






transport21 progress in motion

NDP National Development Plan 2007 - 2013

Department of Transport An Roinn Iompair

NRA An tÚdarás um Bóithre Náisiúnta National Roads Authority Archaeology

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 E2968, in the townland of Moone, Co. Kildare.

By: Lyndsey Clark
National Monuments Section Registration Number: E2968
Director: Red Tobin
NGR: 277066/193085

Report Status: Final

Meanma agus Misneach

HEADLAND ARCHAEOLOGY Ltd

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 E2968, in the townland of Moone, Co. Kildare.

By: Lyndsey Clark
National Monuments Section Registration Number: E2968
Director: Red Tobin
NGR: 277066/193085

Report Status: Final

CONTENTS **PAGE**

List of Figures

List of Plates

Appendices

Executive Summary

This final report presents the results of the archaeological resolution works carried out on behalf of Kildare County Council and the National Roads Authority as part of the Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown. The works were undertaken prior to the commencement of construction of the N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. The Minister of the Environment, Heritage & Local Government, following consultation with the National Museum of Ireland, issued Directions to Kildare County Council on 8 March 2007 for archaeological resolution works relating to the road development. The National Monuments Section Registration Number, E2968, was allocated by the Department for the excavation of the present site in Moone townland under the directorship of Red Tobin of Headland Archaeology (Ireland) Ltd. This report was written by Lyndsey Clark, as Mr Tobin was no longer employed by Headland Archaeology (Ireland) Ltd during the post-excavation phase.

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

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

Archaeological testing was carried out between April and August 2006 by CRDS Ltd. for Archaeological Services Contract No. 2 – Test Excavations, Mullamast to Prumplestown and Athy Link Road. Testing under Ministerial Direction Number A021/163 was undertaken on this site between 19 and 20 June 2006. This identified a possible ring ditch with associated pits and linear features.

Full archaeological resolution was conducted on this site between 12 October and 13 November 2007. A number of features associated with *fulachtaí fiadh* activity – namely a shallow trough, a possible pot boiler, a discrete deposit of burnt material and a narrow drainage gully – were identified within a 10 m area at the centre of the site. Radiocarbon dating was undertaken on a sample of charcoal from the trough; this returned a calibrated date range of 900-800 BC (2σ) (SUERC-25324), placing the activity in the Late Bronze Age period.

The next identified phase of activity was dated to the post-medieval to modern period, with a radiocarbon date of cal AD 1660-1960 (2σ) (SUERC-25306) returned for a waste pit located in the southwestern part of the site. A large network of linear and curvilinear features associated with agricultural activities were also recorded, as were a field boundary depicted on the First Edition 6" Ordnance Survey map (1837-1838) and a backfilled pond depicted on the First Edition 25" Ordnance Survey map (1897-1913).

Several finds were recovered from the excavation of E2968, including metal objects, fragments of clay tobacco pipes, sherds of post-medieval pottery and glass bottle shards.

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

1 Introduction

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

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

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

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

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

Archaeological test-trenching was undertaken in advance of the construction of Phase 3, the Kilcullen to Carlow Scheme, by IAC Ltd and CRDS Ltd, between October to November 2005 and May to August 2006 (Archaeological Services Contracts No. 1 and No. 2, respectively). This work resulted in the identification of 102 archaeological sites, which required resolution in advance of construction. The resolution works for these sites were undertaken by Headland Archaeology (Ireland) Ltd between March and December 2007 (Archaeological Services Contracts No. 5 and No. 6). This report details the results of one of those excavations, undertaken under NMSR Number E2968.

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 E2968 was situated in the townland of Moone, Moone parish, in the barony of Kilkea and Moone, approximately 7.5 km north-northwest of Castledermot, Co. Kildare (NGR: 277066/193085; Figure 1). The site was located in the southwestern corner of a large, sub-rectangular field which was under crop at the time of excavation (Plates 1 and 2). To the north and west the field was bounded by a minor road, to the east and south it was bounded by hedgerows. There were no known archaeological sites in the vicinity of E2968 in advance of the current road development.

Archaeological investigations undertaken as part of Archaeological Services Contract No. 6 identified two sites in the vicinity of E2968: Site E2965 was located approximately 950 m to the south-southwest and contained the remains of an isolated waste pit (Clark 2010a); and Site E2969 was located approximately 1080 m to the north-northeast and contained the remains of an isolated pit (Clark 2010b).

In addition to these sites a third area of archaeological potential (E2963) was investigated approximately 1.1 km to the south-southwest of Site E2968; however, no features of archaeological significance were identified (Clark 2010c).

3 Aims and methodology

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

Topsoil stripping of the site was conducted using a 360° tracked machine fitted with a 1.9 m wide ditching (toothless) bucket under constant archaeological supervision. A total area of 1464 m² was exposed. The resulting surface was cleaned and all potential features investigated by hand. Archaeological contexts were recorded by photograph and on *pro forma* record sheets. Plans and sections were drawn at scales of 1:20 and 1:10 respectively. Registers are provided in the appendices (Appendices 1-5). Ordnance Datum levels and feature locations were recorded using Penmap and a total station theodolite.

Environmental samples 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. Artefacts recovered during the excavation were assigned unique numbers and treated in accordance with National Museum of Ireland guidelines. All of the soil samples taken during the excavation were selected for processing and environmental assessment (Appendix 7).

Full archaeological resolution was conducted on this site between 12 October and 13 November 2007. The crew on site E2968 consisted of 1 director, 1 deputy site manager and between 15 and 20 site assistants.

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

4 Excavation results

Following the removal of topsoil, the remains of a shallow trough, a small spread of burnt material and associated pit, a waste pit and a large network of linear and curvilinear features were revealed (Figure 3).

Two phases of activity were evident on the site. These phases were based on radiocarbon dates and feature morphology. They can be summarized in the following manner: Late Bronze Age activity, represented by the trough (014), the burnt spread (037), pit (038) and linear feature (011); and post-medieval to modern activity, represented by waste pit (019) and a large network of linear and curvilinear features associated with agricultural activities. A field boundary depicted on the First Edition 6" Ordnance Survey map (1837-1838; Figure 4) and a backfilled pond depicted on the First Edition 25" Ordnance Survey map (1897-1913; Figure 4) were also identified.

During the initial clean back of the site, a small number of finds were recovered from the topsoil (Appendix 2). These included: one fragment of a clay pipe bowl (E2968:001:001); two fragments of clay pipe stem (E2968:001:002 and 003); and two sherds of post-medieval pottery (E2968:001:004 and 005).

Phase 1 – Late Bronze Age activity
Trough: Sub-rectangular trough (014) (Plates 3, 4 and 5) was located towards the centre of Site E2968, approximately 13.6 m from the northwestern limits of excavation; it had been truncated on its northwestern side by linear feature (010) and curvilinear feature (013) (see phase 2). Its breaks of slope were imperceptible at both the top and bottom of the cut, while the sides were slightly irregular and sloped gently towards an uneven base. This feature was oriented in a northwest/southeast direction and measured 1.9 m in length, 1.3 m in width and 0.15 m in depth. It was filled by brownish black, loosely compacted silty clay (029), which contained frequent flecks of ericaceae charcoal, a charred sedge nutlet (Appendix 7), 13 fragments of burnt unidentified animal bone (Appendix 8) and heat-affected stone inclusions. Radiocarbon dating of the charcoal returned a date range of cal 900-800 BC (2σ) (SUERC-25324), placing this activity firmly in the Late Bronze Age period (Appendices 7 and 10).

Approximately 1.20 m to the east-southeast of trough (014) was a small spread of burnt material (037) (Figure 5; Plates 6 and 7); this had been truncated by modern field drain (020) and drainage ditch (025) (see Phase 2) and was presumably the remains of a burnt mound that had been largely eradicated by centuries of agricultural activity. It consisted of black, firmly compacted silty sand with frequent charcoal, heat-affected stones and a total of 144 burnt unidentified animal bone fragments (Appendix 8). It had a length of 1.48 m by 1.02 m, with a maximum surviving depth of 0.15 m.

Sub-oval pit (038) (Figure 6; Plates 8 and 14), located approximately 3 m to the southwest of trough (014), had been slightly truncated by curvilinear feature (013) (see phase 2). It measured 0.74 m long, 0.5 m wide and 0.15 m deep and had a sharp break of slope at the top, with concave sides breaking imperceptibly onto a rounded base. Its fill was composed of black, loosely compacted silty clay (039). This contained frequent heat-affected stones and charcoal inclusions. The regularity of this feature would suggest that it was anthropogenic in nature with the inclusions of charcoal and heat-affected stone indicating the likelihood that it was contemporary with trough (014) and the burnt spread (037). It is therefore possible that this feature functioned as a second trough.

Possible Late Bronze Age activity: Directly to the northwest of the aforementioned activity was north-northeast/south-southwest orientated linear feature (011) (Plates 9 and 10). This extended from the northern limits of excavation and ran for a distance of 22.7 m, terminating approximately 0.8 m to the west of pit (038). It had an average width of 0.4 m, a maximum surviving depth of 0.3 m and a V-

shaped profile. The later cutting of linear features (003), (010) and curvilinear feature (013) had caused a small degree of truncation to this feature (see Phase 2). Its basal fill, light grey, firmly compacted silty clay (032), was evident throughout the length of the cut; this was overlain by two deposits. At the northern end, the upper fill consisted of yellowish brown, firmly compacted sandy silt (043), while at the southern end, in the vicinity of trough (014) and pit (038), the upper fill consisted of black, moderately compacted sandy silt (012). This contained frequent heat-affected stones and charcoal inclusions.

It is not entirely clear whether feature (011) was contemporary with the burnt mound activity as its morphology seemed more consistent with machine cutting rather than hand; however, the inclusions of burnt material – and the lack there of in the other linear features on the site – seems to suggest this possibility. If it was indeed contemporary with the burnt mound activity, it is possible that this feature functioned as some kind of drainage gully.

Phase 2 – Post-medieval to modern activity

In the southwestern part of the site, extending from the northwestern limits of excavation was waste pit (019) (Plate 11). This was oval in plan, measuring 3.46 m in length, 1.2 m in width, with a surviving depth of 0.2 m. It had imperceptible breaks of slope, concave sides and a flat base and had been truncated at its southeastern extent by linear feature (022) (see below). Its basal fill was composed of mid-grey, loosely compacted silty sand (049), which contained occasional small sized stones, patches of ash and charcoal and 5 fragments of burnt unidentified animal bone (Appendix 8). The uppermost fill, dark reddish grey, moderately compacted clayey sand (048), contained frequent quantities of charcoal, ash, burnt clay, shell and 5 burnt unidentified animal bone fragments (Appendix 8). Very occasional grains of rye were also recovered from this deposit. One of these was subsequently radiocarbon dated, returning a date range of cal AD 1660-1960 (2σ) (SUERC-25306) (Appendices 7 and 10). A possibly originally looped object (E2968:048:001), which is suggested to represent the remains of scissors (Appendix 10), and a ceramic fragment (E2968:048:002) were also recovered from this deposit (Appendix 2).

Field drain (022) truncated the southeastern extent of waste pit (019). It was linear in plan, measuring approximately 7 m in length (north-northwest/south-southeast) by 0.68 m in width and was 0.32 m deep. The breaks of slope at the top of the cut were sharp, with concave sides breaking gradually onto a concave base. It was filled by light greyish yellow, loosely compacted sandy silt (044), which contained occasional small sized stone inclusions. Adjoining the western side of this feature was field drain (023). This was also linear in plan, with gradual breaks of slope, concave sides and an uneven base. It measured 4.03 m long, 0.9 m wide and 0.62 m deep and was orientated in an east/west direction, extending beyond the limits of excavation. Its fill consisted of mid-yellowish grey, loosely compacted sandy clay (045). This deposit contained occasional inclusions of small sized stones.

Pit (021) was located towards the northern extent of field drain (022). It was sub-oval in plan, with sharp breaks of slope, concave sides and a rounded base, and measured 1.8 m in length (northwest/southeast), 0.9 m in width and 0.35 m in depth. Its fill consisted of light greyish yellow, loosely compacted sandy silt (042), which contained occasional small sized stone inclusions. The function of this feature remains uncertain, although the sterility of the deposit would suggest that it was of little archaeological significance.

Pit (035) measured 1.93 m long, 0.65 m wide and 0.5 m deep and was situated approximately 12.8 m to the east of pit (021). It was Irregular in plan with imperceptible breaks of slope, irregular sides and an irregular base. The basal fill within this feature consisted of dark greyish brown, firmly compacted, clayey peat (046). This was overlain by mid-greyish brown, moderately compacted, silty sand (036),

which contained occasional decayed stone inclusions. A highly corroded and fragmented L-shaped iron object (E2968:036:001) was also recovered from this deposit (Appendix 10).

A series of interconnected and truncating linear features were identified towards the centre of the site, in the region of the Late Bronze Age activity. The earliest of these features was linear ditch (010) (Figure 8; Plates 4, 12 and 13). This extended from the northwestern limit of excavation and ran for approximately 13.4 m, slightly truncating trough (014) and linear feature (011) (see phase 1) before terminating. It was orientated in a west-northwest/east-southeast direction and had a sharp break of slope at the top of the cut, gradual at the bottom, concave sides and a flat base. It measured between 1.04 m x 1.84 m in width, 0.5 m in depth and contained four fills. The basal fill was composed of mid-brown, loosely compacted silty sand (055) and contained occasional pockets of gravel within its soil matrix. This was situated beneath mid-greyish brown, loosely compacted silt (054), which also contained gravel inclusions. The tertiary fill consisted of mid-greyish brown, loosely compacted sandy silt with occasional inclusions of pebbles (053). This was overlain by the upper fill of the ditch, mid-greyish brown, loosely compacted sandy silt (052), which contained occasional pebbles.

Re-cutting of ditch (010) occurred with the excavation of linear feature (056) (Plate 13). This also extended from the northwestern limits of excavation, running for approximately 10.6 m before terminating at the point where ditch (010) truncated linear feature (011). The northern extent of this feature seemed to follow the line of ditch (010) exactly; although it was slightly narrower than its predecessor, measuring only 0.84 m in width. It was also significantly shallower than ditch (010), with a depth of 0.24 m. The purpose of this re-cut is uncertain and no information could be gleaned from its fills, which consisted of mid-greyish brown (058) and mid-brown (057), loosely compacted silty sand.

Curvilinear feature (013) (Figure 6; Plates 4 and 14) had gradual breaks of slope, moderately sloping, convex sides and an irregular base. It had an average width of 0.6 m, a maximum surviving depth of 0.2 m and extended in a roughly north/south direction for approximately 10 m before arcing towards the northeast and continuing for a further 8 m. Trough (014), pit (038) (see Phase 1), linear feature (010) and field drain (016) (see below) were truncated through the construction of this feature, while it was itself truncated by linear feature (040). Its fill, dark brown, loosely compacted silty clay (051), contained occasional heat-affected stones and charcoal as a result of the truncation to features (014) and (038).

Extending from the southern side of linear ditch (010) and truncating curvilinear feature (013), was linear feature (040) (Figure 6; Plate 14). This was oriented in a northwest/southeast direction and had gradual breaks of slope with concave sides and a flat base; it measured 5.6 m long, 1.5 m wide and had a maximum depth of 0.23 m. Its basal fill consisted of mid-brown, loosely compacted silty clay (061), which contained a charred bud of probable alder (Appendix 7) and very occasional small sized stone inclusions. This was overlain by yellowish grey, loosely compacted sandy silty clay (060). The uppermost fill, brown, loosely compacted silty clay (059), contained occasional inclusions of medium sized stones. The relationship between features (010) and (040) was not determined during excavation, but it is unlikely that they were contemporary; the function of linear feature (040) therefore remains uncertain.

An east/west orientated field drain (016) (Plate 15) was truncated at the southern extent by curvilinear feature (013). It measured approximately 9 m in length, 0.98 m in width and 0.34 m in depth and had a sharp break of slope at the top, with convex sides breaking imperceptibly onto a flat base. The basal fill, mid-brown loosely compacted clayey silt (031), contained occasional small sized stones within its soil matrix. It was situated beneath light grey, firmly compacted clay (030), which contained occasional inclusions of pebbles. The tertiary fill consisted of mid-greyish brown, firmly compacted

clayey silt with occasional small sized stones (027). This was overlain by the uppermost fill, dark brown, firmly compacted silty clay (026), which contained occasional small sized stone inclusions.

Drainage ditch (025) (Figure 5; Plates 6 and 7) consisted of a shallow linear cut oriented in a north-northwest/south-southeast direction. It had gradual to sharp breaks of slope, concave sides and a rounded base and measured 4.4 m by 1.06 m by 0.12 m deep. At its northern extent it truncated burnt spread (037) (see phase 1); its southern extent had been heavily truncated during the testing phase therefore its relationship with the post-medieval pond (see below) could not be established. The single fill recorded within feature (025) was composed of dark grey, loosely compacted sandy silt with occasional pebble inclusions (047).

A field boundary (003) (Figure 7; Plate 16), depicted on the First Edition 6" Ordnance Survey map (1837-1838; Figure 4), was identified in the northern part of Site E2968. It was orientated in an east-northeast/west-southwest direction and extended beyond the limits of excavation; an average width of 1.7 m and a maximum surviving depth of 0.50 m were recorded. Its breaks of slope ranged from gradual to sharp at both the top and bottom of the cut, while its sides varied from convex to concave; the base was flat in profile. It truncated linear feature (011) (see Phase 1) and was itself truncated by the modern field drain (020) (see below).

Four fills were recorded within field boundary (003). The basal fill was composed of light grey, firmly compacted stony clay (006). This was overlain by dark grey, firmly compacted silty sand (005), which contained occasional small sized stone inclusions. The corroded remains of a large knife blade (E2968:005:006), a corroded L-shaped iron object (E2968:005:004) (Appendix 10) and two glass bottle shards (E2968:005:003-004) were also recovered from this deposit (Appendix 2). A layer of mid-yellowish grey, firmly compacted silty clay with occasional inclusions of pebbles (007) was noted above deposit (005). The uppermost fill, mid-brown loosely compacted, silty sand (004), contained occasional small sized stones and pebble inclusions.

Extending across the site along a northeast/southwest bearing, modern field drain (020) (Figure 5; Plates 6 and 7) consisted of a machine-cut slot trench which contained a ceramic pipe surrounded by gravel. It ran for a distance of 23 m and was 0.4 m wide. This field drain truncated both burnt spread (037) (see phase 1) and field boundary (003) (see above). The fills were not issued with individual context numbers due to their modern character.

The western portion of a late 19th century pond (Plate 17) – which was evident on the First Edition 25" Ordnance Survey map (1897-1913; Figure 4) but absent on the 6" Edition (1837-1838; Figure 4) – was exposed within the confines of the excavation. The dimensions of this pond within the site limits were approximately 20.3 m (north/south) by 10.8 m. It was tested to a depth of 4.8 m whereupon natural subsoil was located. Due to the relatively modern date attributed to this feature, further recording was not undertaken and no context numbers were assigned.

Non-archaeological

A small number of features were excavated and recorded but were later deemed to be non-archaeological in nature. These included: (008), (017) and (018).

5 Discussion

Introduction
The results of the excavation at Site E2968 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.

Chronology
Two phases of activity were identified on site E2968, with a radiocarbon date from the trough (014) returning a Late Bronze Age date range of 900-800 cal BC (2σ) (SUERC-25324) and a radiocarbon date from waste pit (019) returning a post-medieval/modern date range of cal AD 1660-1960 (2σ) (SUERC-25306) (Appendices 7 and 10). The site was dominated by the remains of numerous drainage ditches, linear features and a field boundary. These are consistent with the remains of post-medieval agricultural activities and as such are of little archaeological significance.

Environmental setting
The recovered palaeoenvironmental remains revealed little about the environmental setting of Site E2968 in the Late Bronze Age; although the identification of ericaceae charcoal from the fill of trough (014) does suggest that small woody material, such as heather, was being utilised as a fuel source, while the charred sedge nutlet indicates the possibility that sedge was growing in the vicinity of the site.

The recovery of rye grains from waste pit (019) indicates a post-medieval/modern environment based on crop husbandry and agriculture. This theory is supported by the large number of drainage ditches, field boundaries and linear and curvilinear features noted throughout the site. The faunal and artefactual remains from this feature also suggest that it was domestic in nature; although the lack of other domestic features at Site E2968 precludes further discussion.

Phase 1 – Late Bronze Age activity
The subsoil cut trough (014), as well as the small deposit of charcoal and heat-affected stone (037), combined with the location of this site in a marginal wetland area, has led to it being interpreted as the heavily truncated remains of a *fulacht fiadh* and its associated components.

General, morphology and distribution: Burnt mounds or *fulachtaí fiadh* have been identified in almost every part of the country and are the most common prehistoric monument in Ireland (Waddell 2000, 174). Large infrastructural projects have consistently identified large numbers of these sites; for example *fulachtaí fiadh* and related site types, such as burnt mounds and spreads, were identified on 11 of a total of 16 sites from Contract No. 4 of the N9/N10 Kilcullen to Waterford road scheme. A total of 24 sites, excavated as part of Contracts No. 5 and No. 6 of the same scheme also produced evidence of previously unknown *fulachtaí fiadh.*

The majority are invariably located close to a water source (e.g. Ó Neill 2000). This was well demonstrated during the North Munster Project (Grogan 2005), where the *fulachtaí fiadh* 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 location of this site in marginal wetland is therefore typical of this monument type.

It has been well documented that *fulachtaí fiadh* can be densely concentrated in areas that were suitable for their construction. Ó Drisceoil (1988, 676) describes how they 'are frequently found

together in groups of up to ten or more'; however, there were no known *fulachtaí fiadh* within a 1 km radius of Site E2968.

Functional theories: The technology of *fulachtaí fiadh* is well known. Stones were heated in a nearby fire and placed in a water-filled trough. The heat from the stones would then bring the water to boil. Once cool, the stones were removed from the trough and discarded, creating a characteristic burnt mound or spread of heat-shattered stones. Grogan *et al.* (2007, 91) 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. Using digital terrain modelling, they calculated that the average number of uses per site was approximately 250 (*ibid.*). However, other than the small spread of burnt material (037), there was no associated burnt mound in the immediate vicinity of trough (014). Such isolated troughs are not uncommon in Ireland and have been identified at numerous excavations, including those at Attyflin, Co. Limerick (Deevy 1999) and Ballyduff, Co. Waterford (Long and Hegarty 2004). The absence of substantial mounds or spreads at these sites may indicate that the activity represented was relatively short-lived. Another possibility, especially for Site E2968, is that the mound had been eradicated by centuries of agricultural activity.

One of the most difficult aspects of interpreting the function of *fulachtaí fiadh* sites is identifying how the boiled water was subsequently utilised. The traditional interpretation of these monuments is that they were cooking sites, a view supported by the early texts, folk memory (Ó Drisceoil 1988; Ó Neill 2004) and experimentation (O'Kelly 1954; Allen 1994). The texts 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: fulling, brewing, leather working, and use as sweathouses or as multifunctional sites. It is most likely that *fulachtaí fiadh* were multifunctional, or that different sites were used for different purposes. Determining what each site was used for is difficult in large part because of the lack of definitive evidence and recovered finds.

Cooking: The theory with the most corroborating evidence is the use of the sites for cooking. Experimental work by O' Kelly demonstrated that a joint of meat could be cooked in three to four hours using hot stones to boil water in a trough (O' Kelly 1954), while Allen describes an experiment in which the meat was cooked in two hours (1994, 9). It has been noted that a distinct lack of food refuse, such as animal bones, is characteristic of scientifically excavated burnt mound sites; however, it could be that the cooking of joints of meat was subject to various sorts of ritual or hygiene controls and that any food remains were carefully disposed of (Waddell 2000, 177). Monk has recently shown, however, that although many bones are likely lost to acidic soil, an increasing number of sites are now producing preserved bone (2007, 22). A recent preliminary study undertaken by Dr Auli Tourunen and Karen Stewart on the pH levels of *fulachtaí fiadh* showed that there was no correlation between the pH value of a site and bone preservation (Tourunen and Stewart 2008). They caution, however, that this information is preliminary and that a wide range of factors may have contributed to bone preservation, or the lack there of, and that the use of animal products at sites can not be ruled out (*ibid.*). Additional support is provided for the cooking hypothesis by detailing the importance of meat fat in food preservation (Monk 2007, 23). Monk notes that without cooking trays, gathering the fat would have been problematic (*ibid.*). One solution, however, is to boil the meat and collect the fat from the surface of the water, an activity for which *fulachtaí fiadh* are ideally suited (*ibid.*). The presence of fats in the water of *fulachtaí fiadh* is also supported with the literary evidence in the story of Mis and Dubh Ruis, which records the cooking of a deer in water heated by hot stones, with the water subsequently being used for bathing (Ó Neill 2004, 80).

Based on the faunal assemblage from trough (014) and the small spread of burnt material (037) it is possible that cooking was the main activity being carried out at Site E2968 during the Late Bronze

Age period. However, the assemblage was too small for conclusive comparisons against other sites (Appendix 7) and the lack of further palaeoenvironmental and artefactual evidence precludes further discussion.

Bathing: The bathing hypothesis is supported by ethnographic work carried out by Barfield and Hodder (1987). They claim that those who used the burnt mounds may well have covered them in some way and used them for sweating. This is also represented in the increasing archaeological evidence, as more of these sites are excavated. Irish sweathouses used medicinally are recorded from the modern period, in which a fire would be lit inside a stone hut until the walls were hot, the embers raked out and the patient sealed inside, sometimes with herbs placed on the hot stones (Barfield and Hodder 1987, 373). Recent excavations have been producing convincing evidence that at least some *fulachtaí fiadh* represent this kind of activity, for example sites at Rathpatrick (04E0318) on the N25 Waterford Bypass (Gleeson and Breen 2006) and Ballyburn Lower, Co. Kildare (E2566) (Hackett 2009a).

Monk (2007, 24) has also hypothesised that *fulachtaí fiadh* may have been associated with soap production, as all three primary ingredients are present (wood-ash, water and animal fats). Ó Drisceoil (1988; 1990) has shown that the bathing in the *fulachtaí fiadh* had possible ritual connections (either with mythical people or with magically curative properties as with Mis and Dubh Ruis), and Barfield and Hodder (1987, 373) show that individual or communal sweating also has frequent ritual associations. Barfield and Hodder do not limit the uses of sweathouses to ritual activity however, and they point out that their use is an easy method of bathing.

Although trough (014) was relatively large in size, its shallowness suggests that it would not have been adequate for use as a bath. Site E2968 had, however, suffered from centuries of agricultural activity; it is therefore possible that this feature was originally deeper.

Brewing: A newer theory as to the uses of *fulachtaí fiadh* comes from Moore and Quinn (2007), who have suggested brewing as a primary function of the sites. They maintain that the requirement for large quantities of heated water and a lack of suitable material to produce large basins, in which to heat the water, would have lead to the use of pits or troughs in which hot stones could be dropped to produce the required heat (*ibid.*). They also state that quern stones, found in association with *fulachtaí fiadh,* indicate grain processing nearby. They provide ethnographic evidence for this type of brewing, as well as tracing the practice back 500 years. Although this evidence is considerably later than the general date range for *fulachtaí fiadh*, it provides evidence that the practice has been used throughout Europe over a considerable length of time. Their experiment conclusively proved that *fulachtaí fiadh* could easily have been used to produce very drinkable ale (Moore and Quinn 2007). However, the Irish Archaeobotany Discussion Group has refuted the idea of the primary function of *fulachtaí fiadh* being for brewing. This is, in part, due to the lack of botanical remains associated with brewing found at the sites (McClatchie *et al*. 2007). Based on this theory and the lack of palaeoenvironmental remains, it is unlikely that the trough from Site E2968 was utilised for brewing.

Dating: Radiocarbon dated *fulachtaí fiadh* have been found to have a very broad date range with a small number of sites attributed to the Late Neolithic period and occasional examples producing dates from the Iron Age or later. However, there is a marked concentration of sites dating to the Early Bronze Age, while a smaller but significant group indicate use in the Late Bronze Age (Brindley and Lanting 1990). A recent dating program has generally corroborated the findings of Brindley and Lanting, with the majority of sites excavated in advance of the gas pipeline to the west producing dates to the 1700-1000 BC period (Grogan *et al*. 2007, 96); although there was also a high concentration of dates to the 2500-1700 BC period (*ibid.*). Baillie (1990, 167) has made the suggestion that *fulachtaí fiadh* could have been used for the most part before the eruption of Mount Heckla in 1159 BC, while

the environmental changes brought about by the volcano, heralded a reduction in their use in the first millennium BC.

At the time of the compilation of this report, the author had access to 60 radiocarbon dates from 35 *fulachtaí fiadh* excavated from Contracts No. 4, No. 5 and No. 6 of the N9/N10 Kilcullen to Waterford road scheme; it should be borne in mind, however, that the dates were available as raw data and conclusions reached as a result, could be subject to change upon completion of post-excavation work for the scheme as a whole. A preliminary evaluation of these dates shows a clear peak of activity in the Early Bronze Age (2200-1500 BC), which is slightly earlier than is generally expected. In addition to this, there is a significant number of dates from the Final Neolithic/Early Bronze Age transition period (2400-2200 BC), which suggests that the technology involved was well established by the beginning of the Bronze Age in the area. The N9/N10 dates show continued use of the monuments into the Middle Bronze Age (1500-1000 BC), with a smaller number of sites producing Late Bronze Age (1000-600 BC) and Iron Age (600 BC-400 AD) dates as the monuments appear to be fading from use.

Comparative sites

Radiocarbon dating was undertaken on one sample form trough (014). This produced a calibrated date range that placed the activity represented in the Late Bronze Age period (Appendices 7 and 10). Similar dates were also obtained from 10 sites excavated as part of Contracts No. 4, 5 and 6 of the current road scheme:

Project	**Contract**	**E-number**	**Townland**	**NGR**	**Report Author**
KWK05	4	E2566	Ballyburn Lower	277883/181393	Hackett 2009a
KWK05	4	E2583	Busherstown,	277581/174789	Breen and O' Connell 2009
KWK05	4	E2584	Busherstown	277545/174624	Breen 2009a
KWK05	4	E2585	Busherstown	277531/174530	Breen 2009b
KWK05	4	E2586	Johnstown	277650/176216	Breen and Clark 2009
KWK05	4	E2618	Ballybar Lower	272265/171013	Hackett 2009b
KCK06	5	E2874	Ballymount	281581/201100	Hanbidge 2010
KCK06	6	E2954	Woodlands East	276380/185337	Janes *et al* 2009
KCK06	6	E2956	Woodlands East	276448/185085	Hackett 2010
KCK06	6	E2967	Prumplestown Lower	276696/183723	Long *et al* 2009

Conclusions

Due to the lack of diagnostic artefacts, palaeoenvironmental material and faunal remains from Site E2968, the specific function of trough (014) could not be determined, although cooking is the most likely scenario. However, on completion of the post-excavation works for the scheme as a whole, the *fulachtaí fiadh* excavated on the N9/N10 Kilcullen to Waterford road scheme will be invaluable to further nationwide studies of this monument type.

6 Archive quantities

The site archive is comprised of the following materials:

Item	Quantity
Context Sheets	61
Plans	10
Sections	63
Photographs	179
Registers	5
Notebooks	0

The archive material is contained within 1 box.

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

References

Allen, D. 1994 'Hot water and plenty of it' *Archaeology Ireland,* Vol. 8, No. 1, 8-9.

Baillie, M. 1990 'Provision of dates for *fulachta fiadh*' in V. Buckley (comp.) *Burnt Offerings: International Contributions to Burnt Mound Archaeology.* Wordwell, Wicklow. 165-9.

Barfield, L. and Hodder M. 1987 'Burnt mounds as saunas, and the prehistory of bathing' *Antiquity* Vol. 61, 370-79.

Breen, G. 2009a *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 4 – Resolution, Prumplestown to Powerstown. Final Report on archaeological investigations at Site, E2584, in the townland of Busherstown, Co. Carlow.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Breen, G. 2009b *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 4 – Resolution, Prumplestown to Powerstown. Final Report on archaeological investigations at Site, E2585, in the townland of Busherstown, Co. Carlow.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Breen, G. and Clark, L. 2009 *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 4 - Resolution, Prumplestown to Powerstown. Final Report on archaeological investigations at Site E2586, in the townland of Johnstown, Co. Carlow.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Breen, G. and O' Connell, T.J. 2009 *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 4 - Resolution, Prumplestown to Powerstown. Final Report on archaeological investigations at Site E2583, in the townland of Busherstown, Co. Carlow.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Brindley, A. and Lanting J. 1990 'The dating of fulachta fiadh'. 55-56

Clark, L. 2010a *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 E2965, in the townland of Moone, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Clark, L. 2010b *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 E2969, in the townland of Moone, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Clark, L. 2010c *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 E2963, in the townland of Belan, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

CRDS Ltd. 2006 *N9/N10 Kilcullen to Waterford Scheme: Archaeological Services Contract No.2: Mullamast To Prumplestown Co. Kildare: Centreline Testing*, Unpublished report by CRDS Ltd. for Kildare County Council and the National Roads Authority. 75 – 76.

Deevy, M. 1999 'Isolated trough, Attyflin, Co. Limerick (99E0459)' in I. Bennett (ed.) *Excavations Bulletin.* http://www.excavations.ie/Pages/Details.php?Year=&County=Limerick&id=477 (Accessed 14/04/10)

Gleeson, C. and Breen, G. 2006 *N25 Waterford Bypass, Contract 3. Final Report on archaeological investigations at Site 40, in the townland of Rathpatrick, Co. Kilkenny.* Unpublished report by Headland Archaeology (Ireland) Ltd for Waterford County Council.

Grogan, E. 2005 *The North Munster Project.* 2 Vols. Wordwell, Wicklow.

Grogan, E., O' Donnell, L. and Johnston, P. 2007 *The Bronze Age Landscapes of the Pipeline to the West.* Wordwell, Wicklow.

Hackett, L. 2009a *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 4 – Resolution, Prumplestown to Powerstown. Final Report on archaeological investigations at Site E2566 (A021/008), in the townlands of Ballyburn Lower and Ballyhade, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd for Kildare County Council and the National Roads Authority.

Hackett, L. 2009b *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown. Archaeological Services Contract No. 4 – Resolution, Prumplestown to Powerstown. Final Report on archaeological investigations at Site E2618, in the townland of Ballybar Lower, Co. Carlow.* Unpublished report by Headland Archaeology (Ireland) Ltd for Kildare County Council and the National Roads Authority.

Hackett, L. 2010 *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 E2956, in the townland of Woodlands East, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd for Kildare County Council and the National Roads Authority.

Hanbidge, R. 2010 *N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 5 – Resolution, Kilcullen to Moone and Athy Link Road. Final Report on archaeological investigations at Site E2874, in the townland of Ballymount, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd for Kildare County Council and the National Roads Authority.

Janes, T., Kozlowska, D. and Skarstrand, E. 2009 *N9/N10 Kilcullen to Waterford Scheme, Phase 3: Kilcullen to Carlow. Archaeological Services Contract No. 6- Resolution, Moone to Prumplestown. Preliminary Report on archaeological investigations at Site E2954 in the townland of Woodlands East, Co. Kildare.* Unpublished report by Headland Archaeology (Ireland) Ltd for Kildare County Council and the National Roads Authority.

Long, P. and Hegarty, L. 2004 *N25: Waterford Bypass. Final report on archaeological excavations at Site 43 in Ballyduff townland, Co. Waterford 04E0225*. Unpublished report by Headland Archaeology (Ireland) Ltd. for Waterford City Council and the National Roads Authority.

Long, P., Clark, L. and O'Malley, M. 2009 *N9/N10 Kilcullen to Waterford Scheme Phase 3: Kilcullen to Carlow. Archaeological Services Contract No. 6- Resolution, Moone to Prumplestown. Preliminary Report on archaeological investigations at Site E2967, in the townland of Prumplestown Lower, Co. Kildare.*

Unpublished report by Headland Archaeology (Ireland) Ltd for Kildare County Council and the National Roads Authority.

McClatchie, M., Brewer A., Dillon M., Johnston P., Lyons S., Monk M., Stewart K. and Timpany S. (members of the Irish Archaeobotany Discussion Group) 2007 Letter to the Editor 'Brewing and *Fulacht fiadh' Archaeology Ireland*, Vol. 21, No. 4, 46.

Monk, M. 2007 'A greasy subject' *Archaeology Ireland*, Vol. 21, No. 1, 22-24.

Moore, D. and Quinn, B. 2007 'Ale, brewing and *fulacht fiadh*', *Archaeology Ireland,* Vol. 21, No. 3, 8-11.

Ó Drisceoil, D. 1988 'Burnt mounds: cooking or bathing?' *Antiquity* Vol. 62, 671-80.

Ó Drisceoil, D. 1990 'Fulachta fiadh: the value of early Irish literature' in V. Buckley (comp.) *Burnt Offerings: International Contributions to Burnt Mound Archaeology.* Wordwell, Bray. 157-164.

O'Kelly, M.J. 1954 'Excavations and experiments in ancient Irish cooking places' *Journal of the Royal Society of Antiquities in Ireland* Vol. 95, 105-155.

Ó Neill, J. 2000 'Just another *fulacht fiadh* story', *Archaeology Ireland* Vol. 14, No. 2, 19.

Ó Neill, J. 2004 '*Lapidibus in igne calefactis coquebatur:* The historical burnt mound 'tradition', *Journal of Irish Archaeology* Vols. 12-13, 79-85.

Tourunen A. and Stewart K. 2008 *pH analysis of burnt mounds: implications for preservation of organic material.* Poster presented at The World Archaeological Congress, Dublin, Ireland 2008.

Valerie J. Keeley Ltd. 2003 'Architectural, Archaeological and Cultural Heritage', in Roughan and O'Donovan - FaberMaunsell Alliance (compilers) *N9/N10 Kilcullen to Waterford Scheme: Kilcullen to Powerstown: Environmental Impact Statement Vol. 1.* 10/1 – 10/154. Published report for Kildare County Council and the National Roads Authority.

Waddell, J. 2000 The Prehistoric Archaeology of Ireland. Wordwell, Wicklow.

Cartographic sources

1st Edition 6" Ordnance Survey Map of Kildare, 1837-1838 (Sheet KE036).

2nd Edition 6" Ordnance Survey Map of Kildare, 1870-1872 (Sheet KE036).

1st Edition 25" Ordnance Survey Map of Kildare, 1908-1909 (Sheet KE036).

Record of Monuments and Places Map of Kildare.

Acknowledgements

The director would like to thank the following for their contribution to the excavation and post-excavation phases of this project:

- Noel Dunne, NRA Archaeologist, Kildare County Council, National Roads Design Office.
- On-site and post-excavation project managers, Colm Moloney, Damian Shiels, Åsa Carlsson and Patricia Long, Headland Archaeology (Ireland) Ltd.
- Graphics department, Headland Archaeology (Ireland) Ltd.
- Damien Maguire, Site Supervisor, Headland Archaeology (Ireland) Ltd.
- The excavation team.

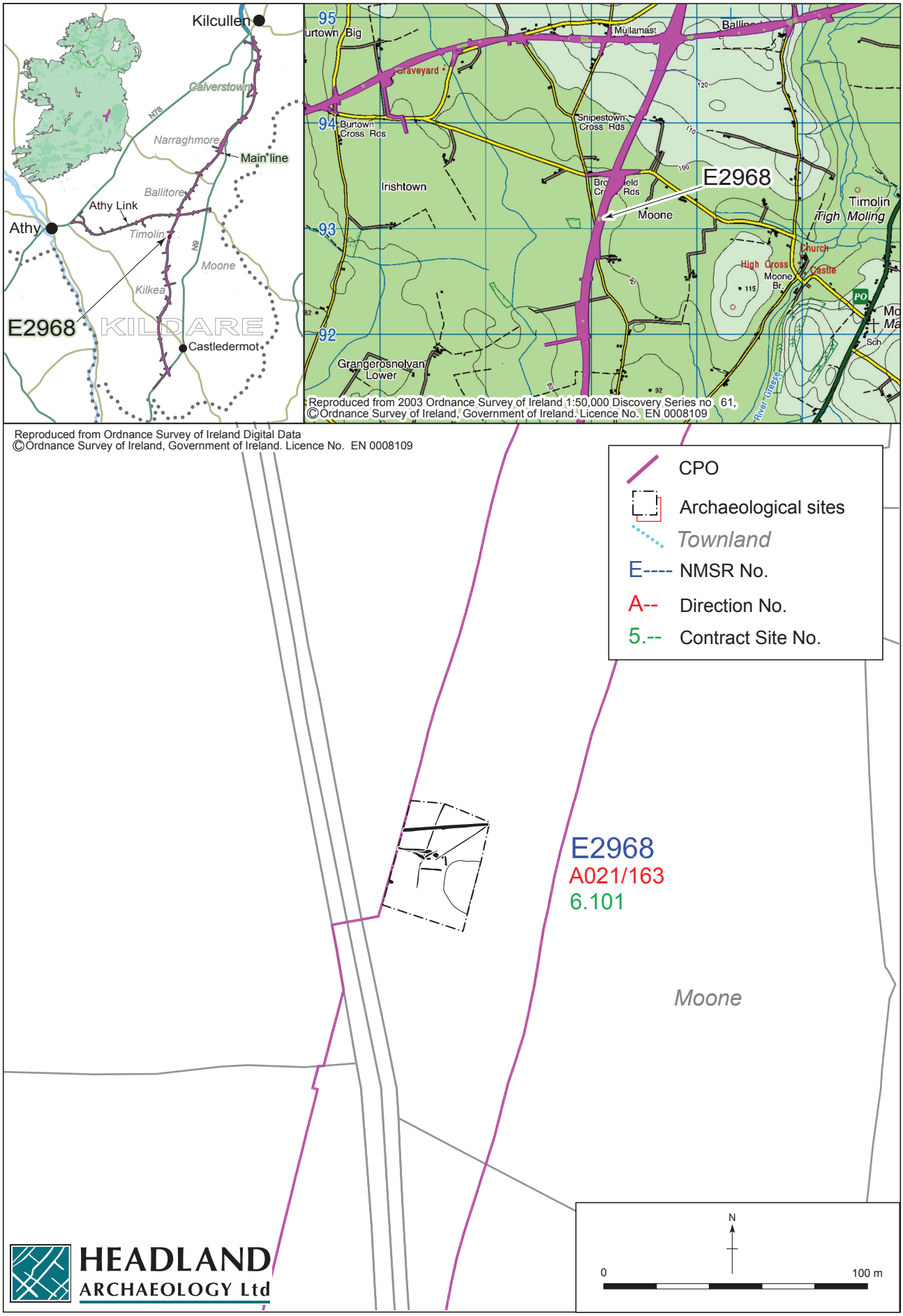


Figure 1 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, Site location.

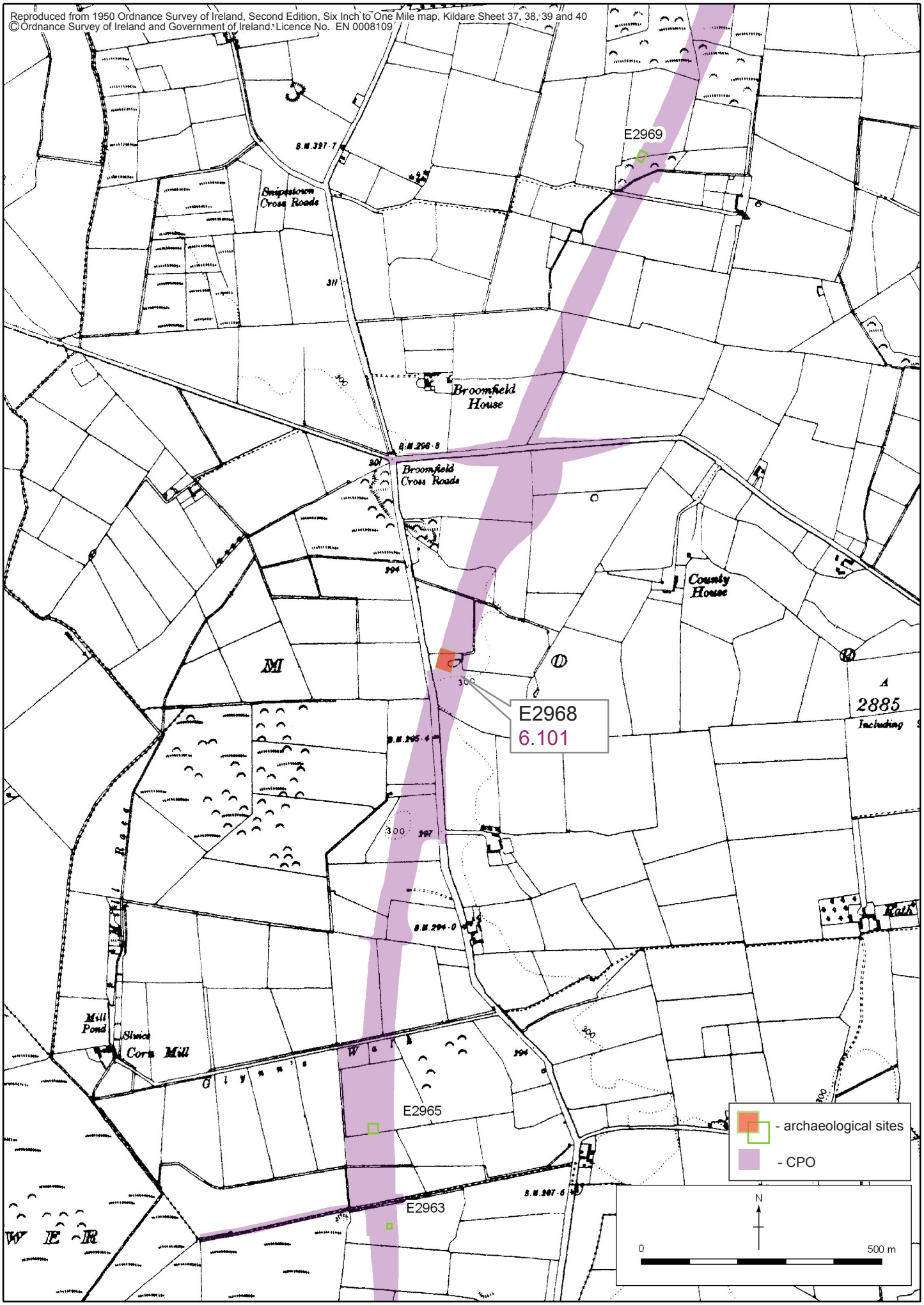


Figure 2 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, Extract from RMP.

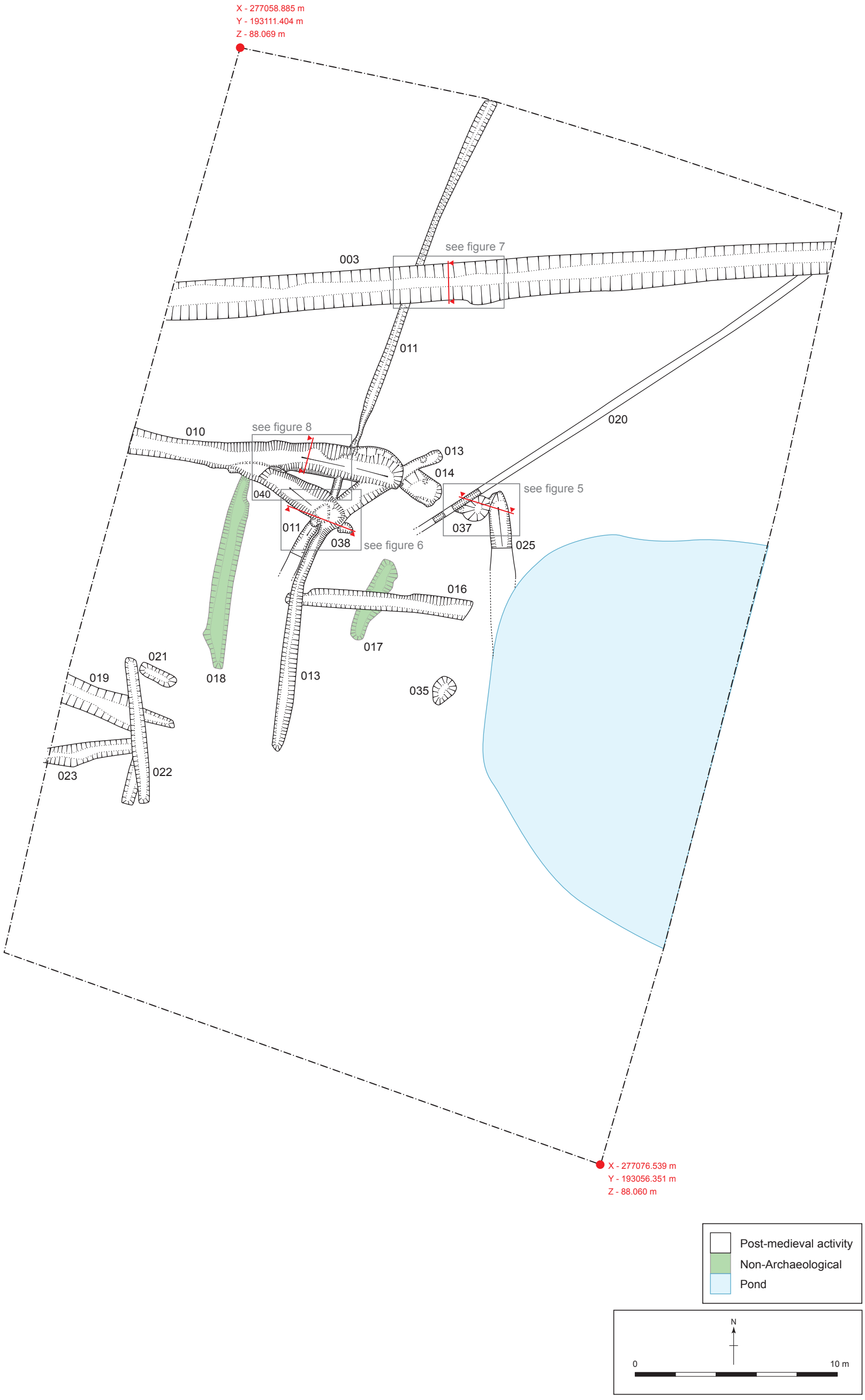
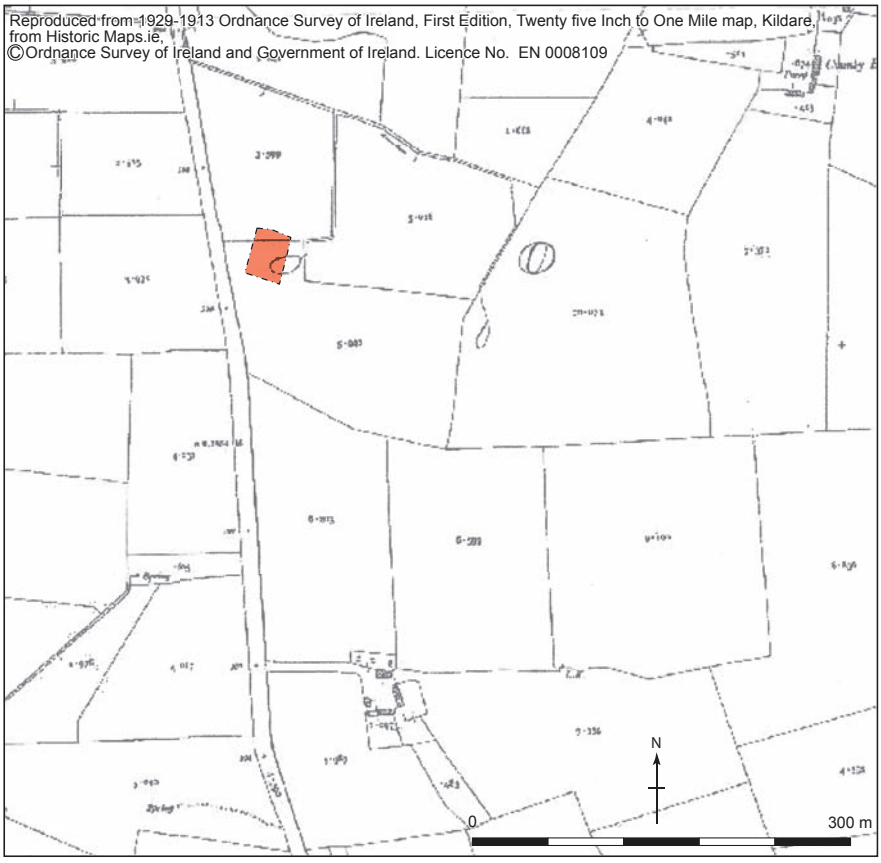


Figure 3 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, Site layout.

6" 1829-1841



25" BW 1897-1913

Figure 4 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, Detail of OS 6 inch and OS 25 inch maps.

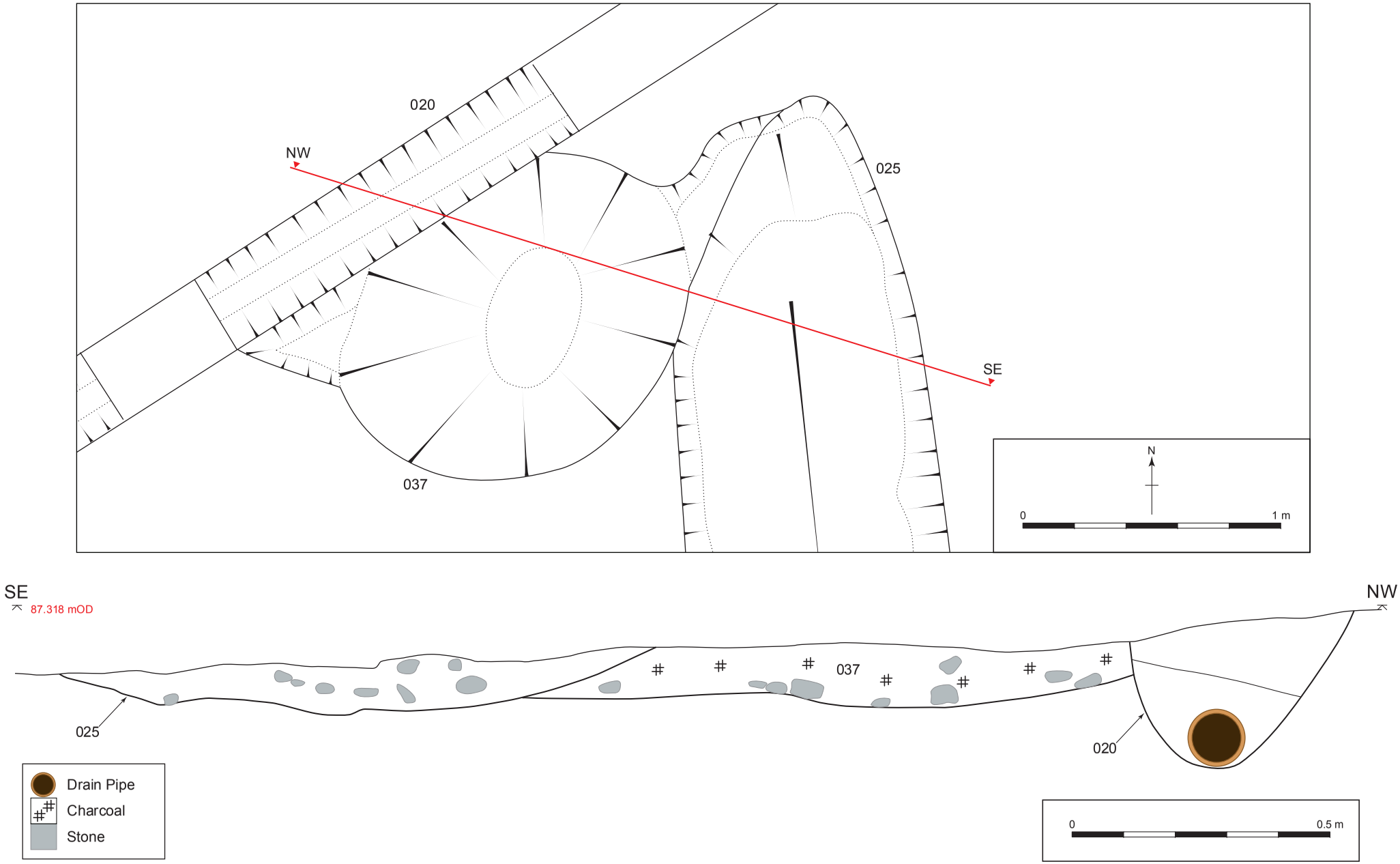


Figure 5 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, Northeast-facing section of burnt material (037), linear feature (025) and field drain (020).

Figure 6 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, Southwest-facing section of pit (038), curvilinear feature (013) and linear feature (040).

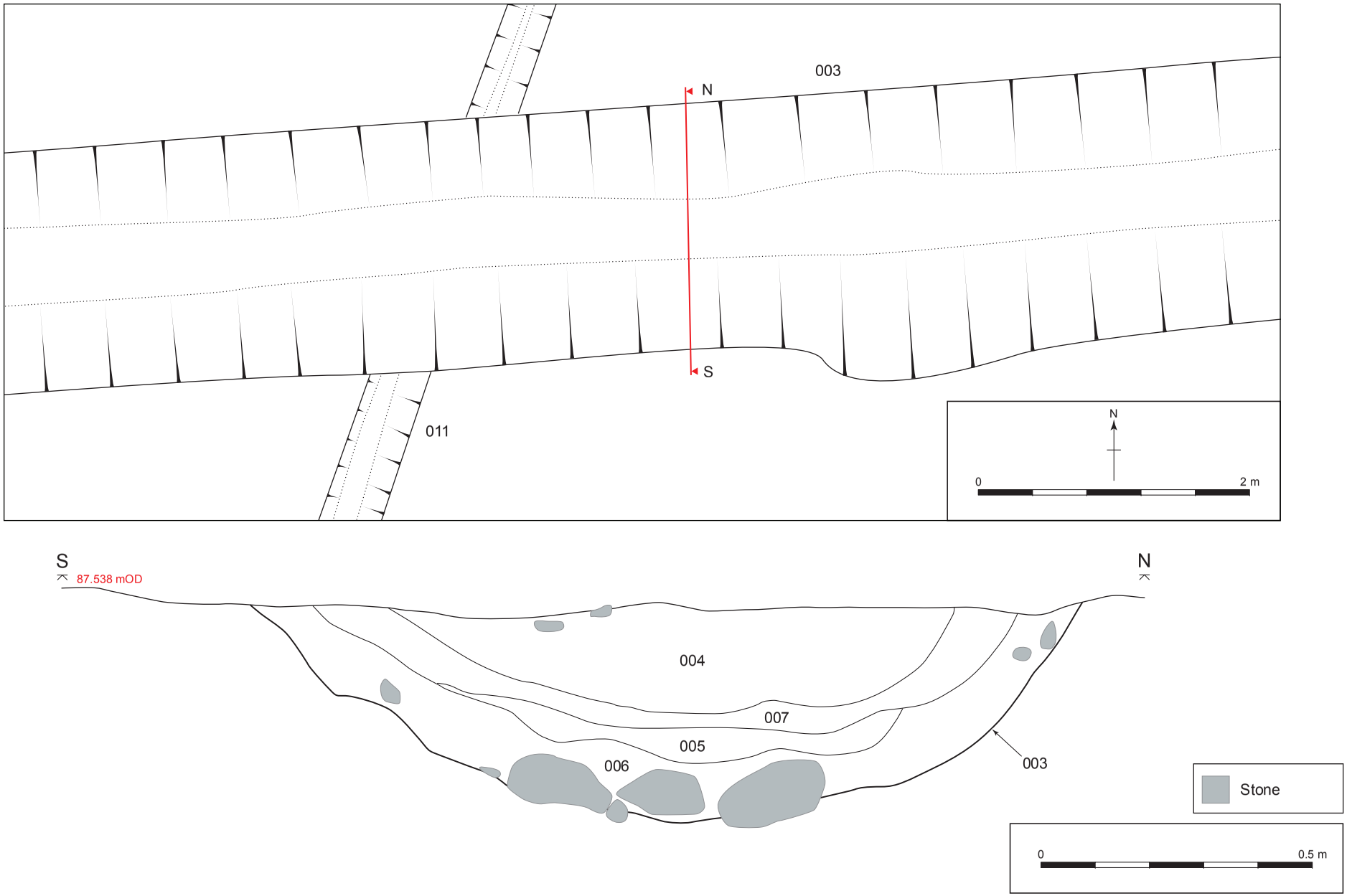


Figure 7 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, East-facing section of field boundary (003).

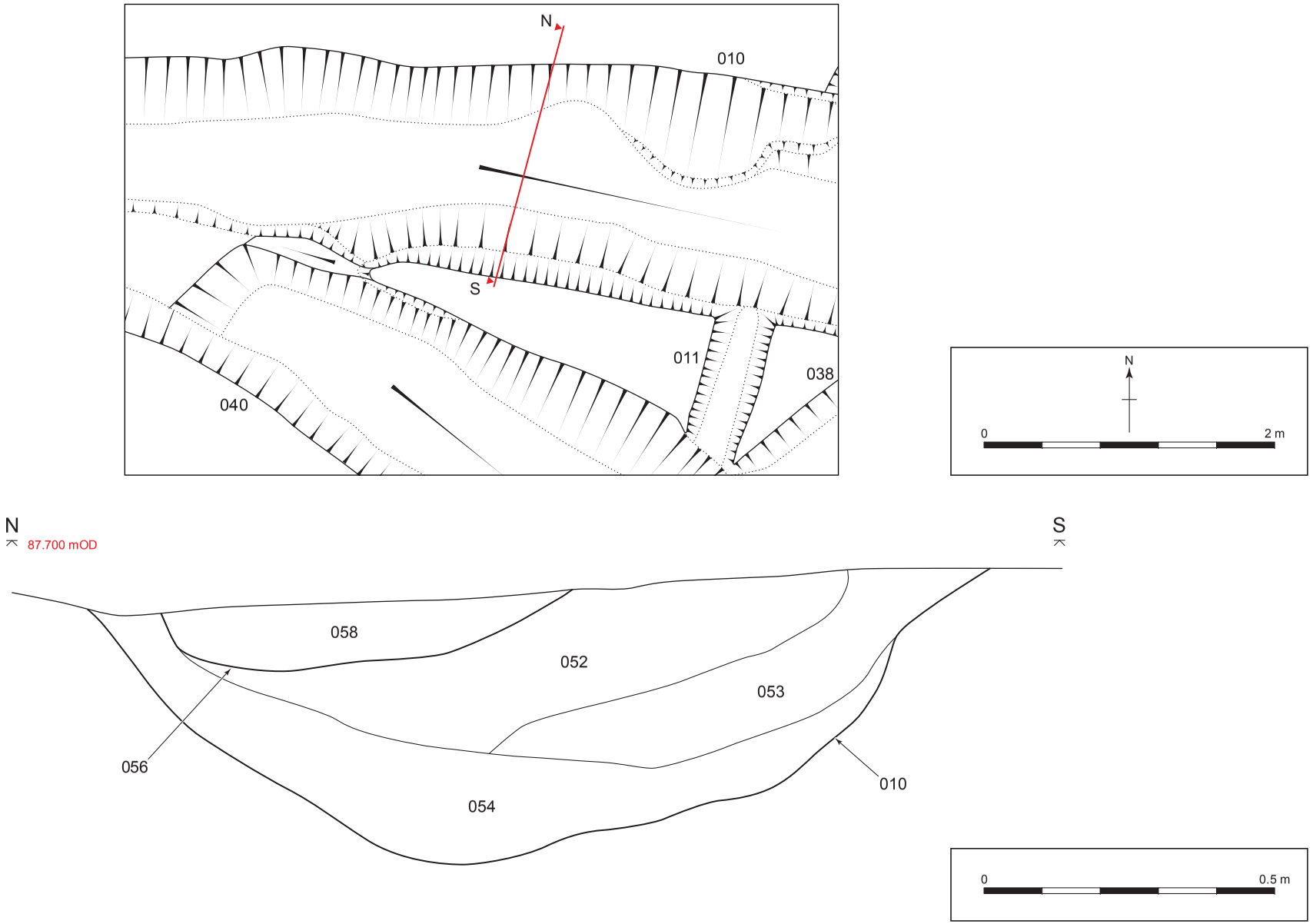


Figure 8 - N9/N10 Kilcullen to Waterford Scheme: Phase 3, Kilcullen to Carlow. Archaeological Services Contract No. 6 - Resolution, Moone to Prumplestown: E2968, West-facing section of linear features (010) and (056).

Plate 1 - Pre-excavation view of Site E2968, facing north.

Plate 2 - Location of Site E2968 within field, facing southwest.

Plate 3 - Pre-excavation view of trough (014), facing northeast.

Plate 4 - Mid-excavation view of trough (014) showing truncation by linear ditch (010) and curvilinear feature (013), facing south.

Plate 5 - Post-excavation view of trough (014), facing south-southwest.

Plate 6 - Pre-excavation view of burnt material (037) showing truncation by drainage ditch (025) and field drain (020), facing northeast.

Plate 7 - Mid-excavation view of burnt material (037), drainage ditch (025) and field drain (020), facing south.

Plate 8 - Mid-excavation view of pit (038), facing north.

Plate 9 - Pre-excavation view of drainage gully (011), facing south.

Plate 10 - Mid-excavation view of drainage gully (011), facing south.

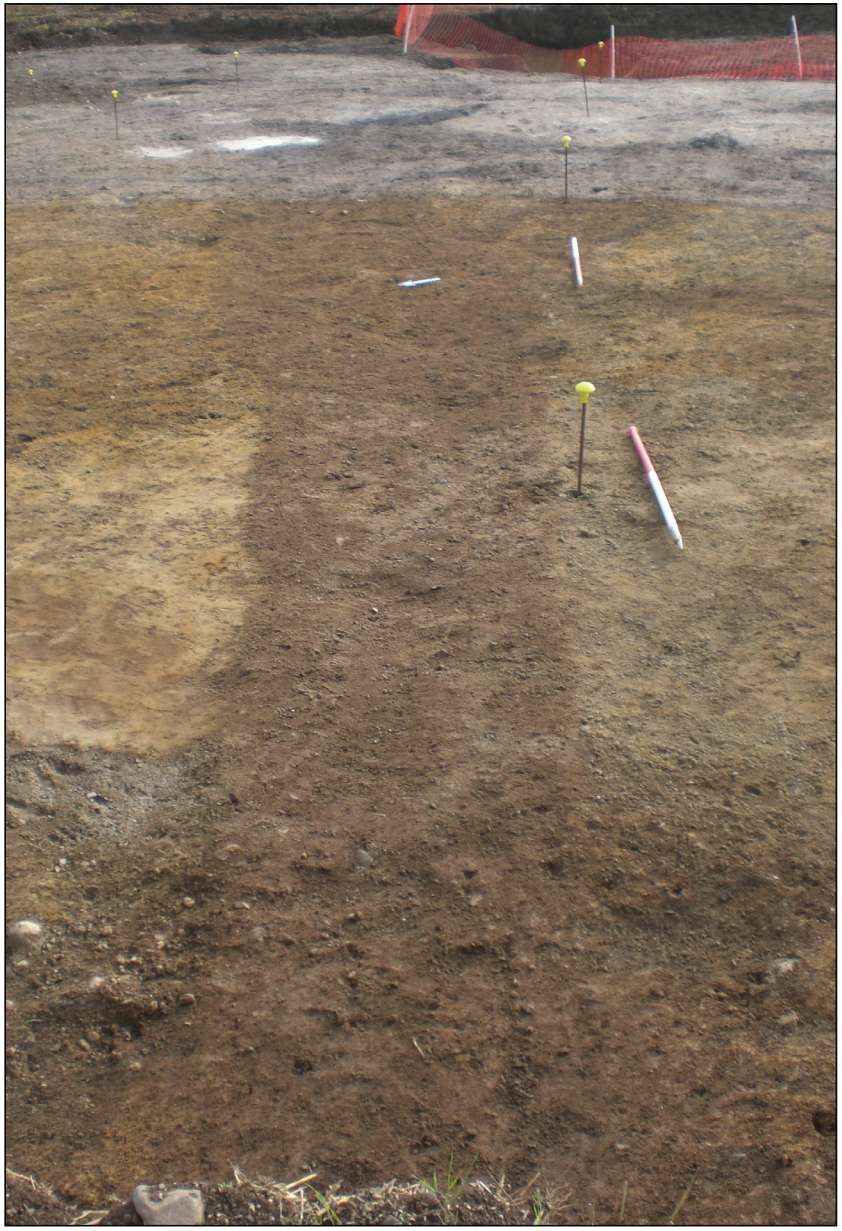


Plate 11 - Pre-excavation view of waste pit (019), facing east-southeast.

Plate 12 - Pre-excavation view of linear ditch (010), facing west.

Plate 13 - Mid-excavation view of linear ditch (010) and re-cut (056), facing east.

Plate 14 - Mid-excavation view of features (013), (040) and (038), facing north.

Plate 15 - Mid-excavation view of linear feature (016), facing southeast.

Plate 16 - Mid-excavation view of field boundary (003), facing southeast.

Plate 17 - Testing of the backfilled pond, facing south.

Appendix 1 – Context Register for Site E2968

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
001	Deposit	-	-	-	-	0.30	Mid-brown silty clay with occasional small sized stone inclusions.	Topsoil.
002	Deposit	-	-	-	-	-	Mid-orangey brown silty clay with occasional small to medium sized stone inclusions.	Natural (Subsoil).
003	Cut	-	(004) (005)/(009) (006)/(024) (007) (008)	31.05	1.70	0.50	Linear feature, orientated east-northeast/west-southwest, with gradual to sharp breaks of slope, convex to concave sides and a flat base. Extended beyond the limits of excavation. Truncated linear feature (011) and truncated by field drain (020).	Cut of a field boundary
004	Deposit	(003)	-	-	1.35	0.17	Mid-brown, loosely compacted, silty sand with occasional small sized stones and pebble inclusions.	Upper fill of (003)
005	Deposit	(003)	-	-	1.15	0.20	Dark grey, firmly compacted, silty sand with occasional small sized stone inclusions.	Secondary fill of (003)
006	Deposit	(003)	-	-	0.90	0.15	Light grey, firmly compacted, stony clay.	Basal fill of (003)
007	Deposit	(003)	-	-	0.35	0.11	Mid-yellowish grey, firmly compacted, silty clay with occasional pebble inclusions.	Tertiary fill of (003)
008	-	-	-	-	-	-	Brownish grey, loosely compacted, clayey silt.	Testing backfill - non-archaeological
009	-	-	-	-	-	-	Dark grey, firmly compacted, silty sand with occasional small sized stone inclusions.	Same as (005).
010	Cut	-	(052) (053) (054) (055)	13.40	1.04 – 1.84	0.50	Linear feature, orientated west-northwest/east-southeast, with a sharp break of slope at the top, gradual at the bottom, concave sides and a flat base. Truncated trough (014) and truncated by linear features	Cut of a ditch

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
							(013) and (056).	
011	Cut	-	(012) (032) (043)	22.70	0.40	0.30	Linear feature, orientated north-northeast/south-southwest, with a sharp break of slope at the top, gradual at the bottom, concave sides and a rounded base. Truncated by linear features (003), (010) and (040).	Cut of a drainage gully
012	Deposit	(011)	-	23.50	0.40	0.15	Black, moderately compacted, sandy silt with frequent charcoal flecking and heat-affected stone inclusions.	Upper (south) fill of (011)
013	Cut	-	(051)	18.00	0.60	0.20	Curvilinear feature, orientated roughly northeast/southwest, with gradual breaks of slope, moderately sloping, convex sides and an irregular base. Truncated trough (014), pit (038) and linear feature (010) and truncated by linear features (040) and (016).	Cut of a curvilinear feature
014	Cut	-	(029)	1.90	1.30	0.15	Sub-rectangular feature with imperceptible breaks of slope, gently sloping, irregular sides and an uneven base. Truncated by linear feature (010) and curvilinear feature (013).	Cut of a trough
015	Cut	-	(039)	0.71	0.45	0.14	Oval feature with a sharp break of slope at the top, imperceptible at the bottom, concave sides and an oval base. Truncated by curvilinear feature (013).	Same as (038)
016	Cut	-	(026) (027) (030) (031)	9.00	0.98	0.34	Linear feature, orientated east/west, with a sharp break of slope at the top, imperceptible at the bottom, convex sides and a flat base. Truncated curvilinear feature	Cut of a field drain

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
							(013).	
017	Cut	-	(028)	4.40	1.45	0.24	Elongated feature with gradual breaks of slope, concave sides and an uneven base.	Geological activity – non-archaeological
018	Cut	-	(050)	9.20	0.45	0.15	Linear feature, orientated north-northwest/south-southeast, with gradual breaks of slope, concave sides and a concave base.	Cut of a plough furrow – non-archaeological
019	Cut	-	(048) (049)	3.46	1.20	0.20	Oval feature with imperceptible breaks of slope, concave sides and a flat base.	Cut of a waste pit
020	Cut	-	-	23	0.40	0.30	Linear feature, orientated northeast/southwest, with sharp breaks of slope, concave sides and a u-shaped base. Contained a gravel bed and ceramic pipe. Truncated linear feature (003) and spread (037).	Cut of a modern field drain
021	Cut	-	(042)	1.93	0.65	0.35	Sub-oval feature with sharp breaks of slope, concave sides and a rounded base.	Cut of a pit
022	Cut	-	(044)	7.00	0.68	0.32	Linear feature, orientated north-northwest/south-southeast, with a sharp break of slope at the top, gradual at the bottom, concave sides and a concave base. Associated with linear feature (023).	Cut of a field drain
023	Cut	-	(045)	4.03	0.90	0.62	Linear feature, orientated east/west, with gradual breaks of slope, concave sides and an uneven base. Associated with linear feature (022).	Cut of a field drain
024	Deposit	(003)	-	-	1.50	0.16	Light grey, firmly compacted, stony clay.	Same as (006)
025	Cut	-	(047)	4.40	1.06	0.12	Linear feature, orientated north-northwest/south-southeast, with gradual to	Cut of a drainage ditch

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
							sharp breaks of slope, concave sides and a rounded base. Truncated spread (037).	
026	Deposit	(016)	-	10.10	0.98	0.20	Dark brown, firmly compacted, silty clay with occasional small sized stone inclusions.	Upper fill of (016)
027	Deposit	(016)	-	10.10	0.98	0.14	Mid-greyish brown, firmly compacted, clayey silt with occasional small sized stone inclusions.	Tertiary fill of (016)
028	Deposit	(017)	-	4.40	1.45	0.24	Mid-greyish brown, loosely compacted, sandy clay with occasional pebble inclusions.	Fill of (017)
029	Deposit	(014)	-	1.90	1.30	0.15	Brownish black, loosely compacted, silty clay with frequent charcoal, unidentified animal bone and heat-affected yellow and red stone inclusions.	Fill of (014)
030	Deposit	(016)	-	-	0.47	0.10	Light grey, firmly compacted, clay with occasional pebble inclusions.	Secondary fill of (016)
031	Deposit	(016)	-	-	0.45	0.07	Mid-brown, loosely compacted, clayey silt with occasional small stone inclusions.	Basal fill of (016)
032	Deposit	(011)	-	22.70	0.40	0.18	Light grey, firmly compacted, silty clay.	Basal fill of (011)
033	-	-	-	-	-	-	Dark brown, firmly compacted, silty clay with occasional small sized stone inclusions.	Same as (026)
034	-	-	-	-	-	-	Mid-greyish brown, firmly compacted, clayey silt with occasional small sized stone inclusions.	Same as (027)
035	Cut	-	(036) (046)	1.50	1.00	0.50	Irregular feature with imperceptible breaks of slope and irregular sides and an irregular base.	Cut of a pit
036	Deposit	(035)	-	1.5	1.00	0.45	Mid-greyish brown, moderately compacted, silty sand with occasional decayed stone inclusions.	Upper fill of (035)

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
037	Deposit	-	-	1.48	1.02	0.15	Black, firmly compacted, silty sand with frequent charcoal, unidentified animal bone and heat-affected sandstone inclusions. Truncated by drainage ditch (025) and modern field drain (020).	Burnt spread
038	Cut	-	(039)	0.74	0.50	0.15	Sub-oval feature with a sharp break of slope at the top, imperceptible at the bottom, concave sides and a rounded base. Truncated by curvilinear feature (013).	Cut of a pit
039	Deposit	(038)	-	0.74	0.50	0.15	Black, loosely compacted, silty clay with frequent heat-affected stones and charcoal inclusions.	Fill of (038)
040	Cut	-	(041)/(060) (059) (061)	5.60	1.50	0.23	Linear feature, orientated northwest/southeast, with gradual breaks of slope, concave sides and a flat base. Truncated linear feature (011) and curvilinear feature (013) and abutted linear feature (010).	Cut of a linear feature
041	Deposit	(040)	-	-	-	-	Yellowish grey, loosely compacted, sandy silty clay.	Same as (060).
042	Deposit	(021)	-	1.93	0.65	0.35	Light greyish yellow, loosely compacted, sandy silt with occasional small sized stone inclusions.	Fill of (021)
043	Deposit	(011)	-	6.00	0.40	0.10	Yellowish brown, firmly compacted, sandy silt.	Upper (north) fill of (011)
044	Deposit	(022)	-	2.50	0.68	0.32	Light greyish yellow, loosely compacted, sandy silt with occasional small sized stone inclusions.	Fill of (022)
045	Deposit	(023)	-	-	0.90	0.62	Mid-greyish yellow, loosely compacted sandy clay with occasional small sized stone	Fill of (023)

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
							inclusions.	
046	Deposit	(035)	-	0.30	0.60	0.06	Dark greyish brown, firmly compacted, clayey peat.	Basal fill of (035)
047	Deposit	(025)	-	4.40	1.06	0.12	Dark grey, loosely compacted, sandy silt with occasional pebble inclusions.	Fill of (025)
048	Deposit	(019)	-	3.46	1.20	0.09	Dark reddish grey, moderately compacted, clayey sand with moderate charcoal flecks, ash, unidentified animal bone, shell and burnt clay inclusions.	Fill of (019)
049	Deposit	(019)	-	3.46	1.20	0.12	Mid-grey, loosely compacted, sand with occasional unidentified animal bone, ash, charcoal and small sized stone inclusions.	Fill of (019)
050	Deposit	(018)	-	9.20	0.45	0.15	Mid-brown, loosely compacted, sandy clay with occasional pebble inclusions.	Fill of (018)
051	Deposit	(013)	-	18.00	0.60	0.20	Dark brown, loosely compacted, silty clay with occasional heat-affected stones and charcoal inclusions.	Fill of (013)
052	Deposit	(010)	-	10.30	0.84	0.17	Mid-greyish brown, loosely compacted, sandy silt with occasional pebble inclusions.	Upper fill of (010)
053	Deposit	(010)	-	13.80	1.84	0.16	Mid-greyish brown, loosely compacted, sandy silt with occasional pebble inclusions.	Tertiary fill of (010)
054	Deposit	(010)	-	13.80	1.84	0.22	Mid-greyish brown, loosely compacted, silt with occasional gravel inclusions.	Secondary fill of (010)
055	Deposit	(010)	-	13.80	1.84	0.12	Mid-brown, loosely compacted, silty sand with occasional gravel inclusions.	Basal fill of (010)
056	Cut	-	(057) (058)	10.60	0.84	0.24	Linear feature, orientated west-northwest/east-southeast, with a sharp break of slope at the top, gradual at the bottom, concave sides and a flat base. Truncated (010).	Re-cut of linear feature (010)

Context No.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
057	Deposit	(056)	-	10.30	0.84	0.15	Mid-brown, loosely compacted, silty sand.	Upper fill of (056)
058	Deposit	(056)	-	-	0.70	0.13	Mid-greyish brown, loosely compacted, silty sand.	Basal fill of (056)
059	Deposit	(040)	-	4.80	1.50	0.03	Brown, loosely compacted, silty clay with occasional medium sized stone inclusions.	Upper fill of (040)
060	Deposit	(040)	-	4.80	1.50	0.10	Yellowish grey, loosely compacted, sandy silty clay.	Secondary fill of (040)
061	Deposit	(040)	-	4.80	1.50	0.10	Mid-brown, loosely compacted, silty clay with very occasional small sized stone inclusions.	Basal fill of (040)

Appendix 2 – Finds Register for Site E2968

Find No.	Type	Identification	Description
E2968:001:001	Ceramic	Post-medieval	Clay pipe bowl fragment
E2968:001:002	Ceramic	Post-medieval	Clay pipe stem
E2968:001:003	Ceramic	Post-medieval	Clay pipe stem
E2968:001:004	Ceramic	Post-medieval	Sherd of pottery
E2968:001:005	Ceramic	Post-medieval	Sherd of pottery
E2968:001:006	Void	Void	Void
E2968:005:001	Metal	Unknown	Corroded L-shaped iron object, rectangular in section.
E2968:005:002	Metal	Post-medieval	Possible large knife blade
E2968:005:003	Glass	Post-medieval	Glass bottle shard
E2968:005:004	Glass	Post-medieval	Glass bottle shard
E2968:036:001	Metal	Unknown	Highly corroded and fragmented L-shaped iron object
E2968:048:001	Metal	Unknown	Possible scissors
E2968:048:002	Ceramic	Post-medieval	Sherd of pottery

Appendix 3 – Sample Register for Site E2968

Sample	Context	Description
E2968:001	029	Brownish black, loosely compacted, silty clay with frequent charcoal, unidentified animal bone and heat-affected yellow and red stone inclusions
E2968:002	037	Black, firmly compacted, silty sand with frequent charcoal, unidentified animal bone and heat-affected sandstone inclusions
E2968:003	048	Dark blackish grey, moderately compacted, clayey sand with moderate charcoal flecks, ash, unidentified animal bone, shell and burnt clay inclusions
E2968:004	028	Mid-greyish brown, loosely compacted, sandy clay with occasional pebble inclusions
E2968:005	049	Mid-grey, loosely compacted, sand with occasional unidentified animal bone and small sized stone inclusions
E2968:006	012	Black, moderately compacted, sandy silt with charcoal flecking and small sized stone inclusions
E2968:007	032	Light grey, firmly compacted, silty clay
E2968:008	041	Yellowish grey, loosely compacted, sandy silty clay
E2968:009	Void	Void
E2968:010	012	Black, moderately compacted, sandy silt with charcoal flecking and small sized stone inclusions
E2968:011	061	Mid-brown, loosely compacted, silty clay

Appendix 4 – Photo Register for Site E2968

Photo no.	Direction facing	Description
E2968:015	East	Mid-excavation view of feature (003)
E2968:017	West	Mid-excavation view of feature (003)
E2968:018	West	Mid-excavation view of feature (003)
E2968:020	East	Mid-excavation view of feature (003)
E2968:022	North	Mid-excavation of Site E2968
E2968:023	Northeast	Mid-excavation of Site E2968
E2968:027	Southwest	Mid-excavation of Site E2968
E2968:028	North	Mid-excavation of Site E2968
E2968:029	North	Mid-excavation of Site E2968
E2968:031	North	Pre-excavation view of features (019), (021), (022) and (023)
E2968:032	East	Pre-excavation view of features (019), (021), (022) and (023)
E2968:033	South	Pre-excavation view of features (019), (021), (022) and (023)
E2968:035	West	Pre-excavation view of features (019), (021), (022) and (023)
E2968:036	West	Pre-excavation view of feature (023)
E2968:039	West	Pre-excavation view of feature (019)
E2968:042	Southwest	Pre-excavation view of features (021) and (022)
E2968:043	West	Pre-excavation view of features (021) and (022)
E2968:044	Northeast	Working Shot of Site E2968
E2968:046	East	Pre-excavation view of feature (010)
E2968:047	Northeast	Pre-excavation view of feature (010)
E2968:048	West	Pre-excavation view of feature (010)
E2968:049	West	Pre-excavation view of features (010), (013) and (014)
E2968:050	South	Pre-excavation view of feature (011)
E2968:051	North	Pre-excavation view of feature (011)
E2968:052	Northeast	Pre-excavation view of feature (014)
E2968:053	Northwest	Pre-excavation view of feature (014)
E2968:054	Northeast	Pre-excavation view of feature (025)
E2968:055	Northwest	Pre-excavation view of feature (025)
E2968:056	West	Pre-excavation view of feature (017)
E2968:057	West	Pre-excavation view of feature (017)
E2968:058	West	Pre-excavation view of features (016) and (017)
E2968:059	Northeast	Pre-excavation view of features (016) and (017)
E2968:060	East	Pre-excavation view of features (016) and (017)
E2968:061	East	Pre-excavation view of features (016) and (017)
E2968:062	East	Pre-excavation view of feature (035)
E2968:068	West	Mid-excavation view of ditch (010) and recut (056)
E2968:069	West	East-facing section of recut (056), Slot 1
E2968:070	West	East-facing section of recut (056), no arrow
E2968:071	East	West-facing section of recut (056)
E2968:072	East	West-facing section of recut (056), no arrow
E2968:073	West	East-facing section of recut (056), Slot 2
E2968:074	East	West-facing section of recut (056), Slot 2
E2968:075	West	East-facing section of ditch (010) and recut (056), Slot 3
E2968:076	East	West-facing section of ditch (010) and recut (056), Slot 3
E2968:077	South	Mid-excavation view of linear feature (018)

Photo no.	Direction facing	Description
E2968:078	North	Mid-excavation view of linear feature (018), Slot 1 (blurry)
E2968:079	North	South-facing section of linear feature (018), Slot 1
E2968:080	South	North-facing section of linear feature (018), Slot 1
E2968:081	North	South-facing section of linear feature (018), truncated by test trench
E2968:082	South	North-facing section of linear feature (018), truncated by test trench
E2968:083	North	South-facing section of linear feature (018), Slot 2
E2968:084	South	North-facing section of linear feature (018), Slot 2
E2968:085	South	Mid-excavation view of feature (022)
E2968:086	North	South-facing section of feature (022)
E2968:087	Void	Void
E2968:088	South	North-facing section of feature (022)
E2968:089	North	South-facing section of feature (022)
E2968:090	South	North-facing section of feature (022)
E2968:091	West	Mid-excavation view of feature (023)
E2968:092	West	East-facing section of feature (023)
E2968:093	East	West-facing section of feature (023)
E2968:094	West	East-facing section of feature (023)
E2968:095	East	West-facing section of feature (023)
E2968:096	South	North-facing section of feature (021)
E2968:097	West	East-facing section of features (016) and (017)
E2968:098	West	East-facing section of features (016) and (017)
E2968:099	Southeast	Northwest-facing section of feature (016)
E2968:100	Southeast	Northwest-facing section of feature (016), no arrow
E2968:101	South	North-facing section of features (013), (014) and (010)
E2968:102	South	Post-excavation view of feature (014)
E2968:103	South	Post-excavation view of feature (014) and mid-excavation view of feature (013)
E2968:104	South	Post-excavation view of feature (014) and mid-excavation view of feature (013)
E2968:105	West	East-facing section of ditch (015), eastern end
E2968:106	East	West-facing section of ditch (016), eastern end
E2968:107	North	Mid-excavation view of ditch (003)
E2968:108	North	Mid-excavation view of ditch (003), no arrow
E2968:109	South	Mid-excavation view of feature (025), no arrow
E2968:110	South	Mid-excavation view of feature (025)
E2968:114	East	Mid-excavation view of ditch (003)
E2968:115	North	Mid-excavation view of ditch (003), eastern end
E2968:116	West	Mid-excavation view of ditch (003), eastern end
E2968:117	North	South-facing section of feature (035)
E2968:118	North	South-facing section of feature (035)
E2968:119	North	South-facing section of feature (015)
E2968:120	North	South-facing section of features (015), (013) and (040)
E2968:121	North	South-facing section of features (040) and (013)
E2968:122	North	South-facing section of features (011) and (013)
E2968:123	North	South-facing section of features (011) and (013)
E2968:124	North	South-facing section of features (013) and (040)
E2968:125	North	South-facing section of features (013) and (040)

Photo no.	Direction facing	Description
E2968:126	South	Mid-excavation view of ditch (003), eastern end
E2968:127	Southeast	Northwest-facing section of ditch (003), eastern end
E2968:128	Northwest	Southeast-facing section of ditch (003), eastern end
E2968:129	South	North-facing section of features (013) and (010), intersection
E2968:130	West	East-facing quarter section of feature (010)
E2968:131	Southwest	Mid-excavation view of features (010) and (013)
E2968:132	Northwest	Northwest-facing section of ditch (003), eastern end
E2968:133	Southeast	Mid-excavation and working view of ditch (003), eastern end
E2968:134	Northwest	Southeast-facing section of ditch (003), eastern end
E2968:135	Northwest	Southeast-facing section of ditch (003), eastern end
E2968:136	Southeast	Working and mid-excavation view of ditch (003), central
E2968:137	Southeast	Northwest-facing section of ditch (003), central
E2968:138	Northwest	Southeast-facing section of ditch (003), central
E2968:139	Southeast	Mid-excavation view of features (040), (013) and (011)
E2968:140	Southeast	Mid-excavation view of features (040), (013) and (011)
E2968:141	Northeast	Mid-excavation view of features (040), (013) and (011)
E2968:142	Southwest	Mid-excavation view of features (040), (013) and (011)
E2968:143	Northeast	South-facing section of features (040), (013) and (015)
E2968:144	West	Mid-excavation view of ditch (003), eastern end
E2968:145	Northwest	Southeast-facing section of ditch (003)
E2968:146	West	Southwest facing section of ditch (003)
E2968:147	East	Mid-excavation view of features (040), (013), (015) and (011)
E2968:148	North	South-facing section of features (040) and (013)
E2968:149	West	Mid-excavation view of features (040) and (013)
E2968:150	Void	Void
E2968:151	North	South-facing section of features (040) and (013)
E2968:152	South	North-facing quarter section of features (013) and (010)
E2968:153	West	Post-excavation view of feature (037) and northeast end of feature (025), showing (020)
E2968:154	West	Mid-excavation view of features (040), (013) and (011), no arrow
E2968:155	South	Mid-excavation view of features (040), (013) and (011)
E2968:156	South	Mid-excavation view of features (040), (013) and (011), no arrow
E2968:160	Overhead	Post-excavation view of feature (035)
E2968:168	Southwest	Pre-excavation view of feature (013), northern end
E2968:169	South	North-facing section of feature (011)
E2968:170	North	South-facing section of feature (011)
E2968:171	South	North-facing section of feature (011)
E2968:172	North	South-facing section of feature (011)
E2968:173	East	Area shot at junction of features (011), (010), (013) and (040)
E2968:174	West	Area shot at junction of features (011), (010), (013) and (040)
E2968:175	West	Area shot at junction of features (011), (010), (013) and (040)
E2968:176	North	Area shot at junction of features (011), (010), (013) and (040)
E2968:177	North	Area shot at junction of features (011), (010), (013) and (040)
E2968:178	East	Mid-excavation view of ditch (016)
E2968:179	East	Mid-excavation view of ditch (016)
E2968:180	East	West-facing section of feature (016) at test trench
E2968:181	East	East-facing section of feature (016), Slot 1

Photo no.	Direction facing	Description
E2968:182	Void	Void
E2968:183	North	West-facing section of ditch (016), Slot 1
E2968:184	West	West-facing section of ditch (016), Slot 1
E2968:185	South	North-facing section of linear feature (011)
E2968:186	North	South-facing section of linear feature (011)
E2968:187	West	East-facing section of features (016) and (017)
E2968:188	West	East-facing section of feature (017), southern end
E2968:189	West	East-facing section of features (016) and (017)
E2968:190	West	East-facing section of feature (017), northern end
E2968:191	East	West-facing section of feature (016), Slot 2
E2968:192	West	East-facing section of feature (016), Slot 3
E2968:193	West	East-facing section of feature (016), Slot 3
E2968:194	East	West-facing section of feature (016), Slot 3
E2968:195	West	East-facing section of feature (016), Slot 4
E2968:196	East	West-facing section of feature (016), Slot 4
E2968:202	South	North-facing section of linear feature (011)
E2968:203	South	South-facing section of linear feature (011)
E2968:204	North	Mid-excavation view of linear feature (011)
E2968:205	Overhead	Mid-excavation view of linear feature (011)
E2968:206	Overhead	Mid-excavation view of linear feature (011)
E2968:207	Overhead	Mid-excavation view of linear feature (011)
E2968:208	Overhead	Mid-excavation view of linear feature (011)
E2968:209	Overhead	Mid-excavation view of linear feature (011)
E2968:210	Overhead	Mid-excavation view of linear feature (011)
E2968:211	East	West-facing quarter section of intersection between features (011) and (013)
E2968:212	East	West-facing quarter section of intersection between features (011) and (013)
E2968:213	South	West-facing section of linear feature (011)
E2968:214	North	South-facing section of linear feature (011)
E2968:215	North	South-facing section of linear feature (011) at northern limit of excavation, Slot 1
E2968:216	South	North-facing section of linear feature (011), Slot 1
E2968:217	North	Post-excavation view of feature (015)
E2968:218	North	Post-excavation view of feature (017)
E2968:219	North	Post-excavation view of feature (017), no arrow
E2968:220	Southeast	Post-excavation view of features (016) and (017)
E2968:221	Southeast	Post-excavation view of features (016) and (017)
E2968:226	Southwest	Test trench through pond
E2968:227	South	Test trench through pond
E2968:228	Southeast	Test trench through pond
E2968:229	South	Base of test trench through pond
E2968:230	Southwest	East-facing section of test trench through pond
E2968:231	Northeast	Test trench through pond
E2968:232	Northeast	West-facing section of test trench through pond
E2968:233	Northeast	Test trench through pond
E2968:234	Northeast	Test trench through pond

Photo no.	Direction facing	Description
E2968:235	East	Mid-excavation view of features (040), (011) and (013)
E2968:236	North	Mid-excavation view of features (040), (011) and (013)

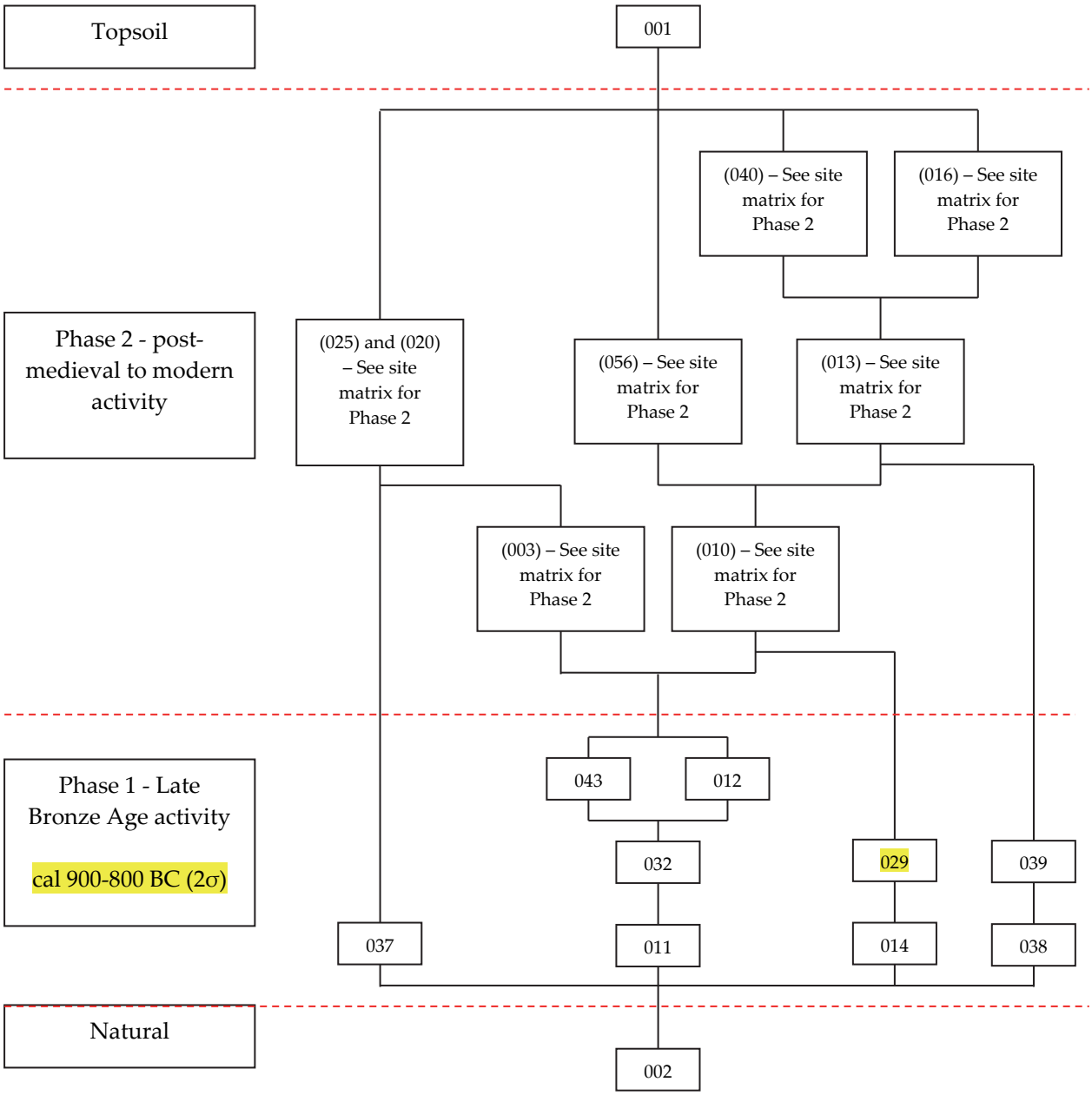
Appendix 5 – Drawing Register for Site E2968

Drawing	Sheet	Type	Scale	Description
1	1	Section	1:10	East-facing section of feature (003)
2	1	Section	1:10	West-facing section of feature (003)
3	2	Section	1:10	East-facing section of feature (003)
4	2	Section	1:10	West-facing section of feature (003)
5	3	Section	1:10	East-facing section of feature (003)
6	3	Section	1:10	West-facing section of feature (003)
7	4	Plan	1:20	Pre-excavation plan of Site E2968
8	5	Plan	1:20	Pre-excavation plan of Site E2968
9	6	Plan	1:20	Pre-excavation plan of Site E2968
10	7	Plan	1:20	Pre-excavation plan of Site E2968
11	8	Plan	1:20	Pre-excavation plan of Site E2968
12	9	Plan	1:20	Pre-excavation plan of Site E2968
13	10	Plan	1:20	Pre-excavation plan of Site E2968
14	11	Plan	1:20	Pre-excavation plan of Site E2968
15	12	Section	1:10	West-facing section of feature (010)
16	12	Section	1:10	East-facing section of feature (010)
17	12	Section	1:10	East-facing section of feature (010)
18	12	Section	1:10	West-facing section of feature (010)
19	14	Section	1:10	South-facing section of feature (018)
20	14	Section	1:10	North-facing section of feature (018)
21	14	Section	1:10	North-facing section of feature (018)
22	12	Section	1:10	East-facing section of feature (010)
23	12	Section	1:10	West-facing section of feature (010)
24	13	Section	1:10	East-facing section of feature (010)
25	13	Section	1:10	East-facing section of feature (010)
26	14	Section	1:10	Southeast-facing section of features (016) and (017)
27	15	Section	1:10	North-facing section of feature (021)
28	14	Section	1:10	West-facing section of feature (016)
29	15	Section	1:10	West-facing section of feature (022)
30	17	Section	1:10	South-facing section of features (014) and (013)
31	15	Section	1:10	West-facing section of feature (023)
32	15	Section	1:10	East-facing section of feature (023)
33	16	Section	1:10	East-facing section of feature (003)
34	16	Section	1:10	West-facing section of feature (003)
35	15	Section	1:10	West-facing section of feature (023)
36	15	Section	1:10	North-facing section of feature (022)
37	17	Section	1:10	East-facing section of feature (016)
38	17	Section	1:10	North-facing section of feature (011)
39	12	Section	1:10	West-facing section of feature (016)
40	14	Section	1:10	Southeast-facing section of features (025) and (020)
41	17	Section	1:10	North-facing section of feature (011)
42	19	Section	1:10	East-facing section of feature (016)
43	17	Section	1:10	North-facing section of feature (011)
44	18	Section	1:10	South-facing section of feature (035)
45	17	Section	1:10	North-facing section of feature (011)
46	20	Section	1:10	West-facing section of feature (003)

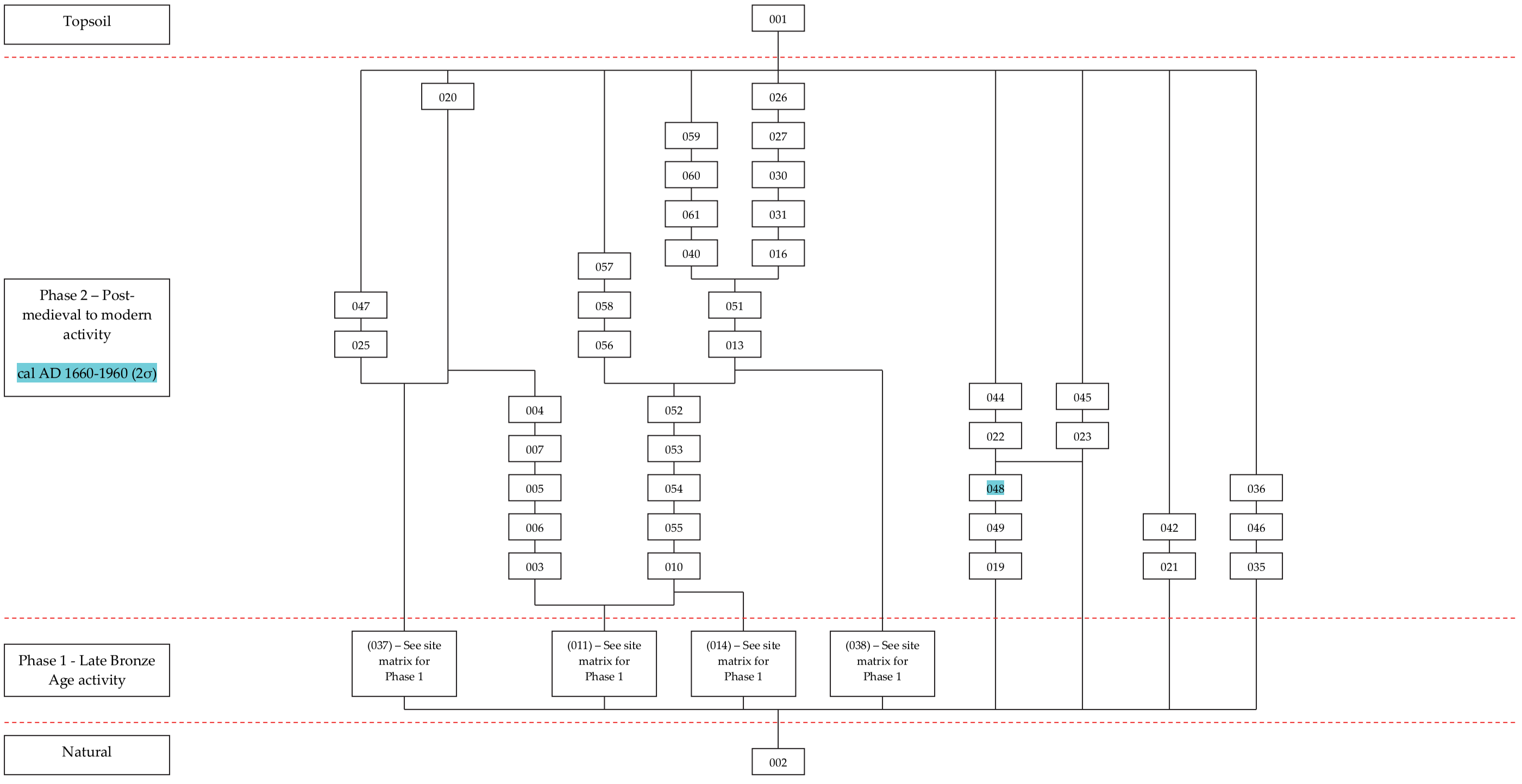
Drawing	Sheet	Type	Scale	Description
47	17	Section	1:10	South-facing section of feature (011)
48	17	Section	1:10	North-facing section of feature (011)
49	17	Section	1:10	North-facing section of feature (011)
50	20	Section	1:10	East-facing section of feature (003)
51	21	Section	1:10	East-facing section of feature (003)
52	21	Section	1:10	West-facing section of feature (003)
53	22	Section	1:10	West-facing section of feature (003)
54	22	Section	1:10	East-facing section of feature (003)
55	23	Section	1:10	Northwest-facing section of feature
56	23	Section	1:10	Southeast-facing section of feature (003)
57	23	Section	1:10	North-facing section of feature (025)
58	23	Section	1:10	South-facing section of feature (025)
59	22	Section	1:10	Northwest-facing section of feature (003)
60	22	Section	1:10	East-facing section of feature (003)
61	19	Section	1:10	North-northeast-facing section of feature (013)
62	19	Section	1:10	North-facing section of feature (010)
63	23	Section	1:10	Southwest-facing section of feature (016)
64	23	Section	1:10	Northeast-facing section of feature (016)
65	23	Section	1:10	South-facing section of features (038) and (040)
66	24	Section	1:10	Northeast-facing section of feature (011)
67	24	Section	1:10	Northeast-facing section of feature (011)
68	24	Section	1:10	North-facing section of feature (011)
69	24	Section	1:10	North-facing section of feature (011)
70	24	Section	1:10	West-facing section of feature (040)
71	25	Section	1:10	East-facing section of feature (040)
72	26	Plan	1:20	Post-excavation plan of site
73	27	Plan	1:20	Post-excavation plan of site

Appendix 6 – Site Matrix for Site E2968

Phase 1 – Late Bronze Age activity



Phase 2 – Post-medieval to modern activity



Appendix 7 – Palaeoenvironmental samples assessment for E2968, Moone, Co. Kildare
By: Scott Timpany

Introduction

Ten environmental samples were taken during the excavation at Site E2968 in the townland of Moone, Co. Kildare. The site consisted of a number of pits and linear ditches together with a possible waste pit, some of which relate to a burnt mound feature. The ditches are largely thought to represent modern agricultural drainage ditches, some of which truncate archaeological deposits. All of the samples were processed in order to retrieve any palaeoenvironmental material that may aid in the interpretation of the site.

Methodology

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

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 dates quoted in the text are taken from the 2σ calibrated age range.

Results

Results are presented in Table 1 (Radiocarbon dating results), Table 2 (Retent sample results) and Table 3 (Flot sample results). All preservation was due to charring.

Results of radiocarbon dating
Two radiocarbon dates were returned for the site (see Table 1). The dates show two periods of activity; the first during the Late Bronze Age period (900-800 cal BC (2σ); SUERC-25324; 2960±30 BP) and the second of possible modern date (cal AD 1660-1960 (2σ); SUERC-25306; 160±30 BP).

Charred plant remains
Only one sample (003) produced charred cereal grain, with a rare quantity of rye (*Secale cereale*) recovered. A single charred sedge (*Carex* sp.) nutlet was present in Sample 001, while Sample 011 was found to contained a charred bud of probable alder (*Alnus glutinosa*).

Wood charcoal
Wood charcoal was present in all samples. Charcoal of sufficient size for identification and AMS (Accelerated Mass Spectrometry) dating was present in three samples; of these one sample contained an abundant quantity (Tables 2 and 3). Charcoal from one sample (001) was selected for identification and dating (Table 1). The charcoal fragments present were largely found to be small flecks; <1cm in size.

Other finds
Small quantities of burnt bone were found in three samples, with unburnt bone present in one sample (Tables 2 and 3; Appendix 8). One sample (003) was also found to contain post-medieval pottery sherds (Appendix 2).

Discussion

The majority of the samples taken from the site were found to contain small quantities of small-sized (<1cm) charcoal fragments (see Tables 2 and 3). The charcoal within these features may have become included in their fills through mechanical transport, such as windblow and surface run-off from other activities taking place in the area. The source of charcoal for some features is likely to be the burnt mound activity, particularly for those features lying in close proximity. It is also likely that the charcoal recovered from the non-archaeological features occurred as a result of agricultural activities such as ploughing and the construction of drainage ditches.

Burnt mound activity: 900-800 cal BC
The majority of palaeoenvironmental material from those features associated with the burnt mound activity comes from pit/trough (014) and burnt spread (037). The largest concentration of charcoal was found in pit/trough (014), which was noted as being mostly non-oak charcoal. Sample (001) contained a small number of large fragments but consisted mainly of small fragments. The identification of Ericaceae (heather, heath etc) amongst the charcoal during dating suggests small woody material was being burned along with the wood fuel. A date for this feature of 900-800 cal BC (2σ) (SUERC-25324; 2960±30 BP) has been returned suggesting this mound activity took place in the Late Bronze Age period. A charred sedge nutlet was also found within this sample and this is though to represent accidental burning of wetland taxa; sedge likely growing around the mound during its time of use.

Burnt mammal bone was also found in small quantities in these three features. Small quantities of burnt bone have been recovered from a number of burnt mound sites across this road scheme (*e.g.* Site E2942, Masson and Timpany 2010a; Site E2944 Masson and Timpany, 2010b) and may reflect a wider trend. The burnt bone may represent food preparation as well as consumption and provides tentative evidence for activities taking place at the site (Appendix 8).

Waste pit: cal AD 1660-1960
A second, relatively modern, radiocarbon date of cal AD 1660-1960 (2σ) (SUERC-25306; 160±30 BP) was achieved from waste pit (019). This date was attained from rye grain taken from the retent of Sample 003. The small number of grain from this sample, together with the date suggests the rye may be a modern contaminant in the waste pit deposit and does not necessarily reflect the true age of the feature. The feature itself was found to contain only a small quantity of small-sized (<1cm) charcoal fragments, together with small quantities of burnt and unburnt bone (Appendix 8). Ploughing damage may have caused the loss and fracturing of charcoal from this deposit.

Linear Feature (040)
The linear features are likely to represent modern agricultural drainage ditches and thus the material within them will be a mixture of reworked and redeposited material, especially in those ditches which truncate earlier deposits. One such linear feature (040) is notable as it was found to contain a charred bud of probable alder. This feature runs close to the burnt mound activity and thus the bud may relate to fuel used during this activity. If so this would suggest that this activity took place in the spring and that wetland woodland resources were being used for fuel. Such collection of local wetland wood resources has been found to be a typical feature of burnt mound sites (*e.g.* O'Donnell, 2007).

Conclusion

- The samples were found to contain mainly charcoal fragments that are thought to relate to the burnt mound activity, with local wetland woodland suggested to have been the main resource for fuel.
- This activity is likely to date to the Later Bronze Age period and may have been carried out in the spring.

References

Cappers R.T.J., Bekker, R.M. and Jans, J.E.A. 2006 *Digital seed atlas of the Netherlands,* Barkhuis Publishing and Groningen University Library, Groningen.

Kenward, H.K., Hall, A.R. and Jones, A.K.G. 1980 'A tested set of techniques for the extraction of plant and animal macrofossils from archaeological deposits', *Science and Archaeology* Vol. 22, 3-15.

Masson D. and Timpany S. 2010a Palaeoenvironmental samples assessment for E2942, Hallahoise, Co. Kildare, in T. Doyle *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 E2942, in the townland of Hallahoise, Co. Kildare.* Unpublished Report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

Masson D. and Timpany S. 2010b Palaeoenvironmental samples assessment for E2944, Ballyvass, Co. Kildare, in L. Clark *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 E2944, in the townland of Ballyvass, Co. Kildare.* Unpublished Report by Headland Archaeology (Ireland) Ltd. for Kildare County Council and the National Roads Authority.

O'Donnell, L. 2007 'Environmental archaeology: Identifying patterns of exploitation in the Bronze Age, Charcoal and wood' in Grogan, E., O'Donnell, L., Johnston, P. 2007 *The Bronze Age Landscapes Of The Pipeline To The West. An integrated archaeological and environmental assessment.* Wordwell, Wicklow.

Reimer, P.J., Baillie, M.G.L., Bard, E., Bayliss, A., Beck, J.W., Bertrand, C., Blackwell, P.G., Buck, C.E., Burr, G., Cutler, K.B., Damon, P.E., Edwards, R.L., Fairbanks, R.G., Friedrich, M., Guilderson, T.P., Hughen, K.A., Kromer, B., McCormac, F.G., Manning, S., Bronk Ramsey, C., Reimer, R.W., Remmele, S., Southon, J.R., Stuiver, M., Talamo, S., Taylor, F.W., Van Der Plicht, J. and Weyhenmeyer, C.E. 2004 'IntCal04 Terrestrial radiocarbon age calibration, 26 - 0 ka BP', *Radiocarbon* Vol. 46, 1029-1058.

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
E2968	SUERC-25306	Context 048 Sample 003	Charred rye grain	-26.0	160±30	cal AD 1660-1690	13.0	cal AD 1660-1890	77.3
						cal AD 1720-1810	42.3	cal AD 1910-1960	18.1
						cal AD 1920-1950	12.9		
E2968	SUERC-25324	Context 029 Sample 001	Ericaceae charcoal	-26.4	2690±30	895-875 cal BC	15.8	900-800 cal BC	95.4
						850-805 cal BC	25.4		

Table 1 – Radiocarbon dating results

Context number	Sample number	Sample vol (L)	Context/ Sample description	Wood charcoal		Mammal bone		Charred plant	Shell	Ceramics	Comments
				Qty	AMS	Burnt	Unburnt				
Burnt mound and associated features											
29	1	8	Black soil with charcoal	+++	*	+					Charcoal used for C14 date
37	2	2	Black sandy silt with charcoal & sandstones	+++	*	++					
12	6	6	Black soil with stones & charcoal	+++	*						
32	7	2	Light grey soil	+							
12	10	4	Black sandy silt	+							
Waste pit (019)											
48	3	4	Burnt clay with charcoal & shells	+++		+		+	+	+	*Secale cereale* + used for dating
49	5	2	Fill of possible waste pit (019)	++			+		+		
Linear feature (040)											
61	11	4	Dark grey silt	+							
Non-archaeological											
28	4	2	Fill of Pit	+							
41	8	2	Brown soil	+							
Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant **NB** charcoal over 1cm is suitable for identification and AMS dating											

Table 2 - E2968 Retent Sample Results

Context No.	Sample No.	Total flot Vol (ml)	Feature	Charred plant remains	Charcoal Quantity	Charcoal Max size (cm)	Suitable for AMS	Comments
Burnt mound and associated features								
29	1	100	Pit/Trough (014)	*Carex* sp. +	++++	1	Charcoal +	Charcoal mostly non-*Quercus* sp. and largely small flecks.
37	2	10	Burnt spread (037)		+	0.2		Charcoal small flecks.
12	6	70	Linear ditch (011)		++	0.2		Charcoal small flecks.
32	7	20	Linear ditch (011)		+++	0.4		Charcoal small flecks.
12	10	<10	Linear ditch (011)		++	0.2		Charcoal small flecks.
Waste pit (019)								
48	3	-	Waste pit (019)					No flot produced
49	5	10	Waste pit (019)		++++	0.7		Charcoal small flecks.
Linear feature (040)								
61	11	20	Linear ditch (040)	Charred bud cf. *Alnus* sp. +	++	0.3		Charcoal small flecks.
Non-archaeological								
28	4	30	Non-archaeological		++	0.5		Charcoal small flecks.
41	8	<10	Non-archaeological		+++	0.1		Fish bone +, Charcoal small flecks.
Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant **NB** charcoal over 1cm is suitable for identification and AMS dating								

Table 3 – E2968 Flotation Sample Results

Appendix 8 – Report on the faunal remains from Moone, Co. Kildare (E2968)
By: Albína Hulda Pálsdóttir MA

Introduction

This report discusses the results of the animal bone analysis from Moone, Co. Kildare (E2968). The resolution of the site revealed a number of features associated with *fulachtaí fiadh* activity – namely a shallow trough, a possible pot boiler, a discrete deposit of burnt material and a narrow drainage gully – which have been subsequently dated to the Late Bronze Age period. A waste pit and a large network of linear and curvilinear features dating to the post-medieval or modern period were also recorded. The animal bone specimens were recovered from soil samples by sieving. The animal bones analysed for this report derive from a burnt mound deposit (029), which was a fill of trough (014), burnt spread deposit (037) and fills (048) and (049) of waste pit (019).

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.

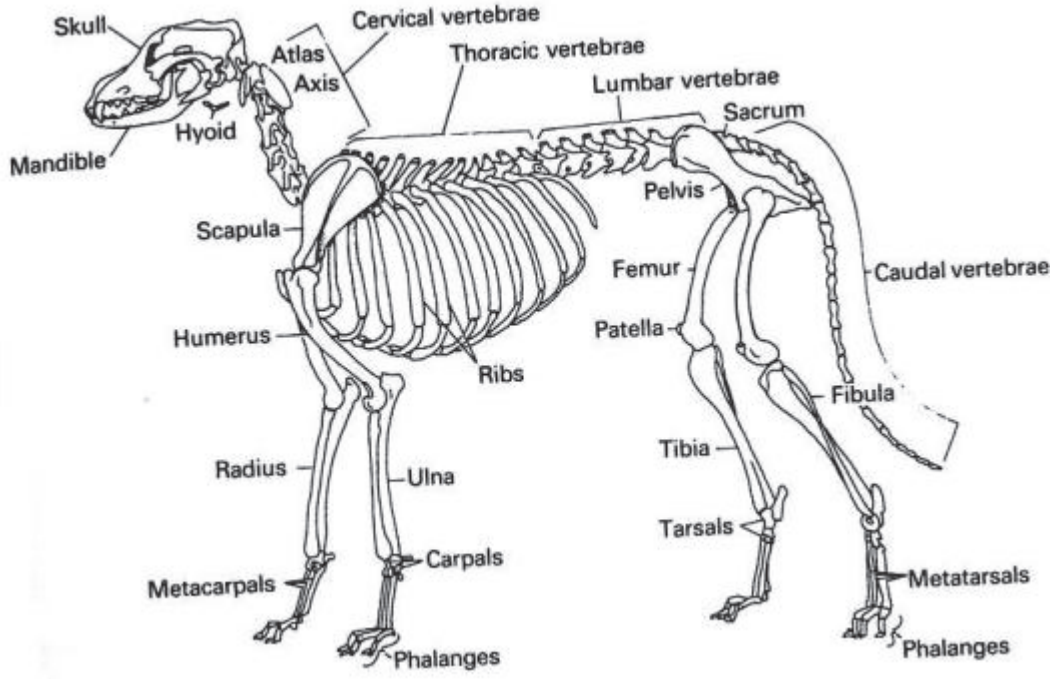


Figure 1 – Location on animal skeleton of terms referred to in text (Davis 1987, 54, in Reitz & Wing 1999)

Results

A total of 167 bone specimens dating to two separate phases, Late Bronze Age and post-medieval/modern were analysed from the site (Table 1). Fill (029) – burnt mound material dated to the Late Bronze Age – of trough (014) contained only burnt unidentifiable material. Burnt spread deposit (037) – which is likely directly related to the trough – contained one burnt animal tooth fragment, as well as a number of burnt unidentifiable fragments. Post-medieval fills (048) and (049) of waste pit (019), contained both burnt and unburnt unidentifiable material.

Phase	*Context*	*Unidentified*	***Total***
Late Bronze Age	029	13	13
Late Bronze Age	037	144	144
Post-medieval/modern	048	5	5
Post-medieval/modern	049	5	5
	Total	167	**167**

Table 1 – Species representation of the assemblage from Moone (NISP)

All of the bone material related to the burnt mound activity was burnt. Half of the material related to the post-medieval/modern waste pit was burnt (Table 2).

Context	*Calcined*	*Unburnt*	***Total***
029	13		13
037	144		144
048	5		5
049		5	5
Total	162	5	**167**

Table 2 – Burning at Moone

Discussion

Only one of the bones from Moone could be securely identified as animal, a burnt tooth fragment from burnt spread (037), so it is possible that some of the bone is human. Nevertheless from the burnt mound context it can be assumed that the bone is animal rather than human. From the post-medieval/modern date of the bone from waste pit (019) it can be assumed that the bone is animal. The bone material from Moone, Co Kildare is too small for conclusive comparison against other assemblages. 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 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. Calrow and Johnstown (E2586) Co. Carlow, cattle dominate the samples 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). Possible 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).

Context	*Sample no*	*Species*	*Element*	*NISP*	*Notes*	*Burning*	*Recovery*
029	001	unid	ui	13		cal	1
037	002	unid	ui	143		cal	1
037	002	unid	isoteeth	1	Tooth fragment.	cal	1
048	003	unid	ui	4		cal	1
048	003	unid	sha	1		cal	1
049	005	unid	ui	5			1

Table 3 – Complete list of animal bones from Moone

Key to complete list of animal bones:

Species
unid = unidentified

Elements
Mammals:
isoteeth = isolated teeth
ui = unidentified mammal

Burning
cal = calcified
char = charred

Recovery
1 = sieved with 1 mm sieve

References

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

Harland, J.F., J.H. Barrett, J. Carrott, K. Dobney, and D. Jaques 2003 The York System: An integrated zooarchaeological database for research and teaching. *Internet Archaeology* Vol. 13.

Reitz, E.J. and E.S. Wing 1999 *Zooarchaeology*. Cambridge manuals in archaeology. Cambridge University Press, Cambridge.

Stevens, P. 2005 'Faunal remains', in M. Gowen, J. Ó Néill and M. Phillips (eds.) *The Lisheen Mine Archaeological Project, 1996–8*. Wordwell, Wicklow. 326.

Tourunen, A. 2008 'Fauna and fulachta fiadh: animal bones from burnt mounds on the N9/N10 Carlow Bypass', in J. O'Sullivan and M. Stanley (eds.) *Roads, Rediscovery and Research: Archaeology and the National Roads Authority Monograph Series No. 5.* National Roads Authority, Dublin. 37-44.

Tourunen, A. 2009 *Final report on the faunal remains from Ballygawley (Site 1), Co. Tyrone*. Unpublished report by Headland Archaeology (Ireland) Ltd.

Appendix 9 – Radiocarbon dating certificate information

E-Number	Lab code	Sample ID	Material	δ13C	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E2968	SUERC-25306	sample #003, context 048	charred rye grain	-26.0	160 +/- 30	cal AD 1660 - 1690	13.0	cal AD 1660 - 1890	77.3
						cal AD 1720 - 1810	42.3	cal AD 1910 - 1960	18.1
						cal AD 1920 - 1950	12.9		
E2968	SUERC-25324	sample #001, context 029	Ericaceae charcoal	-26.4	2690 +/- 30	895 - 875 cal BC	15.8	900 - 800 cal BC	95.4
						850 - 805 cal BC	52.4		

Scottish Universities Environmental Research Centre
Director: Professor A B MacKenzie Director of Research: Professor R M Ellam
Rankine Avenue, Scottish Enterprise Technology Park,
East Kilbride, Glasgow G75 0QF, Scotland, UK
Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

18 September 2009

Laboratory Code	SUERC-25306 (GU-19333)
Submitter	Karen Stewart Headland Archaeology (Ireland) Ltd. Unit 1 Wallingstown Business Park Little Island Co. Cork, Ireland.
Site Reference	KCK06 E2968
Context Reference	48
Sample Reference	3
Material	charred grain : rye
$\delta^{13}C$ relative to VPDB	-26.0 ‰
Radiocarbon Age BP	160 ± 30

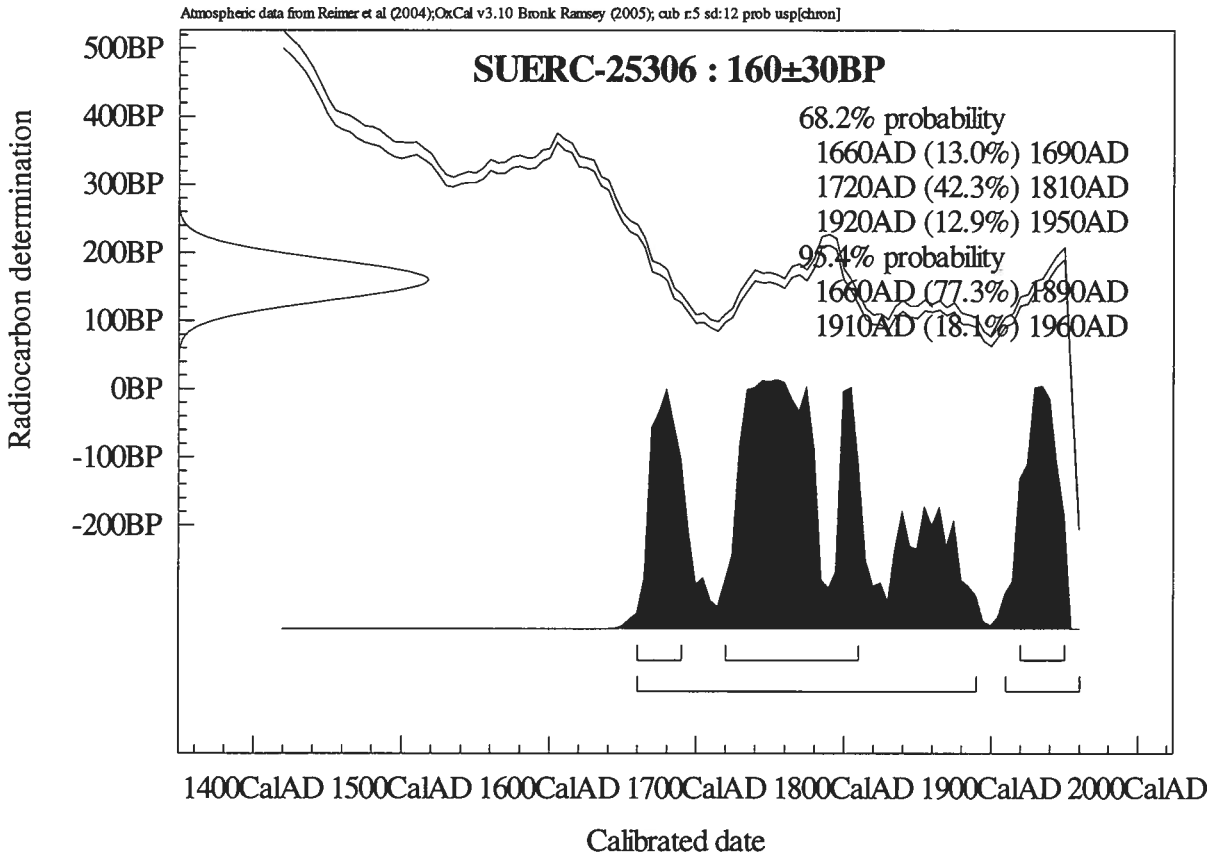
N.B.

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 :- 18/9/09

Checked and signed off by :- E Dunbar Date :- 18/9/09

Calibration Plot



Scottish Universities Environmental Research Centre
Director: Professor A B MacKenzie Director of Research: Professor R M Ellam
Rankine Avenue, Scottish Enterprise Technology Park,
East Kilbride, Glasgow G75 0QF, Scotland, UK
Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

18 September 2009

Laboratory Code	SUERC-25324 (GU-19347)
Submitter	Karen Stewart Headland Archaeology (Ireland) Ltd. Unit 1 Wallingstown Business Park Little Island Co. Cork, Ireland.
Site Reference	KCK06 E2968
Context Reference	29
Sample Reference	1
Material	charcoal : ericaceae
$\delta^{13}C$ relative to VPDB	-26.4 ‰
Radiocarbon Age BP	2690 ± 30

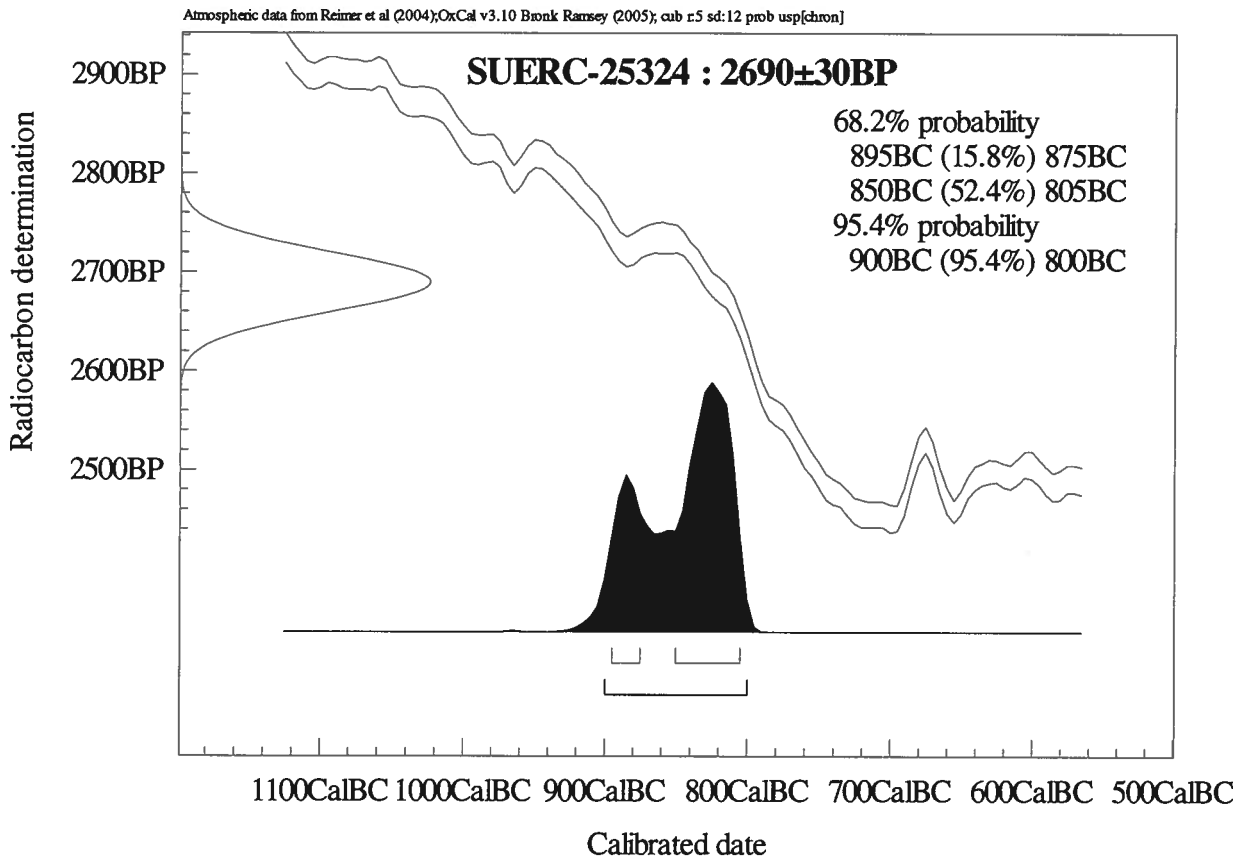
N.B.

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 :- 18/9/09

Checked and signed off by :- E. Dunbar Date :- 18/9/09

Calibration Plot



Appendix 10 – Report on Ferrous Artefacts from Site E2968 at Moone Townland, Co. Kildare
By: Miriam Carroll and Annette Quinn, Tobar Archaeological Services

Introduction

A total of four ferrous objects were recovered from the excavations at site E2968 in Moone townland, County Kildare. Due to the corroded and fragmentary nature of the items recovered they could not be assigned a definitive function or classification. The items are therefore listed under miscellaneous and are followed by a catalogue.

Miscellaneous

Four undiagnostic items (E2968:048:001, E2968:005:001, E2968:036:001 and E2968:005:002) which cannot be assigned a definitive classification are included here. Two items (E2968:005:001 and E2968:005:002) were recovered from the fill of a possibly post-medieval ditch (003). E2968:005:002 may represent the corroded remains of a large knife blade and is post-medieval in appearance. A possibly originally looped object (E2968:048:001) came from the upper fill of a possible waste pit (019). It may represent the remains of a scissors, although this identification is tentative given the incomplete and corroded state of the object. All miscellaneous items are listed below with a basic description.

Miscellaneous E2968:005:002 *Fe*. L. 184.9 mm, W. 40.9 mm, Th. 6.8 mm, Wt. 150.2 g. Incomplete. Fragment of flat iron object which tapers slightly to a blunt end. Triangular in section. Possible large knife blade.

Miscellaneous E2968:036:001 *Fe*. L. 66.3 mm, W. 60.3 mm, Th. 6.6 mm, Wt. 38.2 g. Incomplete. Highly corroded and fragmented L-shaped iron object, rectangular in section. Tapers towards one end. Function unknown.

Miscellaneous E2968:005:001 *Fe*. L. 77.7 mm, W. 10 mm, Th. 9.1 mm, Wt. 54.7 g. Complete. Corroded L-shaped iron object, rectangular in section. Function unknown. Post-medieval in appearance.

Miscellaneous E2968:048:001 *Fe*. L. 52.9 mm, W. 32.8 mm, Th. 7.9 mm, Wt. 7.5 g. Incomplete. Highly corroded iron object. Consists of possibly rectangular sectioned shaft/shank with partial remains of possible loop or ring at one end, rectangular in section. Function unknown.