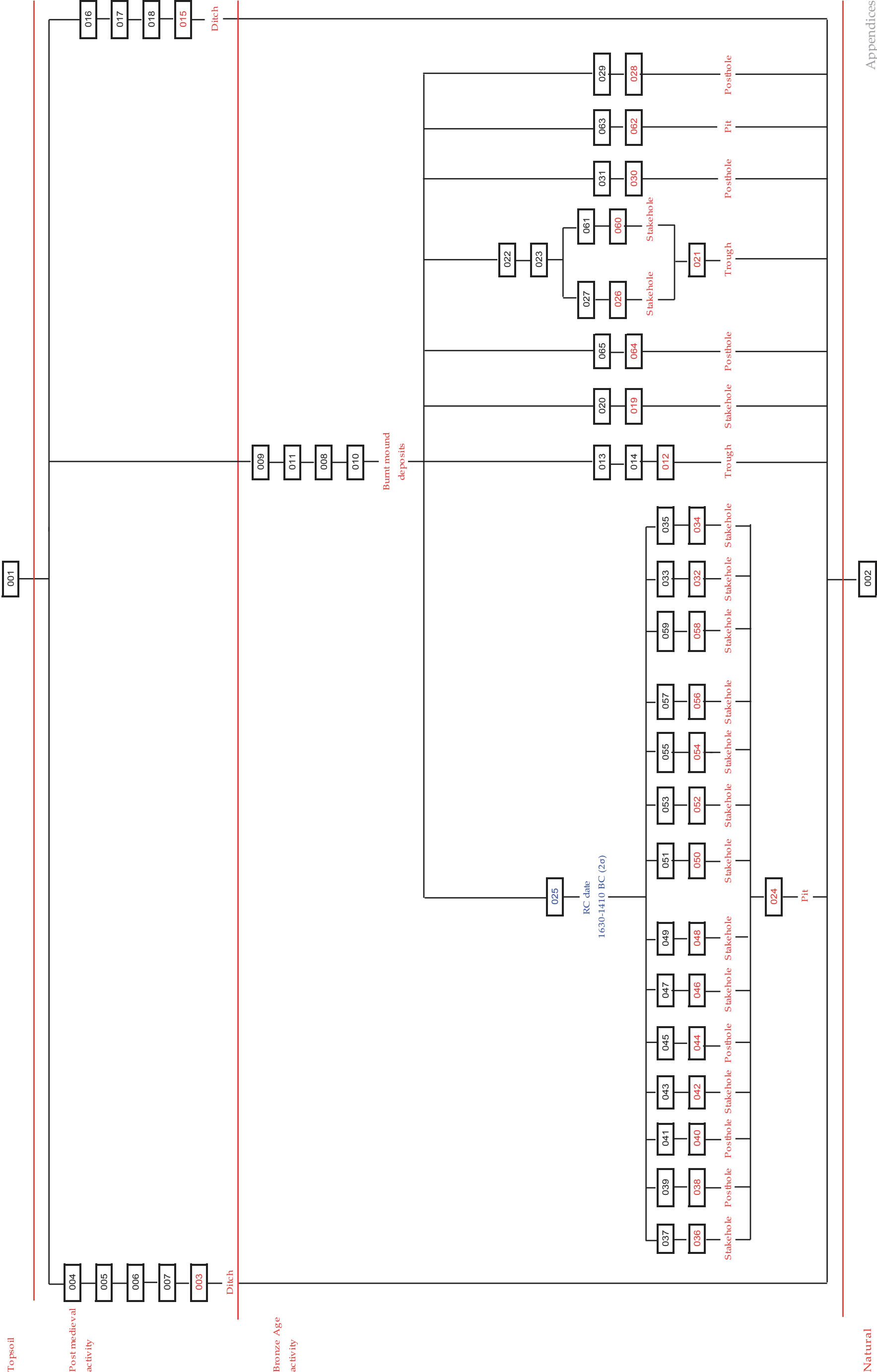
Appendix 6 – Test Trench Register for Site E2995

Trench No.	Trench dimensions	Trench description	Archaeology Present
Trench 1:6.d	10.30 m northeast-southwest by 2.00 m wide and 0.37 – 0.39 m deep	Topsoil A horizon) – dark brown silty clay, 0.29 – 0.27 m in depth. Subsoil (B horizon) – Grey silty clay, 0.10– 0.12 m in depth. Patches of peat lay on the natural surface. Underlying subsoil (C horizon) – Grey yellow boulder clay, frequent angular stones.	No archaeology
Trench 2:6.d	28.30 m northwest-southeast by 2.00 – 2.30 m wide and an average depth of 0.38 m.	Topsoil A horizon) – dark brown silty clay, 0.26 – 0.27 m in depth. Subsoil (B horizon) – Grey silty clay, 0.10 – 0.12 m in depth. Patches of peat lay on the natural surface. Modern drainage ditch (003) identified on site E2995 located in this trench. Underlying subsoil (C horizon) – Grey yellow boulder clay, frequent small stones located to the east.	No archaeology Modern drainage ditch (003)
Trench 3:6.d	18.90 m northwest-southeast by 2.00 m wide with a depth of 0.35 – 0.47 m.	Topsoil (A horizon) – dark brown silty clay, 0.25 – 0.35 m in depth. Subsoil (B horizon) – Grey silty clay, 0.10 – 0.12 m in depth. Patches of peat lay on the natural surface. A modern ceramic drainage pipe was found in this trench and orientated northwest-southeast. A hardcore stone drain was also found in this trench and orientated in a northeast-southwest direction Underlying subsoil (C horizon) – Grey yellow boulder clay, frequent angular stone.	No Archaeology Modern drainage.

Appendix 7 – Site matrix

Red - Cut Black - Fill/deposit Blue - Radiocarbon date

Topsoil



Appendix 8 – Palaeoenvironmental samples assessment for E2995, Coolane, Co. Kildare

By: Davie Masson and Scott Timpany

Introduction

Eighteen environmental samples were taken during the excavation of the townland of Coolane, Co. Kildare E2995. The site is principally that of a burnt mound with associated pits, postholes, stakehole and troughs. Eleven of the samples were processed in order to retrieve any palaeoenvironmental material that may aid in the interpretation of the site together with providing material for dating.

Methodology

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

Radiocarbon dating was undertaken at Scottish Universities Environmental Research Centre (SUERC), after Reimer *et al.* (2004). Calibrated age ranges were calculated using radiocarbon calibration program CALIB REV5.0.2. All results quoted in the text are taken from the 2 σ calibrated age range.

Results

The results are summarised below in Tables 1 (radiocarbon dating results), 2 (composition of retents) and 3 (composition of flots). All plant material was preserved by charring.

Radiocarbon dating

One radiocarbon date is available for this site, from dated alder (*Alnus glutinosa*) charcoal (see Table 1). The charcoal produced a Middle Bronze Age date for the burnt mound activity at Coolane; with activity dating to 1630-1410 cal BC (2 σ) (SUERC-25414; 3240 \pm 50 BP).

Wood charcoal

Wood charcoal was the main palaeoenvironmental material recovered from the site; present in all samples (see Tables 2 and 3). The charcoal fragments varied in quantity and size, with six samples (001, 004, 005, 007, 009 and 014) notable as containing abundant quantities of charcoal. Five samples (001, 007, 008, 012 and 014) contained fragments of a size suitable for AMS (Accelerated Mass Spectrometry) dating and identification (see Tables 2 and 3). Charcoal from Sample 014 was identified and used for dating (see Table 1).

Charred plant remains

Non-charcoal charred plant remains recovered from the samples are limited with rare quantities of oat (*Avena* sp) grain within Sample 001 and dock (*Rumex* sp.) seeds within Sample 009.

Other finds

Small quantities of burnt bone were recovered from two samples (007 and 010). The result of the analysis of these is discussed in Appendix 9.

Discussion

Burnt mound 1630-1410 cal BC

Eleven samples were assessed from the burnt mound feature and associated features. A Middle Bronze Age date of 1630-1410 cal BC (SUERC-25414; 3240±50 BP) has been obtained for the burnt mound activity from alder charcoal within the fill (025) of pit (024). Eight samples were assessed from the mound deposit (see Tables 2 and 3). All of these samples contained charcoal fragments, which would have been deliberately deposited (along with the burnt stone) to form the mound itself. Charcoal fragments present in the nearby pits (024) and (062), together with trough (022) are also thought to have originated from the burning activity connected to the mound. The identification of alder wood from pit (024) would also indicate that wetland woodland or possible fringe woodland was being exploited for fuel.

A single charred oat grain was also recovered from one sample (001) and a single dock seed was also present in the southeast corner of the mound (008). It is likely these charred plant remains are not associated with the mound activity but rather represent secondary material that has become incorporated into the burnt mound feature at a later date. Oat grains are usually associated with the medieval period in Ireland (Monk 1985-86) and thus again suggests it would not be contemporary with the burnt mound. This material may have become incorporated into the sample by mechanisms such as plough action or bioturbation.

Small quantities of burnt bone fragments were present in Sample 001 from the mound and within Sample 007 taken from the fill (022) of trough (021). The burnt bone may relate to the cooking or preparation of meats at the site and apart from the charcoal is the only other occupation evidence present within the sample assemblage from site E2995.

Conclusions

- The primary material present in the samples is charcoal fragments, which are likely to relate to the burnt mound activity.
- The presence of oat and dock at the site are suggested to relate to later activity (possibly medieval) and may have been incorporated through plough action or worm drag.
- The small quantity of burnt bone fragments provided tentative evidence for the cooking or preparation of meats at the site.

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E-Number	Lab code	Sample ID	Material	$\delta^{13}\text{C}$	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E2995	SUERC-25414	sample 14, context 25	Alder charcoal	-26.8	3240 \pm 50	1610-1570 cal BC	13.1	1630-1410 cal BC	95.4
						1540-1440 cal BC	55.1		

Table 1 – Radiocarbon date results

Context number	Sample number	Sample vol (L)	Context/ Sample description	Wood charcoal		Mammal bone		Shell
				Qty	AMS	Burnt	Unburnt	
8	1	10	Charcoal from Fulacht	+++		+		
10	5	2	From N baulk of Fulacht [008]	+++				
11	6	2	From N baulk of Fulacht [008]	++				
9	8	0.5	From N baulk of Fulacht [008]	+++	*			
8	9	2	From SE quarter of Fulacht [008]	+++				
8	10	2	From NW quarter of Fulacht [008]	++				
8	12	2	From S baulk of Fulacht [008]	+++				
8	13	2	From E baulk of Fulacht [008]	+++				
22	7	2	From Trough [21]	+++	*	+		+
63	4	2	From Pit [62]	+++				
25	14	2	From Pit [24]	+++	*			

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

Table 2 – Retent summary table

Context Number	Sample Number	Total flot Vol (ml)	Cereal grain:	<i>Avena</i> sp.	<i>Hordeum vulgare</i>	<i>Cerealia</i> indet.	Other plant remains	Charcoal Quantity	Charcoal Max size (cm)	Material available for AMS
Burnt Mound										
008	001	400		+				++++	2	Charcoal ++
010	005	30						++	<1	
011	006	50						++	<1	
009	008	20						++	<1	
008	009	100					<i>Rumex</i> sp. +	+++	<1	
008	010	75						+++	<1	
008	012	200						+++	1	Charcoal+
008	013	150						+	<1	
Trough										
022	007	-								
Pits										
063	004	150						+	<1	
025	014	150						++++	<1	
Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant NB charcoal over 1 cm is suitable for identification and AMS dating										

Table 3 – Flotation sample results

Appendix 9 – Final report on the faunal remains from Coolane, Co. Kildare (E2995)

By: Albína Hulda Pálsdóttir MA

Introduction

This report discusses the results of the animal bone analysis from Coolane, Co. Kildare (E2995). The resolution of the site revealed a small burnt mound (008), with three postholes (028), (030) and (064), two troughs (012) and (021), two pits (024) and (062) and a stakehole (019). A total of fourteen stakeholes were located at the base of one of the pits (024). Two modern linear drainage ditches (003) and (015) were identified on site E2995 (Doyle 2009, 3). The animal bone specimens were recovered from soil samples by sieving. The animal bones analysed for this report derive from burnt mound deposit (008) and the upper fill (022) of trough (021).

Methodology

During the analysis each specimen was identified and recorded according to species, skeletal element, age and sex where possible. The animal bone reference collection located in Headland Archaeology (Ireland) Ltd, Unit 1 Wallingstown Business Park, Little Island, Co. Cork was utilised. The York System bone database program was used for recording (Harland *et al.* 2003). The material was quantified by using the number of identified specimens (NISP). In addition, during the analysis pathological changes, carnivore and rodent gnawing, signs of burning and butchery marks were recorded. All data is stored in digital and written form in Headland Archaeology (Ireland) Ltd, Unit 1 Wallingstown Business Park, Little Island, Co. Cork.

Results

A total of three bone specimens were analysed from the Middle Bronze Age burnt mound at Coolane (Table 1). The bones were all burnt. No butchery marks, gnawing or pathology was observed on any of the bone specimens. None of the specimens could be securely identified as either human or animal. The features that they come from, a burnt mound and trough, are commonly found to contain animal bones and it can be assumed that they are most likely animal.

Context	Species	Element	NISP
008	Unidentified	Unidentified	2
022	Unidentified	Unidentified	1
Total			3

Table 1 – Species representation of sample (NISP)

Since the three bone specimens recovered from Coolane were all very small, burnt unidentifiable fragments no conclusions can be drawn in relation to the sex and age of the animals or to the activities they reflect at the site. However, some general observations can be made. The animal bone samples from burnt mound sites are usually relatively small. In a previous study it was found that the animal bones recovered from burnt mound sites have been connected especially with slaughter, primary butchery and meat preparation (Tourunen 2008, 40). In burnt mounds excavated in the Carlow/Kildare area such as Ballybar Lower (E2618), Co. Carlow, Busherstown (E2584), Co. Carlow and Johnstown (E2586), Co. Carlow, cattle dominates the assemblages followed by horse, deer, pig and sheep or goat (Tourunen 2008). The material from Ballygawley (Site 1), Co. Tyrone is also dominated by cattle bones, however no horse bones were found in the identifiable portion of the

assemblage and the proportion of pig and sheep or goat bones is higher than in the samples from Carlow and Kildare (Tourunen 2009). The potential for local variation across Ireland has not been fully investigated. For example, in five burnt mound sites excavated in Co. Tipperary the only identified animal was sheep or goat (Stevens 2005, 326).

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Appendix 10 – Radiocarbon date and Certificate for E2995

E-Number	Lab code	Sample ID	Material	σ13C	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E2995	SUERC-25414	sample 14, context 25	Alder charcoal	-26.8	3240±50	1610-1570 cal BC	13.1	1630-1410 cal BC	95.4
						1540-1440 cal BC	55.1		



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RADIOCARBON DATING CERTIFICATE

2 October 2009

Laboratory Code SUERC-25414 (GU-19287)

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

Site Reference KCK06 E2995
Context Reference 25
Sample Reference 14

Material charcoal : alder

$\delta^{13}\text{C}$ relative to VPDB -26.8 ‰

Radiocarbon Age BP 3240 \pm 50

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

Conventional age and calibration age ranges calculated by :- P. Naysmith

Date :- 2/10/09

Checked and signed off by :- C. Dunbar

Date :- 02/10/09

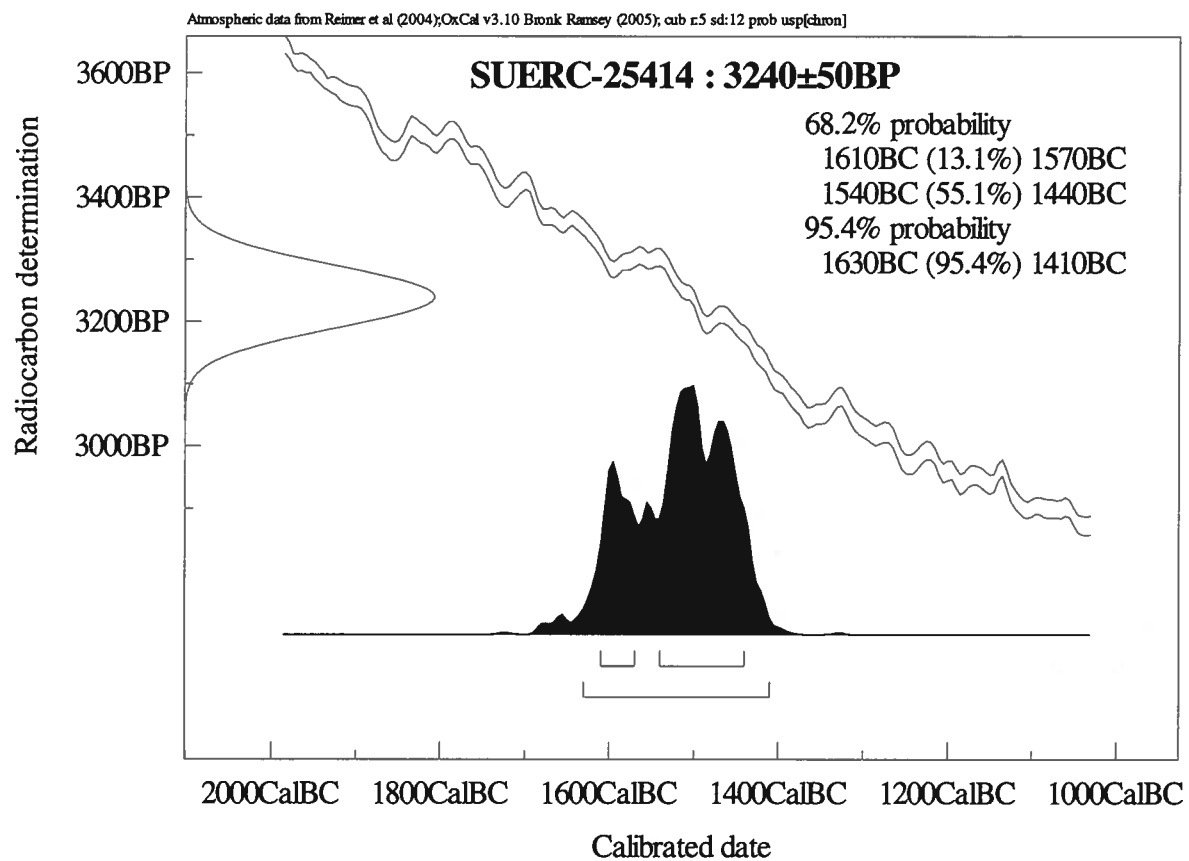


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Calibration Plot



Appendix 11 – The knapped assemblage from Coolane, Co. Kildare (E2995)

By: Maria Soledad Mallia-Guest

Introduction

A single knapped artefact was recovered from the surface (001) at site E2995, in the townland of Coolane, Co. Kildare. The archaeological features at the site comprised a burnt mound spread overlying a number of troughs, postholes, stakeholes and pits (Doyle 2009).

Methodology

A macroscopic analysis of the components was carried out based upon a techno-typological approach following categories developed by Inizan *et al.* (1999). Further contextual background is based on Woodman *et al.* (2006).

The artefacts were visually examined with the aid of an 8x hand lens, recorded and catalogued using Microsoft Excel 2003. No minimum size criterion was applied for artefact discard; therefore, any other lithic material that may have been retrieved during sample processing was incorporated to contribute to the assemblage integrity. The variables recorded include overall metric attributes (length, width and thickness), type of raw material, fragmentation, and artefact condition to determine if post-depositional, manufacture or use-damage was present.

In addition, when macroscopic evidence of use-wear was present, subsequent basic high-power micro-wear analysis was carried out using a reflective microscope at 200x magnification. The presence/absence of use traces such as micro-polish, motion striation and edge-scarring/rounding were also recorded.

Results

A single complete flint artefact (E2995:001:001; Table 1) was recovered from the topsoil at Site E2995 (Coolane, Co. Kildare). The find is in fair condition, presenting some discolouration and luster and falling within the formal or retouched artefact category.

It consists of a convex sub-circular scraper manufactured on a mid-greenish greyish buff flint cortical flake-split-pebble. The artefact, which has a diameter of 25 mm, displays continuous unifacial short retouch extending approximately 50% of the circumference and defining a rather abrupt (75°) and blunted working edge. It also shows possible heat-alteration, particularly in the form of a discoloured cortex and a banding on its working edge.

Discussion

The flint artefact (E2995:001:001) can be classified as a convex sub-circular scraper, traditionally known as 'thumbnail', which mainly refers to a thick piece presenting equal length and breadth with steep retouch and a straight opposing end. These varieties are usually associated with Early Bronze Age assemblages and are likely to have emerged sometime during the Final Neolithic to become remarkably standardised throughout the Bronze Age (Woodman *et al* 2006; O'Hare 2005). O'Hare (2005) highlights the increasing thickness recorded in Bronze Age examples by comparison with those

of earlier periods, with flint examples showing consistent length and width dimensions until the later Bronze Age when their size increase. Furthermore, differences between chert and flint examples have also been noted, with chert scrapers being smaller and only similar in size to the flint counterparts during the Beaker period, with both flint and chert examples becoming cruder towards the later Bronze Age (O'Hare 2005, 150). Bamforth and Woodman (2004) suggested, in their functional analysis of convex and concave scrapers of the Irish northeast, that convex scrapers may have shifted from hide-processing to woodworking activities as they became progressively reduced in their size (Bamforth and Woodman 2004, 35).

A substantial number of convex scrapers, including end of flake as well as micro-disc and sub-circular examples were recovered during both resolution and testing phase at Site E2570 (Burtonhall Demesne, Co. Kildare) situated southwards of Coolane along the N9/N10 road stretch (Sternke 2008; Mallia-Guest 2008); these were considered Late Neolithic/Early Bronze Age in date. Similar examples were also recently identified in occupation spreads at Site E2873 (Ballymount, Co. Kildare) and from the surface at Site E2874 (Ballymount, Co. Kildare) plausibly associated with the burnt mound activity recorded on that site.

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NMI Number	Raw Material	Type	Category	Length (mm)	Width (mm)	Thickness (mm)	State	Condition	Others	Cortex	Blank	Position of Retouch	Type of Retouch	Extension of Retouch	Type of use	Type of Platform	Bulb	Ripples	Eraillieur scar	Colour
E2995:001	Flint	Convex scraper	Retouched artefact	25	24.6	10.4	C	Fair	Lustered- heat altered? (discoloured)	Yes- 85%	Split-Pebble	DU	Ab. 75°	Short	Bt	N/A	ND	D	No	Mid-greenish/greyish buff

Key: C: complete; ND: non-differentiated; D: diffuse, P: pronounced, DU: Direct Unifacial; Ab: Abrupt; Bt: blunting

Table 1 – Lithic find from Coolane, Co. Kildare (E2995)