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**N69 Rea to Tullig Road Realignment Scheme. Stage (iii) – Excavation.
Final Report for Cloonnafinneela 2 in the townland of
Cloonnafinneela, Co. Kerry.**

Excavation Licence Number: 11E0355

Townland Name: Cloonnafinneela Co. Kerry

Site Type: Episode of burning

National Grid Reference: 090257/122838

Archaeological Consultant: Rubicon Heritage Services Ltd.

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EXECUTIVE SUMMARY

This report presents the final results of an archaeological excavation undertaken at Cloonnafinneela 2, Co. Kerry, on behalf of Kerry County Council. The works were undertaken as part of Stage (iii) of the Archaeological Services Contract prior to the commencement of construction of the N69 Rea to Tullig realignment scheme, Co. Kerry, which extends from Fahavane townland to Gortclohy townland in Co. Kerry. The Nation Monument Service, following consultation with the National Museum of Ireland, issued excavation licence number 11E0355 to Patricia Long of Rubicon Heritage Services Ltd. to carry out excavations at Cloonnafinneela 2.

Stage (i) archaeological test trenching along the entire route and Stage (ii) stripping, cleaning and mapping of all areas of archaeological potential was carried out by Rubicon Heritage Services Ltd. on behalf of Kerry County Council between 22 August 2011 and 29 August 2011, and on 28 October 2011, under Excavation Licence Number 11E0298. The test excavations at Cloonnafinneela 2 identified an area of burning, a pit and a linear feature (Long 2011a).

Full archaeological excavation was undertaken at the site between 13 and 14 October 2011. A total area of 100 m² was exposed at Cloonnafinneela 2, revealing a shallow pit filled with burnt thatch material and a small burnt spread (Figure 2). The linear feature identified during test trenching was found to be a post-medieval field drain, which was part of a network of drain throughout the field; a preliminary report on the results of the excavation was submitted in November 2011 (Long 2011b).

Artefacts

No artefacts were found during excavation.

Dating

One radiocarbon date was obtained from a pit (003) at Cloonnafinneela 2. The pit dated to the late/post medieval period cal AD 1450-1635 (2 σ) (SUERC 38750).

1 INTRODUCTION

This report presents the final results of archaeological excavations carried out at Cloonnafinneela 1 in advance of the proposed N69 Rea to Tullig road realignment scheme.

The proposed road realignment in the townlands of Fahavane, Rea, Cloonnafinneela, and Gortclohy on the main Tralee to Listowel road is being carried out by Kerry County Council. The proposed works comprises of distinct construction elements including 0.5km of on-line realignment, 1.3km of off-line re-alignment and a further 0.7km of mostly on-line realigned section. The proposed mainline will be 'Type 2 Single Carriageway.

Rubicon Heritage Ltd. was formerly known as Headland Archaeology (Ireland) Ltd. The company underwent a rebranding in December 2011. Reports written by the company prior to this date are referenced to Headland Archaeology (Ireland) Ltd in the bibliography, though for consistency the company is referred to as Rubicon Heritage Ltd. throughout this report.

Stage (i) archaeological test trenching along the entire route and Stage (ii) stripping, cleaning and mapping of all areas of archaeological potential was carried out by Rubicon Services Ltd. Ltd on behalf of Kerry County Council between 22 August 2011 and 29 August 2011, and on the 28 October 2011 under Excavation Licence Number 11E0298. A total of three sites of archaeological potential were identified (Long 2011a).

Stage (ii) works on the scheme involved the mechanical stripping of topsoil, hand cleaning of exposed surfaces and mapping of features identified at each site of archaeological potential. This was carried out by Rubicon Heritage Services Ltd during the same period (*ibid.*). Following Stage (ii) investigations a total of three archaeological sites discovered during the course of works were recommended for Stage (iii) excavations in advance of construction works. Two of these sites were in the townland of Cloonnafinneela and the third in the townland of Gortclohy.

Archaeological excavations were then undertaken by Rubicon Heritage Services Ltd between October and November 2011.

Post-excavation assessment reports were completed in November 2011 (Long 2011b) and a program of specialist analysis and dating was then undertaken. This report presents the final excavation results including the result of all specialist analysis and radiocarbon dating.

2 SITE BACKGROUND AND LOCATION

2.1 Site location

The proposed scheme is situated to the southeast of Kilflynn village on the N69 Tralee to Listowel road. The proposed realignment will straighten a kink on the road by constructing a 2.5 km stretch of new road in greenfield to the north of the existing road. This new stretch of road will pass through the townlands of: Fahavane, Rea, Cloonnafinneela, and Gortclohy in County Kerry, NGR: 489967 622546 to 491509 623655. All these townlands are in the barony of Clanmaurice and the parish of Kilflynn. The land proposed for development is currently relatively flat, well drained grass pasture.

Following Stage (ii) investigations a total of three sites were highlighted for further work in advance of construction. Cloonnafinneela 2 was situated towards the centre of the scheme (Figure 1).

Cloonnafinneela 2 was located in a large grass pasture field that sloped sharply to a stream at its southwest side. The site itself was located at the top edge of this slope.

2.2 General background

There are no recorded archaeological sites directly along the route for the scheme or immediately adjacent to it, however there are a number of recorded monuments located within 500 m of Cloonnafinneela 2 suggesting activity in the area from at least the early medieval period:

RMP No	Class	Townland
KE022-023----	Ritual site - holy well	CLOONNAFINNEELA
KE022-023001-	Hermitage	CLOONNAFINNEELA
KE022-024----	Enclosure	CLOONNAFINNEELA
KE022-025----	Earthwork	CLOONNAFINNEELA

Table 1 RMP sites within 500 m of the Cloonnafinneela 2

2.3 Recent excavations

The excavations bulletins database was also checked for a record of any archaeological investigation carried out in the townland of Cloonnafinneela between the years of 1970 and 2008; however, none were recorded.

Archaeological investigations undertaken as part of Stage (iii) works in advance of the N69 realignment confirmed the presence of a dump of metal-working waste material and a charcoal-production pit, dating to the early medieval period (Hourihan 2012a), 113 m to the southwest. A pit dating to the Early Bronze Age was identified at Gortclohy 1 (Hourihan 2012b), 1.3 km to the northeast.

2.4 General Archaeological context of the site

Neolithic: c. 4000-2400BC

There is no evidence of Mesolithic activity in the environs of the proposed realignment scheme. The earliest known archaeological sites in the north Kerry area date to the Neolithic. One of the earliest recorded archaeological sites in the general area is located 10 km to the southwest. The passage tomb in Ballycarty, which forms part of a prehistoric complex which was excavated in 1996 by Michael

Connolly (1996). The complex of sites, situated on a limestone reef included a passage tomb (KE038-074), a hilltop enclosure/henge (KE038-022), two cairns (KE038-080 and KE038-081), a causeway and smaller enclosures (KE038-078, KE038-07901 and KE038-07902). The results of the excavation led to a short intensive field survey of selected areas within the River Lee valley from Ballycarty westward to Tralee Bay (Connolly 1999). Eighty-seven previously unrecorded sites were identified, 17 of which were archaeological complexes containing a further 67 separate sites. Approximately 90% of the sites identified were most probably of prehistoric date (*ibid*). At Cloghers, just to the south of Tralee, a rectangular Neolithic house was excavated on the southern side of the River Lee. Sherds of pottery, fragments of polished mudstone axes, burnt hazelnut shells, mudstone scrapers and flint were recovered from numerous pits associated with this house (Kiely 1999, 97).

Bronze Age: c. 2400-500BC

The most common monument type of the Bronze Age, though, is the burnt mound or *fulacht fia*. Though traditionally interpreted as a cooking place, on-going archaeological research has suggested a wide variety of potential functions for such sites ranging from bathing to dyeing to brewing. It may perhaps be more apt to view these sites less as indicative of a specific activity but rather the implementation of a specific hot-stone technology to achieve a variety of purposes. While no burnt mound is known in the immediate vicinity of the area proposed for development eight burnt mound/*fulacht fia* sites are located within 2 km of the proposed realignment: KE022-009, KE022-020, KE022-002002, KE022-016, KE022-014, KE022-029, KE022-008, and KE022-026001.

Standing stones are often erected in prominent locations. Their exact function is unclear, they may be associated with ceremony and ritual, however they may equally represent territorial division; two standing stone are located to the northeast of the proposed realignment in the townlands of Glanaballyma (KE022-021) and Tullig (KE022-018).

No Bronze Age funerary monuments are located within 2 km of the proposed realignment but there is evidence for these monuments in the general North Kerry Area. These include for example four cairns (in Ballyseedy (KE038-092), in Caherleheen (KE038-101) and the two cairns in Ballycarty (KE038-080 and KE038-081) and numerous ring barrows including those in Listellick North (KE029-025), Banemore (KE029-073) Manor East (KE029-258), Ballyseedy (KE038-094) and Ballymacelligott (KE039-005).

In more recent years, the continuing expansion of Tralee town has yielded numerous archaeological finds, many of which date to the prehistoric period. In the townland of Ballyvelly, in the western urban district of Tralee, a prehistoric flat cemetery and crematoria were excavated in advance of construction of a large housing development. (Dunne 1998, 96-97). In the townland of Buntaloon to the north of Tralee, five prehistoric pits were found, one of which was lined with a saddle quern and rubbing stone (Kiely 2000, 116-117). An excavation at Cloghers yielded yet more prehistoric features in the form of three structures, one of which contained 140 sherds of decorated and undecorated Beaker pottery, a flint scraper and chert flakes along with small amounts of cremated bone (Kiely 2002, 149). Although, the above discoveries are located some distance away from the proposed realignment, their presence is an indication of activity in the general area during the prehistoric period.

Iron Age: c. 700 BC-AD 400

In common with much of the rest of the country, there is very little evidence for Iron Age activity in the North Kerry Area. Only one monument may reflect activity from this period – an ogham stone (KE029-15702), associated with the ecclesiastical site at Ratass. In addition, monitoring of topsoil stripping, along the length of the N21 Ballycarty to Tralee Road Improvement Scheme October 2003,

identified two pits, which have been dated to the Late Iron Age/early medieval transitional period (Dunne 2006).

Early medieval period: c. AD 400-AD 1169

During the early medieval period county Kerry lay at the heart of Íarmumu – the kingdom of west Munster, which was controlled by the Éoganchta Loch Léin, who was based around Killarney. The rulers of Íarmumu were considered second only to the King of Cashel within the hierarchy of Munster for most of this period.

There is evidence for settlement from this period in the immediate environs of the road realignment. The dominant archaeological site of the period is the ringfort, an enclosed settlement site usually defined as a broadly circular enclosure delimited by a bank and ditch. The degree of circularity is variable, and oval and D-shaped enclosures are not unusual. Variants of the site-type with dry-stone built ramparts are usually referred to as cashels. Site of this type are well-represented within the broader environs of the development. Two ringforts, two enclosures and a souterrain are located within 500 m of the scheme (Table 1) and indicate significant levels of settlement activity in the area during the early medieval period.

One ringfort (KE029-095), located 8 km to the southwest of the proposed road realignment in the townland of Dromthacker was excavated in 1997 (Cleary 1997). Two main phases of occupation were identified; Phase 1 was represented by a scatter of post- and stake-holes with no discernible pattern, a paved area and a gully, which skirted along the inner side of the original eastern bank. This gully was interpreted as a water-trap to catch runoff from the adjacent bank. Phase 2 was represented by at least two circular structures; the estimated diameter of the buildings is 7.50 m and 9.50 m, slightly larger than the house sizes normally recorded within ringforts. The buildings were located on the south-east side of the enclosure and it is likely that other structures existed within it, but evidence for these had been destroyed during alterations to the ringfort. The site also produced evidence for iron-smelting.

Ecclesiastical activity probably dating to this period is represented by the presence of a holy well and Hermitage in the townland of Cloonafinneela within 500 m of the development.

Later medieval period (AD 1169 – c. 1600)

There are no known later medieval sites located close to the area proposed for the road realignment but there was intense activity during this period in towns of Listowel and Tralee, between which the site is located. In the village of Kilflynn a church site has been recorded with possible later medieval origins (KE041-142). According to John O'Donovan (1841) the site of an old church was occupied by a modern protestant one. No surface trace of the church survives but the later one is extant (Toal 1995, 252).

Tralee bypass excavations

Recent excavations in advance of the Tralee Bypass, which is within 8 km of the Rea to Tullig road realignment, have resulted in the identification of 36 new archaeological sites to the east and south of Tralee town (Bartlett et al 2010). Post-excavation work is ongoing but initial results suggest the following:

Direct evidence for occupation and settlement of the area in the Neolithic, Bronze Age, medieval and post-medieval periods was identified. Features relating to subsistence and industry were also found throughout the scheme. A total of 15 sites had features related to burnt mound activity of probable Late Neolithic to Late Bronze Age date. These were especially concentrated on the edge of the floodplain of the River Lee and on the southern side of the scheme where the land is prone to

intermittent waterlogging. Evidence for metalworking was found on two of the large multiperiod sites: Ballinorig West 4 and Ballingowan 1.

Several kilns were identified along the scheme. Two of these may be related to early medieval cereal-drying and six of the kilns were post-medieval limekilns. Evidence for post-medieval brick production, in the form of two brick clamps and a waste pit, was found at three locations in the clay-rich southern floodplain of the River Lee.

Cremation burials were identified on three sites and are the only evidence of funerary practices along the bypass. At Ballinorig West 3, located 700 m east of Tralee, a Bronze Age urned cremation was found along with a possible pennanular ring-ditch. Nearby, at Ballinorig West 4, a total of 22 Developed Iron Age cremations and a ring-ditch also containing cremated bone were excavated.

A double row of pits/post-holes identified at Ballingowan 1 is reminiscent of avenues associated with timber circles on Neolithic and later prehistoric sites.

3 OBJECTIVES AND METHODOLOGY

3.1 Objectives

The objective of the work was the preservation-by-record through appropriate rescue excavation of any significant archaeological features or deposits, which have been identified within the boundaries of the proposed development, in advance of the construction programme, so as to mitigate the impact of the development on this archaeological material.

3.2 Methodology

Full archaeological excavation was undertaken at Cloonafinneela 2 between 13 and 14 October 2011. The crew for the excavation consisted of 1 director and 1 supervisor.

Topsoil stripping of the site was conducted using a 360° tracked machine fitted with a 1.80 m wide ditching (toothless) bucket under constant archaeological supervision. A total area of 100 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 1:10 and 1:20. 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 from any deposits suitable for analysis or dating as per Rubicon Heritage Services Ltd environmental guidelines and following consultation with environmental archaeologist and archaeobotanists Laura Scott and Abby Mynett and zooarchaeologist Claudia Tommasino Suárez.

During the post-excavation stage of the project soil samples were analysed by archaeobotanist Dr. Scott Timpany and a report produced on the findings; this report has been incorporated into this final report (see appendices).

4 THE RESULTS

A total area of 100 m² was exposed at Cloonnafinneela 2, revealing a shallow pit filled with burnt thatch material dating to the late/post medieval period (cal AD 1450-1635 (2 σ) (SUERC 38750)) and a small burnt spread. A non-archaeological linear feature was also identified within the excavation area (Figure 2).

The topsoil at the site (001) was a maximum of 0.38 m deep and comprised mid-brown silty loam. Natural geological strata (002) consisted of orangey brown sand clay with patches of sand.

4.1 Phase I

This represents the earliest activity found at the site and consisted of a shallow pit filled with burnt material and an adjacent burnt spread (Figure 2). Given the dry condition of the site the very well preserved charred plant remains in the pit (Plate 1) were indicative of a probable post-medieval date. This is corroborated by a Late/post medieval date of cal AD 1450-1635 (2 σ) (SUERC 38750) returned for the pit.

The pit (003) was teardrop-shaped in plan with sharp breaks of slope on top, concave to imperceptible sides and a flat base. It measured 3 m long (north-south) and between 0.35 m and 1.5 m wide. It had a depth of 0.12 m on the south side and 0.05 m on the north side. The fill (004) was very mixed and appeared to consist of several dumps of burnt material (Plate 2). It was loose sandy silt which was mottled black/red/grey/brown in colour. Patches of reddish oxidised material was spread throughout the fill. There were lens of very frequent charcoal throughout and occasional small stones. The lenses of charcoal were mainly found at the base, but the base itself was not oxidised to indicate that the material was produced *in situ* (Figure 3). However it could be the case that the sandy nature of the subsoil may not be prone to oxidization.

Some lens of charcoal/ charred plant remains were very well preserved. Identification of the charcoal fragments from the sample taken from the fill (004) produced an assemblage dominated by hazel together with oak and a small amount of willow. Radiocarbon dating of a fragment of hazel charcoal returned a late/post-medieval date of cal AD 1450-1635 (2 σ) (SUERC 38750). Abundant numbers of charred soft rush (*Juncus effusus*) remains comprising stems, florets and seeds have also been identified in this sample showing very good levels of preservation. Also present were large numbers of wild plant taxa, including five seeds of buttercup species, with bulbous buttercup and lesser spearwort also recorded. Sedges and nipplewort were identified in small numbers along with a single violet species and bramble. Small, medium and large grained grasses were recorded totalling 19 grains, while the most dominant wild taxa recorded in the sample were 50 fruits of cinquefoils.

Small numbers of charred cereals were also identified in the fill (004). The grain was predominantly bread wheat, with grains of wheat sp. also present. Hulled barley was also identified with four grains recorded. A total of two indeterminate grains that were too poorly preserved to be identified to species level were also recovered. Small number spikelets of barley and bread wheat species were also present, as well as indeterminate culm node fragments.

To the southwest of pit (003) was an area of oxidised subsoil which was overlain by a patchy spread of charcoal (005) (Plate 3). The oxidised area was very compact and more clayey than the sandy base of the pit. Spread (005) was patchy but overall occupied an area measuring 1.8 m by 1.75 m and it was only 0.03 m deep. It consisted almost entirely of charcoal. It seems likely that the material within pit (003) may have originated in this area of burning, which may have been a hearth.

4.2 *Phase II*

A linear feature which was part of a network of relatively modern field drains truncated the northern edge of pit (003). This feature was not archaeologically significant.

4.3 *The samples*

A total of one environmental soil sample was recovered during the excavation.

Identification of the charcoal fragments from the sample taken from the fill produced an assemblage dominated by hazel together with oak and a small amount of willow. All of the fragments analysed were observed to be roundwoods. Generally growth rings did not exceed 1 mm, showing that growth was restricted, which suggests that the trees were subjected to environmental or anthropogenically induced stresses. The abundance of roundwood within the sample suggests that this could be explained by woodland management, in the form of pollarding or coppicing. The growth ring patterns also suggest that this was the case as many of the charcoal fragments displayed wider growth rings, up to 1.36 mm thick, sandwiched between the narrow growth ring sequences, which is indicative of coppicing.

5 Discussion

The results of the excavation at Cloonafinneela 2 point to two phases of activity at the site.

5.1 *Phasing and Chronology*

Two phases of activity were identified at the site.

5.1.1 *Phase I*

Phase I was represented by a hearth and a possible waste pit which was radiocarbon dated to the late/post-medieval period (cal. AD 1450-1635 2σ (SUERC-38750)). The pit itself was not morphologically diagnostic but environmental analysis of the material found within it shows the remains of burnt thatch, possible turf and coppiced wood. The remains of numerous charred cereal grains were also recovered, however this is thought to be incidental to the activity taking place.

The material found in the waste pit could be remains of something as simple as a fire for heat or a deliberate burning of waste/old thatch from some nearby building. No building was identified within the excavation area itself.

The burning of the material did not take place in the pit (as is evidenced by the lack of oxidisation of the sub-soil), but in the adjacent hearth (005) where oxidization indicating *in situ* burning was present.

It is theorised by Laura Scott and Abbey Mynett (Appendix 6) that the pit may represent the remains of a cereal-drying kiln but the morphology of the feature does not support this interpretation

5.1.2 *Phase II*

The second phase of activity is represented by a modern field drain, which was one of many that traversed the field, and as such is not archaeologically significant.

5.2 *Thatching*

The use of thatch as a roofing material has been practised in Ireland since prehistoric times though early evidence is rarely preserved. Thatched roofs would have been ubiquitous at the end of the medieval and beginning of the early medieval period. The disposal of thatch in a fire such as that at Cloonafinneela 1 could have been required for any number of reasons such as the demolition of a building or the replacement of a roof. Additionally thatch was commonly used to cover reeks of turf and would have been removed as the turf was used.

Some traditional thatching methods

Timber work for the frame of a roof varied depending on area and period. The first stage of thatching the frame was to have a base layer of organic material (which could have been sod) tied on to the whole roof, up to nine inches thick. This would be laid over for instance twisted straw ropes stretched vertically between horizontal timbers. Alternatively coppiced pole rafters would be used, laid closely together. Another similar method was to weave thin sticks in between rafters of split oak, all these timber types would then be covered with a base layer of either gorse, heather, sedges, turfs or bracken and then tied down to the timbers typically with straw rope, withy bonds or bramble rope. Ancient base layers tell us much about what crop varieties were grown and which weeds were prevalent at

the time the base layer was laid (Jones and Driver, www.thatchingwales.co.uk). This is evidenced in the remains found in the pit at Cloonnafinneela 2 which contained charcoal from coppiced rods (possibly used in the roof frame), remains of sod/turf which would have served as a base layer and cereal grain which could have been incidentally included with straw used to make ropes or as the thatching material itself. The material used for thatching varied depending on the locally available materials. Rushes, reeds and straw were all popular materials. The rushes identified within the pit-fill are likely to have been the original thatching material.

5.3 *Conclusions*

The excavations at Cloonnafinneela 2 revealed a hearth and waste pit radiocarbon dated to the late/post-medieval period (cal. AD 1450-1635 2σ (SUERC-38750)). These features seem to have been involved in the burning and disposal of old thatch.

6 ARCHIVE QUANTITIES

The site archive is comprised of the following materials:

Item	Quantity
Context Sheets	5
Plans	1
Sections	1
Photographs	9
Registers	4
Notebooks	0

The archive material is contained within one 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 Rubicon Heritage Services Ltd., Unit 1, Wallingstown Business Park, Little Island, Co. Cork. It is proposed that following completion of post-excavation the archive will be deposited with the National Monuments Service, Department of the Environment, Heritage and Local Government, or the National Museum of Ireland, or such other repository as may be directed by the Client's Representative and the Project Archaeologist.

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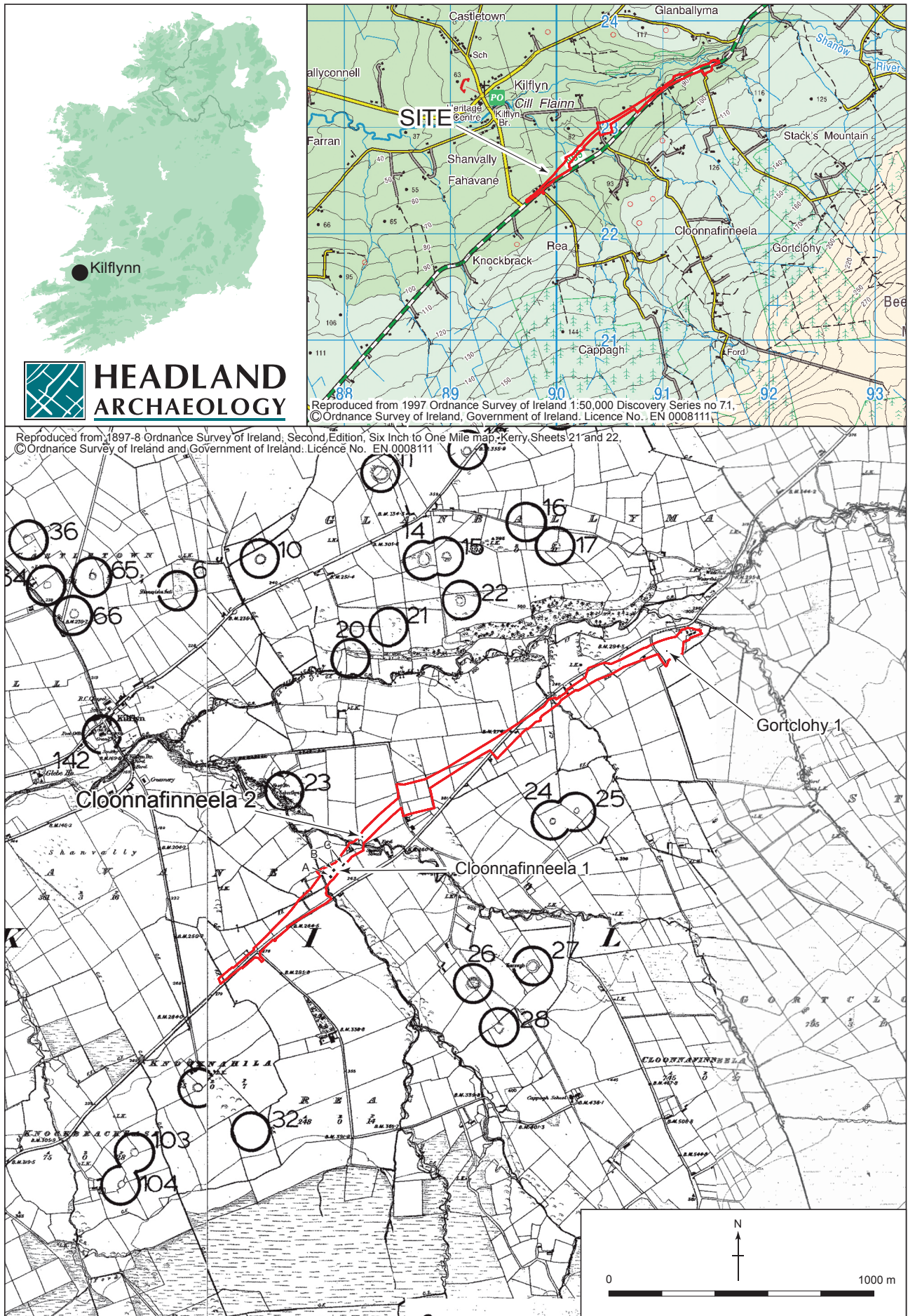


Figure 1 - N69 Rea to Tullig Road Realignment Scheme:
 Scheme location, Sites and RMP Extract.

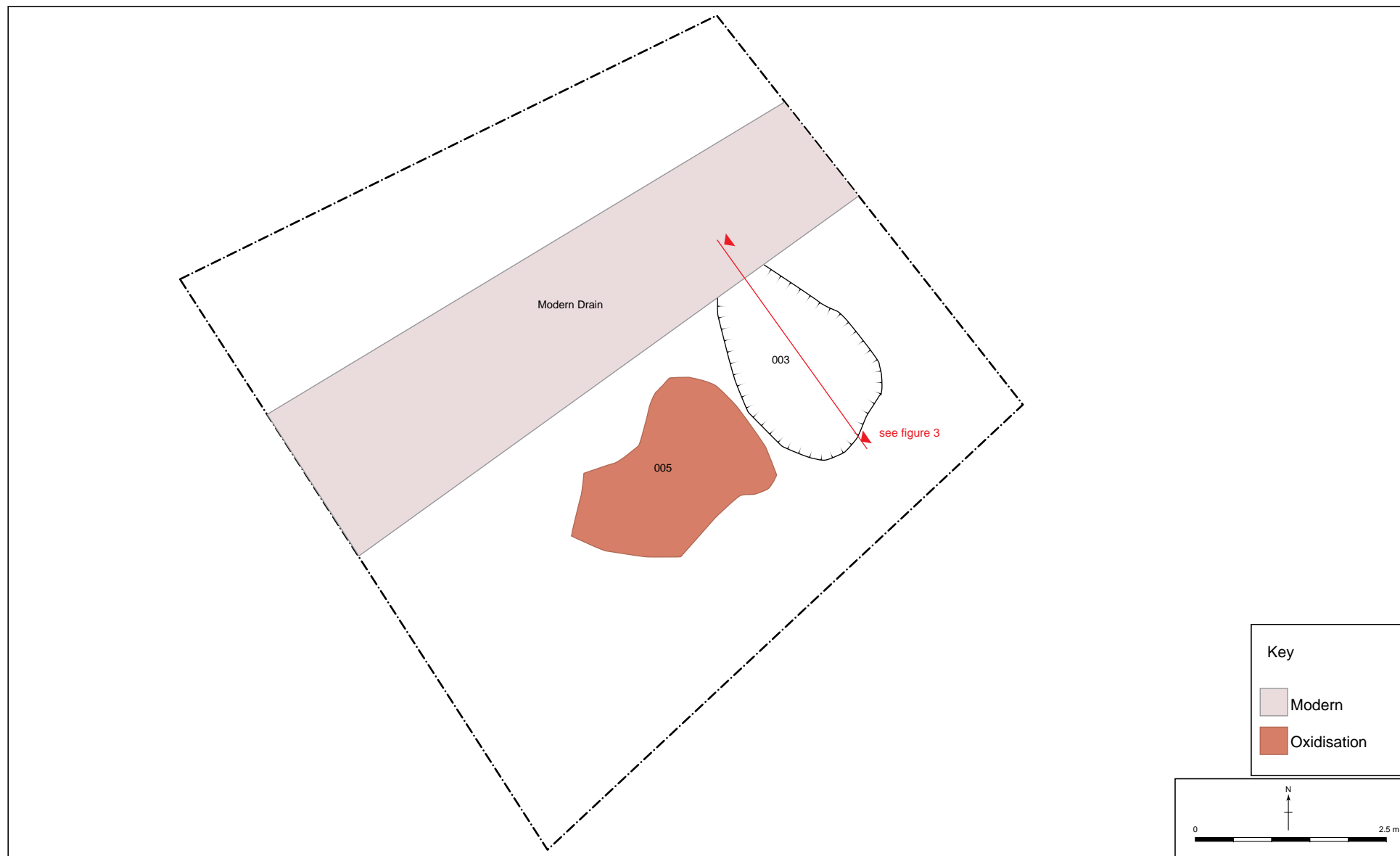


Figure 2 - N69 Rea to Tullig Road Realignment Scheme: Features excavated at Cloonnafinneela 2.

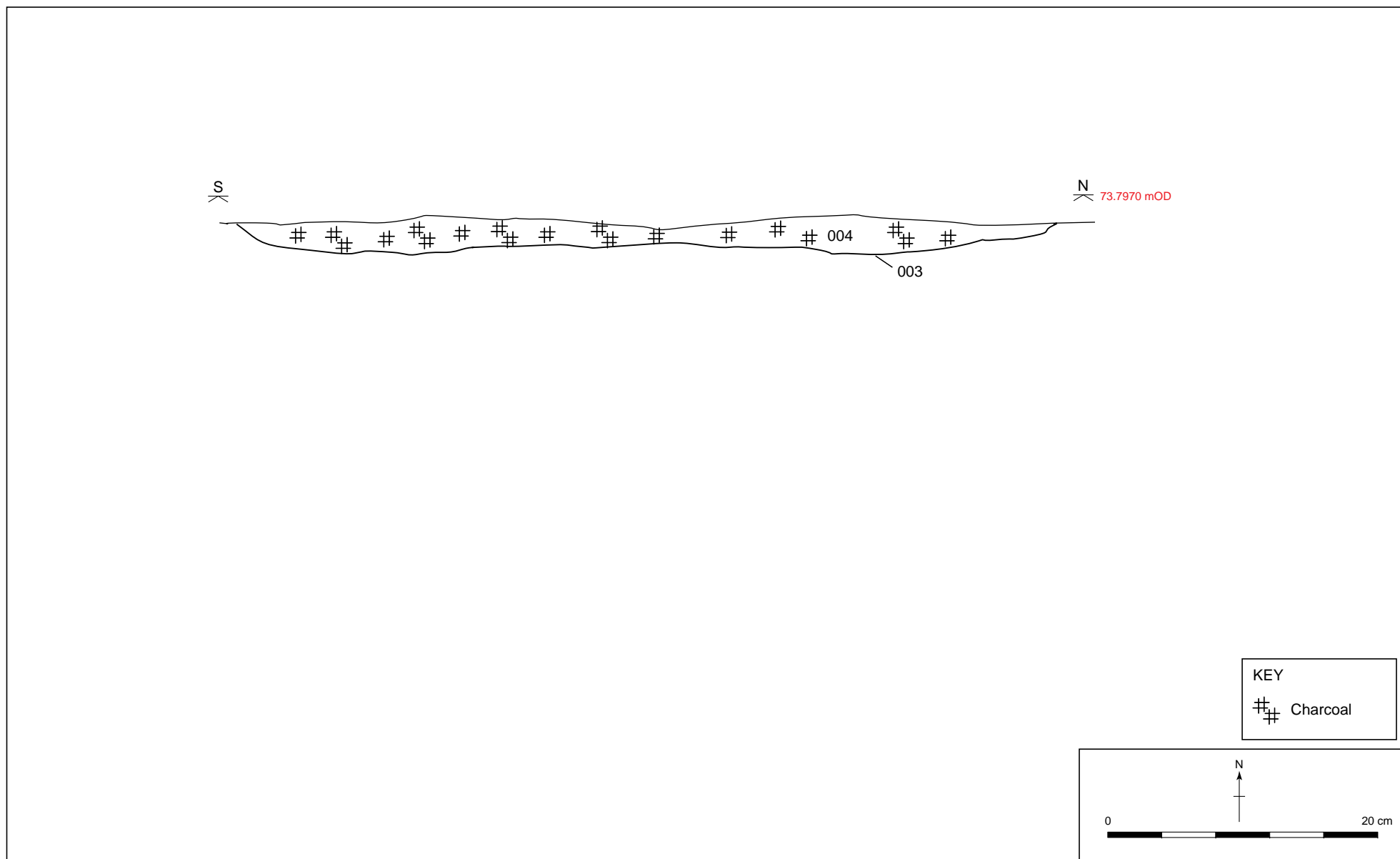


Figure 3 - N69 Rea to Tullig Road Realignment Scheme: Cloonnafinneela 2: East facing section of Pit 003.



Plate 1 - Charcoal within pit (003).



Plate 2 - West-facing section of pit (003).



Plate 3 - Spread (005) and oxidised area.

Appendix 1 – Context Register

Context no.	Type	Fill of:	Filled by:	Length (m)	Width (m)	Depth (m)	Description	Interpretation
001	Deposit	-	-	-	-	0.38	Grey brown silty loam	Topsoil
002	Deposit	-	-	-	-	-	Yellowish orange sand	Natural
003	Cut		(004)	3	1.5	0.12	Tear drop in plan with rounded corners and concave to imperceptible sides. Sharp to very gradual break of slope on the top and gradual break of slope on the base. Flat base.	Cut of a shallow waste pit
004	Deposit	(003)	-	3	1.5	0.12	Loose mottled black, red, grey and brown sandy silt with very frequent inclusions of charcoal in patches and occasional small stones	Mixed filled of shallow pit (003)
005	Deposit	-	-	1.8	1.75	0.03	Irregular patch of loose black charcoal over oxidized subsoil	Possible hearth

Appendix 2 – Sample Registers for Cloonnafinneela 1

Soil Samples

Sample No.	Context No.	Description
001	004	Mid orangey brown clayey silt with frequent inclusions of charred material

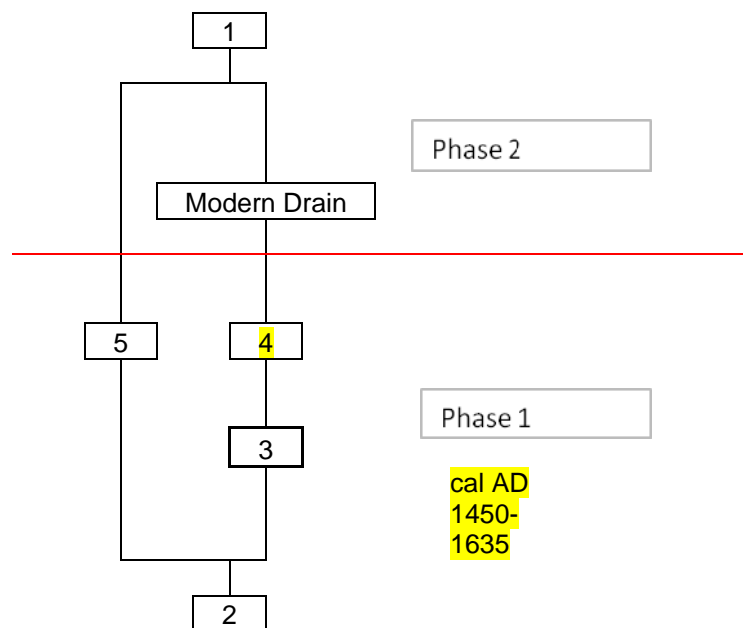
Appendix 3 – Drawing Register for Cloonnafinneela 1

Drawing No.	Type	Scale	Description
001	Section	1:20	West- facing section of (003)

Appendix 4 – Photo Register for Cloonnafinneela

Photo No.	Direction Facing	Description
11E0355:055	E	Pre-excavation of (003)
11E0355:056	N	Pre-excavation of (005)
11E0355:057	ENE	Pre-excavation of site
11E0355:058	N	Pre-excavation of site
11E0355:059	E	Mid-excavation of (003) (004)
11E0355:060	N/A	Close up of charcoal in situ
11E0355:061	N/A	Close up of charcoal in situ
11E0355:062	N/A	Close up of charcoal in situ
11E0355:063	N/A	Close up of charcoal in situ

Appendix 5- Site Matrix for Cloonnafinneela 2



Appendix 6 – The charred plant remains from Site 11E0355, Cloonafinneela 2, Co. Kerry

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Headland Archaeology Ltd

Introduction

One soil sample was taken during the excavation of Site 11E0355, Cloonafinneela 2, County Kerry, a site consisting of a shallow pit filled with burnt material and a burnt spread. The sample was analysed in order to retrieve any palaeoenvironmental material that could be used for radiocarbon dating and to provide information on the function of the pit and broader contemporary environment and setting of the site.

Methodology

One sample of approximately 5L was taken on site from the fill of a pit. The sample was chosen for processing by the Site Director in order to answer research questions set during excavation. Samples were processed in laboratory conditions using a standard flotation method (cf. Kenward *et al.*, 1980). The floating debris (flot) was collected in a 250 μ m sieve and, once dry, scanned using a binocular microscope. Any material remaining in the flotation tank (retent) was wet-sieved through a 1mm mesh and air-dried. This was then sorted by eye and any material of archaeological significance removed. All samples were assessed using a low power binocular microscope with x10 and x40 magnifications. All identifications of weed seeds (used throughout to include fruits, seeds etc) and cereals were confirmed using modern reference material and seed atlases including Cappers *et al* (2006).

A total of twenty charcoal fragments were randomly selected and analysed from the sample, taken from the pit fill (004), in order to examine the fuel types used, look for any evidence of woodland management and possibly provide information on the pits function. The charcoal was broken or fractured to view three sectional surfaces (transverse (TS), tangential (TLS) and radial (RLS)) necessary for microscopic wood identification. The charcoal fragments were then mounted on to a slide and examined using an incident light microscope at magnifications of 100x, 200x and 400x, where applicable. Identifications were made using wood keys by Schweingruber (1978, 1990) and IAWA (1989).

As part of the identification process the morphology of the charcoal fragments was also noted as to whether they could be identified as roundwoods. The number of rings was counted for each fragment and the presence of very narrow or extremely wide rings was noted. Due to the fragmentary nature of charcoal and the shrinkage it undergoes during the burning process it is unlikely that all fragments can be associated exactly with the type of wood being used for fuel (e.g. branch wood as opposed to large timbers). However, through looking at the rings and their curvature we may be able to give an estimate of the size of timbers used. Ring curvature has been measured using the keys by Marguerie and Hunot (2007) and Ludermann and Nelle (2002).

Results

The results of the radiocarbon dating are provided in Table 1. The assessment results of the samples are provided in Tables 2 (composition of flots) and 3 (composition of retents). Results of the charred plant remains analysis are given in Table 4, while the charcoal analysis results are presented in Illus. 1.

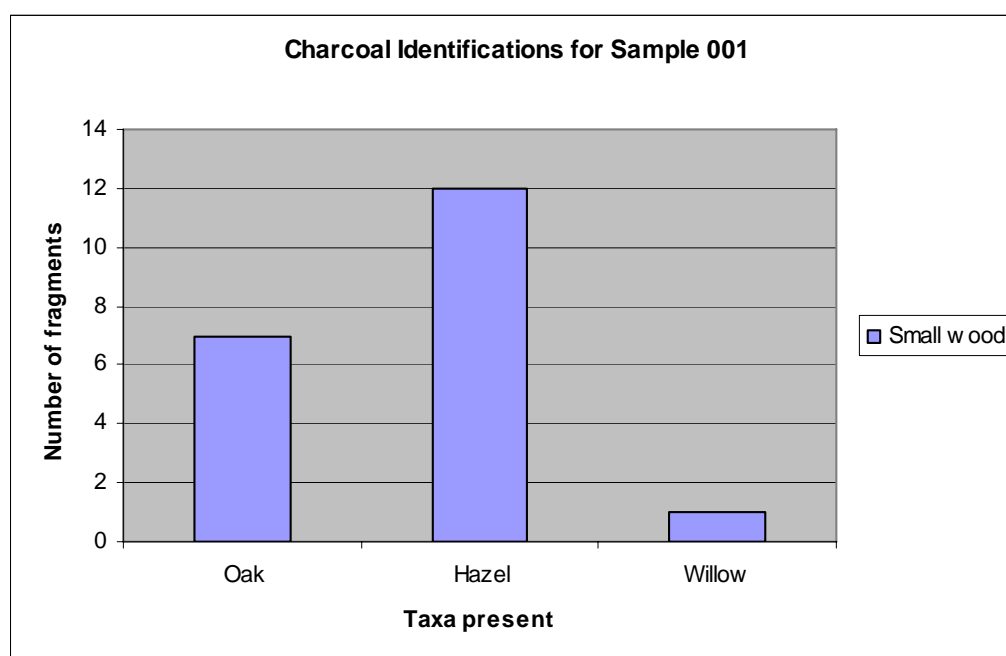
Radiocarbon dating

One AMS (Accelerated Mass Spectrometry) radiocarbon date has been returned. The date comes from a fragment of hazel (*Corylus avellana*) recovered from the fill (004) of pit (003). The radiocarbon result has provided a late/post-medieval date of cal AD 1450-1635 (SUERC-38750; 360±30 BP). The full results of the radiocarbon dating are provided in Table 1.

Wood charcoal analysis

Wood charcoal fragments were abundant in both the retent and flot components of Sample 001 with fragment size ranging from 1 to 3cm (see Tables 2 and 3). The charcoal from the sample was analysed in order to see what types of wood were used for fuel.

Identification of the charcoal fragments from the sample taken from the fill (004) of pit (003) produced an assemblage dominated by hazel (*Corylus avellana*) together with oak (*Quercus sp.*) and a small amount of willow (*Salix sp.*) (Illus. 1). All of the fragments analysed were observed to be roundwoods.



Illus. 1 - Charcoal Identifications for the fill (004) of Pit (003)

Generally growth rings did not exceed 1 mm, showing that growth was restricted, which suggests that the trees were subjected to environmental or anthropogenically induced stresses. The abundance of roundwood within the sample suggests that this could be explained by woodland management, in the form of pollarding or coppicing. The growth ring patterns also suggest that this was the case as many of the charcoal fragments displayed wider growth rings, up to 1.36 mm thick, sandwiched between the narrow growth ring sequences, which is indicative of coppicing (Wheeler 2011). Fungal hyphae, which indicate that decayed or rotten wood was used for fuel (Marguerie and Hunot, 2007), were present in many of the fragments. Radial cracks were also present in some of the hazel and oak fragments, suggesting that they were damp when burnt.

Charred Plant Analysis (CPR)

Charred plant remains were identified in abundant amounts in Sample 001 from pit (003). Twenty five percent of the sample was analysed in order to look in more detail at the plants

present. Abundant numbers of charred soft rush (*Juncus effusus*) remains comprising stems, florets and seeds have been identified in its sample showing very good levels of preservation, which is partially due to the late (post medieval) age of the sample dated.

Also present in this sample were large numbers of wild plant taxa, including five seeds of buttercup species (*Ranunculus* sp.), with bulbous buttercup (*Ranunculus bulbosus*) and lesser spearwort also recorded (*Ranunculus flammula*). Sedges (*Carex* sp.) and nipplewort (*Lapsana communis*) were identified in small numbers along with a single violet species (*viola* sp.) and bramble (*Rubus fruticosus*). Small, medium and large grained grasses (*Poaceae* sp.) were recorded totalling 19 grains, while the most dominant wild taxa recorded in the sample were 50 fruits of cinquefoils (*Potentilla* sp.).

Small numbers of charred cereals were also identified in the sample, these were again very well preserved though had a slightly bloated appearance. The grain was predominantly bread wheat (*Triticum aestivum*), with a total of nine grains, six grains of wheat sp. (*Triticum* sp.) were also present. Hulled barley (*Hordeum vulgare*) was also identified with four grains recorded and a total of two indeterminate grains (*Cerealina* indet.) that were too poorly preserved to be identified to species level were also recovered. Spikelets of barley and bread wheat species were recovered with three and five recorded, respectively. A small number (12) of indeterminate culm node fragments were also present.

Discussion

Pit activity; cal AD 1450-1635

The only features present on the site was tear-shaped pit (003) and a burnt spread. A layer of burnt material (004) was observed at the base of the pit and was sampled for environmental analysis (Long, 2011). This layer was present in patches over the base of the cut of the pit and its extent would suggest it was once present across the length of the pit. This patchiness implies that only a fragmented part of the layer has survived. Analysis has showed that this layer consists mainly of the remains of soft rush with abundant stems and florets recorded (see Table 4).

Together with the rush remnants the assemblage also contained a number of wetland plants including an abundant quantity of cinquefoils together with sedges, grasses and violets (Clapham *et al*, 1962). These plants could represent turf being used either as a fuel or possibly structural remains associated with thatching. Other wild taxa present are indicative of arable land, such as buttercups and nipplewort (Clapham *et al*, 1962). A small quantity of charred cereal grain was recovered with wheat and in particular bread wheat seen to be the dominant crop, while hulled barley was also present. The occurrence of spikelet fragments of bread wheat has enabled the identification of this grain to species. The grains were observed to be bloated suggesting they were damp/wet prior to being charred. Chaff was also present in the form of spikelet fragments of bread wheat and barley, together with fragments of culm nodes (indicative of straw).

The charcoal assemblage was noted as containing all roundwood fragments, which would suggest the wood had been coppiced (Stuijts, 2005). All of the wood types present, oak, hazel and willow were observed to be small-sized timbers, which again would indicate branchwood and/or coppiced rods (Marguerie and Hunot, 2007). All of the species identified are recorded as responding well to such management techniques (Orme and Coles, 19895; Stuijts, 2005). The use of such timbers could have been structural as well as for fuel purposes (see below).

The abundance of soft rush within the sample together with smaller quantities of cereal remains, suggests this layer of material may represent some form of thatch. Such compositions of thatch (dominant rush: smaller quantity cereals) have been recorded in Scotland as part of thatch roofing, such as at Keils, Isle of Jura (Historic Scotland, 1998). Thus this may represent a place to dispose of thatch.

A further possibility is the tear-shaped pit may represent the remains of a cereal-drying kiln. In Ireland there are a number of examples of kilns being covered by this kind of material using a straw like roof to keep the heat in the feature and optimise the drying time (Gailey, 1970). The charred layer may then represent the collapse of the roofing material following the accidental incineration of the kiln, with such events thought to have been fairly frequent in kiln use (Monk and Kelleher, 2005). Although the layers have become subsequently mixed the material present may represent thatch (rushes, straw fragments) and structural elements (charcoal, turf) overlying the crop to be dried (charred grain, arable weeds) and the fuel (charcoal, turf) being used to fire the kiln.

Conclusion

- Radiocarbon dating shows the pit activity was during the post-medieval period.
- The charred plant assemblage suggests the charred layer represents a mix of thatch, turf, wood fuel and cereal remains.
- Thatch may represent a cover for the pit, remains of a thatch roof for a building or the cover of a cereal-drying kiln.
- The presence of all roundwoods in the charcoal assemblage suggests this wood was coppiced to provide rods either for fuel or as structural elements.

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E-Number	Lab code	Sample ID	Material	$\sigma^{13}C$	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E0355	SUERC-38750	Sample 001, Context 004	Charcoal, <i>Corylus avellana</i> (hazel)	-26.1‰	360±30	cal AD 1466-1522 cal AD 1575-1584 cal AD 1590-1625	39.1% 5.0% 24.1%	cal AD 1450-1530 cal AD 1540-1635	47.7% 47.7%

Table 1 – Radiocarbon dating results for Cloonafinneela 2

Table 2: Cloonafinneela 2, E0355, Retent Sample Results

Context Number	Sample Number	Feature	Sample Vol (l)	Charred plant	Charcoal quantity	Charcoal max size (cm)	Material available for AMS	Comments
004	1	Fill of pit (003)	5	++++	+++	3	(Charcoal)	Oak and non oak charcoal present. Charred plant predominantly rushes.
Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant NB charcoal over 1cm is suitable for identification and AMS dating								

Table 3: Cloonnafinneela 2, E0355, Flot Sample Results

Context Number	Sample Number	Feature	Vol (ml)	Charred cereals:	<i>Hordeum vulgare</i>	<i>Triticum aestivo-compactum</i>	Other plant remains	Charcoal Quantity	Charcoal Max size (cm)	Material available for AMS	Comments
004	1	Fill of pit (003)	100		+	+	<i>Juncus effusus</i> +++, <i>Potentilla</i> sp. +++	+	2.5	Charcoal	Charcoal is oak and non oak.
Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant NB charcoal over 1cm is suitable for identification and AMS dating											

Appendix 7 - Radiocarbon Date Table

E-Number	Lab code	Sample ID	Material	$\sigma^{13}C$	Radiocarbon age BP	Calibrated Age Ranges (1 σ)	Relative probability	Calibrated Age Ranges (2 σ)	Relative probability
E0355	SUERC-38750	Sample 001, Context 004	Charcoal, <i>Corylus avellana</i> (hazel)	-26.1‰	360±30	cal AD 1466-1522 cal AD 1575-1584 cal AD 1590-1625	39.1% 5.0% 24.1%	cal AD 1450-1530 cal AD 1540-1635	47.7% 47.7%



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RADIOCARBON DATING CERTIFICATE

14 March 2012

Laboratory Code SUERC-38750 (GU26446)

Submitter Laura Scott
Headland Archaeology Ltd
13 Jane Street
Edinburgh
EH6 5HE

Site Reference RTRR11- Cloonafinneela 2- 11E0355
Context Reference 4
Sample Reference 1

Material Charcoal : *Corylus avellana*

$\delta^{13}\text{C}$ relative to VPDB -26.1 ‰

Radiocarbon Age BP 360 ± 30

N.B. 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 standards, background standards and the random machine error.

The calibrated age ranges are determined using the University of Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.1 (Bronk Ramsey 2009). Terrestrial samples are calibrated using the IntCal09 curve while marine samples are calibrated using the Marine09 curve.

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 :-

Date :-

Checked and signed off by :-

Date :-



Calibration Plot

