Final report
Marlhill
Co. Tipperary

N8 Cashel to Mitchelstown Road Improvement Scheme

Ministerial Direction: A035/000
Licence ref: E2124

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On behalf of
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For
South Tipperary County Council

N8 Cashel to Mitchelstown Road Improvement Scheme

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Abstract

This final report details the findings from the excavation of a site in the townland of Marlhill, which was excavated along a section of the N8 Cashel to Mitchelstown Road Improvement Scheme. This site was located on a southwest facing gradual slope with extensive views to the south and west. Three phases of activity were identified at this site: Iron Age, early medieval and post-medieval. The Iron Age evidence consisted of a penannular ring-barrow, with cremated bone in the upper fills of the ditch and within two inter-cutting pit features located inside the entrance of the ring-barrow. This ring-barrow was radiocarbon dated to the Iron Age, and the charcoal rich upper fills of the ditch produced iron nail shanks, blue glass beads, copper alloy mount fragments and a possible hone/whetstone fragment. The early medieval phase of this site consisted of a structure, a pit (F5), two ditches (F133 and F38) and two inhumation burials (F58/F59, F233). The structure was sub-rectangular in plan and partially truncated the upper fills of the ring-barrow. It produced a 6th- 7th century date (cal. AD 540-690). An east-west orientated burial was identified within the entrance area. The presence of the skull at the eastern extent of the cut suggests it may not be a Christian burial. The placement of the body within the entrance, may have effectively 'closed' the structure, and could indicate that the individual held a prominent position. The location of the structure adjacent to (and partially truncating) the ring-barrow is of interest? Was the mound still partially visible? Was the site reused in the early medieval period because it was obvious as a 'sacred place'? The ditch features F133 and F38 could be part of an enclosing ditch around the site. If this site is an enclosed, its location close to the townland boundary between Marlhill and Garranlea may have had some territorial significance. Charcoal analysis was indicative of a mainly dryland environment in the prehistoric and medieval period. Oak was the dominant wood identified within both prehistoric and early medieval assemblages.

1 Introduction

1.1 This final report details the findings from the archaeological excavation of Site 148.1, (Registration No: E2124) excavated along a section of the N8 Cashel to Mitchelstown Road Improvement Scheme (Fig 1). This report incorporates the stratagraphic report, specialist analysis and dating evidence to provide a wider assessment of the site.

1.2 The site was located in the townland of Marlhill, New Inn, Co Tipperary (Fig 2, 3). It was identified by Colm Moriarty during monitoring of topsoil in areas that were omitted from the original programme of testing in August 2005. A temporary slip road was required as a matter of urgency for the purposes of bridge construction in this location. A decision was made with the approval of the NRA Project Archaeologist, Richard O' Brien, to preserve the site in-situ until it was feasible to excavate it. A methodology for the preservation of the site was devised by the contractors in co-operation with the NRA Project Archaeologist and the DoEHLG which would allow maximum protection for the archaeological features. The site was subsequently excavated between January 26th and March 14th 2007.

1.3 The site had three phases of activity. The first phase of activity consisted of an Iron Age ring-ditch and associated features. The second phase consisted of an early medieval rectangular structure, two early medieval inhumations and medieval ditches and pit. The third phase of activity consisted of post-medieval field boundaries and ditches. The overall area of excavation was linear in plan and measured 127m (N-S) by 10m. A small cutting was opened at a right angle to the site measuring 15m (E-W) by 13.5m to accommodate the construction of an emergency access route.

1.4 Specialist analysis was carried out by Eoin Grogan and Helen Roche (pottery analysis), Jonny Geber (human and animal bone report), Sara Halwas (charred seed analysis), Ellen O' Carroll (charcoal analysis) and Siobhan Scully (small finds). Radiocarbon dating was carried out by Queens University Belfast and Beta Analytical. Andrea Acenelli, Johnny Ryan and Mario Sughi prepared the graphics, John Sunderland photographed the finds and Lindsay Rafter edited the text. Acknowledgements are also due to the NRA Project Archaeologists Richard O' Brien and James Eogan, the assistant NRA Project Archaeologist Mairead McLaughlin, the contractors Roadbridge-Sisk and the Consultant Engineers McCarthy Hyder CarlBro. The writer would also like to thank the site

supervisors Nikolah Gilligan, Carol Lyons and Sarah Ryan-Stevens and the excavation crew.

1.5 The excavation of the site took place under Ministerial Direction Scheme No. A035/000, Registration No. E2124 under consent from the National Monuments Division, Department of the Environment, Heritage and Local Government and the National Museum of Ireland.

2 Archaeological and Historical Background

2.1 This site was multi-period and produced Iron Age, early medieval and post-medieval activity. Although no recorded Iron Age sites were recorded in the area prior to the commencement of the road-scheme, it was apparent that this site was recorded in an area of intense early medieval activity. Excavation of the Cashel By-Pass revealed a number of sites dating to the early medieval period, including a ring-fort in Hughes'-Lot East townland (Fairburn 2003) and an enclosed settlement in Monadreela townland (O' Flanagan 2003).

2.2 A number of recorded monuments (RMP sites) which are likely to date the early medieval period are located in close to the site. In the adjacent townland of Garranlea five ring-forts (TI068:083, TI068:079, TI068:080, TI068:104 and TI068:105) and an enclosure (TI068:084) are located. The deserted medieval settlement of Dogstown (TI068:065) lies approximately 1.6km to the north and an enclosure and earthwork (TI068:066) is also located in this townland. A possible crannog (TI069:047) situated within a small lake lies approximately 1.5km to the east of the site.

2.3 The near-by townland of Knockgraffon is believed to have held the seat of Gaelic lords of the Eoghanachta clan, whose main seat was at Cashel, before the Anglo-Norman arrival. The construction of the motte and bailey (TI075:019) by the Anglo-Normans would have been a very political and potent symbol of the new overlords (Power 1989).

2.4 The site lies approximately 7km to the south of Cashel town. Although, as Thomas (1992) remarks, there is little evidence that the Rock at Cashel was ever used as a castle site, it was traditionally a stronghold of the Éoganacht kings. Cashel was one of several defensive positions fortified in 995 AD by Brian Bóruma (Power 1989). The medieval town of Cashel was a planned urban settlement very much in keeping with the other towns founded in east and central Munster in connection with the Anglo-Norman colonisation of the region.

2.5 A number of sites along the N8 Mitchelstown to Cashel Road Improvement were dated to the Iron Age. An Iron Age ring-barrow was identified approximately 1900m to the south in Knockgraffon townland (Site 143.3: E2272; Moriarty 2007a). An Iron Age ring-ditch

was also identified at the southern extent of the scheme in the townland of Knockcommane (Site 47001A:E2341; Molloy 2007a).

2.6 A second early medieval site was identified within the townland of Marlhill approximately 170m to the southeast. Site 150.3 (E2268) lay to the east of the present site and consisted of two corn-drying kilns; one key-hole shaped, a hearth and a shallow gully, which were encircled by a shallow enclosure (Moriarty 2007b). Finds included an iron knife and a copper alloy stick-headed pin with a 'watch-winder' head. This site produced a radiocarbon date of cal. AD 882-990, thus it is slightly later than the early medieval structure identified on this site. This date-range does however overlap with one of the burials identified on this site which produced a radiocarbon date of cal. AD 690-900.

3 E2124: Site 148.1 (Fig 4, 5, 6)

3.1 ***Townland: Marlhill; Chainage: 31+300; NGR E206093 N133230; 88m OD***

This site was located on a southwest facing gradual slope with extensive views to the south and west. Natural subsoil was quite mixed and varied between grey gravelly clay at the northeastern extent of the site to compact orange yellow clay at the southwestern extent of the site. Topsoil varied in depth between 0.25m at the northeastern extent of the site to approximately 0.30m at the southwestern extent of the site. The overall area of excavation was linear in plan and measured 127m (N-S) by 10m. A small cutting was opened at a right angle to the site measuring 15m (E-W) by 13.5m to accommodate the construction of an emergency access route.

Three phases of activity were identified at this site.

Phase	**Description**
Phase 1	Iron Age activity
Phase 2	Medieval activity
Phase 3	Post-medieval activity

4 *Phase 1: Iron Age activity (Fig 7, 8)*

This phase of activity can be sub-divided into four separate phases based on stratigraphy:

Phase	Description
Phase 1a	Ring -barrow Primary cut F17 and associated fills
Phase 1b	Pits F143 & F150
Phase 1c	Ring- barrow Recut F181 and associated fills
Phase 1d	Cremation pit F204

4.1 *Phase 1a: Ring-barrow F17 (Plate 1, 2, 3)*

4.1.1 *Cut F17*

The ring-barrow was penannular in plan with a southwest facing entrance and measured 7.20m (N-S) by 6.50m (E-W) in external diameter. The area enclosed by the ditch measured 4m (N-S) by 3.70m (E-W). The entrance was 1.30m wide. The profile of the barrow was generally U-shaped but was slightly more concave at the termini, particularly at the southeastern terminus of the ditch where the cut considerably widened. The cut varied in depth between 0.80m and 1.30m and in width between 1.20m and 1.90m.

4.1.2 *Associated fills*

Eleven fills (Plate 4, 5, 6) were identified in section in association with the primary cut (F17) of the ring-barrow. Some of these deposits ran consistently around the base of the ditch while other fills were more localised and represented single episodes of siltation and natural erosion along the edges of the ditch.

The primary fill of the ditch consisted of moist brownish yellow sandy clay with occasional stone and charcoal inclusions (F149) and is likely to have accumulated naturally at the base of the ditch. Cattle bone was identified within this deposit. This deposit varied in depth between 0.16m and 0.20m. A number of deposits overlay this deposit. Along the eastern and western extent of the ring-barrow it was overlain by deposit F27, the main fill of the ring- barrow. Along the northern section of the ring-barrow it was overlain partially by a thin deposit (0.08m) of dark brown clay silt with occasional small stones and charcoal inclusions (F167). This deposit could indicate natural erosion along the northern extent of the ditch, or perhaps slip from an outer bank. There was also evidence for slip or perhaps natural erosion (F243) along the inner ditch edge of the ring-barrow along the southern side of the cut which appeared to have occurred shortly after the construction of the cut as it predated the primary fill

of the ditch (F149). A thin lens of charcoal rich mottled yellow grey clay (F175) partially overlay primary deposit F149 towards the southeastern terminus of the ditch.

As stated above deposit F27 was the main fill of the primary cut of the ring-barrow. This deposit was evident consistently throughout the ditch and consisted of moderately compact mid-brown sand clay with occasional charcoal flecking and one unidentifiable animal bone fragment. It varied in depth between 0.05 - 0.16m. This deposit was selected for charcoal analysis and oak and hazel were both identified (O' Carroll; Appendix 5). This context contained a small sherd of Early Neolithic pottery (*Finds No: E2124:6*) and given its context and much abraded state is a residual find (Grogan and Roche 2007; Appendix 3). A bone fragment (animal) was selected for radiocarbon dating (Appendix 9) from this deposit and was dated to *circa* 350 -50 cal. BC (Beta – 231089).

Deposit F27 was sealed by a number of deposits. At the southeastern terminus of the ditch it was overlain by a deposit of light grey-brown silty clay with moderate charcoal inclusions and occasional small angular stones and decayed sandstone (F174). This deposit varied between 0.06 - 0.17m deep. Along the northeastern extent of the ring-barrow deposit F27 was sealed by deposits F148, F179 and F147. Deposit F148 measuring 0.11m deep consisted of compact orange-yellow sandy clay with frequent small stone inclusions. The location and nature of this deposit along the inner slope of the ring- barrow may be indicative of slip, perhaps from an inner mound. Deposit F179 consisted of a yellow clay silt with occasional charcoal inclusions. Deposit F147 consisted of light brown yellow sandy silt, which contained charcoal inclusions and small stones. This deposit was located along the outer ditch and its location would suggest that it is slip material, possibly from an outer bank. Along the northern extent of the ring-barrow more slip material was evident along the outer cut of the ring-barrow. Deposit F152 consisted of friable mid-grey sandy clay which contained a moderate amount of charcoal flecks and occasional small stones. This deposit extended towards the western and southwestern extent of the ring-barrow where it fully sealed F27.

Deposit F26 overlay deposit F27 along the southern and western extent of the cut. It was located along the inner edge of the cut. It consisted of friable to compact mid-grey sandy clay which varied in depth between 0.07m and 0.23m. Occasional cremated bone was identified in this fill but may be attributed to the residual material

from F18, the primary fill of recut F181 which lay directly over this deposit and is likely to have truncated it. One of the fragments of cremated bone was identified as part of a thin human skull vault from a juvenile individual (less than 18 years) (Geber 2007a, Appendix 7). Unburnt cattle bone and one unidentifiable fragment of animal bone were identified within this deposit (Geber 2007b, Appendix 8).

4.2 ***Phase 1b Pits F143, F150***

Two small pit features were cut into deposit F27, the main fill of the primary cut of the ditch. Pit F143 was located along the northeastern extent of the ring- barrow and pit F150 was located along the southwestern extent of the ring -barrow approximately 2m from the southwestern terminus. The purpose of these pits is unclear but they may have held some form of marker posts.

4.2.1 *Pit F143 (Plate 7)*

Pit F143 was located along the inner edge of the cut of the ring- barrow and partially cut into the natural subsoil enclosed by the ditch. It measured 0.60m (NW-SE) in length by 0.40m in width and was 0.20m deep. The cut was U-shaped in plan and had steep, almost vertical sides and a flat base. Two fills were identified in section. The primary fill (F144) consisted of moderately compact dark grey silty clay with frequent inclusions of charcoal. Charcoal analysis of this deposit identified oak, pomoideae fruitwood, ash and willow. Oak was the dominant wood identified (O' Carroll 2007; Appendix 5). This was sealed by a deposit of mottled yellow-grey sandy clay of moderate compaction which contained occasional charcoal flecks (F145).

4.2.2 *Pit F150 (Plate 8)*

Pit F50 was located 3m to the south of pit F143 and partially cut into the natural subsoil enclosed by the ditch. The cut was circular in plan and measured 0.37m in diameter and was 0.24m deep. The northern, eastern and western edges of the cut were steep while the southern edge was slightly stepped. There was a slight overhang along the north-western edge. The base was flat. One fill (F151) was evident in section. It consisted of dark brown-black charcoal rich clay sand deposit. Pomoideae fruitwood was the only charcoal type identified within this deposit (O' Carroll 2007; Appendix 5).

4.3 ***Phase Ic: Recut of ring-barrow F181 and associated fills F18, F25, F146 & F171***

A recut (F181) was evident in section of the ring-barrow and ran consistently around the cut. It varied in depth between 0.15m and 0.20m. A thin deposit of slip (F146) was evident along the outer edge of the ditch in the western extent of the ring-barrow indicating the recut may have been left partially open prior to the deposition of fills F18 and F25, the two main fills of this recut. The primary fill of the recut (F18) consisted of black compact silty clay and represented the main phase of burial within the ring- barrow. This deposit contained frequent inclusions of charcoal and cremated bone and was relatively rich in artefacts in comparison to the other features on site (Appendix 2). It produced iron nail shanks (*E2124:1-5*), copper fragments (*Find E2124:6*), two small squares of copper alloy (*E2124: 7&8*) identified as possible heads of tack or mount fragments, blue glass beads *(E2124:9-15),* fragments of molten blue glass (*Finds E2124: 16- 19*) and a possible hone stone fragment (*E2124:21*).

Charcoal analysis of this deposit identified oak, blackthorn, Pomoideae fruitwood and bird/wild cherry. Oak was the dominant wood identified (O' Carroll 2007; Appendix 5). Analysis of cremated bone identified skeletal elements from the skull, hip bone, humerus, phalanx femur and tibia. An age at death of between 18-44 years was estimated (Geber 2007a; Appendix 7) but the sex of the individual could not be determined. Charcoal from this deposit was dated to 40 cal. BC - cal. AD 130 (Beta - 232706). This deposit also produced animal bone. Fragments of unburned cattle bone and indeterminable small animal bone were identified (Geber 2007b; Appendix 8).

An isolated deposit (F171) partially overlay deposit F18 along the eastern extent of the cut. It consisted of mid-brown silty clay with an orange hue, which contained occasional charcoal flecks and small stones.

The upper fill of the recut (F25) consisted of dark brown silty clay with moderate inclusions of charcoal and cremated bone. This deposit varied in depth between 0.08m and 0.20m and it was present consistently around the base of the re-cut. Three blue glass beads were identified in this deposit (*E2124:22-24*) and two iron nail shanks (*E2124:26&31*). Charcoal analysis identified oak, ash, hazel, elm, willow and pomoideae fruitwood (O' Carroll 2007; Appendix 5). Oak was the dominant wood identified (ibid). Analysis of cremated bone identified skeletal elements from the skull, a clavicle, a femur

and a fibula. The age estimation from the skull vault fragments suggested an age at death of between 18-44 years (Geber 2007a; Appendix 7).

4.4 ***Phase 1d: Intercutting Cremation pits F204 & F185 (Plate 9, 10)***

Two intercutting cremation pits (F204 & F185) was identified inside the entrance to and partially cutting through the upper fills of the recut (F181) of the ring-barrow. They were located at the southeastern terminus of the ring- barrow within the area enclosed by the ditch. These pits were the last phase of activity associated with the ring-barrow and their location at the entrance may signal a 'closing' of the site.

Pit F204 was the primary cut. It was oval in plan and measured 0.67m (N-S) by 0.44m and was 0.20m deep. The sides of the cut were gradual but stepped from approximately 0.10m from the top of the cut to a more vertical edge and the base of the cut was flat. Four fills were recorded in section. The primary fill (F208) consisted of a charcoal rich clay silt with frequent inclusions of cremated bone. Only a fragment of a human talus could be identified from the sample (Geber 2007a; Appendix 7). This deposit was 0.02m deep. This was sealed by yellow compact sandy clay (F207) with occasional charcoal inclusions. This deposit appeared to seal the cremation deposit beneath. Another deposit of cremated bone (F206) overlay this but the fragments were too small to identity. This cremated bone was intermixed with a deposit of charcoal rich clay silt and it measured approximately 0.05m deep. The upper fill of this pit consisted of a deposit of yellow grey mottled clay (F205) with occasional charcoal inclusions and would appear to have the same function as deposit F207 in that it was a sealing an underlying cremation deposit. This deposit was approximately 0.07m deep.

Pit F185 partially truncated cremation pit F204. This pit was sub-circular in plan and measured 0.57m (N-S) by 0.26m and was 0.25m deep. The cut was U-shaped in plan with steep sloping sides and a slightly concave base. Two fills were identified in section. The primary fill (F189) consisted of compact light grey silty clay with moderate charcoal inclusions. This deposit had frequent inclusions of stone (limestone and sandstone) which varied between 0.07m and 0.05m in size. The upper fill (F186) consisted of a moderately compacted mottled grey-yellow clay silt with moderate inclusions of cremated bone and charcoal. Analysis of cremated bone from this pit identified some skull vault fragments and an age of death between 18-44 years was estimated (Geber 2007a; Appendix 7).

4.4.1 *Associated pits features F163, F182*

Two pit features (F163 & F182) were identified in close proximity to the entrance of the ring-barrow. Pit F163 (Plate 11) was located 0.40m from the southwestern terminus of the ring-barrow. The cut was circular in plan, and measured 0.60m in diameter and 0.33m deep. It had stepped western and southern sides, with a steep northern edge and an undercut eastern edge. The base was concave and stony. Two fills were identified in section. The primary fill (F165) consisted of a compact light-yellow brown silty clay. This was sealed by a deposit of compact yellow clay, similar in consistency to natural subsoil, and may have been a clay capping (F164).

Pit F182 (Plate 12) was located 0.02m to the southwest of the southwest terminus of the ring-barrow and 0.70m to the west of pit F163. This cut was oval in plan and measured 0.80m (NW-SE) in length by 0.60m in width and was 0.10m deep. Two fills were identified in section. The primary fill (F184) consisted of a compact yellow silty clay with inclusions of small stones (0.02-0.08m in size). This was sealed by a deposit of compact light brown clay with occasional charcoal flecking (F183).

5 Phase 2: Medieval Activity

5.1 A sub-rectangular structure, ditch (F133), pit (F5) and two inhumations (F58 & F233) were radiocarbon dated to the Early medieval period.

5.2 ***Structure (Fig 9, 10 Plate 13, 14, 15)***

A sub-rectangular structure was located north of and partially truncated the upper fills of the northern extent of the ring-barrow (F17). The southern and eastern sides of the structure were defined by two slot trenches F116 and F120. The northern extent of the structure was composed of postholes, although a slot trench may have existed in this area and may have been truncated. This is corroborated by a very slight depression in natural subsoil along this extent of the structure. The western extent of the structure was located beyond the area delineated for excavation. The structure measured 6.60m (N-S) in length. The full width of the structure is unknown as it was not fully exposed but a width of approximately 8m can be postulated if the western extent of the structure is equidistant from the eastern wall to the entrance.

5.2.1 *Southern wall of structure*

Slot trench F116 defined the southern extent of the structure. A posthole (F83) was identified at the western extent of the slot trench. A second posthole (F136) was identified at the eastern extent of the slot trench and truncated the fills of the ring-barrow. The slot trench did not extend as far as the western baulk which defined the limits of excavation. The absence of a slot trench or postholes along this area is suggestive of an entrance. This possible entrance is located opposite the well-defined entrance along the northern extent of the structure, which would suggest further that it is a second, less elaborate entrance, perhaps a ‘back door’. Two postholes (F85 and F64) were identified immediately south of the slot trench and may have been added as additional roof or wall supports.

Slot trench F116 (Plate 16)

Slot trench F116 was linear in plan and measured 1.38m in length by 0.29m in width. It was 0.30m deep. The cut had steep almost vertical sides and a concave slightly irregular base. Three deposits were identified within the slot trench. The primary fill (F119) consisted of a moist grey silt, which may have accumulated naturally at the base of the cut. This was sealed by a deposit of dark yellow sandy clay (F118) with

moderate inclusions of charcoal. The upper fill (F117) consisted of a loose dark brown sandy clay with moderate charcoal flecking. This fill was very distinct along the top of the cut prior to excavation as a charcoal –stained linear deposit and it is likely to be the decayed remains of a timber wall.

Posthole F83 (Plate 16)

Posthole F83, located at the eastern extent of and forming a component of the slot trench, was circular in plan and measured 0.50m in diameter by 0.43m deep. The northern, southern and eastern sides of the cut were steep, while the northern extent of the cut had a slight overhang. The base was flat. One fill (F84) was identified in section. It consisted of loose dark grey-brown clay with small flecks of charcoal and stone. The overhanging northern edge suggests that either the inserted post may have been inclined slightly towards the south. Charcoal analysis of this deposit identified alder exclusively (O' Carroll 2007; Appendix 5).

Posthole F136 (Plate 17, 18)

Posthole F136 was oval in plan and measured 0.50m (E-W) in length and 0.44m in width and was 0.18m deep. It truncated the upper fills of the ring-barrow (F18, F15, & F27). It is likely that this posthole forms the southeastern corner of the structure. It was U-shaped in plan with steep almost vertical sides and flat base. One fill was identified in section (F137) which consisted of friable brown silty clay. Charcoal analysis of this deposit identified oak, willow, pomoideae fruitwood, alder and hazel (O' Carroll 2007; Appendix 5). Oak was the dominant wood identified. A rectangular stone (unworked) packing stone was set into the eastern edge of the cut and protruded 0.10m from the top of the cut.

Associated postholes F64 and F85

Two postholes were identified immediately to the south of slot trench F116. Posthole F64 was located 0.30m to the south and measured 0.45m in diameter and 0.23m deep. Two fills were identified in section. The primary fill (F65) consisted of dark brown sandy clay and was located around the sides and base of the posthole, indicating that it was packing clay. The remainder of the cut was filled by a deposit of light brown compact sandy clay with occasional inclusions of small stones (limestone-0.01-0.04m in size) and animal bone. Analysis of the animal bone identified cattle and horse bone

(Geber 2007b; Appendix 8). Posthole F85 was located 0.30m to the west of posthole F64. It measured 0.18m (N-S) in length by 0.14m in width and was 0.31m deep. The fill (F86) consisted of a loose light brown sandy clay with occasional small stones and flecks of charcoal. One fragment of unidentifiable animal bone was identified within this deposit.

5.2.2 *Eastern wall of structure*

The western extent of the structure was also defined by a slot trench although this was less well preserved and not as defined as slot trench **F116**. It shallowed considerably and petered out towards the northern extent of the structure although a slight depression in the natural subsoil could indicate a slot existed in this area and was simply truncated. The southern extent of this slot trench truncated the ring-barrow (**F17**). Four postholes were identified truncating the fill of the slot trench (**F122**, **F124**, **F56 & F244**). Two postholes (**F62** & **F52**) were located north of the slot trench and defined the northeastern corner of the structure.

Slot trench F120 (Plate 19)

The slot trench was linear in plan and measured 4.11m in length (N-S). It tapered in width from 0.41m at the southern end to 0.23m at the northern end. The depth of the cut varied between 0.23m at the northern end to 0.12m at the southern end. The southern extent of the feature was better defined and preserved than at the northern end where it was barely perceptible indicating truncation of the structure. This would again point to a possibility that a slot trench may have been present along the northern wall of the structure and may simply be truncated. One fill (**F121**) was identified in section. It consisted of compact mid-brown yellow redeposited sandy clay with moderate charcoal flecking. Packing stones (limestone- 0.08m -0.23m in size) were distributed randomly throughout the cut. Charcoal analysis of this deposit identified oak, alder and elm (O' Carroll 2007; Appendix 5).

Posthole F124

Posthole **F124** was located approximately 0.10m from the northern end of the slot trench (**F120**) and was cut into the fill (**F121**).The posthole measured 0.20m (N-S) in length by 0.15m in width and was 0.04m deep. The cut had a sharp break of slope along the southern, eastern and western edges and a more gradual slope along the

northern edge. The base of the cut was tapered. The fill (**F125**) consisted of compact deep grey-brown sandy silt with moderate charcoal flecking.

Posthole F122

Posthole **F122** was located 0.50m to the south of posthole **F124**. It was cut into the fill (**F121**) of the slot trench (**F120**). It measured 0.30m (N-S) in length by 0.27m in width and was 0.11m deep. The southern, western and eastern sides were almost vertical while the northern edge was gradual in profile. Two fills were identified in section. The primary fill (**F123**) consisted of a brown grey moderately compact silty clay with occasional charcoal inclusions. Charcoal analysis of this deposit identified oak and pomoideae fruitwood with oak the dominant wood identified (O' Carroll 2007; Appendix 5). This was sealed by a deposit of yellow-brown clayey sand with occasional flecks of charcoal and small stones (**F127**).

Posthole F56

Posthole **F56** was located 0.70m to the south of posthole **F122**. It cut through the fill of the slot trench along its northern and southern extent and into natural subsoil along its eastern and western extent. This posthole was considerably larger than any other postholes located along the slot trench and its position immediately opposite the central post-pits **F28** and **F44** would suggest that it had a key structural function. The slot trench widened at this juncture to accommodate the post and the trench stepped in profile to the north. The cut measured 0.60m (N-S) in length by 0.57m in width and was 0.40m deep. The sides of the cut were concave although somewhat irregular and the base was uneven but generally flat. One fill was identified in section. It consisted of mid-grey brown sandy clay which contained flecks of charcoal and two pieces of animal bone (**F57**). Analysis of the animal bone identified cattle and pig bone (Geber 2007b, Appendix 8). Charcoal analysis of this deposit identified pomoideae fruitwood exclusively (O' Carroll 2007; Appendix 5).

Posthole F244

Posthole **F244** was located 0.90m to the south of posthole **F56**. It measured 0.20m (N-S) in length by 0.15m in width and was 0.20m deep. The cut had steep sides and a flat base. The fill (**F245**) consisted of mid-grey silty clay with occasional charcoal flecking.

Posthole F52

Posthole **F52** was located 0.80m from the northern extent of slot trench **F120**. It measured 0.52m (N-S) by 0.20m and was 0.17m deep. It was U-shaped in profile with straight sides and a flat base. Three fills were identified in section. The primary fill (**F55**) consisted of a grey-brown silty clay with stones concentrated towards the base which were probably a stone packing. This was sealed by a deposit of compact brown-yellow sandy clay with occasional charcoal flecking (**F54**). The upper fill (**F53**) consisted of mid-brown grey sandy clay of moderate compaction with occasional charcoal fragments. It had a large stone on its western side which may have been a packing stone.

Posthole F62

Posthole **F62** was located 0.50m northwest of **F52.** The northern, southern and western sides of the cut were steep while the eastern side was more gradual in plan. The base was flat and stony. The fill (**F63**) consisted of mid-brown sandy clay of moderate compaction containing small stones and charcoal flecks

5.2.3 *Northern wall of structure*

There was no evidence for a slot trench forming the northern wall for Structure 1 but it is likely that it was eroded or truncated. This is compounded by the relative absence of postholes along this section of the wall and the shallow nature of the northern extent of the western slot trench of the structure which was almost imperceptible. A slight depression in natural subsoil along the northern extent of the structure may be indicative of a truncated slot trench. A well-defined entrance (Plate 20), measuring 2.30m in width, was located along the northern side of the structure which comprised two groups of three postholes (**F60**, **87**, **99;** east and **F67**, **69**, **96;** west) at either side of the entrance, which splayed inwards. An east-west aligned burial (**F58**) was located in the entrance.

Postholes forming western extent of entrance F60, F87 & F89

Postholes **F87** and **F89** formed components of the northern wall of the structure as well as defining its entrance. Posthole **F89** was oval in plan and measured 0.28m in length (E-W) by 0.25m in width and 0.09m deep. The cut had steep sides and a flat base. The fill (**F90**) consisted of moist grey clay silt with moderate charcoal flecking. One fragment of unidentifiable animal bone was identified within this deposit.

Posthole **F87** was located 0.20m to the west of posthole **F89**. It measured 0.31m (E-W) by length by 0.29m in width and was 0.26m deep. The cut had steep vertical sides along the southern and western sides and a more gradual profile along the northern and eastern sides. The fill (**F88**) consisted of dark grey clay silt with occasional inclusions of charcoal and small stones.

Posthole **F60** was located 0.30m to the south of posthole **F89**. It was located inside the structure and may have supplied additional support for the roof in the area of the entrance. The cut was circular in plan and measured 0.30m in diameter and was 0.34m deep. The cut had steep almost vertical sides and a flat base. The fill (**F61**) consisted of charcoal rich dark brown silty clay. This fill produced one fragment of unidentifiable animal bone. This deposit was radiocarbon (Appendix 9) dated to cal. AD 540-690 (Beta- 233934).

Postholes forming western extent of entrance F67, F69 and F96

Postholes **F96** and **F69** formed components of the northern wall of the structure as well as defining its entrance. Posthole **F96** was sub-circular in plan and measured 0.32m (NW-SE) in length by 0.27m in width and 0.20m deep. The cut had steep sides along the eastern, southern and northern edges and the western side of the cut had a slight overhang. The base was slightly concave. The fill (**F97**) consisted of a dark brown silty clay with moderate inclusions of charcoal. Five fragments of cattle bone were identified within this deposit (Geber 2007b, Appendix 8). Charcoal analysis of this deposit identified oak exclusively (O' Carroll; Appendix 5). Posthole **F69** was located 0.30m to the southwest of posthole **F96**. The cut was oval in plan and measured 0.30m (E-W) in length by 0.24m in width and was 0.15m deep. The cut had steep sides along its southern, western and eastern sides and a more gradual profile along the northern extent of the cut. The fill (**F70**) consisted of a dark grey sandy clay with frequent charcoal inclusions.

Posthole **F67** was located 0.22m to the south of posthole **F69**. It was located inside the structure and similarly to posthole **F60** on the western side of the entrance it may have supplied additional support at the entrance to the structure. Posthole **F67** measured 0.30m (E-W) in length by 0.26m in width and was 0.21m deep. It had steep almost vertical sides and a concave base. The fill (**F68**) consisted of a dark brown silty clay with occasional charcoal inclusions.

5.2.4 *Central Features F28, F37 and F44 (Plate 21)*

Two intercutting pit features (**F28** & **F37**) and a pit (**F44**) were identified in the centre of the structure along the north-south axis between the northern entrance and the gap forming a possible second entrance along the southern wall of the structure.

Pit F37

Pit **F37** was oval in plan. It measured 0.26m (N-S) in length by 0.21m in width and was 0.12m deep. The fill (**F36**) consisted of a light brown compact clay with occasional small stone inclusions. One fragment of cattle bone was identified within this deposit (Geber 2007b, Appendix 8). This pit was almost completely truncated by pit **F28**.

Pit F28

Pit **F28** was sub-oval in plan and measured 1.04m (N-S) in length by 0.45 in width. It was 0.32m deep. The sides of this cut varied considerably- the northern and southern sides were gradual, the eastern side was steep, almost vertical and the western side of the cut was irregular. The base was V-shaped in plan. Pit **F37** may have been constructed as the original central support for the structure and may have been recut by pit **F28** to provide an additional or perhaps replacement roof support.

Pit 44

Pit **F44** was located 0.20m to the west of pit **F28**. It measured 0.69m (E-W) in length by 0.56m in width and was 0.29m deep. The cut had steep sides and a flat base. The fill (**F45**) consisted of light brown firm sandy clay with moderate charcoal inclusions.

A summary of the all postholes/pits associated with Structure 1 is outlined below in Table 1

Table 1: Postholes associated with Structure 1

Context No	Dimensions	Depth	Location
F28	1.04m (NW-SE) x 0.55m	0.32m	Centre
F37	0.26m (NW-SE) x 0.21m	0.12m	Centre
F44	0.75m (E-W) x 0.69m	0.29m	Centre
F52	0.52m (NW-SE) x 0.29m	0.23m	North-eastern corner
F56	1m (N-S) x 0.60m	0.40m	West wall
F60	0.30m (E-W) x 0.28m	0.34m	North wall. Entrance
F62	0.29m (E -W) x 0.19m	0.08 - 0.10m	Northeastern corner
F64	0.59m (E-W) x 0.30m	0.23m	Outside southern wall- additional support?
F67	0.30m (E-W) x 0.26m	0.21m	Northern wall. Entrance

F69	0.30m (E-W) x 0.24m	0.15m	Northern wall. Entrance
F83	0.50m diameter	0.43m	Southern wall
F85	0.18m (E-W) x 0.14m	0.31m	Outside southern wall-additional support?
F87	0.31m (N-S) x 0.29m	0.26m	Northern wall Entrance
F89	0.28m (E-W) x 0.25m	0.09m	Northern wall Entrance
F96	0.30m (E-W) x 0.20m	0.20m	Northern wall Entrance
F122	0.30m diameter	0.16m	Western wall
F124	0.26m	0.15m	Western wall
F224	0.20m(N-S) x 0.15m	0.20m	Western wall

5.2.5 *Pit F5 (Fig 11,Plate 22)*

Pit **F5** was located approximately 8m to the southeast of the ring-barrow (**F17**). It was partially truncated by the terminus of the ditch **F133** and by the post-medieval ditch **F41**. It measured 3m (E-W) in length by 2.50m in width and was 1.40m deep. It produced a similar radiocarbon date range to Structure 1 (cal. AD 550-660) and may be a domestic refuse pit associated with the structure.

Primary siltation (**F129**) was evident at the base of the cut, indicating the pit was left open for a period of time. Deposit **F129** consisted of moist mid-brown coarse sandy silt and was 0.20m deep. This was sealed by a deposit of moist grey-brown sandy silt with occasional charcoal flecking (**F132**), which had a maximum depth of 0.45m Two fragments of cattle bone were identified within this deposit (Geber 2007b; Appendix 8). This deposit may also consist of slumped material from the sides of the cut.

A layer of redeposited natural subsoil (**F130**) sealed deposit **F132**. This deposit may have been deliberately placed to function as packing clay for the stone lining (**F30**) inserted into the cut at this level. The stones forming the lining were mainly rounded and sub-rounded limestone and varied between 0.05-0.30m in size. These were placed consistently around the edges of the cut. A deposit of sandy yellow clay (**F110**) approximately 0.20m partially overlay the stones.

A deposit of charcoal rich sticky silty clay (**F15**) overlay deposit **F110**. This deposit was slightly ashy in consistency and may have been deliberately deposited. It may be some form of occupation refuse, perhaps from a hearth. This deposit was partially sealed by friable silty sandy clay (**F35**). This deposit had a maximum depth of 0.16m. Another deposit of possible refuse or occupation debris overlay deposit **F15**. It

consisted of charcoal rich dark brown sandy clay (**F8**) with inclusions of cattle, sheep and pig bone (Geber 2007b, Appendix 8). Charcoal analysis of this deposit identified oak, blackthorn and pomoideae fruitwood with oak the dominant wood identified (O' Carroll 2007; Appendix 5). Macro-plant analysis of this deposit identified charred indeterminate cereals, barley, oats and cereal chaff fragments (Halwas 2007a; Appendix 6). The upper fill of the ditch consisted of dark brown clay sand with frequent charcoal inclusions and occasional animal bone fragments (**F14**). This deposit is likely to be occupation debris. Charcoal analysis of this deposit identified oak, blackthorn and pomoideae fruitwood with oak the dominant wood identified (O' Carroll 2007; Appendix 5). Analysis of animal bone from this deposit identified cattle bone (Geber 2007b, Appendix 8). This deposit was radiocarbon dated (Appendix 9) to cal. AD 550-660 (Beta -233934).

5.3 *Ditch F133 (Fig 11,Plate 23)*

Ditch **F133** extended only 5m into the area delineated for excavation. It was orientated north-south. The southern terminus of this ditch truncated the pit (**F5**). One recut were evident in section (**F241**). The pit measured 2.60m at the top of the cut and tapered gradually to a flat base, which was approximately 0.50m wide. It was 1.40m deep.

Deposits of siltation were evident at the base of this ditch, indicating that the ditch may have been left open for a considerable period of time. The primary fill (**F227**) of the ditch consisted of yellow-grey sandy silt with occasional charcoal flecking. This deposit was 0.20m deep and was sealed by a layer of orange-brown sandy silt (**F158**). The tertiary fill of the ditch (**F157**) may have been deliberately deposited**.** It consisted of light to mid brown silty clay with frequent charcoal inclusions. Cattle bone was identified within this deposit (Geber 2007b, Appendix 8). The eastern side of the ditch appeared to have slipped or eroded at this juncture as a deposit of slump (**F159**) was evident along the edge of the cut.

Deposit **F156** partially sealed the slump layer and deposit **F157**. Deposit F156 would appear to have accumulated naturally in the ditch and it consisted of dark brown clayey silt with occasional charcoal and snail shells inclusions, which varied in depth between 0.03m and 0.14m. This deposit was overlain by a deposit of yellow sandy clay containing frequent sub-angular stone inclusions (0.03 - 0.09m) and occasional charcoal flecks (**F155**), which had a maximum depth of 0.22m. This was sealed by yellow brown friable

sandy and slightly silty clay (**F154**). Cattle, pig and horse bone were identified within this deposit (Geber 2007b, Appendix 8). It contained frequent stone inclusions (0.02 - 0.10m) and occasional charcoal flecks. A thin band (0.0 5m deep) of burnt clay and ash (**F162**) partially overlay **F154**. This is probably occupation debris dumped into the ditch. Deposit **F162** produced a radiocarbon date (Appendix 9) of cal. AD 649-857 (UB 7841). This was sealed by a compact thin lens of yellow clay (**F172**). The upper fill of the ditch (**F160**) was evident only along the eastern corner of the ditch as it had been truncated by recut (**F241**).

One recut was evident in section (**F241**). It was quite shallow at approximately 0.20m deep and truncated the upper fill of the ditch **F160**. The primary fill (**F139**) of this recut consisted of yellow-brown friable sandy clay with moderate charcoal inclusions. A flat worked stone disc (*Finds no: E2124:3*) and a whetstone (*Finds no: E2124:21*) were identified in this deposit.

This deposit was sealed by yellow-brown sandy clay (**F170**) with occasional charcoal inclusions along the eastern and western sides of the ditch. Towards the centre of the cut a deposit of charcoal rich mottled yellow and red burnt clay were identified (**F138**) overlying **F139**. This was subsequently sealed by a thin deposit of charcoal (**F141**). Deposit **F138** may be a hearth or *in-situ* burning.

Associated Gully F228

A narrow gully was identified approximately 2m to the east of ditch **F133** and appeared to slope towards it. It measured 8m (NE-SW) in length by 0.43m wide and was 0.42m deep. The fill (**F229**) consisted of mid-brown compact clay silt.

5.4 ***Ditch F38 (Plate 24)***

A large ditch (**F38**) delineated the northern extent of the site and is in very close proximity to the townland boundary between Marlhill and Garranlea**.** The ditch ran in east-west direction (approx**.** 7.2m in length was exposed) across the site and continued beyond the eastern and western limits of excavation. The cut was V-shaped in profile. It measured 4m in width and 2.10m deep. One fill (**F39**) was identified in section. It consisted of mid-brown sandy clay with inclusions of charcoal, animal bone and small stone. Analysis of the animal bone identified cattle, sheep, pig, red deer, horse and dog

bone. Although this ditch was not radiocarbon dated it may be a continuation of ditch **F133**. Both of these features may form an enclosing ditch encompassing the site.

5.5 *Grave-cut F58 (Plate 25)*

An east-west orientated grave-cut (**F58**) was located in the entrance of Structure 1.

The cut was sub-rectangular in plan and measured 1.40m (E-W) by 0.44m. It was very truncated and survived only to a depth of between 0.02m and 0.07m. The inhumation burial had been extremely compacted due to measures taken to preserve the site *in-situ*. The cut was concave in profile with a barely perceptible edge along the eastern extent. The skull was identified at the eastern extent of the cut. Analysis of the skeletal fragments identified heavily eroded and fragmented pieces of the skull, the upper vertebrae, the right shoulder, some ribs and some hand bones (Geber 2007a; Appendix 7). The individual, estimated to be between 35-64 years in age at time of death, was tentatively sexed as female (ibid). A fragment of bone from this deposit produced a radiocarbon date (Appendix 9) of cal. AD 650 to 780 (Beta – 231090).

5.6 *Grave-cut F233 and associated pit features F239 and F236*

A second grave-cut was identified approximately 4.5m to the north of grave-cut **F58**. Two pit features (**F239** & **F236**) were excavated to the south of grave-cut **F233**.

5.6.1 *Grave cut F233 **(Plate 26)***

The cut was sub-rectangular in plan and concave in profile and measured 1.12m (E-W) in length by 0.50m in width. It varied in depth between 0.02m and 0.06m.

It was also orientated east-west and the skull was located at the western extent of the cut. Similarly to grave-cut **F58**, the cut was very shallow, truncated and the skeletal remains very compacted. A fragment of bone produced a radiocarbon date (Appendix 9) of cal. AD 690 to 900 (Beta – 231092). Analysis of the skeletal fragments identified some poorly preserved fragments of the skull, the vertebral column, the right shoulder, arm and hand and some fragments of the pelvis, the right femur and the left foot (Geber 2007a; Appendix 7). The individual, estimated to be between 35-64 years in age at time of death, was tentatively sexed as female (ibid).

5.6.2 *Associated pits F239 & F236*

Pit **F239** was located 1.60m to the south of grave-cut **F233**. The pit measured 0.51m (N-S) by 0.39m and was 0.15m deep. The fill (**F240**) consisted of a dark brown silty clay with occasional charcoal inclusions. Pit **F236** was identified 0.70m to the west of pit **F239.** It measured 0.60m (N-S) in length by 0.30m in width and varied in depth between 0.02m and 0.05m. The fill (**F237**) consisted of a loose light brown silty clay with moderate small stone inclusions.

6 Phase 3: Post-Medieval Activity

6.1 Post- medieval activity on the site consisted of a series of inter-cutting ditches (**F9, F50, F41 & F187**) and two linear shallow ditches (**F223** & **F221**) at the southern extent of the site.

6.2 ***Ditch F9***

Ditch **F9** and **F50** merged towards the eastern limits of excavation. Ditch **F9** truncated ditch **F41** and was truncated by ditch **F187**. Ditch **F9** continued beyond the western limits of excavation and was visible as a shallow depression in the adjoining field. Approximately 9m (E-W) in length was exposed across the site and the cut tapered in width from 2.10m at the eastern extent to 1.10m at the western extent. It had a maximum depth of 0.92m. The primary fill (**F193**) consisted of light brown sandy silt which measured 0.10m deep. It was evenly deposited and appeared to be the result of natural siltation processes. This was sealed by a deposit of stony brown sandy silt (**F192**) which had a maximum depth of 0.12m deep. This deposit appeared to have accumulated naturally within the ditch. The tertiary fill (**F48**) consisted of light brown sandy silt which was 0.31m wide and 0.18m deep. This deposit also appeared to have accumulated naturally within the ditch. Cattle and sheep bone were identified within this deposit (Geber 2007b, Appendix 8). The upper fill (**F10**) consisted of compact dark-brown clayey silt with inclusions of charcoal flecks, small pebbles. Two fragments of a lignite bracelet (*Find No: E2124:7*) were found in this deposit. This is likely to be a residual find. Lignite were made as early as the Bronze Age and continued to be manufactured into the early medieval period (Edwards 1990, 96). Early medieval lignite bracelets tend to be D-shaped in section (Edwards 1990, 96). The lignite bracelet from Marlhill is oval in section suggests that it is prehistoric in date and associated with the Iron Age activity on site (Scully 2007; Appendix 4).

6.3 ***Ditch F50***

Ditch **F50** ran in an east-west direction across the site and continued beyond the eastern and western limits of excavation. The cut measured 2.60m in width and had a maximum depth of 1.30m. It was U-shaped in profile with gradually tapering sides and a flat base. Ditch **F50** was truncated by ditch **F187;** and truncated ditch **F41** just south of its merging with ditch **F9**. Two fills were identified in section. The primary fill (**F126**) consisted of loose coarse yellow-grey silty sand with moderate inclusions of charcoal and small

stones. Cattle, pig and horse bone were identified within this deposit (Geber 2007b, Appendix 8). This was sealed by a deposit of compact dark brown silty clay with occasional charcoal flecking and inclusions of animal bone (**F51**). Cattle, pig, dog and horse bone were identified within this deposit (ibid).

6.4 *Ditch F41*

F41 was a northwest-southeast orientated linear ditch which ran south from **F9** for 5.5m and terminated in and truncated medieval pit **F5** and ditch **F50**. The cut measured 1.50m in width and had a maximum depth of 1m. The cut had a sharp break of slope at the top and the sides sloped sharply. The base was flat. Three fills were identified in section. The primary fill (**F91**) consisted of sticky friable brown sandy silt with no inclusions. Cattle bone was identified within this deposit (ibid). This was sealed by compact brown clay sand with moderate inclusions of charcoal (**F135**). The upper fill (**F43**) consisted of a compact brown sandy clay with inclusions of charcoal and cattle, sheep, pig and red deer bone.

6.5 *Ditch F187*

F187 was a north-south orientated linear ditch which ran between ditch **F50** and ditch **F9**. It measured 2.20m in length but may continue in a southwest direction from ditch **F9** beyond the limits of excavation. The cut was U-shaped in plan and was 1.90m in width and 2.10m deep. Four fills were identified in section. The primary fill (**F203**) consisted of yellow-grey sandy waterlogged clay with a large amount of pebbles (*c.*0.02 x 0.02m) deposited at the base of the fill. Cattle and sheep bone were identified within this deposit (ibid). This deposit was 0.21m deep. This was sealed by a deposit of yellow sandy clay with frequent stone inclusions (**F202**). Deposit **F201** overlay **F202** and consisted of orange yellow silty clay. The upper fill consisted of dark brown friable sandy clay with inclusions of cattle bone (**F188**).

6.6 *Ditch F221 (Plate 27)*

Ditch **F221** was located towards the southern extent of the site and ran in a northeast-southwest direction and continued beyond the eastern and western limits of excavation. It truncated ditch **F223.** The cut was concave in profile with gradual curving sides and a concave base. It was approximately 1m in width and 0.23m deep. One fill (**F222**) was

identified in section. It consisted of brown silty clay with moderate inclusions of charcoal flecks and large stones at the base.

6.7 ***Ditch F223*** *(Plate 28)*

F223 was a north-south orientated linear ditch located towards the southern limits of excavation which ran from under the western baulk for 31.5m before petering out south of east-west linear ditches **F9** and **F50**. It was truncated by ditch **F221.** The cut had irregular sloping sides and an undulating irregular base**.** It was 1.20m wide and the depth varied from 0.25m - 0.50m deep. One fill was identified in section. This consisted of dark brown silty clay containing charcoal flecks and small stone inclusions.

Two intercutting features (**F219** & **F217**) and a circular pit feature (**F215**) were also identified in proximity to ditches **F221** and **F223** at the preliminary stages of excavation. The fills of these features were very sterile and upon excavation these features were subsequently deemed as non-archaeological and probably geological in nature.

7 Features not assigned to Phase

7.1 A series of pit/posthole features were identified at the northern extent of the site in close proximity to the ditch **F3**. The nature of these features would suggest that they are prehistoric in date but they were not radiocarbon dated and their associations are unclear.

7.2 A cluster of features were identified in an area measuring 10m (N-S) by 5m approximately 3m south of the ditch **F38**. Ten pit features (**F92**, **F75**, **F98**, **F79**, **F101, F104**, **F73, F108, F100** and **F114**) were identified in this area. Postholes **F77** and **F94** were identified in association with these features.

7.3 ***Pit F73***

Pit **F73** was located 2.50m to the south of ditch **F38**. It was irregular in plan and profile and measured 0.76m (N-S) in length by 0.52m in width and was 0.04m deep.
The base of the feature was slightly oxidised. A thin layer of charcoal (**F74**) overlay the burning *in-situ*.

7.4 ***Pit F104, Posthole F94***

A sub-oval pit (**F104**) was identified 2.50m to the southwest of pit **F73**. It measured 1.23m (E-W) in length by 0.66m in width and was 0.18m deep. The fill (**F105**) consisted of mid-brown clay sand. This feature was truncated by a stone drain (**F128**). A posthole (**F94**) was located less than 0.50m south of this pit, which measured 0.50m (E-W) in length and 0.30m in width. The fill (**F95**) consisted of mid-brown silty clay.

7.5 ***Pit F75, Posthole F77***

A circular pit (**F75**) was located 2.70m to the south of pit **F104**. It measured 0.80m (N-S) by 0.70m and was 0.07m deep. **F75** was a shallow ovoid cut located 4m south of **F38**. The cut was concave in profile. The fill (**F76**) consisted of dark grey sandy clay with inclusions of stone. One posthole (**F77**) was identified approximately 1m to the south of this pit. It measured 0.30m in diameter and was 0.20m deep. The fill consisted of mid grey clay silt (**F78**).

7.6 ***Pit F98***

A sub-oval pit (**F98**) was identified less than 0.50m to the west of pit **F75**. It measured 0.60m (E-W) in length by 0.40m in width and was 0.12m deep. The fill (**F99**) consisted of a mid-brown sandy clay with occasional stone inclusions.

7.7 ***Pit F92***

A small circular pit (**F92**) was identified 2m to the south of pit **F98**. It measured 0.60m in diameter and was 0.05m deep. It had gradually sloping sides which tapered to a concave base. The fill (**F93**) consisted of a dark brown sandy clay with occasional charcoal inclusions.

7.8 ***Pit 101***

Pit **F101** was located 2m northwest of pit F92 and was linear in plan. It continued beyond the western limits of excavation. It measured 0.35m + (N-S) in length by 0.20m in width and was 0.10m deep. The fill (**F101**) consisted of dark friable dark brown silty clay with charcoal flecks.

7.9 ***Pit F79***

Pit **F79** was located 2m to the north of pit **F101**. It continued beyond the western limits of excavation. This pit measured 0.50m (E-W) by 0.40m and was 0.10m deep. It was filled with dark brown silty clay (**F80**).

7.10 ***Pit F108***

Pit **F108** was located at the eastern limits of excavation, circa 8m to the east of pit **F79**. It measured 0.70m in length (E-W) by 0.50m and was 0.04m deep. The fill consisted of mid-brown sandy clay with frequent charcoal inclusions (**F109**).

7.11 ***Pit 100***

Pit **F100** was located 1.20m southwest of pit **F75**. It measured 0.50m (N-S) by 0.35m and was 0.10m deep. The fill consisted of compact clay silt (**F102**).

7.12 ***Pit F114***

Pit **F114** was identified 2m south of ditch **F38**. It continued beyond the western and northern limits of excavation. The fill (**F115**) consisted of dark brown silty clay with inclusions of animal bone.

8 Discussion

8.1 Three phases of activity were identified at this site. Phase 1 consisted of a pennanular Iron Age ring-barrow. Phase 2 consisted of an early medieval structure, a pit (**F5**), ditch features **F133 & F38**, two inhumation burials (**F233** and **F58**) and associated features. Phase 3 consisted of post-medieval ditches.

8.2 ***Phase 1: Iron Age activity***

Iron Age burial practices vary between inhumation and cremation in association with ring-barrows and ring-ditches and simple cremation pits (Raftery 1994, 189). Older burial monuments were also re-used in this period (ibid). Ring-barrows appear to be the earliest recognizable form of Iron Age burial in Ireland though their origins lie in the Bronze Age (ibid). A ring-barrow is defined by a ditch which has an outer circular bank of earth or stones and an inner mound (Newman 1997, 157). Although there was no extant evidence for a mound or bank at this particular site, deposits within the ditch of the ring-barrow were suggestive of a slipped or eroded central mound and bank.

The ring-barrow was penannular in plan with a southwest -facing entrance and measured 7.20m (N-S) by 6.50m (E-W) in external diameter. The area enclosed by the ditch measured 4m (N-S) by 3.70m (E-W). The entrance was 1.30m wide. The cut varied in depth between 0.80m and 1.30m and in width between 1.20m and 1.90m. Four phases of activity were identified within the ring –barrow. Phase 1 consisted of the primary cut of the ring-barrow (**F17**) and associated fills. Phase 2 consisted of two pit features (**F143 & F150**) which cut through the main fill of the primary cut of the ring-barrow (**F27**) and which were truncated by the recut **F181**. Phase 3 consisted of the recut **F181** and associated fills. Phase 4 consisted of two intercutting cremation pits (**F185** and **F204**) which cut through the southeastern terminus of the ring-barrow.

Two deposits from the ring-barrow were selected for radiocarbon dating. A fragment of animal bone within deposit **F27** was dated to *circa* 350-50 cal. BC (Beta 231089). A radiocarbon date from **F18**, the main fill of the recut **F181**, produced a date of 40 cal. BC-cal. AD. 130 (Beta 232706). The radiocarbon dates range suggests continuity in use of the monument over several centuries.

Cremation and inhumation were both carried out in the Iron Age but Raftery (1994, 189) suggests that cremation is the earlier burial rite. Cremated bone was dispersed consistently throughout the two upper fills (**F18** and **F25**) of the ring-barrow and residual deposits of cremated bone were identified in deposit **F26**, a deposit associated with the primary cut of the ring-barrow but which lay immediately beneath deposit **F18**. The charcoal-rich nature of both **F18** and **F25** could indicate that the cremated bone was deposited directly from a pyre. The small amount of cremated bone deposited in comparison to the amount of bone that a body produces when cremated led Geber (2007) to suggest that these deposits were token burials. Skeletal elements from the skull, hip bone, a humerus and phalanx and a femur and tibia were identified within **F18** and an age of death was estimated at between 18-44 years. Skeletal elements from the skull, a clavicle and a femur and a fibula were identified within **F25**, the upper fill of the ring-barrow. The age estimation from the skull vault fragments suggested an age at death of between 18-44 years. The remains from both deposits could not be sexed.

The practise of depositing cremated bone within the ditch is paralleled in a number of ring-barrows. The ring-barrow identified at Knockgraffon (E2272) located 1900m to the southwest had cremated bone dispersed along the upper fill of the ditch (Moriarty 2007a). A ring-ditch excavated at Ballybronoge, Co. Limerick, had fourteen discrete cremation deposits within the ditch (Eogan and Finn 2000). Cremation deposits were also identified within two of the ring-ditcheses at Ballydavis (Keeley 1996) and Structure F at Ask, Co. Wexford (Stevens 2007).

Two intercutting cremation pits (**F185** and **F204**) were identified just inside the entrance of the ring-barrow. Pit **F204** contained 154 fragments of very fragmented and well burned bone but only a fragment of a human talus could be identified from the sample (Geber 2007a; Appendix 7). Pit **F185** contained 175 fragments of cremated bone and a number of skull vault fragments were identified. An age of death between 18-44 years was estimated. Both of these burials were token burials. These pit features represented the final phase of burial activity at the ring-barrow and their location just inside the entrance could suggest their deposition as a 'closing' feature signalling the end of use of the site as a funerary monument. This placement of a burial within an entrance area is in fact paralleled in the early medieval phase of this site where an inhumation (F58/F59) was identified within the entrance of a structure. This is discussed further on in this report. There are also parallels for the placement of a cremation pit at the entrance to a structure at Ardsallagh, Co. Meath, where a cremation pit was identified inside the entrance. The

excavator suggested that despite the similarity of this structure to a roundhouse, it may have been the disturbed remains of a small ring-ditch (Clarke and Carlin 2006).

Artefacts were identified in association with the ring -barrow. A small abraded fragment of Early Neolithic pottery was identified within deposit **F27** but is likely to be residual. Deposits **F18** and **F25**, the upper fills of the ring-barrow, produced iron nail shanks (*E2124:1-5*), copper fragments (*Find E2124:6*), two small squares of copper alloy (*E2124: 7&8*) identified as possible heads of tack or mount fragments, blue glass beads *(E2124:9-15),* fragments of molten blue glass (*Finds E2124: 16- 19*) and a possible hone stone fragment (*E2124:21*).

Seven blue glass beads were recovered from deposit **F18** (Plate 29) and three from deposit **F25** (Plate 30). Four fragments of molten glass were identified within **F18** (Plate 31). Iron Age glass beads are mostly found on burial sites rather than occupation sites (O'Kelly 1989, 280). Blue glass beads were recovered from two sites on the road-scheme: the ring-ditch excavated at Knockcommane (E2341; Molloy 2007) and the ring-barrow at Knockgraffon (E2272; Moriarty 2007a). Blue glass beads have been identified from ring-ditches at Grannagh, Co. Galway (Rynne 1972), Haynestown, Co. Louth (O' Sullivan 1994), Ballydavis (Site 1), Co. Laois (Keeley 1996) and Ask, Co. Wexford (Stevens 2007). Excavations on the Ennis By-pass in the townland of Gaureen (Site AR131: Licence ref: 04E0026) produced a single blue glass bead within an Iron Age ring -ditch (Hull 2006).

Five iron nails shanks were identified within F18 (Plate 32, 33). Two possible iron nails shanks were identified within the ditch of the ring-barrow excavated at Knockgraffon (E2272; Moriarty 2007a). Iron nails were also identified in ring-barrow ditches excavated at Ballydavis (Keeley 1996), Haynestown (O' Sullivan 1994) and Rathdooney Beg 3 (Mount 1999). The ditch of a ring-barrow at Ferns, Co. Wexford contained the remains of large oak beams which had been burnt and placed in the ditch. They were deposited prior to the cremations which were interred above them. At least thirty small iron nails were attached to the upper surface of the timbers suggesting some form of planking (Ryan 1999). Iron nails may represent what remains from a box or planking in which the cremated bone was deposited within the ditch. Alternatively they may be components of pre-cremation coffins or stretchers (Tiernan McGarry, pers.comm).

Three non-ferrous objects were identified within the ring-barrow (from deposit **F18**). Two of the non-ferrous artefacts identified were probably metal alloy mounts (Scully 2007). One of the possible mounts from Marlhill consisted of six small pieces of copper alloy sheet metal (E2124:6). The other possible mount (E2124:7) is a very small, square piece of copper which has iron corrosion on one side. Mounts would have been attached to other objects as decoration. They could be dress accessories for textiles or leather or for horse harness as well as decorative elements on books or furniture (Ottaway & Rogers 2002, 2905). The remaining non-ferrous artefact is a very small cube of copper alloy (E2124:8). The function of such a small object is unknown but it possibly could have been used as some type of decorative inlay (Scully 2007). The square of copper alloy with the iron corrosion (E2124:7) could also have been used for this purpose.

Cattle were the only type of animal identified within the ring-barrow (Geber 2007b, Appendix 8). This bone may be residual as it was unburnt. Alternatively it may represent some form of ritual feasting activity associated with the deposition of cremated bone within the cut.

Charcoal analysis identified oak as the most represented species in the samples from the ring-barrow. The oak was possibly associated with the funerary element of the ring-ditch (O' Carroll 2007). Oak was the most frequently used tree in general both on the site and in association with the cremation deposits (O' Donnell 2007a). It was most likely the main pyre material used for burning. This compares well with pyre material from other Bronze Age sites (ibid). For example, the charcoal analysis of cremation pits identified along the route of the Gas pipeline to the West, indicated that oak was the main wood identified (O' Donnell 2007b, 45). O' Donnell (2007b, 49-50) states this is probably due to the fact that oak was widespread in the prehistoric period and was an excellent fuel, capable of reaching the very high temperatures necessary for successfully cremating a body.

8.3 *Early Medieval Period*

A number of features at this site were radiocarbon dated to the early medieval period. A posthole from the sub-rectangular structure was dated to cal. AD 540-690. The burial (**F58/F59**) located inside the entrance to the structure was dated to cal. AD 650-780. A deposit (**F14**) from pit (**F5**) located 7.5m to the southeast of the structure was dated to cal. AD 550-660. A deposit (**F162**) from ditch **F133** was dated to cal. AD 649-857. The

second burial identified at the site (**F233**), which was located approx 4.5m north of the structure was dated to the cal. AD 690-900. The range of the radiocarbon dates would suggest that the site was in use, at least sporadically, over several centuries during the early medieval period.

8.3.1 *Structure*

The structure was located north of and partially truncated the upper fills of the ring-barrow. It was sub-rectangular in plan and measured 6.60m (N-S) in length. The full width of the structure is unknown as the western extent of the structure was not exposed but a width of approximately 8m can be postulated if the western extent of the structure is equidistant from the eastern wall to the entrance. A well- defined entrance was located along the northern wall of the structure which measured approximately 2m in width.

The southern and eastern extents of the structure were both defined by a slot trench. The slot trench along the eastern extent of the structure petered out and was almost imperceptible towards the northern extent of the structure. The eastern wall had four postholes cutting into the slot trench (**F244**, **F56**, **F122** & **F124**). Two postholes were identified north of the slot trench (**F52** & **F62**) and these formed the northeastern corner of the structure. The plan of these features would suggest that this corner of the structure was slightly rounded. The southern extent of the structure was also defined by a slot trench and two postholes (**F136** and **F83**) formed the eastern and western termini of this slot. The slot did not extend as far as the western limits of excavation and the absence of postholes and slot trench in this area may be indicative of an entrance. This entrance may be the 'back door' of the structure as it is less elaborate than the entrance located at the northern side of the structure, which is located immediately opposite.

As stated above, a well –defined entrance was located along the northern wall of the structure. No slot trench was evident along the northern extent of the structure but a slight depression in the natural subsoil was evident which may represent the remains of a slot. No postholes were evident along this extent of the structure apart from those located adjacent to the entrance area, indicating that this section of the structure is heavily truncated. The entrance to the structure splayed inwards and an inhumation

burial (**F58**), orientated east-west (with the skull to the east) was located in the entrance area. This is discussed below in further detail.

Two intercutting pit features (**F28** & **F37**) were centrally placed within the structure, which are likely to have held the central roof supports. These were located on the north-south axis between the entrances and immediately opposite a large posthole (**F56**) cutting into the eastern slot trench which must have had a key structural function in supporting the roof.

A partially-stone lined pit (**F5**) located approximately 12m to southeast of the structure is likely to be as associated rubbish pit. Charred seeds and animal bone were identified within this pit.

The settlement pattern of the early medieval period is rural and dispersed (Edwards 2005, 238) and ringforts are the most common archaeological monuments of this period (O' Riordain 1979, 29). Rectangular structures of such an early date (cal. AD 540-650) are rare, although there are examples such as the square house excavated within a ring-fort at Dunbell Big, Co. Kilkenny (Cassidy 1991), which was dated to the eight century AD. Many structures of this period have been excavated within ringforts and there is less evidence for unenclosed settlements of this period (Edwards 2005, 259-260). Most structures prior to the ninth-century are round (Edwards 1990, 22) and from this date onwards there is a gradual change from circular to rectangular structures. It has been suggested that this was influenced by the rectangular church buildings of the early medieval period (Edwards 2005, 248). This development in building style is evidenced at sites such as Rathmullan, Co. Down where round houses were succeeded by rectangular structures from the ninth century (Lynn 1982).

As stated above, it is believed that the development in structures from circular to round after the ninth century may have been influenced by early medieval church buildings. Many of the smaller churches were constructed of wood, and were known as 'duirtheach' –literally meaning oak-house (De Breffny and Mott 1980, 8). There are examples of wooden churches underlying stone churches such as St Mels Church, Ardagh and Church Island, near Valentia Island Co. Kerry (ibid,8). Excavations at St. Vogues Church at Carnsore in Co. Wexford, identified the remains of a small rectangular post and wattle church beneath the foundations of a later stone church. The earlier wooden church was dated to 1290 ±80 (Har-1380), with a calibrated date

of AD 600-950 (www.excavations.ie). There are also references to wooden churches in the annals such as the 'Book of Armagh' an account of St Patricks life, where the writer states that St. Patrick built a rectangular church of mud as no wood was available (De Breffney and Mott 1980, 8). The 'Martyrology of Oengus' refers to a wooden church building in the fifth century near Clogher in Co. Tyrone (ibid.).

Could this building be the remains of a wooden church? (Teresa Bolger, pers comm). Charcoal analysis of samples from the slot trenches and posthole associated with the structure identified oak as the most dominant taxa within the charcoal assemblage, indicating that the building was constructed primarily of oak. However, as O' Carroll (2007) points out the use of oak for post material in all periods of history and pre-history is well attested as it is such a strong and robust timber. Incidentally, alder, elm or pomoideae was also identified within the charcoal assemblage associated with the structure and may also have been used for posts or perhaps wattling. De Breffny and Mott (1980, 9) have put forward a conjectural reconstruction of early Irish wooden churches based on surviving early stone churches and these usually comprised a single chamber with an entrance to the west and an eastern doorway. This structure however had entrances opening to the north and south. The presence of animal bone within a number of the postholes (**F56**, **F89**, **F60** & **F37**) would also point to more domestic function for this structure.

8.4 *Burial Evidence*

An inhumation burial (**F58**/**F59**) was identified within the northern entrance of the structure. Analysis of the skeletal fragments identified heavily eroded and fragmented pieces of the skull, the upper vertebrae, the right shoulder, some ribs and some hand bones (Geber 2007a; Appendix 7). The individual was estimated to be between 35-64 years in age at time of death and was tentatively sexed as female (ibid). A fragment of bone from this deposit produced a radiocarbon date (Appendix 9) of cal. AD 650 to 780 (Beta 231090). There is a slight overlap in the radiocarbon dates for the grave-cut and the structure. A posthole (**F60**) from the structure was dated to AD 540-690. Was this inhumation placed at the entrance to the structure to 'close' the structure and signify the end its use? This burial was orientated east-west but the skull was placed at the eastern extent of the grave-cut which may suggest that the burial is not Christian.

Burials located within or close to entrances are recorded from prehistory into the medieval period. This practise is even paralleled in the Iron Age phase of this site with the presence of a cremation pit representing the final phase of burial within the ring-ditch located just inside the entrance. At a Viking site in False Bay, in Connemara, two adult males were interred in the entrance of a roughly rectangular structure. The excavators suggested that it was associated with the abandonment of the house (Gibbons and Kelly 2003). References indicate that burials located in doorways or close to boundaries or thresholds may be high status burials (Fry 1999, 170). The life of St Senan of Scattery Island (Inis Cathaig) tells of two boys whose bodies 'were buried in the cemetery, near the monastery. They were the first deposed within the graveyard and were interred in a conspicuous place before the entrance'. Fry also cites a reference from the Annals of Lough Ce telling of Magnus , son of King Muircheartach who was buried in a doorway of the church at Fenagh.

Burials of the early medieval period were interred in the supine position without grave goods (O' Brien 2003). Many were identified within slab-lined cists. Women outnumbered men, and these sites were likely to be in prominent locations and associated with earlier sites or were purpose built mounds that reflected earlier burial traditions (ibid). Many aspects of the inhumation burial identified within the entrance of the structure fits within this typology; the inhumation was tentatively sexed as female and was in a supine position with no grave goods. The site is located in a prominent position within the landscape, with extensive views, and the Iron Age ring-barrow may have been still partially visible, denoting this space as sacred. There are examples of the reuse of mounds in the fifth and sixth centuries as burial places. For example at Ballymacaward, Co. Donegal, a cairn that may have been constructed in the Bronze Age was reused in the Iron Age and the early medieval period (O' Brien 2003, 67).

O' Brien (1984) has concluded that many Christians in the early medieval period up until the eighth century were being buried in tribal or family burial places, rather than Christian cemeteries. Perhaps this inhumation is a member of the family who resided within the structure, and the placement of the body within the entrance, effectively 'closed' the structure. The juxtaposition of settlement and burial within the same space is seen at two recently excavated enclosure sites excavated within the townlands of Carrowkeel and Treanbaun on the N6 Galway to Ballinasloe Road Scheme. Human burials were identified in one quadrant of the settlement enclosures (O'Sullivan 2006).

A second burial (**F233**) was identified 4.50m to the north of the structure. This burial was also orientated east-west but the skull was located at the western extent of the cut, suggesting a Christian burial. Analysis of the skeletal fragments identified some poorly preserved fragments of the skull, the vertebral column, the right shoulder, arm and hand and some fragments of the pelvis, the right femur and the left foot (Geber 2007a; Appendix 7). This burial was slightly later in date and a fragment of bone produced a radiocarbon date (Appendix 9) of cal. AD 690 to 900 (Beta – 231092). The individual was estimated to be between 35-64 years in age at time of death and was tentatively sexed as female (ibid). Burials of this date outside a cemetery are often the graves of unbaptised children, women who died shortly after childbirth, men who died in battle or possible suicides (Fry 1999, 180-187).

8.5 ***Enclosure****?*

A ditch (**F133**) was identified to the east of the structure and truncated the northern extent of the pit **F5**. This ditch was only partially exposed (it continued beyond the limits of excavation to the north). A large ditch (**F38**) was also identified at the northern extent of the site and seemed to curve slightly to the south. This would suggest that ditch **F133** and ditch **F38** may in fact be the same ditch, which in turn would suggest that the site may have been enclosed. A deposit from ditch **F133** (**F162**) produced a radiocarbon date of cal. AD 649-857. This date overlaps slightly with the radiocarbon date from the structure. It of course represents a date of one of the deposits infilling the ditch and the construction of the ditch may be more closely contemporary with Structure 1.

8.6 ***Economy***

The archaeological evidence at this site would point to a mixed-farming economy with evidence for both arable and pastoral farming. This information is gleaned from animal bone and charred seeds identified within the fills of features dated to the early medieval period.

Cattle, sheep and pig bone were identified within features dating to the early medieval period, namely the sub-rectangular structure, the pit **F5**, and ditches **F38** and **F133**. Cattle bone was the most frequently identified within the assemblage. Skeletal elements from both meat rich and meat poor parts of cattle were identified, thus it would appear both slaughter and consumption of cattle took place on site (Geber 2007b; Appendix 9).

Sheep and pig would also have been reared for meat. Horse and red deer bone were also identified within the animal bone assemblage.

Barley, indeterminate cereals, oats and cereal chaff fragments were identified within pit **F5** and ditch **F133** (Halwas 2007a; Appendix 6). It is likely that domestic refuse from hearths was dumped into the ditch as is evidenced by the charcoal-rich nature of many of the deposits within the ditch. Oats, barley and wheat were all cultivated crops in the early medieval period, and were ground into flour (Monk 1991). In the early medieval period, cereals were granted social status, with wheat granted the highest status and oats and barley towards the bottom of the list. A similar assemblage of cereal types were identified at the early medieval cereal-drying kiln site located 100m to the northwest of the site (E2268: Halwas 2007b) to the south.

8.7 *Environment*

Oak, alder, pomoideae, elm, blackthorn, ash, hazel, willow and alder buckthorn were identified in the charcoal assemblage. Oak was the dominant wood identified (O'Carroll 2007, Appendix 5). Oak was one of the most prevalent trees growing in Ireland throughout the medieval period (ibid). O' Carroll (2007) concluded that from the range of charcoal identified within the assemblage from medieval features were mainly indicative of a dryland environment. The wetland species identified from the early medieval period suggests that the area may have got progressively wetter or the dryland species were decreasing and wetland and more scrub- like trees were the main taxa available to the inhabitants in the post-medieval period.

8.8 *Artefacts*

Two artefacts were identified dating to the early medieval period. A flat stone disc (E2124:29) and a whet/honestone (E2124:30) were recovered from the early medieval ditch **F133** from the same context (**F139**). The flat stone disc (Figure 12, Plate 34) may have been a pot lid. A number of stone discs found during excavations in York were suggested to have been lids for wooden or ceramic vessels. These all dated from the late ninth to the mid-eleventh century (Mainman & Rogers 2000, 2565). The hone/whetstone (Figure 13) is a complete example made from a fine-grained stone, possibly phyllite. It is a large hone wider at each end than in the middle. This waisted form would have made it

easier to hold in the hand. There are sharpening grooves on two of its sides. Hones/whetstones were used to sharpen blades and were important not just in the manufacture of blades but also in their upkeep (Mainman & Rogers 2000, 2484).

8.9 *Post-medieval features*

A series of intercutting ditch features (**F9**, **F41**, **F50** and **F187**) were identified to the south of the ring-barrow. Ditch **F9** would appear to correspond to a field boundary depicted on the 1st and 2nd Edition OS maps. Ditch **F50** would appear contemporary with Ditch **F9** and the field boundary may have taken the form as a double ditch and bank. Ditch **F9** was visible in the adjoining field as a slight depression extending towards the western extent of the field. It is likely that the remaining ditch features are associated with drainage. Two intercutting ditch features were identified at the southern extent of the site and given the shallow nature of these features they are likely to be associated with drainage.

9 Conclusions

9.1 This site produced evidence for Iron Age and early medieval activity. Post-medieval ditches were also identified at the site.

9.2 The Iron Age burial evidence consisted of a penannular ring-barrow with a southwest facing entrance. The ring-barrow was penannular in plan with a southwest -facing entrance and measured 7.20m (N-S) by 6.50m (E-W) in external diameter. Four phases of activity were identified within the ring –barrow. Phase 1 consisted of the primary cut of the ring-barrow and associated fills. Phase 2 consisted of two pit features (**F143 & F150**) which cut through the main fill of the primary cut of the ring-barrow (**F27**) and which were truncated by the recut **F181**. Phase 3 consisted of the recut **F181** and associated fills. Phase 4 consisted of two intercutting cremation pits (**F185** and **F204**) which cut through the southeastern terminus of the ring-barrow. Two deposits from the ring-barrow were selected for radiocarbon dating. A fragment of animal bone within deposit **F27** was dated to *circa* 350-50 cal. BC. A radiocarbon date from **F18**, the main fill of the recut **F181**, produced a date of 40 cal. BC- cal. AD. 130. The radiocarbon dates suggest continuity in use of the monument over several centuries.

9.3 Early Neolithic pottery (residual), blue glass beads, iron nails and a possible fragment of whetstone were identified within the ring-barrow. A fragment of lignite bracelet (Plate 35) was identified within a modern ditch feature and is likely to be a residual find associated with the Iron Age phase of this site. Two artefacts were assigned to the medieval phase of this site: a whet/hone stone and a flat stone disc, possibly a vessel lid.

9.4 The early medieval phase of this site consisted of a structure, a pit (**F5**), two ditches (**F133** and **F38**) and two inhumation burials (**F58**/**F59**, **F233**).

9.5 The structure was sub-rectangular in plan and partially truncated the upper fills of the ring-barrow. It produced a 6th- 7th century date (cal. AD 540-690) and is unusual in that early medieval structures prior to the ninth century are generally round. Could this structure be an early medieval church? Wooden churches were the norm in Ireland in the early medieval period (Edwards 1990, 112) and were known as ‘duirtheachs’ literally meaning oak-houses and were rectangular in plan. There are a number of problems with this interpretation. Cattle bone identified within a number of the postholes associated with the structure would point to a more domestic function for the structure. Secondly the

location of the entrances along the northern and southern sides of the structure is at odds with De Breffny and Mott (1980, 9) conjectural reconstruction of early Irish wooden churches based on surviving early stone churches which had eastern and western doorways.

9.6 The location of the structure adjacent to (and partially truncating) the ring-barrow is intriguing. Was the mound still partially visible? Was the site reused in the early medieval period because it was obvious as a 'sacred place'? A second unusual aspect of this structure is the presence of an east-west orientated burial within the entrance area. The presence of the skull at the eastern extent of the cut suggests it may not be a Christian burial. Perhaps this inhumation is a member of the family who resided within the structure, and the placement of the body within the entrance, effectively 'closed' the structure. The placement of the inhumation at the entrance would indicate that the individual held a prominent position. Could the structure have been especially constructed for the burial and be some form of mortuary enclosure?

9.7 Pit F5 is likely to be a rubbish pit associated with the structure. The ditch features F133 and F38 could be part of an enclosing ditch around the site. Burial and settlement sites dating to the early medieval site are often partially or fully enclosed. Indeed enclosed homesteads of this period i.e ringforts are one of most commonly identified extant sites in Ireland (O' Riordain 1979). If this site is an enclosed, its location close to the townland boundary between Marlhill and Garranlea may have had some territorial significance.

9.8 Charcoal analysis was indicative of a mainly dryland environment in the prehistoric and medieval period. Oak was the dominant wood identified within both prehistoric and early medieval assemblages. Charred seeds were only identified in two early medieval features (pit F5 and ditch F133) and consisted of barley, indeterminate cereals, oats and cereal chaff fragments. Cattle bone was dominant animal bone identified in the prehistoric, early medieval and post-medieval phases of the site.

9.9 To conclude, this site is complex and has a number of interesting aspects. The presence of the Iron Age ring-barrow and the early medieval burials points to the continual use of the site for a sacred purpose. The ring-barrow may still have been visible as a low mound in the early medieval period, hence the re-use of the site for burial. As O' Brien (1984) points out many Christians in the early medieval period up until the eighth century were being buried in tribal or family burial places, rather than Christian cemeteries. The

location of the burial within the entrance of the structure also begs many questions. Was this a prominent individual, who upon death, was interred at the entrance to the structure, to effectively close the structure and end its use. Perhaps the structure is some form of mortuary enclosure, constructed to house the inhumation? Or could it be the remains of a wooden church, given that the most habitation structures prior to the ninth century are round rather than rectangular in plan?

9.10 This report constitutes the final report for this site. This site continues westwards beyond the limits of excavation and this should be notified to the DoEHLG.

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Appendix 1: List of Features
Feature Register

Feature Number	Feature Type	Description
1	Fill	Topsoil
2	Fill	Natural
3		Cancelled
4		Cancelled
5	Cut	Pit
6		Cancelled
7		Cancelled
8	Fill	Middle fill of F5, dark brown clay with charcoal inclusions
9	Cut	Ditch cut with modern pottery and animal bone
10	Fill	Fill of F9
11		Cancelled
12		Cancelled
13		Cancelled
14	Fill	Upper fill of F5
15	Fill	Fill of F5
16	Fill	Fill of F3
17	Cut	Cut of Ring-barrow
18	Fill	Fill of F17, under F25
19	Cut	Cut of possible pit
20	Fill	Fill of F19
21	Cut	Cut of possible pit
22	Fill	Fill of F21
23	Fill	Fill of F21
24	Fill	Fill of F21
25	Fill	Fill of F17, over F18, upper fill
26	Fill	Fill of F17, under F18, friable yellowish clay with modern stone inclusions
27	Fill	Fill of F17, under F26, slumped material, yellowish grey in consistency, moderate stone inclusions
28	Cut	Cut of pit, located 2.5m north of ring-barrow, cuts F37
29	Fill	Fill of F28, mid greyish brown sandy clay
30	Fill	Stone lining in F5
31		Cancelled
32		Cancelled
33		Cancelled
34		Cancelled
35	Fill	Fill of F40, yellow grey sandy clay
36	Fill	Fill of F37, light brown
37	Cut	Cut of pit, filled with F36, cut by F28
38	Cut	Cut of wide ditch at northern extent of site
39	Fill	Fill of F38
40		Cancelled (same as F5)
41	Cut	Cut of pit/ditch, cut into F5
42		Cancelled
43	Fill	Upper fill of F41
44	Cut	Cut of pit located 0.30m from F28 and F37
45	Fill	Fill of F44, light brown sandy clay
46	Fill	Fill of F9, under F10
47	Fill	Fill of F9, under F46
48	Fill	Fill of F9, under F47
49	Fill	Fill of F9, under F48

50	Cut	Cut of ditch, south of F5
51	Fill	Fill of F50
52	Cut	Small circular cut, north of F56
53	Fill	Upper fill of F52
54	Fill	Middle fill of F52
55	Fill	Lower fill of F52
56	Cut	Posthole
57	Fill	Fill of F56
58	Cut	Linear cut, grave cut
59	Fill	Fill of F58
60	Cut	Circular cut, filled with F61, east of F58
61	Fill	Fill of F60, dark brown silty clay, charcoal rich
62	Cut	Small cut, north of F52
63	Fill	Fill of F62
64	Cut	Cut of posthole 1m from ring-barrow on NW
65	Fill	Fill of feature F64, dark brown
66	Fill	Fill of F64, light brown
67	Cut	Posthole, 1m west of F58
68	Fill	Fill of F67
69	Cut	Cut of posthole, immediately north of F67
70	Fill	Fill of F69
71		Cancelled
72		Cancelled
73		Cancelled
74		Cancelled
75	Cut	Cut of pit
76	Fill	Fill of F75
77	Cut	Cut of posthole
78	Fill	Fill of F77
79	Cut	Cut of possible pit
80	Fill	Fill of F79
81	Cut	Cut of stakehole
82	Fill	Fill of F81
83	Cut	Cut of feature, approx. 1m from ring-barrow on NW, next to F64 and F85
84	Fill	Fill of F83
85	Cut	Cut of feature next to F83, approx 1m from ring-barrow, next to F64
86	Fill	Fill of F85
87	Cut	Cut of posthole, immediately north of F60, NE of F58
88	Fill	Fill of F87
89	Cut	Cut of posthole, 0.50m east of F87
90	Fill	Fill of F89
91	Fill	Fill of F41
92	Cut	Cut of pit
93	Fill	Fill of F92
94	Cut	Cut of possible pit
95	Fill	Fill of F94
96	Cut	Cut of posthole, NW of F69
97	Fill	Fill of F96
98	Cut	Cut of pit
99	Fill	Fill of pit F98
100	Fill	Fill within F96, over F97, packing clay
101	Cut	Pit feature at northern extent of site, running westwards under baulk
102	Fill	Fill of F101
103	Fill	Fill of F4, shallow cut east of F3
104	Cut	Shallow cut, cut by drain, north of site

105	Fill	Fill of F104
106	Cut	Cut of circular pit, east of F92
107	Fill	Fill of F106
108	Cut	Cut of small oval pit
109	Fill	Fill of F108
110	Fill	Fill of cut F5
111		Cancelled
112		Cancelled
113		Cancelled
114	Cut	Cut of pit, located at northern end of site, extending under baulk
115	Fill	Fill of F114
116	Cut	Cut of feature between ring-barrow and F83
117	Fill	Dark brown fill of F116
118	Fill	Dark yellow fill of F116
119	Fill	Grey fill of F116
120	Cut	Cut of slot trench, in between postholes F52 and F56, structure 1
121	Fill	Re-deposited fill of F120
122	Cut	Cut of posthole, cuts F121 and F2
123	Fill	Fill of F122
124	Cut	Cut of stakehole, cuts F121 only, north of F122
125	Fill	Fill of F124
126	Fill	Second fill of ditch F50
127	Fill	Re-deposited packing clay in F122
128	Cut	Stone drain
129	Fill	Fill of F5
130	Fill	Fill of F5
131	Fill	Fill of F5
132	Fill	Fill of F5
133	Cut	Cut of possible pit, burnt, friable
134		Cancelled
135	Fill	Fill of F41
136	Cut	Cut of feature in ring-barrow
137	Fill	Fill of F136
138	Fill	Fill of F133, under F141
139	Fill	Fill of F133, under F138
140		Cancelled
141	Fill	Fill of F133, under F1, over F138
142		Cancelled
143	Cut	Cut of posthole, quad 3 of F17, cut into F2 and F26
144	Fill	Upper fill of F143
145	Fill	Lower, re-deposited fill of F143
146	Fill	Deposit within F17, under F18 and only in eastern extent of ditch
147	Fill	Deposit under F146, on eastern extent of ditch, sloping westwards, within F17
148	Fill	Thin deposit or slip on eastern extent of F17, under F27
149	Fill	Thin deposit of slump on western extent of ditch at the base
150	Cut	Posthole, quad 4, cutting F27, sealed by F26, cut into edge of F17, western side
151	Fill	Fill of F150
152	Fill	Fill of F17, grey, below F25, quad 2
153	Fill	Fill of F133, under F138 and F141
154	Fill	Fill of F133, under F139 and F161
155	Fill	Fill of F133, under F154
156	Fill	Fill of F133, under F155
157	Fill	Fill of F133, under F156
158	Fill	Fill of F133, under F157

159	Fill	Fill of F133, under F155 and F156
160	Fill	Fill of F133, under F170 and F139
161	Fill	Fill of F133, under F139 and F160
162	Fill	Fill of F133, under F172 and F139
163	Cut	Cut of posthole, next to ring-barrow on south
164	Fill	Fill of posthole F163, dark brown
165	Fill	Fill of posthole F163, Light brown
166	Fill	Deposit within F17, consisting of a silty, mid brown orange hue, over F27, under F152
167	Fill	Thin band of dark brown silty sandy clay under F166 within F17
168	Fill	Mixed deposit of light brown, orange clay within F17
169		Cancelled
170	Fill	Fill of F133, under F141 and F138
171	Fill	Fill of F17, mid yellowish brown silty clay
172	Fill	Fill of F133, under F139
173	Fill	Fill of F17, under F25 in quad 4
174	Fill	Fill of F17, clayey sandy silt, over F27 in quad 4
175	Fill	Fill of F17, silty mottled clay under F27 in quad 4
176	Fill	Fill of F17, light brown silty clay, under F175 in quad 4
178	Fill	Fill of F17, mid brown sandy silt, north end of quad 2 and 3.
179	Fill	Fill of F17, compact yellow clay under F26 and over F27 in quad 3
180	Cut	Recut of F17, filled by F26 and F152
181	Cut	Second recut, filled with F18 and F25
182	Cut	Cut of feature opposite ring-barrow
183	Fill	Fill of F182, light brown
184	Fill	Fill of F182, yellowish
185	Cut	Cut of posthole, at terminus of F17, cuts F18, F174, F27
186	Fill	Fill of F185
187	Cut	Cut of ditch on baulk
188	Fill	Fill of F187
189	Fill	Lower fill of F185
190	Fill	Fill of F9
191	Fill	Fill of F9, slump material on the south/eastern extent
192	Fill	Fill of F9, under F190, grey sandy silt
193	Fill	Primary fill of F9, yellow grey sandy clay silt
194	Cut	Linear cut, cut by F9 and F50, cuts F5, possibly F41
195	Fill	Primary fill of F194, yellow grey silty clay
196	Fill	Fill of F194, over F195, grey silty clay
197	Fill	Fill of F194, over F196, yellow gravelly sandy silt
198	Fill	Fill of F194, over F197, dark grey silty clay
199	Fill	Fill of F194, over F198, mid brown sandy silt
200	Fill	Fill of F194, deposit of stones in a brown silty clay
201	Fill	Fill of F187, sandy clay
202	Fill	Fill of F187, under F188 and F201
203	Fill	Fill of F187, under F188, F201 and F202
204	Cut	Cut of cremation pit, cut by F185
205	Fill	Upper fill of F185, yellow compact clay
206	Fill	Middle fill of F185, grey charcoal, cremated bone
207	Fill	Lower middle fill of F204, yellow compact clay
208	Fill	Lower fill of F204, charcoal rich, cremated bone
209		Cancelled
210		Cancelled
211		Cancelled
212		Cancelled
213		Cancelled
214		Cancelled

215		Cancelled
216		Cancelled
217		Cancelled
218		Cancelled
219		Cancelled
220		Cancelled
221	Cut	Cut of ditch, southern end of south
222	Fill	Fill of F221
223	Cut	Narrow ditch running SE-NW
224	Fill	Fill of F223, brown orange silty clay
225	Cut	Cut of shallow gully, u-shaped
226	Fill	Fill of F225, orangey brown loose silt
227	Fill	Fill of F133, south facing section
228	Cut	Cut of shallow linear N-E
229	Fill	Fill of F228, mid-brown clayey silt
230	Fill	Fill of F50, under F51 and over F126
231	Fill	Second fill of F215, mottled grey cream
232	Fill	Third fill of F215, re-deposited silty clay
233	Cut	Grave-cut NW of F17
234	Fill	Fill of F233
235	Skeleton	Skeleton from F233
236	Cut	Possible N-S cut south of F233
237	Fill	Fill of F236, brown silty clay
238	Fill	Deposit with fragments of skeletal remains, west of F236
239	Cut	Cut of pit, 2m to south of F235
240	Fill	Fill of pit F239, dark brown silty clay
241	Cut	First recut of F133. Filled with 139, 153 and 170
242	Cut	Second recut of F133, filled with 138 and 141.
243	Skeleton from cut F59	

Appendix 2: List of finds

Finds No	Feature No	Description
E2124:1	18	Metal, ferrous, encrusted, possible nail
E2124:2	18	Metal, ferrous, encrusted, possible nail
E2124:3	18	Metal, ferrous, encrusted, possible nail
E2124:4	18	Metal, ferrous, encrusted, possible nail
E2124:5	18	Metal, ferrous, two small pieces
E2124:6	18	Metal, non - ferrous, six small pieces of copper
E2124:7	18	Metal, small cubic piece, broken
E2124:8	18	Metal, small cubic piece
E2124:9	18	Glass, blue glass bead
E2124:10	18	Glass, blue glass bead
E2124:11	18	Glass, blue glass bead
E2124:12	18	Glass, blue glass bead
E2124:13	18	Glass, blue glass bead
E2124:14	18	Glass, blue glass bead
E2124:15	18	Glass, blue glass bead
E2124:16	18	Glass, melted blue glass
E2124:17	18	Glass, melted blue glass
E2124:18	18	Glass, melted blue glass
E2124:19	18	Glass, melted blue glass
E2124:21	18	Lithic, worked stone, possible mould
E2124:22	25	Glass, blue glass bead
E2124:23	25	Glass, blue glass bead
E2124:24	25	Glass, blue glass bead
E2124:25	27	Ceramic, pottery, Bronze Age
E2124:26	1	Metal, ferrous, iron nail
E2124:27	51	Ceramic, pottery, modern, glazed
E2124:28	51	Lithic, lignite, bracelet, broken, two pieces
E2124:29	139	Lithic, worked circular stone disc, limestone?
E2124:30	139	Lithic, possible whetstone

Appendix 3: *Prehistoric pottery Analysis*

By Eoin Grogan and Helen Roche

Summary

This site produced a single worn sherd possibly from an early Neolithic vessel (total weigh 1g).

The firing, fabric and inclusions in this pottery fragment suggest this is an unshouldered bowl or more probably a carinated bowl. These forms represent the earliest type of Neolithic pottery (Case 1961: 'Dunmurry-Ballymarlagh styles'; Sheridan 1995: 'classic' carinated bowls) in Ireland and are widely dated to *c*. 4000–3700 BC. This is a small sherd that may be a lug. This is an unusual feature (Case 1961, 178) although lugs occur on a small number of vessels as at Site 5, Dalkey Island, Co. Dublin (Liversage 1968, 66, p15, fig. 1), and the court tombs at Audleystown, Co. Down, and Clady Haliday, Co. Tyrone (Collins 1954; 1959; Davies and Radford 1936; Herity 1987, figs 32, 45).

Marlhill forms part of an important and newly identified core of prehistoric activity in the immediate vicinity of Caher on the Suir Valley at the eastern extremity of the Galty Mountains. Other sites include Caherabbey Lower, Caherabbey Upper, Ballylegan and Suttonrath, Co. Tipperary, identified on the N8 scheme (McQuade 2006a; 2006b; 2006c; Grogan and Roche 2007a; 2007b; 2007c): these all appear to represent small-scale settlement activity.

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CATALOGUE

Small worn sub-triangular sherd with two surviving edges and broken straight across on the third side: thick oval cross-section. Smooth, fine, buff fabric with a dark grey core. Very low content of quartzite inclusions (≤ 2 x 1mm). Thickness: 7.2mm; weight: 1g.
The firing, fabric and inclusions suggest that this is from an early Neolithic bowl or carinated bowl; although worn it may be a small lug.

Appendix 4: *Small Finds reports*

By Siobhán Scully

1 Introduction

1.1 Twenty-eight artefacts were recovered from the excavations of Site E2124 at Marlhill, Co. Tipperary. These included ten metal finds, ten glass beads, four pieces of fused glass and four stone artefacts.

2 Metal Finds

2.1 Ten metal artefacts were found at Marlhill (E2124). Seven of these were ferrous and three were non-ferrous. The seven ferrous artefacts are all partial shanks of nails, the majority of which are rectangular or square in section, apart from one smaller shank (E2124:5) which was probably a small nail or tack and is circular in section. Two of the non-ferrous artefacts were probably metal alloy mounts. Mounts would have been attached to other objects as decoration. They could be dress accessories for textiles or leather or for horse harness as well as decorative elements on books or furniture (Ottaway & Rogers 2002, 2905). One of the possible mounts from Marlhill (E2124:6) consists of six small pieces of copper alloy sheet metal. This may originally have been a mount but its form is now unclear. The other possible mount (E2124:7) is a very small, square piece of copper which has iron corrosion on one side. The iron corrosion may be from a ferrous shank that would have held the mount in place. The remaining non-ferrous artefact is a very small cube of copper alloy (E2124:8). The function of such a small object is unknown but it possibly could have been used as some type of decorative inlay. The square of copper alloy with the iron corrosion (E2124:7) could also have been used for this purpose. All the metal finds, bar two (E2124:26, E2124:31), are from F18 the charcoal-rich deposit in the re-cut F181 of the ring- barrow.

Catalogue

E2124:1 Ferrous. Shank of nail. Rectangular in section. Corroded. L 24mm Wth 6mm Th 4.5mm.

E2124:2 Ferrous. Shank of nail. Square in section. Corroded. L 17mm Wth 4mm Th 4mm.

E2124:3 Ferrous. Shank of nail. Square in section, tapering to a point. Corroded. L 7mm Wth 3.5mm Th 3.5mm.

E2124:4 Ferrous. Possible shank of nail. Corroded. L 23mm Wth 6mm Th 6mm.

E2124:5 Ferrous. Shank of small nail or tack. Shank circular in section, tapering to a point. In two pieces. L 13mm Diam. 1.5mm.

E2124:6 Possible mount. Six small pieces of copper alloy sheet metal. Original form uncertain. 1.12.5mm x 11.5mm x 1.5mm 2. 10mm x 5.5mm x 4.8mm 3. 8mm x 5.5mm x 2.5mm 4. 5mm x 3.5mm x 0.5mm 5. 5mm x 3mm x 0.5mm 6. 4mm x 3mm x 0.5mm.

E2124:7 Possible head of tack or mount. Small square piece of copper alloy. Has iron corrosion one on side. L 2.5mm Wth 2.5mm Th 3mm.

E2124:8 Small copper alloy cube. 2mm x 2mm x 2mm.

E2124:26 Ferrous. Shank of nail. Rectangular in section. Corroded. L 41mm Wth 5mm Th 2.5mm.

E2124:31 Ferrous. Possible shank of nail. Corroded. L 34mm Wth 3.5mm Th 2mm.

3 Glass Beads

3.1 Ten blue glass beads were found at Marlhill. Eight are globular in shape and two are barrel-shaped. They all have straight perforations. The globular beads range in diameter from 2.4mm to 4.5mm and have an average diameter of 3.8mm. The barrel-shaped beads are 2.3mm and 2.5mm in diameter. It is difficult to assign a date to glass beads unless they are found in a securely dated context (O'Kelly 1989, 280). The glass beads from Marlhill were recovered from **F18** and **F25** which were charcoal-rich deposits in the re-cut **F181** and which represented phases of burial within the ring-barrow (Molloy 2007). Iron Age glass beads are mostly found on burial sites rather than occupation sites (O'Kelly 1989, 280). Numerous ring-barrows which had deposits of cremated human bone and finds which included glass beads have been excavated and include sites such as Mullaghmore, Co. Down, Grannagh and Oran Beg, Co. Galway, Carrowjames, Co. Mayo and Ballydavis, Co. Laois (Waddell 1998, 367-8). Oran Beg and Ballydavis in particular had large numbers of beads, over eighty each, although the Ballydavis site included stone as well as glass beads (*ibid*.). Glass beads were also found in association with ring-barrow/ ring-ditch sites on the N8 Cashel to Mitchelstown Road Improvement Scheme at Knockcommane (Site 47001a E2341) Co. Tipperary and at Knockgraffon, Co. Tipperary (Site 143.3 E2272).

Catalogue

E2124:9 Blue glass bead. Globular. Straight perforation. Surface pitted. Diam. 4.5mm H 2.7mm Diam. of perforation 0.7mm.

E2124:10 Blue glass bead. Globular. Straight perforation. Diam. 3.7mm H 1.6mm Diam. of perforation 1.2mm.

E2124:11 Blue glass bead. Globular. Straight perforation. Diam. 3.7mm H 1.9mm Diam. of perforation 0.9mm.

E2124:12 Blue glass bead. Globular. Straight perforation. Diam. 3.6mm H 1.7mm Diam. of perforation 1mm.

E2124:13 Blue glass bead. Globular. Straight perforation. Diam. 3.4mm H 1.7mm Diam. of perforation 0.8mm.

E2124:14 Blue glass bead. Globular. Straight perforation. Diam. 2.8mm H 1.8mm Diam. of perforation 0.7mm.

E2124:15 Blue glass bead. Barrel-shaped. Straight perforation. Diam. 2.5mm H 2mm Diam. of perforation 0.9mm.

E2124:22 Blue glass bead. Globular. Straight perforation. Diam. 2.8mm H 1.9mm Diam. of perforation 0.6mm.

E2124:23 Blue glass bead. Barrel-shaped. Straight perforation. Diam. 2.3mm H 1.7mm Diam. of perforation 0.7mm.

E2124:24 Blue glass bead. Globular. Straight perforation. Diam. 2.4mm H 1.7mm Diam. of perforation 1mm.

4 Fused Glass

4.1 Four pieces of fused blue glass were recovered from deposit **F18**, a burial deposit within the ditch of the ring-barrow. These probably represent glass objects, most likely beads that were melted, possibly in the cremation pyre.

Catalogue

E2124:16 Fused Glass. Blue. Globular head. L 7.3mm diam. 3.4mm.

E2124:17 Fused Glass. Blue. Vesicular lump. 15.5mm x 8mm x 5.6mm.

E2124:18 Fused Glass. Blue. Vesicular lump. 8.2mm x 6.4mm x 5.4mm.

E2124:19 Fused Glass. Blue. Sphere. Diam. 2.9mm.

5 Stone Artefacts

5.1 There are four stone artefacts from the site. These include two hones or whetstones (E2124:21, E2124:30), a lignite bracelet (E2124:28) and a pot lid (E2124:29).

5.2 One complete (E2124:30) and one possible fragment (E2124:21) of a hone or whetstone were found at Marlhill. Hones/whetstones were used to sharpen blades and were

important not just in the manufacture of blades but also in their upkeep (Mainman & Rogers 2000, 2484). The effectiveness of a hone/whetstone depended on its 'texture and mineralogy' (Ellis & Moore 1990a, 279). The coarseness and size of a hone was also related to the function it was to perform (Mainman & Rogers 2000, 2497). MacGregor suggests that coarser-grained sandstones were used for preliminary sharpening and fine-grained hones were used for finishing (*ibid*.). Ellis and Moore (1990b, 869) also suggest that the size of a hone also indicates its function and that smaller, fine-grained hones were used for sharpening small blades and craftsmen's' tools and larger, coarser-grained hones may have been for agricultural or military use. The complete example was made from a fine-grained stone, possibly phyllite. It is a large hone wider at each end than in the middle. This waisted form would have made it easier to hold in the hand. There are sharpening grooves on two of its sides. The fine-grain of this hone would suggest that it was used for sharpening small blades. Although the hone could have been held in the hand, its large size and weight would suggest that it was not a portable hone that could have been carried on the person. The other possible hone (E2124:21) was found in **F18**, the charcoal-rich deposit in the re-cut **F181** of the ring- barrow. It survives only as a very small fragment of coarse-grained stone which has one smooth face which may have been the working face of a hone.

5.3 A lignite bracelet was recovered from **F51** which was the fill of the ditch **F50**. Modern ceramic material was identified in the same fill and it is thought that the lignite bracelet was an intrusive find (Molloy 2007, 9). Bracelets of lignite, jet and shale were being made as early as the Bronze Age and continued to be manufactured into the Early medieval period (Edwards 1990, 96). Fragments of lignite bracelets were recovered from Late Bronze Age occupation layers at Moynagh Lough, Co. Meath (Bradley 1991, 12) and Ballinderry Crannóg 2, Co. Offaly (Waddell 1998, 264-6). Early medieval lignite bracelets tend to be D-shaped in section (Edwards 1990, 96). The lignite bracelet from Marlhill is oval in section which may suggest that it is prehistoric in date.

5.4 The flat stone disc (E2124:29) which was recovered from **F139**, the fill of a pit (**F133**), may possibly have been a pot lid. A number of stone discs found during excavations in York were suggested to have been lids for wooden or ceramic vessels. These all dated from the late ninth to the mid-eleventh century (Mainman & Rogers 2000, 2565).

Catalogue

E2124:21 Possible fragment of hone/whetstone. Small sandstone fragment with one smooth face. Coarse-grained. 30mm x 21mm x 14mm.

E2124:28 Lignite bracelet. Incomplete. Oval in section. Remaining diam. 59mm Wth 10.5mm Th 7.5mm.

E2124:29 Pot Lid. Flat disc. Smooth surface. Fine-grained. Diam. 135mm Th 11.5mm.

E2124:30 Hone/Whetstone. Phyllite. Square in section. Wider and rounder at each end. Smooth surface. Fine-grained. Sharpening groove on two faces. On one of the faces with a sharpening groove the end of the hone is broken and the surface is rough. L 165mm Wth 55mm T 38-66mm.

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Appendix 5: *Charcoal Analysis*

By Ellen O' Carroll

1 Introduction

1.1 Twenty-three charcoal samples from excavations at Marlhill. Co. Tipperary was submitted for analysis. The analysed charcoal is related to excavated features covering the periods from the Iron Age to the medieval period. The site consisted of a ring-barrow, an early medieval rectangular structure and associated features. Medieval ditches and post-medieval field boundaries were also excavated.

1.2 The charcoal was analysed in order to determine the range of tree species which grew in the area at the time of use of the sites, as well as the utilization of these species for various functions. Charcoal analysis is an important component of any post-excavation environmental work as it can help in re-constructing an environment hitherto lost to us, although this must be done with caution as sufficient sample numbers are required for a complete and full understanding of the immediate environment.

1.3 Hundreds of *fulacht fiadh* have been analysed throughout Ireland with regard to species selection for fuel and generally a wide variety of taxa are identified from these assemblages which may suggest that the inhabitants were selecting fuel from whatever trees and branches were closest to hand. Alder does sometimes dominate the *fulacht* assemblages highlighting the wetter environment where they mainly occur. Planking for the lining of the troughs are mainly composed of alder, ash or oak. Hazel wattle is often used as walling surrounding these troughs. In the later historic periods we see a different scenario emerge wherby oak, ash, alder and sometimes hazel would have been specifically collected for use as fuel and burning material particular in relation to smelting and kiln burning activities. Analysis of charcoal from the later Medieval period may also highlight the lack of real woodland vegetation or may highlight the use of imported or non-native wood in Ireland.

1.4 With regard to structural wood, recent archaeological studies have shown that oak was the most common species used for posts and planks in most periods although ash appears to be more dominant in the Later Bronze Age periods (Moloney *et al* 1993). Hazel was

preferred for wattle structures and species such as ash, willow, alder, birch and holly were utilised for a variety of other structural requirements.

2 Methods

2.1 The process for identifying wood, whether it is charred, dried or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990). The identification of charcoal material involves breaking the charcoal piece so as a clean section of the wood can be obtained. This charcoal is then identified to species under a Nikon SMZ800 x 200-zoom stereomicroscope. By close examination of the micro-anatomical features of the samples the species were determined. The diagnostic features used for the identification of charcoal are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement and also the type of perforation plates. All samples were suitable for species identification.

2.2 Some of the samples contained very little charcoal remains and were intermixed with a clay and grit matrix. For the most part, the fragments identified were small in size which made it difficult to obtain a full cross section of each fragment and in turn identify the fragment to species. Each fragment was identified and then grouped into species type and then counted and weighed. Where possible all fragments were identified and where there was a large amount of fragments an average of 50 fragments were identified.

3 Results

3.1 In total there were ten taxa identified from the analysis at Marlhill, Co. Tipperary. These are *Quercus* spp (oak), pomoideae (apple type), *Prunus Spinosa* (blackthorn), *Prunus avium/padus* (bird/ cherry), *Fraxinus excelsior* (ash), *Corylus avellana* (hazel), *Alnus glutinosa* (alder), *Salix* sp (willow), *Ulmus* sp (elm) and *Frangula* alnus (alder buckthorn).

3.2 The analysis below is divided up into phases and feature types. This will help in interpreting the landscape at different time periods and comparing and contrasting the results. Selection of species types for varying functions is also discussed within the framework of this body of work.

3.3 *Phase 1: Iron Age ring-barrow*

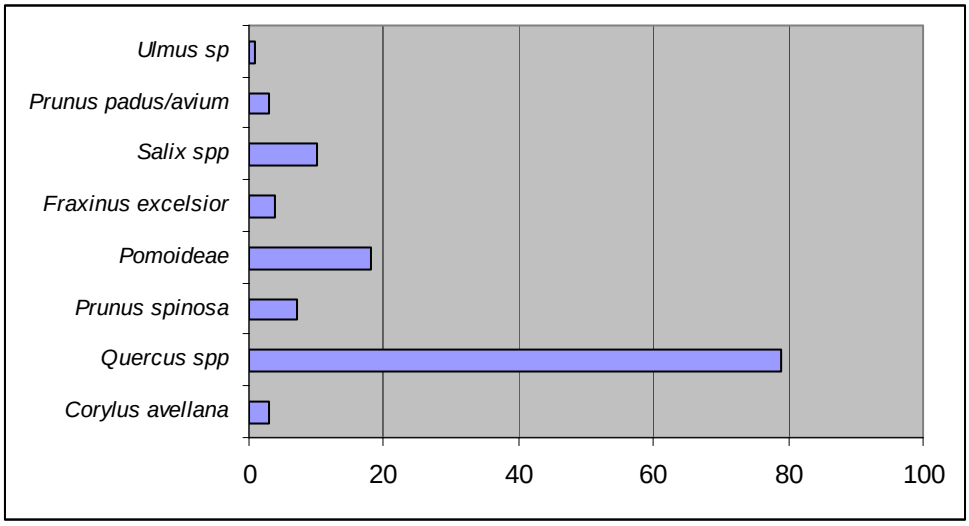
Ring –barrow F17: Ditch Fills

Table 1: Results from charcoal identifications from fills of Iron Age ring-barrow ditch

Context	Sample	Feature type	Species	Weight (grammes)	Fragment	Comment
27	95	Fill of ring-barrow	*Corylus avellana*	0.01	2	Sample mainly sand and grit
			Quercus spp	0.1	1	2yrs in age
18	77	Fill of ring-barrow	*Quercus spp*	2	41	
			Prunus spinosa	0.2	4	3- 5yrs
			*Pomoideae	0.3	6	
			Prunus avium/padus	0.2	5	
25	76	Fill of ring-barrow	*Quercus spp*	0.4	37	1 - 2 yrs. Minute oak fragments
		Fill of ring-barrow	*Prunus spinosa*	0.2	3	
		Fill of ring-barrow	*Pomoideae	0.3	13	
		Fill of ring-barrow	*Corylus avellana*	0.05	1	3 yrs
		Fill of ring-barrow	Fraxinus excelior	0.06	4	
		Fill of ring-barrow	Ulmus spp	0.01	1	
		Fill of ring-barrow	Salix spp	0.3	7	

* Pomoideae includes apple, pear, hawthorn and mountain ash. It is impossible to distinguish these wood species anatomically.

Figure 1: Taxa represented in fragment numbers from Iron Age ring-barrow



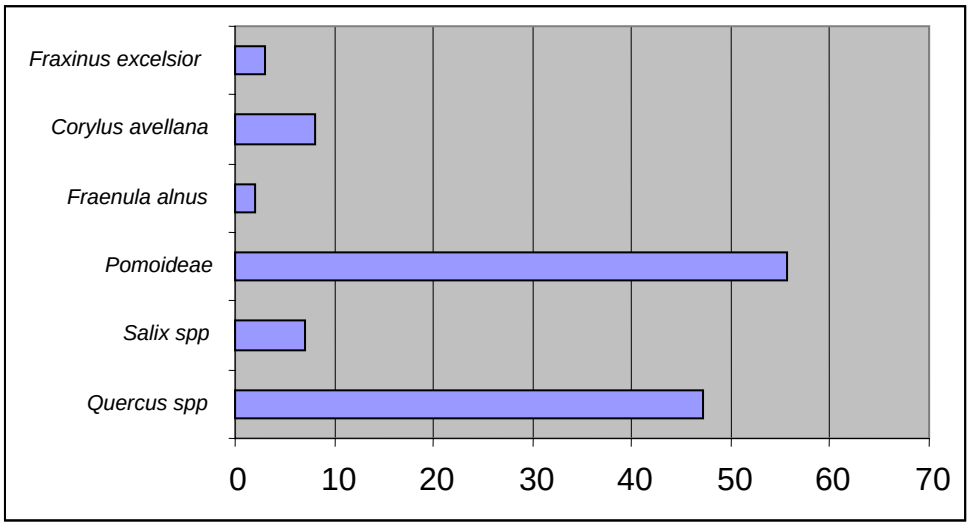
Oak was the most represented species in the identified assemblage from the ring-barrow. Pomoideae (apple type), cherry, hazel, willow, elm and ash were all present albeit in smaller quantities in the assemblage.

Fill of pits truncating F27 and truncated by recut F181 within ring-barrow ditch

Table 2: Species identified in Pit F144, F151

Context	Sample	Feature type	Species	Weight (grammes)	Fragment	Comment
144	87	Phase 1b: Pits	*Quercus spp*	0.7	41	
			Pomoideae	0.1	6	
			Fraxinus excelsior	0.05	3	
			Corylus avellana	0.1	4	5 – 6yrs, slow growth
			Salix spp	0.05	3	
151	89	Phase 1b: Pits	Pomoideae	1.8	50	3-5 yrs, small fragments

Figure 2: Taxa represented in fragment numbers from fill of pits F144 & F151



3.4 ***Phase 2: Early Medieval***

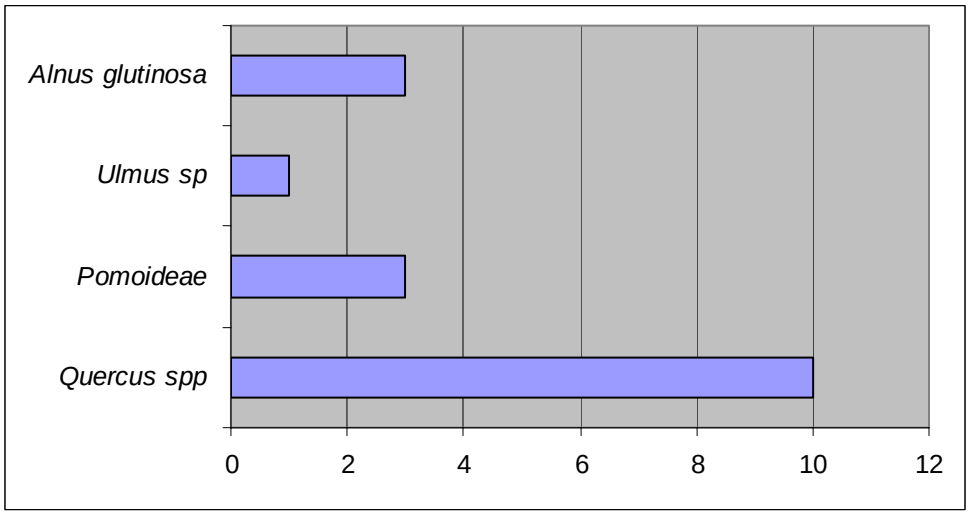
Structure

Table 3: Taxa present in the features associated with Structure

Context	Sample	Feature type	Species	Weight (grammes)	Fragment	Comment
137	82	Pit	*Quercus spp*	0.3	10	
			Salix spp	0.2	4	1 -2 yrs
			Pomoideae	0.8	8	
			Frangula alnus	0.2	2	
			Corylus avellana	0.5	4	
123	67	Posthole fill	*Quercus spp*	0.05	7	2yrs in age
			Pomoideae	0.01	1	4yrs in age
121	73	Slot trench	*Quercus spp*	0.01	2	
			Ulmus sp	0.01	1	
			Alnus glutinosa	0.025	2	
84	47	Posthole	*Alnus glutinosa*	0.01	1	Sample is mainly grit and clay
57	35	. Posthole	Pomoideae	0.01	2	
97	49	Posthole	*Quercus spp*	0.01	1	3 yrs in age.

Oak was also the most dominant species present in the material identified. Eight fragments of hazel, and willow were also present as were two fragments of alder buckthorn as well as three fragments of ash.

Figure 3: Taxa present in fragment numbers from the features associated with Structure 1



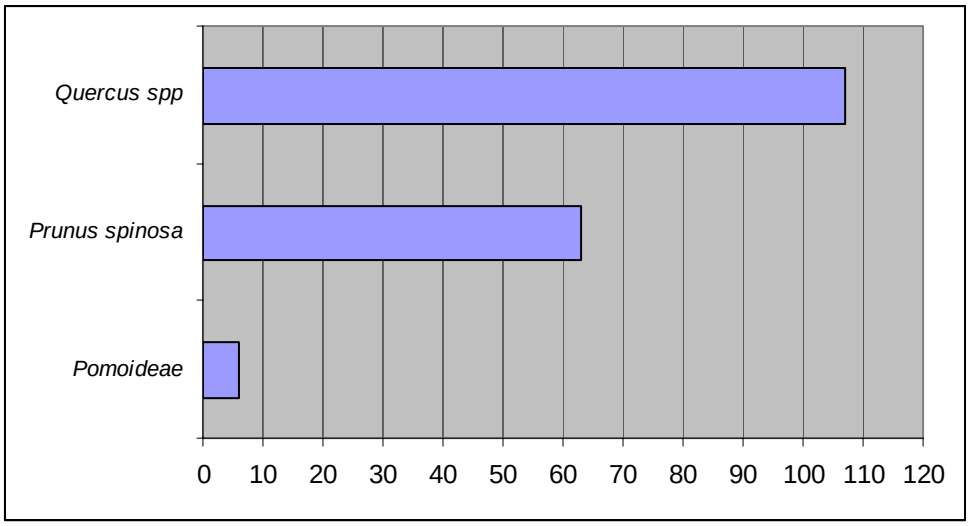
Oak, alder, pomoideae and elm were all present in the assemblage from the fill of the postholes. Oak was the dominant species.

Ditch F133 and pit F5

Table 4: Taxa identified form the medieval ditch F133 and pit F5

Context	Sample	Feature type	Species	Weight (grammes)	Fragment	Comment
138	122	Fill of ditch F133	*Quercus spp*	0.5	27	Twig material 3 - 5 yrs
			Prunus Spinosa	0.01	2	Hundreds of seeds present in the sample
162	123	Fill of ditch F133	*Quercus spp*	0.1	4	
8	4	Fill of Pit F5	*Quercus spp*	2.8	48	5- 10 yrs
			Prunus spinosa	1	32	Insect channels
			Pomoideae	0.07	16	
14	127	Fill of Pit F5	*Quercus spp*	0.9	30	3-5yrs in age
		Fill of Pit F5	*Prunus spinosa*	0.5	15	Seeds present in the sample
		Fill of Pit F5	Pomoideae	0.01	3	

Figure 4: Taxa represented in fragment numbers from pit F5 and ditch F133



Large quantities of oak and blackthorn were present in the samples retrieved from the fill of the medieval pit **F5** and ditch **F133**. Some of the blackthorn fragments had insect channels present which indicate that the wood may have been lying around for a period of time before it was burnt.

Table 5: Taxa identified from the charcoal assemblage at Marlhill

Botanical name	**Species**
Corylus avellana	Hazel
Prunus spinosa	Blackthorn
Prunus avium/padus	Bird/Wild Cherry
Ulmus sp	Elm
Pomoideae	Apple type
Quercus spp	Oak
Alnus glutinosa	Alder
Salix sp	Willow
Fraxinus excelsior	Ash
Frangula alnus	Alder buckthorn

4 Discussion

4.1 There are ten taxa types present in the charcoal remains. These are *Quercus* spp (oak), pomoideae (apple type), *Prunus Spinosa* (blackthorn), *Prunus avium/padus* (wild cherry/bird cherry), *Fraxinus excelsior* (ash), *Corylus avellana* (hazel), *Alnus glutinosa* (alder), *Salix* sp (willow), *Ulmus* sp (elm) and *Frangula* alnus (alder buckthorn).

4.2 The range of species identified from the feature analysed includes large (elm, ash and oak), medium sized trees (alder) and smaller scrub or hedgerow trees like blackthorn, alder buckthorn, cherry, hazel and pomoideae.

4.3 The majority of the charcoal identified was derived from wood which was gathered fresh with few insect channels present in the remains. There were some insect channels noted on the blackthorn charcoal from the fill of the early medieval pit **F5** which is indicative of wood selected from forest floors or fallen branches.

4.4 There are inherent problems in re-constructing the environment at the time of use of the site due to the low quantity of samples and charcoal fragments identified from the assemblages. It is generally accepted that between 50 and hundred samples are required to fully re-construct the environment of the catchment area of a site. However some conclusions and further discussions can be drawn from the work above.

4.5 The local environment of the sites is mainly indicative of a dryland environment in both the Iron Age and early medieval periods. However there were some wetland species identified both from the Iron Age (alder & willow) and the medieval periods (willow). A few fragments of alder were present in a posthole from the Iron Age and willow was identified from a pit in the same period which suggests access to a wetter environment in the area at the time of the Iron Age. The wetland species identified from the medieval period suggests that the area may have got progressively wetter or the dryland species were decreasing and wetland and more scrub- like trees were the main taxa available to the inhabitants in the medieval Periods. The presence of the ash in the medieval period is interesting and agrees well with pollen records as Hall & Piltcher point out from the pollen records that ‘the ash population expanded late in Irish woodland history….it is possibly one of the most common hedgerow tree in Ireland’ (Hall & Piltcher, 2001, 35).

4.6 The oak, elm, ash and hazel would have grown in drier conditions preferring free-draining soils and nutrient-rich clays. Local hedgerows or low woodlands comprising of hawthorn/wild apple/mountain ash, blackthorn and cherry may have also been growing in the area. The ash identified from the medieval period may also have been growing in the nearby hedgerows. Taxa that are more likely to be located in wetter areas include the willow, alder and alder buckthorn.

4.7 Oak was the most dominant species identified from all periods of occupation. It was most prevalent in the ring-barrow fills, the posthole associated with Structure 1 and the pit and ditch features. Although there were few fragments for identification from the postholes the evidence does point to the fact that oak was probably used as post material in the posthole structures. It is unclear why the remaining taxa were identified from the postholes but one can not rule out the possibility that there may have been alder, elm or pomoideae post material. Alternatively these three species may have fallen into the posthole either after the structure went out of use or during the lifetime of the site's usage. Either scenario is possible.

4.8 The oak identified from the ring-barrow is possibly associated with the funerary element of the ring-barrow formation as ring-barrowes are generally monuments dedicated to the dead whereby cremated remains are laid inside these large ditch features. It has been shown that oak is nearly always associated with cremated remains and burials. Oak has excellent properties of great durability and strength and was frequently used throughout all periods for the production of large timbers, such as planks for *fulachta fiadh,* plank trackways that ran across the peat bogs, revetment timbers (Halpin 2000, 67), mill timbers as seen at Clonlea and Kilbegly, Co Galway (unpublished specialist reports for VJ Keeley). Oak was also used for squared posts at Ormond Quay 03E0964, Dublin as well as some oak posts associated with a post medieval post row located beside the River Boyne (06E0837) in Co. Louth.

4.9 Oak was one of the most prevalent trees growing in Ireland throughout the medieval period. The anglicised form of the Irish name for oak (derry) is included in many townland names today. Out of 62,000 townlands in Ireland about 1,600 contain the word "derry" in one form or another, either as a prefix or suffix (Mc Cracken 1971, 23). Sessile oak *(Quercus petraea)* and pedunculate oak *(Quercus robur)* are both native and common to Ireland and the wood of these species can not be differentiated on the basis of their anatomic characteristics. Pedunculate oak is found growing in areas of heavy clays and

loams, particularly where the soil is alkaline. Sessile oak is found on acid soils and often in pure stands. Unlike pedunculate oak, it thrives on well-drained soils but is tolerant of flooding (Beckett 1979, 40-41). Both species of oak grow to be very large trees (30-40m high).

4.10 The occurrence for ash was low in the Iron Age but it seems to appear in larger quantities in the medieval period. Over 20% of the identified sample from the medieval ditch **F133** was ash. Ash is a native species to Ireland preferring lime rich freely draining soils. It is not a very durable timber in waterlogged conditions but has a strong elastic nature and is easily worked. Ash appears to have colonised the open land after the first farmers removed much of the native woodland therefore it is frequently used as structural timber in the Later Bronze Age periods. Ash is also abundant in native hedgerows and was quite common in the later historic period which compares favourably to the results above.

4.11 Pomoideae were present in all periods of occupation at the site. It was probably relatively common in the area particularly in the surrounding hedgerows. Pomoideae includes apple, pear, hawthorn and mountain ash and it is impossible to distinguish these wood species anatomically, but as wild pear is not native and crab apple is a rare native species to Ireland it is likely that the species identified from are hawthorn or mountain ash (rowan) (Nelson 194-200, 1993). Hawthorn (*Crataegus*) is native, and is found in many hedgerows throughout Ireland. Mountain ash (*Sorbus aucuparia*) is also a common tree in Ireland growing particularly well in rocky and hilly mountainous places.

4.12 Hazel (*Corylus avellana*) was present in the fill of the ring-barrow (F27). Hazel was very common up to the end of the 17th century and would have been used for the manufacture of many wooden structures such as wattle walls, posts, trackways and baskets. McCracken (1971, 19) points out that “it was once widespread to a degree that is hard to imagine today”. With the introduction of brick, steel and slate the crafts associated with hazel became obsolete, and today hazel woods have diminished rapidly. Hazel is normally only about 3-5m in height and is often found as an understory tree in broadleaf woods dominated by oak. It also occurs as pure copses on shallow soils over limestone as in The Burren in Co. Clare and survives for 30 to 50 years. Its main advantage is seen in the production of long flexible straight rods through the process known as coppicing.

4.13 A small amount of elm (*Ulmus sp.*) was identified from the ring –barrow and the posthole excavated from the early medieval structure. English elm *(Ulmus procera)* and wych elm *(Ulmus glabra)* cannot be separated by their wood structure. As suggested by Mitchell (1986) elm declined (although would not have completely died out) with the advent of farming and possibly dutch elm disease around 3700 BC. It generally prefers damp woods particularly on limestone.

4.14 Blackthorn *(Prunus spinosa)* was identified in substantial quantities from the early medieval ditch F133 and pit F5. It was absent from all other phases of activity. The sloe bush as it is commonly referred to is a very durable wood and is as strong as oak. It is a thorny shrub found in woods and scrub on all soil types. In a woodland situation it is more likely to occur in clearings and at the woodland edges.

4.15 Alder buckthorn (*Frangula alnus*) which was identified from early medieval context **F136** and is a small deciduous shrub up to 4-5 m in height, with wide-spreading branches. It is found on moist acid soils along riversides and on peat.Alder was not widely represented in the assemblage which suggests that the sites enjoyed a fertile and well-drained terrain. Alder is a widespread native tree and occurs in wet habitats along streams and riverbanks. Alder also grows regularly on fen peat. It is an easily worked and split timber and does not tear when worked. Alder is commonly identified from wood remains associated with wet/boggy areas.

4.16 Small fragments of willow were identified from the fill of the ring-barrow **F25**, the pit fill **F144** & posthole **F136**. Willow is a native species in Ireland and can be found in tree or shrub form. According to Webb (1971, 160-2) 13 species of willow are found wild in Ireland, of which 8 are certainly native. It is a strong wood in tree form and is commonly used for wooden posts. All willows appear to favour wet conditions.

4.17 A small amount of cherry was identified from the earliest phase of the Iron Age ring-barrow. The cherry may have also been associated with ritual burnings and cremation rites within the ring-barrow. O' Donnell has frequently identified cherry in association with cremated remains (O' Donnell, *pers. comm*). Wild cherry is more common in Ireland than bird cherry. There is very little archaeological evidence for the use of cherry

wood in Ireland although the wild cherry tree is commonly found in many hedgerows (Nelson 1993, 167). It is a very durable wood and is as strong as oak.

5 Comparative Material

5.1 Ring-barrows are generally regarded as funerary monuments therefore the charcoal present in the ring-barrow is possibly associated with the rituals of the dead and cremation processes. It is not surprising then that oak is the dominant species identified from this ditch as oak is nearly always used for the purpose of cremating bodies. This may be due to the excellent properties of oak as a fuel or the body may have lain on an oak plank which was later burnt with the body. Charcoal analyses at other cremation sites Bettystown, Co. Dublin (98E072), Ballybrowney Lower 1 (03E1058), Ballynapark, Co. Wicklow (A022-33) and Hermitage, Limerick (01E0319) revealed that oak is the dominant species identified from within these features. Charcoal from a ring-ditch analysed from site D, Morett (03E0461) produced mainly oak fragments from the fill of its ditch. Similarly the cherry identified from the ring-barrow may have been associated with the ritual properties associated with the burning of bodies as it is sweet smelling. O Donnell has uncovered this phenomenon on many of her analysed sites (O Donnell, *pers. comm.*).

5.2 The use of oak for post material in all periods of history and pre-history is well attested to in Irish archaeology.

5.3 As the remaining taxa are not related to a specific function or structural type it is difficult to draw comparisons and conclusions from them. For the most part though the range of taxa compares well to other settlement sites rather than sporadic encampments or *fulachta fiadh.*

6 Conclusions

6.1 Ten species were identified from the features investigated. These are *Quercus* spp (oak), pomoideae ('apple' group), *Prunus Spinosa* (blackthorn), *Prunus avium/padus* (wild cherry/bird cherry), *Fraxinus excelsior* (ash), *Corylus avellana* (hazel), *Alnus glutinosa* (alder), *Salix* sp (willow), *Ulmus* sp (elm) and *Frangula* alnus (alder buckthorn).

6.2 The species identified are more indicative of a dryland terrain where large trees and scrub/hedgerow material prevailed. Some wetland species were also identified, albeit in smaller numbers from the ring-barrow, pits, postholes of the Iron Age period and the ditches excavated in the early medieval period. Therefore access to a wet area or stream is also indicated from the analysis.

6.3 Oak dominates the assemblage and appears to have been specifically collected for use as fuel material in the ring-barrow as well as posts in the postholes during the Iron Age. Oak was also dominant in the early medieval assemblages.

6.4 Blackthorn and pomoideae may have been used as fuel for whatever function was being carried out in the pits in the medieval layers excavated at Marlhill.

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Appendix 6: *Analysis of carbonized plant remains*

By Sara Halwas

1 Introduction

1.1 The site was located on a southwest facing slope and consisted of an Iron Age ring-barrow with cremation deposits, an early medieval structure, pit, ditch and associated features. Post-medieval field boundaries were also excavated. Sediment samples were collected throughout the excavation and a total of twelve were chosen for full archaeobotanical analysis. This report details the findings of these analyses and presents botanical information for this site.

2 Methodology

2.1 All plant remains identified from the recovered samples were preserved though carbonization. This is a process where high temperatures convert plant materials into inert carbon which is resistant to decay. Bulk samples were collected on site by Margaret Gowen & Co. Ltd. and processed by simple flotation. Generally five litres is sub-sampled from the bulk sample; if the sample is less than five litres, it is processed in its entirety. The sediment is placed in a bucket with water and gently agitated by hand to loosen the charred remains from the soil. The charred remains float to the surface of the water (known as the flot) and are poured off through a 250 µm sieve. This process is repeated until no remaining material float to the surface. The remainder of the sample is washed through a 1mm sieve to collect any large charred plant remains, and small artefacts. This is referred to as the retent. Both the flot and retent are placed in trays on newspaper to dry.

2.2 Each sample is scanned under a low power binocular microscope (magnification x4.5 to x56). All materials are identified with a series of identification manuals (see Beijerinck 1976; Berggren 1981; Cappers, Bekker and Jans 2006; Martin and Barkley 2000; Montgomery 1978), and a modern reference collection, accessed through the herbarium at the National Botanic Gardens in Glasnevin, Dublin.

2.3 Nomenclature and taxonomy generally follows Stace (1997). Where it deviates, Preston, Pearman and Dines (2002) is utilized. In order to facilitate easy reading of this report the plants are named in English within the body of the text first with the scientific name (in Latin) following the first mention of the plant species. The plant remains are

taxonomically ordered within general categories in tables at the end of the report to highlight certain plant species.

3 Results

3.1 Samples from the Iron Age ring-barrow and early medieval structure, and medieval pit (F5) and ditch (F133), located southwest of the ring were analyzed. The ring-barrow (F17) contained a series of fills with later re-cuts and fills; two fills from the second cut (F25 S76 and F18 S77) were analyzed. Samples from two pit features (F144 S87, F151 S89) cutting F27 within the ring-barrow and one pit located at the entrance to the barrow (F186 S10) were also analyzed. The structure contained southern and eastern slot trenches (F117 S66 and F121 S73, respectively); a series of postholes associated with the trenches (F123 S67) and the possible entrance way (F61 S33) were sampled. The structural features and samples from the ring-barrow fills and pit fills contained no identifiable charred plant material. Plant remains were only identified from two samples from the medieval pit (F5:F8 S4 & 126) and ditch (F133: F162 S123) features. Barley (*Hordeum vulgare*), wheat (*Triticum* sp.), oat (*Avena* sp.), oat type grasses, indeterminate cereals, dock (*Rumex* sp.) and chaff fragments were recovered.

3.2 Contextual information provided by the director indicates that pit (F5), located southwest of the ring-barrow, was truncated by the end of the ditch feature (F133), clearly associating these two features. Deposit F8 of pit F5 contained a few oats, barley, cereal chaff fragments and dock seeds, but the majority of the samples contained high quantities of highly carbonized seed fragments, oat type grasses and indeterminate cereal grains. The few identifiable cereals, high indeterminate cereals and weed seeds and little chaff suggest remnants of crop processing. It is possible that the pit was utilized as a refuse pit. Periodically rubbish pits would be burned out to sterilize them for continued use (Hillman 1984).

3.3 The ditch (F133) fill contained five barley, and single wheat and oat grains with four cereal grains too degraded to identify to genera. These are likely stray finds which were incorporated into the ditch fill over time.

4 Discussion

4.1 *Agricultural crops*

Barley, wheat and oats are represented in minute quantities. The wheat grain was too degraded to identify to species. A single oat grain was recovered from the ditch fill along, while numerous oat- type grasses were recovered from the pit feature. The single oat grain is distinctively larger than its oat type counter parts. The oat- type grasses are labelled as such because of they generally resemble very small oat grains. The identification of wild and cultivated oats is dependent on the distinct lemma bases. No lemma bases were recovered with the grains in these samples so positive identification is not permitted.

Wheat was grown in Ireland from the Neolithic; glume wheats such as emmer (*Triticum dicoccum*) were grown predominantly during the Neolithic period, with small amounts cultivated during the Early and Middle Bronze Age. Compact forms of bread wheat (*T. aestivum*), are normally recovered from early historic and comprise large portions of medieval crop assemblages (Johnston 2005). Barley was the dominant crop during the Bronze Age but was continued to be grown throughout the historic period (Monk 1985). Oats, once a weed of cereal crops in the Neolithic and Bronze Ages, became a cultivated crop during the early historic period (Monk 1991). All three cereals were ground into flour, used in bread, porridge, gruels, and as soup bases. In early historic texts the cereals were granted social status (Kelly 1998); wheat was granted the highest status, being associated with kings, barley and oats were at the bottom of the list, associated with farmers. All three cereal crops were commonly grown from the early medieval through medieval periods as evidenced by charred early medieval kiln samples from Site 150.3, and medieval deposits from Fumbally Lane (Halwas 2007d).

4.2 *Iron Age*

No plant remains were recovered from the Iron Age features. Iron Age sites in general are few and far between and the few Iron Age sites this author analyzed contained no to low quantities of cereal grains and weed seeds. The fill of a re-cut pit feature from Site 169.2 (Halwas 2007a), located near Site 148.1, contained low quantities of barley, while trench features from Site 4700.1b did not contained any charred materials (Halwas 2007b). Other ring-ditch sites from the Late Bronze age to Iron Age contained low quantities of cereal grains. Samples from a Late Bronze Age Ballyveelish 2, Co. Tipperary, contained barley and a few hazelnut shell fragments (Monk 1987). Ring-ditch

samples from Dalystown/Clonfad (02E0679), Co. Westmeath contained a paucity of barley grains (Johnston and McNutt 2003). A ring-ditch with an Iron Age date from Killmahuddrick (00E0448), Co. Dublin contained barley, wheat, hazelnut shell and fruit stones (Johnston 2001). It seems that plant remains can be recovered from Iron Age sites, so it remains unclear why Site 148.1 is an exception.

4.3 *Medieval Period*

The majority of plant remains were recovered from the medieval pit **F5**. Assemblages from pits must be analyzed carefully as they are open for long periods of time, allowing for materials to become incorporated through slumping and infilling. Primary pit fills in sealed deposits may contain evidence of primary use, but later fills could have been derived from materials used hundreds of years later (Monk 2000:74). Contextual information notes the basal fill of the pit was silted, indicating the pit had been open for a long period of time. The fill (F8) was an upper fill of this pit and the remains are highly charred and pitted indeterminate cereal grains and oat type grass seeds, both of which exhibit damage indicative of carbonization. Charring experiments on cereal grains by Boardman and Jones (1990) and Hubbard and al. Azm (1990) noted different stages charred cereal grains went through and the damage and distortions inflicted by the heat. Pitting, hollowed seeds and high fragmentation is caused by high heat (Boardman and Jones 1990). Over exposure to heat through repeated firings, was identified as the cause for the damage to cereal grains examined by Monk from Tankardstown (Monk 1988). The remains were also slightly encrusted indicating they had been exposed to erosion and deposition forces prior to final sealing within the feature (Monk 2000). It is probable that this assemblage is an accumulation of materials over time.

5 Summary

5.1 No plant remains were recovered from the Iron Age ring-barrow or early medieval structure. Few identifiable barley, wheat, oat and dock seeds were recovered from two samples of a medieval pit feature and a single sample of a ditch indicating the presence of barley, wheat and oat crops at Marlhill. The cereal crops are likely the remains of domestic activities on site; there is little evidence for a more thorough discussion of agricultural crops or practices.

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Table 1: Contextual information for analyzed samples Marlhill

Ring-barrow (F17)	
Fill F25 Sample 76 Quad 1	Abundant charcoal, slight encrustation, yellow sand, few rootlets, no seeds
Fill F25 Sample 76 Quad 2	Dominant charcoal, slight encrustation, yellow sand, few rootlets, few unidentifiable charred seed fragments, no identifiable seeds
Fill F25 Sample 76 Quad 3	Abundant charcoal, slight encrustation, yellow sand, few rootlets, , tiny bone fragments, no seeds
Fill F25 Sample 76 Quad 4	Abundant charcoal, slight encrustation, yellow sand, few rootlets, uncharred clover seed, no charred seeds
Ring-barrow (F17)	
Fill F18 Sample 77 Quad 1	Dominant charcoal, slight encrustation, few rootlets, yellow sand, few white bone fragments, no seeds
Fill F18 Sample 77 Quad 2	Dominant charcoal, slight encrustation, few rootlets, yellow sand, few white bone fragments, no seeds
Fill F18 Sample 77 Quad 3	Abundant charcoal, no encrustation, yellow sand, no seeds
Fill F18 Sample 77 Quad 4	Dominant charcoal, slight encrustation, few rootlets, yellow sand, few bone fragments, no seeds
Structure 1 Slot Trench	
F117 S66 (Context 116)	Infrequent charcoal, yellow sand rock, few rootlets, no seeds
F121 S73 (Context 120)	Infrequent charcoal, yellow sand, few rootlets, tiny bone frags, no seeds
Structure 1 Postholes	
F123 S67 (Context 122)	Infrequent charcoal, yellow sand, few rootlets, unidentifiable charred seed fragment, no identifiable seeds
F61 S33 (Context 60)	Infrequent charcoal, yellow sand, few rootlets, few fossils, tiny charred bone, no seeds
Ring-barrow Pits	
F144 S87 Fill of Posthole F143 Q3	Dominant charcoal, slight encrustation, low yellow sand content, few rootlets, modern/uncharred seed, no charred seeds
F151 S89 Fill of Posthole F150	Dominant charcoal, slight encrustation, yellow sand, few rootlets & bone fragments, no seeds
F186 S10 Fill of Posthole/pit F185	Abundant charcoal, slight encrustation, few limestone fragments, few very charred seed fragments, no identifiable charred seeds

Table 2: Identified plant remains from Marlhill pit and ditch features

	F 8 S4 Pit (F5)	F8 S126 Pit (F5)	F162 S123 Ditch (F133)
Cereals			
Oats (*Avena* sp.)		4	1
Oat type grass (*Avena* like Graminae)	12	20	
Barley (*Hordeum vulgare*)		1	5
Wheat (*Triticum* sp.)			1
Indeterminate cereals	31	34	4
Cereal chaff fragments	1	3	
Arable Weeds			
Dock (*Rumex* sp.)	7	1	
Total	**51**	**63**	**11**

Appendix 7: *Analysis of cremation and inhumation burials*

By Jonny Geber MA MIAI

1 Introduction

1.1 Two phases of burial activity was recorded from the Marlhill site; Iron Age cremations with deposition of the cremated remains within a ring-barrow and as token deposits near the entrance of *ditto*. The last phase dates to the medieval period from which two supine inhumations in an east-west orientation.

1.2 ***Methodology***

The cremated bones were excavated and 100% sampled on site. The bones have thereafter been wet sieved and dried in a controlled laboratory environment. As part of the osteological analysis, the bones were sieved in >10mm, 5–10mm and 2–5mm mesh size categories for the purpose of assessing the fragmentation of the sample. A fragmentation category, after the classification by Wahl (1982, 31) was also applied to the sample. The sample was quantified to estimated number of fragments, weight (at an accuracy of 0.01g) and volume. The fragments were thereafter identified to species and skeletal elements, body side, colour/degree of incineration, and whether they were clean or sooty.

Due to the poor preservation of the remains, much of the bones from the inhumations were brushed and picked clean with a brush and a seeker rather than being washed with water which would have disintegrated the fragments. They were then let to dry thoroughly in room temperature. During the analysis of the inhumations, a recording methodology using the zonation system developed by Knüsel and Outram (2004) was employed.

Age could only be estimated on basis of evaluating the relative thickness of the tables and the diploë of skull vault fragments (Gejvall in Sigvallius 1994, 10). An attempt to determine the sex based on morphological features was undertaken according to the descriptions by Sjøvold (1988). The method by Gejvall (1948) of sexing cremated skeletal remains from skull vault and long bone diaphyseal thickness measurements was also employed. The inhumations were also aged from the degenerative changes to the auricular surface of the hip bones (Lovejoy *et al.* 1985) and from the sternal end of the ribs (İşcan *et al.* 1985).

The anatomical terminology used in this report is strictly according to the international nomenclature as described by Feneis and Dauber (2000). The descriptive teeth formula used is according to F.D.I (Fédération Dentaire Internationale), developed for practical use in statistical studies.

A digital calliper with 0.01mm accuracy was used for bone measurements. No stature estimation was possibly on any of the skeletal elements. All bones have been examined macroscopically.

2 Result

2.1 *The Iron Age: the cremated bones*

The osteological study of cremated bones is defined by many limitations. Considerable fragmentation and bone fragment distortions, which are caused by the heat during the cremation process, is one major obstacle. Another factor is the quantitative loss of volume, from between the burning to the deposition of the bones into the grave, which often is evident in ancient cremation burials. All these factors make many of the available osteological methods inadequate when analysing burnt skeletal materials (see Rösing 1977, 54).

Despite these limitations, there is much potential in cremation burial studies, which inevitably will give new perspectives and knowledge about the demography, religious beliefs and funerary rituals of past communities. Many of the limitative factors described above can be the result of handling of the remains in a ritual context, such as a possible deliberate crushing of the bone fragments and a possible selection of certain skeletal elements for deposition as token burials, all which can be viewed upon as a reflection of religious beliefs within the cult (see Buckley and Buckley 1999).

2.2 *Ring-barrow deposits*

Cremated human bones were found spread across the ring-barrow in each of its three fills (F18, F25 and F26).

2.2.1 *Deposit F26*

Only a small amount (37 fragments; 1.59g) of burned human bone were retrieved from this fill. It was however possible to identify one of the fragments as part of a thin human skull vault from a juvenile individual (less than 18 years).

2.2.2 *Deposit F18*

Deposit F18 produced 2652 fragments of cremated bone weighing 281.00g . Skeletal elements from the skull, hip bone, a humerus and phalanx and a femur and tibia were identified in the remains. Based on the cross section of the skull vault fragments, an age at death of between 18-44 years was estimated.

2.2.3 *Deposit F25*

The upper fill of the ring-barrow contained 172.68g of burned bone, comprising of 1893 fragments. These were, just as the bones from the earlier fills, heavily fragmented and well burned. Skeletal elements from the skull, a clavicle and a femur and a fibula were identified. The age estimation from the skull vault fragments suggested an age at death of between 18-44 years. The remains could not be sexed.

2.3 ***Token cremation burials***

Two token depositions of cremated human bones were found in two intercutting pits at the entrance of the ring-barrow, representing the last phase of prehistoric activity on the site.

Pit F204 contained 154 fragments of very fragmented and well burned bone, weighing only 8.53g. Only a fragment of a human talus could be identified from the sample. Sex could not be determined from the remains, and no pathologies were noted.

Burial F204 was cut by pit F185 which contained a mere 14.07g of bone, comprising of 175 well burned and fragmented bone pieces. Some skull vault fragments could be identified from this sample. Age estimation was conducted based on the relative thickness of the diploë layer and the external and internal tables, and gave an age at death of between 18-44 years. No bones with sex indicating morphology were present in the sample.

2.4 *Cremation technology and funerary ritual*

The colour of the bone fragments was white, which indicate that they exposed to temperatures exceeding 700-800ºC, a basic condition for a complete and successful cremation (Herrmann 1988, 578; Wahl 1982, 27).

The quantity of bone after a modern commercial cremation is usually around 2–3.5 litres in volume (Gejvall 1948, 157), but it is very rare to find these amounts in an ancient cremation burial even though it has been concluded from experiments that collected burned bone from a pyre is not too difficult (Piontek 1976). The low amount of bone found within each feature at Marlhill would suggest that they token deposits, selected for burial/deposition, and that the remaining quantity was disposed of elsewhere.

The degree of bone fragmentation in cremation burials has in the past been explained by factors such as pyre collapse, ground pressure, frost-action and archaeological excavation and more (see Lisowski 1968, 79; McKinley 1989, 72), or it has been taken as an indicator that the bones were crushed after the burning and prior to burial (Holck 1997, 35; Kaliff 1992; Sigvallius 1994, 33; Wegewitz 1972, 169). None of these factors are mutually exclusive and a robust explanation would posit that bone fragmentation is likely to be a result of a combination of those mentioned above, alongside other factors such as the sex and age of the individual, other weather conditions (besides just frost-action), pyre technology and so on (Geber 2003).

2.5 *The medieval period: The inhumation burials*

The poorly preserved remains of two inhumation burials were found during the archaeological excavation at the Marlhill site. Skeleton F243 was found in a shallow east-west orientated grave cut (F58) located at the northern entrance of Structure 1. A bone fragment was radiocarbon dated to the early medieval period (cal. AD 650-780).

Skeleton F235 was also interred in a west-east orientated shallow sub rectangular grave cut (F233). It was located approximately 4.5m north of skeleton F58/F59. The skeleton was also radiocarbon dated to the medieval period (cal. AD 690-900).

2.6 *F235*

What remained of skeleton F235 were some poorly preserved fragments of the skull, the vertebral column, the right shoulder, arm and hand and some fragments of the pelvis, the right femur and the left foot. The individual had been buried supine and extended in an east-west orientation.

2.6.1 *Age and sex*

The epiphyseal fusion of the skeletal remains in the individual was complete, which would indicate that this individual were more than 13 years at the time of death. The cross-section of the skull vault fragments suggested an age at death of between 35-64 years, which corresponded well with the result of the assessment of the degree of degeneration of the auricular surfaces of the hip bones which suggested an age between 30-49 years. The age estimation for this individual was however based on the evaluation of sternal degeneration of a rib, which suggested an age between 33-46 years (Table 1).

Table 1. Age estimation based on various methods depending on bone preservation of skeleton F235

Bone/Side		***Method***			
		Diploë expansion	*Epiphyseal fusion*	*Sternal degeneration*	*Auricular degeneration*
Skull vault		35-64 years	-	-	-
Humerus	*R*	-	> 13 years	-	-
Radius	*R*	-	> 14 years	-	-
Rib	*R*	-	-	33-46 years	-
Ph1McI	*L*	-	> 13 years	-	-
Ph3McI	*L*	-	> 14 years	-	-
Hip bone	*L*	-	> 13 years	-	> 30 years
	R	-	-	-	30-49 years

The individual was tentatively sexed as female based on the external protuberance of the occipital bone, which is less developed in females than in males. Sex determination based on the skull and in particular if only focusing on one trait can however often be inaccurate.

2.6.2 *Pathology*

Osteophytes and porosity was noted on an articular process of a thoracic vertebra. These are degenerative conditions of joints, which are either skeletal manifestation due to wear-and-tear due to manual labour and/or to advanced age.

2.7 ***F243***

The remains of skeleton F243 consisted of heavily eroded and fragmented pieces of the skull, the upper vertebrae, the right shoulder, some ribs and some hand bones. The skeleton was lying supine in an east-west orientation.

2.7.1 *Age and sex*

Not enough skeletal elements were preserved for age estimation more precise than that this individual was an adult at the time of death (Table 2.). Sex was tentatively determined to have been female, based on a fragment of a supraorbital margin which was rather sharp. In males, this anatomical landmark is normally much thicker.

Table 2. Age estimation based on various methods depending on bone preservation of skeleton F243

Bone/Side		***Method***	
		Diploë expansion	*Epiphyseal fusion*
Parietal	*?*	50-89 years	-
Ribs	*L*	-	> 17 years
Ribs	*R*	-	> 17 years
Ph1Mc		-	> 14 years
Ph2Mc		-	> 14 years

2.7.2 *Pathology*

Minor osteophytes had formed at the margins of the right inferior articular processes of two lumbar vertebrae, which is due to the same condition as in skeleton F235.

3 Conclusions

3.1 The Iron Age burials at Marlhill correspond well with the scarce evidence that is known about the funerary rites in Ireland during this period. The cremation burials during this period are often found associated with monuments such as ring-barrows and enclosures (Edwards 1990, 129).

3.2 The relatively few finds of formal burials dating to Iron Age has led some to suggest that maybe only a minority of the population were given a burial hence resulting in a very scarce archaeological record (Waddell 1998, 365).

3.3 At Marlhill, at least five separate depositions of cremated human bones were found; three in a ring-barrow ditch and two within pits near the entrance of ditto. Juvenile bones were

identified in the lower fill of the ring-barrow, while all other depositions contained bones from adult individuals.

3.4 The isolated location of the medieval inhumation burials is interesting. Burials outside a cemetery are often the graves of unbaptised children, women who died shortly after childbirth, men who died in battle or possible suicides (Fry 1999, 180-187).

3.5 Inhumation burial F235 was an adult (33-46 years) possibly female individual, which suffered from mild degeneration of the spine. Burial F243 was an older adult, also possibly female, individual.

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Appendix 1. Catalogue 1: the cremated bone

Cut number: F17
Fill number: F26
Sample number: S12
Period: Iron Age
Context/Container: Fill of ring-barrow
Estimated number of fragments: 37 *(2.70% identified)*
Weight: 1.59g *(10.69% identified)*
Volume: <10ml
Maximal linear fragment size: 13.00mm
Fragmentation category (Wahl 1982): V
Incineration category (Wahl 1982): V
Colour: White
Skull: Vault (0.17g)
Axial: Not present
Upper limb: Not present
Lower limb: Not present
MNI: 1
Age: < 18 years *(Juvenile)*
Sex: Indeterminable
Pathology: Not present
Metrics (Gejvall 1948) (mm):

	N:	*Min.*	*Mean*	*Max.*	*SD*
1a	*1*	-	*2.81*	-	-

Animal bones: Not present.

Cut number: F17
Fill number: F18
Sample number: S1, S2, S3, S11
Period: Iron Age
Context/Container: Fill of ring-barrow
Estimated number of fragments: 2652 *(2.11% identified)*
Weight: 281.00g *(10.15% identified)*
Volume: 200ml
Maximal linear fragment size: 25.34mm
Fragmentation category (Wahl 1982): IV
Incineration category (Wahl 1982): V
Colour: White
Skull: Vault, temporal, parietal and frontal (21.52g)
Axial: Hip bone (1.19g)
Upper limb: Humerus and phalanx (1.19g)
Lower limb: Femur and tibia (4.63g)
MNI: 1
Age: 18-44 years *(Young-Older adult)*
Sex: Indeterminable
Pathology: Not present
Metrics (Gejvall 1948) (mm):

	N:	*Min.*	*Mean*	*Max.*	*SD*
1a	*11*	*3.74*	*4.37*	*5.25*	*0.53*

Animal bones: Residual unburned cattle *(Bos taurus)*, caprovine *(Ovis aries et/sive Capra hircus)* and indeterminable micro mammal bones *(Mammalia sp.)*: 70 fragments; 16.52g.

Cut number: F17
Fill number: F25
Sample number: S5, S6. S7, S8
Period: Iron Age
Context/Container: Fill of ring-barrow

Estimated number of fragments: 1893 *(1.43% identified)*
Weight: 172.68g *(7.20% identified)*
Volume: 100ml
Maximal linear fragment size: 32.96mm
Fragmentation category (Wahl 1982): V
Incineration category (Wahl 1982): V
Colour: White
Skull: Vault, frontal bone and teeth (7.71g)
Axial: Not present
Upper limb: Clavicle (1.96g)
Lower limb: Femur and fibula (2.76g)
MNI: 1
Age: 18-44 years *(Young-Older adult)*
Sex: Indeterminable
Pathology: Not present
Metrics (Gejvall 1948) (mm):

	N:	*Min.*	*Mean*	*Max.*	*SD*
1a	*6*	*2.91*	*3.70*	*4.89*	*0.69*
2	*1*	-	*3.96*	-	-

Other: Supraorbital foramen
Animal bones: Residual unburned cattle *(Bos taurus)* and indeterminable mammal bones *(Mammalia sp.)*: 60 fragments; 9.48g.

Cut number: F185
Fill number: F186; F189; F206
Sample number: S9; S18; S19
Period: Iron Age
Context/Container: Pit
Estimated number of fragments: 175 *(1.14% identified)*
Weight: 14.07g *(12.65% identified)*
Volume: <10ml
Maximal linear fragment size: 18.44mm
Fragmentation category (Wahl 1982): V
Incineration category (Wahl 1982): V
Colour: White
Skull: Vault (1.78g)
Axial: Not identified
Upper limb: Not identified
Lower limb: Not identified
MNI: 1
Age: 18-44 years *(Young-Older adult)*
Sex: Indeterminable
Pathology: Not present
Metrics (Gejvall 1948) (mm):

	N:	*Min.*	*Mean*	*Max.*	*SD*
1a	*2*	*3.78*	*4.42*	*5.05*	*0.90*

Animal bones: Not present.

Cut number: F204
Fill number: F208
Sample number: S20
Period: Iron Age
Context/Container: Pit
Estimated number of fragments: 154 *(0.65% identified)*
Weight: 8.53g *(6.56% identified)*
Volume: <10ml
Maximal linear fragment size: 21.35mm
Fragmentation category (Wahl 1982): V
Incineration category (Wahl 1982): V

Colour: White
Skull: Not identified
Axial: Not identified
Upper limb: Not identified
Lower limb: Talus (0.56g)
MNI: 1
Age: Indeterminable
Sex: Indeterminable
Pathology: Not present
Animal bones: Not present.

Table A1.1. The fragmentation of the cremated human bone from Marlhill

Cut	***Fill***	***Sample***	***Feature***	***Volume***	***Weight (g)***	***ENF***	***Weight (g) by mesh category***							
							> 10mm		*5-10mm*		*2-5mm*		*< 2mm*	
F5	F8	S4		175ml	154.94	1300	14.19	*9.16%*	80.83	*52.17%*	58.90	*38.01%*	1.02	*0.66%*
F17	F18	S1	Ring-barrow	25ml	73.11	1027	2.59	*3.54%*	30.28	*41.42%*	38.30	*52.39%*	1.94	*2.65%*
F17	F18	S2	Ring-barrow	50ml	62.40	539	3.22	*5.16%*	32.16	*51.54%*	26.40	*42.31%*	0.62	*0.99%*
F17	F18	S3	Ring-barrow	125ml	130.43	939	20.02	*15.35%*	66.42	*50.92%*	43.29	*33.19%*	0.70	*0.54%*
F17	F18	S11	Ring-barrow	<10ml	15.06	147	0.90	*5.98%*	8.03	*53.32%*	6.01	*39.91%*	0.12	*0.80%*
F17	F25	S5	Ring-barrow	50ml	62.10	508	10.11	*16.28%*	32.68	*52.62%*	19.03	*30.64%*	0.28	*0.45%*
F17	F25	S6	Ring-barrow	<10ml	14.29	211	0.00	*0.00%*	6.84	*47.87%*	7.33	*51.29%*	0.12	*0.84%*
F17	F25	S7	Ring-barrow	50ml	74.21	917	0.00	*0.00%*	33.69	*45.40%*	40.52	*54.60%*	0.00	*0.00%*
F17	F25	S8	Ring-barrow	<10ml	22.08	257	2.39	*10.82%*	10.16	*46.01%*	9.53	*43.16%*	0.00	*0.00%*
F17	F26	S12	Ring-barrow	<10ml	1.59	37	0.00	*0.00%*	0.31	*19.50%*	1.28	*80.50%*	0.00	*0.00%*
F185	F206	S19	Cremation pit burial	<10ml	1.54	26	0.00	*0.00%*	0.77	*50.00%*	0.77	*50.00%*	0.00	*0.00%*
F185	F186	S9	Cremation pit burial	<10ml	8.63	122	0.00	*0.00%*	4.31	*49.94%*	4.17	*48.32%*	0.15	*1.74%*
F185	F189	S18	Cremation pit burial	<10ml	3.90	27	1.14	*29.23%*	1.39	*35.64%*	1.37	*35.13%*	0.00	*0.00%*
F204	F208	S20	Cremation pit burial	<10ml	8.53	154	0.56	*6.57%*	4.58	*53.69%*	3.39	*39.74%*	0.00	*0.00%*
TOTAL:				*~480ml*	*632.81*	*6211*	*55.12*	*8.71%*	*312.45*	*49.38%*	*260.29*	*41.13%*	*4.95*	*0.78%*

Appendix 2. Catalogue 2: the inhumations

Abbreviations:

- = *Alveolar not present*
/ = *Tooth lost postmortem*
21 = *Tooth present*

Skeleton number: F235
Cut: F233
Period: Medieval
Completeness: 10%; The squamous part of the occipital bone and fragments of the axis, two cervical vertebrae, three lumbar vertebrae, the spinous part of the sacrum, fragment of the acromial process of the right scapula, the lateral portion of the right clavicle, fragment of the proximal right humerus and the distal right radius, some rib fragments, three left carpal bones and two left hand phalanges, the ischial tuberosity and fragments of the auricular surfaces from both hip bones, fragment of the head of the right femur and a fragment of the proximal articular facet of the left fifth metatarsal.
Preservation: Very poor, heavily fragmented
Orientation: East-west
Position: Supine, extended.
Age: 33-46 years *(Late middle adult)*
Sex: ??Female *(external occipital protuberance)*
Stature: Indeterminable
Dental inventory: Not present.
Skeletal pathology: Minor degenerative osteophytic bone around the margins of the right inferior articular processes of two lumbar vertebrae.
Non-metric traits and anomalies: Not observable.
Radiocarbon date: 1210 ± 40 BP (Beta-231092)

Skeleton number: F243
Cut: F58
Period: Medieval
Completeness: 10%; Small fragments of parietal bones, the insicive alveolar process of the maxillae, fragments of three cervical and two thoracic vertebrae, fragments of the lateral margin and the glenoid cavity of the right scapula, the acromial end of the right clavicle, some rib fragments, the right hamate and some five hand phalanges and diaphyseal fragments of a long bone.
Preservation: Very poor
Orientation: East-west, head to the east.
Position: Supine, extended(?).
Age: 18+ years *(Adult)*
Sex: ??Female *(the left supraorbital margin)*
Stature: Indeterminable
Dental inventory:

-	-	-	-	/	/	/	/	21	/	/	/	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dental pathology: Not present.
Skeletal pathology: Moderate marginal osteophytes and degenerative porosity on the right inferior articular process of a thoracic vertebra.
Non-metric traits and anomalies: Not observable.
Radiocarbon date: 1310 ± 40 BP (Beta-2310)

Appendix 4. Age estimations based on mandibular dental wear.

Table A4.1. Mandibular dental wear of post-medieval cattle remains

Specimen	**Side**	**TWS (Grant 1982)**					**MWS**	**Age (Benecke 1988)**
		m_4	P_4	M_1	M_2	M_3		
Mandible 1	L	k		f	e	C	22	< 2 ½ - 4 years
Mandible 2	L	f		h	k	g	40	4-8 years
Mandible 3	L			l	l	g	40	4-8 years

Appendix 8: The faunal remains from Marlhill, Co. Tipperary (E2124)

By Jonny Geber MA MIAI

1 Introduction

1.1 Animal bones from 32 archaeological features were recovered during the excavation at Marlhill.

1.2 The total bone assemblage comprised of 840 fragments at a total weight of about 10kg. The bones were relatively well preserved, with very little erosion or other post-depositional damage. A total of 94.63% of the weight and 56.91% of the fragments could be identified to species.

1.3 Three phases were considered in the analysis; an Iron Age phase comprising of 20 fragments and 214.40g, a medieval phase comprising of 344 fragments and 3900.04g and a post-medieval phase comprising of 476 fragments and 5867.74g.

1.4 The uneven quantitative distribution between these periods, the relative minor size of the assemblage as a whole, will inevitable result in interpretation of often insignificant data. This is one of the biggest problems in analysis of archaeological faunal remains and caution need to be taken when discussing past economies and communities based on small quantities of animal bone data.

1.5 A total of 6 species were identified in the sample. Cattle dominated the assemblage (Table 1).

Table 1. Identified species in the osteological analysis of the faunal remains from the Marlhill excavation

	Iron Age		***Medieval***		***Post-medieval***	
Species	*NISP*	*Weight (g)*	*NISP*	*Weight (g)*	*NISP*	*Weight (g)*
Cattle *(Bos taurus)*	10	172.08	111	3080.80	133	4271.83
Caprovine *(Capra hircus/Ovis aries)*	-	-	9	71.91	16	100.66
(Sheep (Ovis aries))	-	-	(4)	(53.49)	(4)	(49.73)
Pig *(Sus domesticus)*	-	-	4	25.51	5	46.93
Horse *(Equus caballus)*	-	-	4	80.85	10	414.99
Dog *(Canis familiaris)*	-	-	7	109.11	1	3.17
Red deer *(Cervus elaphus)*	-	-	-	-	1	41.33
Large mammal	4	20.88	35	291.56	85	605.22
Medium mammal	-	-	15	44.51	28	64.79
Indeterminable	6	21.44	159	195.79	197	318.82
Total:	*20*	*214.40*	*344*	*3900.04*	*476*	*5867.74*

1.6 ***Methodology***

The bones have been identified to species, skeletal element and body side with the aid of a bone reference collection (Margaret Gowen & Co. Ltd), Cohen and Serjeantson (1996), Iregren (2002) and Schmid (1972). It was usually possible to assign a category of animal based on the size of a fragment if no specific species indicating characteristics were available. These categories were large mammal, which primarily would be cattle or horse; and medium mammal, which would be sheep, goat, pig or large dog. These categories were however not considered in the analysis of the data.

The bones have been counted and then weighed on a digital weight scale with an accuracy of 0.01 grams. Measurements were taken according to von den Driesch (1976) using an osteometric board and a measuring tape with 0.50mm accuracy as well as a digital calliper with 0.01mm accuracy. The mean values of the most important post-cranial elements are presented in tables A3.1-3. A complete comprehensive register of all measurements, including the cranial metrics, are available with the author.

Only bone fragments identified to species are regarded as identified (NISP) in this analysis. The assemblage has also been quantified by weight and MNI (Minimum Number of Individuals). Size, side and sex characteristics were taken into consideration when the total minimum number of individuals was estimated.

Shoulder height was calculated on cattle and dog with the equation methods by Fock (1966) and Harcourt (1974).

The descriptions by Boessneck and Müller (1964) and Prummel and Frisch (1986) were used to distinguish between sheep and goat when possible in caprovine remains. The estimation of age at death was done from the degree of dental attrition (Grant 1982; Benecke 1988) and examining epiphyseal fusion of long bones (Habermehl 1975; Silver 1969). A zone recording system for anatomical regions, developed by Serjeantson (1996), was employed for aiding quantitative analysis and estimation of minimum number of individuals (MNI).

2 The major domesticates

2.1 *Cattle (Bos taurus)*

The bone assemblage was dominated by skeletal remains of cattle, which constituted about 82% of the fragments that could be identified to species. The majority of the remains, based on MNI, derived from mature animals (Table 2.).

Table 2. The minimum number of individuals (MNI) from cattle remains

Period	***Neonatal MNI***		***Immature MNI***		***Mature MNI***		***Total MNI***	
	n:	%	n:	%	n:	%	N:	%
Iron Age	0	0.00%	0	0.00%	1	100.00%	1	100.00%
Medieval	1	16.67%	2	33.33%	3	50.00%	6	100.00%
Post-medieval	0	0.00%	2	33.33%	4	66.67%	6	100.00%
Total:	*1*	*7.70%*	*4*	*30.77%*	*8*	*61.54%*	*13*	*100.00%*

Sex could only be estimated in three cattle bones; one from a medieval feature and three from post-medieval features. The only metacarpal available for sex estimations was from a cow, as well as three pelvis fragments (Table 3).

Table 3. The ratio of cows and bulls/oxens in medieval and post-medieval cattle remains. Abbreviations: DB/L = distal breadth divided by length; MB/L = medial breadth divided by length

Bone/Period	***Type of plot***	***N:***	***Cows***	***Bulls/Oxen***	***Method***
Medieval					
Coxae	Rectus fovea	1	100.00%		Visual examination
Post-medieval					
Metacarpal	DB/L	1	100.00%		Howard 1963
	MB/L	1	100.00%		Howard 1963
Coxae	Rectus fovea	2	100.00%		Visual examination

Any trend in the age at slaughter of cattle is impossible to assess due to too few data. No bones from immature cattle were identified in the Iron Age and post-medieval features. From the medieval remains it could be concluded that some animals were slaughtered before the third year.

Skeletal elements from both meat rich and meat poor parts of cattle were identified from all three phases, why it is assumed that both slaughter and consumption of cattle took place on site. Meat rich body regions are the forelimbs, vertebrae, ribs, scapulae, coxa and

hindlimbs and the remainder is considered to derive from meat poor areas of the carcass (Wigh 2001, table 12).

Only one post-medieval cow metacarpal was available for estimation of shoulder height of the cattle. The stature was calculated to 115.20cm.

2.2 ***Sheep (Ovis aries)***

Bones from sheep and/or goats, or so called caprovines, constituted 5% of the fragments identifiable to species. Four bones each from medieval and post-medieval features could be identified as sheep *(Ovis aries)* and no goat bones *(Capra hircus)* were noted in the remains, why it is assumed that all the caprovine remains derive from goat.

Based on MNI, a majority of the sheep reached maturity (Table 4).

Table 4. Minimum number of individuals (MNI) of sheep

Period	***Neonatal MNI***		***Immature MNI***		***Mature MNI***		***Total MNI***	
	n:	%	n:	%	n:	%	N:	%
Iron Age	0	-	0	-	0	-	0	-
Medieval	0	0.00%	1	50.00%	1	50.00%	2	100.00%
Post-medieval	0	0.00%	1	33.33%	2	66.66%	3	100.00%
Total:	*0*	*0.00%*	*2*	*40.00%*	*3*	*60.00%*	*5*	*100.00%*

The majority of the caprovine bones came from meat rich body regions, however the data is too limited for any solid conclusions based on that fact. The limited number of data also meant that none of the caprovine bones could be sexed.

A radius from a medieval feature was the only bone available for shoulder height estimation. The result gave a height of 58.52cm.

2.3 **Pig *(Sus scrofa domesticus)***

Pig was the third most commonly identified species in the assemblage, comprising of 2% of the total identified fragments. Based on MNI, half of the animals lived to maturity (Table 5).

Table 5. The minimum number of individuals (MNI) of pig

Period	***Neonatal MNI***		***Immature MNI***		***Mature MNI***		***Total MNI***	
	n:	%	n:	%	n:	%	N:	%
Iron Age	0	0.00%	0	0.00%	0	0.00%	0	-
Medieval	0	0.00%	0	0.00%	1	100.00%	1	100.00%
Post-medieval	1	33.33%	1	33.33%	1	33.33%	3	100.00%
Total:	*1*	*25.00%*	*1*	*25.00%*	*2*	*50.00%*	*4*	*100.00%*

Neither sex nor shoulder height could be estimated from any of the pig remains.

Only three epiphyseal fragments could be examined from the pig remains, from which it could be concluded that slaughter did take place on animals less than three years. The full extent on any breeding strategy is impossibly to assess. The more or less sole purpose for breeding pigs would have been as a meat resource, which is why the majority would have been slaughtered when they would have reached maturity during the second year (McCarthy 2003, 378).

2.4 **Horse *(Equus caballus)***

Four horse bones were identified in two medieval features (F38 and F64) and 10 fragments in a post-medieval feature (F50). All the remains derived from mature animals. No bones could be used for either sex or shoulder height estimation.

Two cervical and thoracic vertebrae, five rib fragments and the distal part of right radius from the same animal were found in fill F126 in F50. No indications of any dismemberment were visible from the remains, why it is suggested that the bones are a re-deposition of skeletal elements from a disturbed horse burial elsewhere.

Pathology was noted on two horse bones found in F38. A tarsicentral and a third tarsal bone from a right leg had fused into complete ankylosis. This would probably be of a degenerative nature since no evidence of trauma was visible on the bones. The tarsal bones are articulating in immobile joints, and the pathology might not have affected the animal to any greater degree.

2.5 **Dog *(Canis familiaris)***

Dog bones from mature individuals were found in medieval and post-medieval features. A rib was identified from the fill of F50, a post-medieval ditch, while a part of a

mandible, a left leg and foot from one individual was found in medieval ditch F38. A shoulder height of about 79cm was estimated from the remains in F38 (Table 6).

Table 6. Measurements (mm) of the dog bones found in F38

Element		***Bp***	***GL***	***CD***	***Bd***	***Estimated shoulder height***
Femur	*L*	-	-	15.84	41.16	-
Tibia	*L*	38.40	239.00	16.09	28.07	79.20cm
Astragalus	*L*	-	32.21	-	-	-
Calcaneus	*L*	-	55.05	-	-	-

3 Wild mammal taxa

3.1 *Red deer (Cervus elaphus)*

One antler burr fragment of red deer was found in a post-medieval feature (F41). The antler had been shed by the burr, meaning that it was probably collected in the woods and brought in to site.

Although no clear indication of antler crafting was noted on the fragments, it is suggested that the antler fragment could be industrial waste. Antlers would have been used as raw material for making combs, pins, handles and more (MacGregor 1985).

4 Conclusion

4.1 Too few bone fragments were available for any solid conclusions to be drawn from the analysis. The three main domesticates were available in the post-medieval material, and the lack of caprovines and pigs in the Iron Age period is probably a reflection on the limited empirical data (Figure 1). Cattle dominated the assemblage, and would have been of great importance during all three periods, being a source of milk and beef but also as a draught animal.

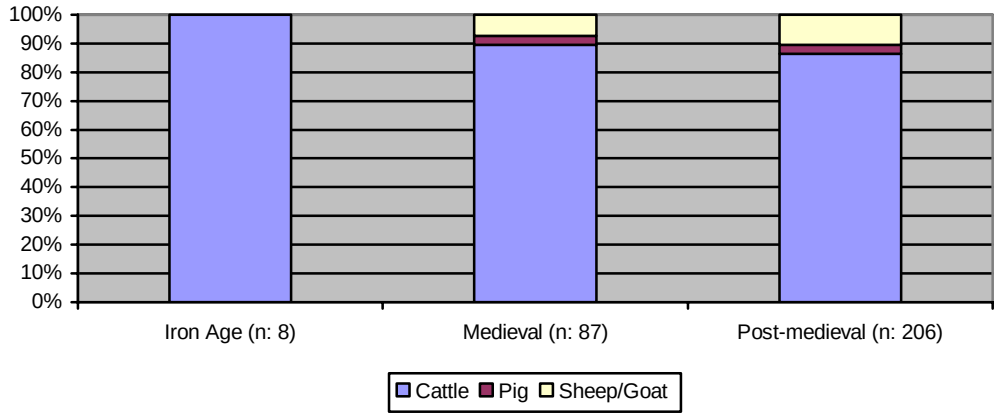

Figure 1. The relative quantitative distribution by NISP between cattle, pig and caprovines in the three phases at Marlhill

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Appendix 1. The fusion data for cattle, caprovines and pig

Table A1.1. Medieval. The fusion of preserved epiphysises of cattle bones

	Unfused ***(n :)***	**In fusion** ***(n :)***	**Fused** ***(n :)***	**N:**	**%Unfused**
Early fusion *(< 1 ½ year)*	0	0	4	4	0.00%
Mid fusion *(2 - 2 ½ years)*	1	0	2	3	33.33%
Late fusion *(> 3 years)*	2	0	3	5	40.00%
TOTAL:	*3*	*0*	*9*	*12*	*25.00%*

Table A1.2. Post-medieval. The fusion of preserved epiphysises of cattle bones

	Unfused ***(n :)***	**In fusion** ***(n :)***	**Fused** ***(n :)***	**N:**	**%Unfused**
Early fusion *(< 1 ½ year)*	0	0	5	5	0.00%
Mid fusion *(2 - 2 ½ years)*	1	0	4	5	20.00%
Late fusion *(> 3 years)*	1	0	3	4	25.00%
TOTAL:	*2*	*0*	*12*	*14*	*14.29%*

Table A1.3. Post-medieval. The fusion of preserved epiphysises of pig bones

	Unfused ***(n :)***	**In fusion** ***(n :)***	**Fused** ***(n :)***	**N:**	**%Unfused**
Early fusion *(< 1 year)*	0	0	1	1	0.00%
Mid fusion *(1 - 2 ½ years)*	0	0	0	0	-
Late fusion *(> 3 years)*	2	0	0	2	100.00%
TOTAL:	*2*	*0*	*1*	*3*	*66.67%*

Table A1.4. Medieval. The fusion of preserved epiphysises in caprovine bones

	Unfused ***(n :)***	**In fusion** ***(n :)***	**Fused** ***(n :)***	**N:**	**%Unfused**
Early fusion *(< 1 year)*	0	0	2	2	0.00%
Mid fusion *(1 – 2 years)*	0	0	0	0	-
Late fusion	0	0	2	2	0.00%

(> 3 years)					
TOTAL:	*0*	*0*	*4*	*4*	*0.00%*

Table A1.5. Post-medieval. The fusion of preserved epiphysises in caprovine bones

	Unfused ***(n :)***	**In fusion** ***(n :)***	**Fused** ***(n :)***	**N:**	**%Unfused**
Early fusion *(< 1 year)*	0	0	2	2	0.00%
Mid fusion *(1 – 2 years)*	0	0	1	1	0.00%
Late fusion *(> 3 years)*	0	0	0	0	-
TOTAL:	*0*	*0*	*3*	*3*	*0.00%*

Appendix 2. Identified taxa and skeletal elements

Table A2.1. The identified Iron Age taxa

Element	***Cattle***	***Medium mammal***	***Indet.***
Mandible			
Loose teeth	7		
Coxae	1		
Humerus			
Radius			
Ulna			
Rib	2		
Mc			
Femur			
Tibia			
Indet.		4	6
Total:	*10*	*4*	*6*
MNI:	*1*	-	-

Table A2.2. The identified medieval taxa

Element	***Cattle***	***Sheep/Goat***	***(Sheep)***	***Pig***	***Horse***	***Dog***	***Large mammal***	***Medium mammal***	***Indet.***
Cranial	49	1					14		
Horncore	1								
Mandible	7			1		1			
Loose teeth	6	2			1				
Vertebrae	3	1	(1)	1			2		
Coxae	3			1					
Scapula	2	1	(1)				1		
Humerus	5			1					
Radius		1	(1)						
Ulna	1	1	(1)						
Mc	3								
Rib 1	1								
Ribs	17	1					2	7	
Femur	6				1	1			
Tibia	4	1				1			
Calcaneus						1			
Talus						1			
Mt	1					2			
Tarsals					2				

Phalanges	2								
Indet.							16	8	159
Total:	*111*	*9*	*(4)*	*4*	*4*	*7*	*35*	*15*	*159*
MNI:	*6*			*1*	*1*	*1*	-	-	-

Table A2.3. The identified post-medieval taxa

Element	***Cattle***	***Sheep/Goat***	***(Sheep)***	***Pig***	***Horse***	***Dog***	***Red deer***	***Large mammal***	***Medium mammal***	***Indet.***
Cranial	12	1						3		1
Horn core/Antler	2						1			
Mandible	14	1						1		
Loose teeth	22	1								
Vertebrae	15	1			4			3	2	
Sacrum	1									
Coxae	9			1				1		
Scapula	2	3	(1)	1				1		
Humerus	4	2	(1)	2						
Radius	3				1					
Ulna	2							1		
Rib 1								1		
Ribs	35	3			5	1		11	26	
Mc	2									
Femur	1			1						
Tibia	3		(1)							
Calcaneus	1									
Astragalus										
Tarsals	1									
Mt	1	2	(1)							
Phalanges	3									
Indet.								59		196
Total:	*133*	*14*	*(4)*	*5*	*10*	*1*	*1*	*81*	*28*	*197*
MNI:	*6*		*(1)*	*1*	*1*	*1*	*1*	-	-	-

Appendix 3: Osteometrics

Table A3.1. Post-cranial measurements of cattle

	Iron Age					***Medieval***					***Post-medieval***				
	N:	*Min.*	*Mean*	*Max*	*SD*	*N:*	*Min.*	*Mean*	*Max*	*SD*	*N:*	*Min.*	*Mean*	*Max*	*SD*
Scapula															
SLC	-	-	-	-	-	1	-	49.17	-	-	1	-	47.24	-	-
GLP	-	-	-	-	-	1	-	62.99	-	-	1	-	56.00	-	-
BG	-	-	-	-	-	1	-	41.72	-	-	2	38.35	41.31	44.26	4.18
LG	-	-	-	-	-	1	-	48.41	-	-	2	45.50	45.65	45.80	0.21
Humerus															
GLC	-	-	-	-	-	1	-	227.00	-	-	-	-	-	-	-
SD	-	-	-	-	-	-	-	33-95	-	-	-	-	-	-	-
Bd	-	-	-	-	-	4	69.33	75.66	84.08	6.49	-	-	-	-	-
BT	-	-	-	-	-	4	65.24	68.72	74.12	4.31	-	-	-	-	-
Ulna															
BPC	-	-	-	-	-	1	-	41.04	-	-	2	38.01	39.75	41.48	2.45
DPA	-	-	-	-	-	1	-	57.25	-	-	2	45.04	46.26	47.48	1.73
SDO	-	-	-	-	-	1	-	50.34	-	-	2	55.44	55.68	55.92	0.34
Mc															
Bp	-	-	-	-	-	1	-	47.65	-	-	1	-	55.10	-	-
GL	-	-	-	-	-	-	-	-	-	-	1	-	192.00	-	-
SD	-	-	-	-	-	1	-	26.63	-	-	1	-	31.97	-	-
Bd	-	-	-	-	-	-	-	-	-	-	1	-	60.91	-	-
Coxae															
LA	-	-	-	-	-	-	-	-	-	-	3	57.72	58.56	59.10	0.74
SB	1	-	24.09	-	-	-	-	-	-	-	-	-	-	-	-
Femur															
SD	-	-	-	-	-	1	-	31.03	-	-	-	-	-	-	-
Tibia															
Dd	-	-	-	-	-	1	-	42.41	-	-	-	-	40.40	-	-
Bd	-	-	-	-	-	1	-	55.15	-	-	-	-	58.33	-	-
Mt															
SD	-	-	-	-	-	1	-	21.62	-	-	-	-	-	-	-

Table A3.2. Post-cranial measurements of caprovines

	Medieval					***Post-medieval***				
	N:	*Min.*	*Mean*	*Max*	*SD*	*N:*	*Min.*	*Mean*	*Max*	*SD*
Scapula										
SLC	-	-	-	-	-	1	-	17.55	-	-
GLP	-	-	-	-	-	1	-	29.57	-	-
BG	-	-	-	-	-	1	-	17.03	-	-
LG	-	-	-	-	-	1	-	24.03	-	-
Humerus										
SD	-	-	-	-	-	1	-	11.32	-	-
Bd	-	-	-	-	-	1	-	28.57	-	-
BT	-	-	-	-	-	1	-	26.56	-	-
Radius										
BFp	1	-	26.82	-	-	-	-	-	-	-
Bp	1	-	29.09	-	-	-	-	-	-	-
GL	1	-	145.58	-	-	-	-	-	-	-
SD	1	-	16.65	-	-	-	-	-	-	-
BFd	1	-	23.20	-	-	-	-	-	-	-
Bd	1	-	25.35	-	-	-	-	-	-	-

Ulna										
BPC	1	-	14.33	-	-	-	-	-	-	-
DPA	1	-	27.98	-	-	-	-	-	-	-
SDO	1	-	23.48	-	-	-	-	-	-	-
Tibia										
SD	1	-	12.07	-	-	1	-	12.87	-	-
Bd	-	-	-	-	-	1	-	23.97	-	-
Dd	-	-	-	-	-	1	-	18.35	-	-
Mt										
Bp	-	-	-	-	-	1	-	18.26	-	-
SD	-	-	-	-	-	-	-	10.77	-	-

Table A3.3. Post-cranial measurements of pig

	Medieval					***Post-medieval***				
	N:	*Min.*	*Mean*	*Max*	*SD*	*N:*	*Min.*	*Mean*	*Max*	*SD*
Scapula										
SLC						1	-	19.94	-	-
Humerus										
SD	1	-	16.44	-	-	1	-	19.11	-	-
Coxae										
LA										

Appendix 4: Age estimations based on mandibular dental wear

Table A4.1. Mandibular dental wear of medieval cattle remains

Specimen	**Side**	**TWS (Grant 1982)**					**MWS**	**Age (Benecke 1988)**
		m_4	P_4	M_1	M_2	M_3		
Mandible 1	L	f		h	k	g	40	4-8 years

Table A4.2. Mandibular dental wear of post-medieval cattle remains

Specimen	**Side**	**TWS (Grant 1982)**					**MWS**	**Age (Benecke 1988)**
		m_4	P_4	M_1	M_2	M_3		
Mandible 1	L			l	l	g	40	4-8 years

Appendix 5. NISP by species in each feature containing faunal remains

Table A5.1. NISP by species in each feature containing faunal remains

Feature	**Cattle**	**Caprovine**	**(Sheep)**	**Pig**	**Horse**	**Red deer**	**Dog**	**Large mammal**	**Medium mammal**	**Indet.**	***Total***
F8	75	11	(3)	1	-	-	-	53	16	156	*311*
F14	3	-	-	-	-	-	-	-	-	9	*12*
F18	7	-	-	-	-	-	-	4	-	4	*15*
F26	2	-	-	-	-	-	-	-	-	1	*3*
F27	-	-	-	-	-	-	-	-	-	1	*1*
F36	2	-	-	-	-	-	-	-	-	12	*14*
F39	24	3	(3)	2	3	-	7	15	4	69	*127*
F43	24	4	(1)	2	-	1	-	22	12	41	*106*
F48	2	1	-	-	-	-	-	-	6	-	*9*
F51	23	-	-	1	1	-	1	3	-	4	*33*
F57	2	-	-	-	-	-	-	-	-	-	*2*
F61	-	-	-	-	-	-	-	-	-	1	*1*
F65	1	-	-	-	1	-	-	-	-	1	*3*
F86	-	-	-	-	-	-	-	-	1	-	*1*
F90	-	-	-	-	-	-	-	-	-	1	*1*
F91	30	-	-	-	-	-	-	9	-	12	*51*
F97	5	-	-	-	-	-	-	-	12	10	*27*
F126	6	-	-	1	9	-	-	4	-	4	*24*
F132	2	-	-	-	-	-	-	-	-	-	*2*
F154	35	2	-	-	-	-	-	12	2	38	*89*
F149	1	-	-	-	-	-	-	-	-	-	*1*
F157	4	-	-	-	-	-	-	-	-	2	*6*
F188	2	-	-	-	-	-	-	-	-	6	*8*
F203	3	1	(1)	-	-	-	-	-	-	-	*4*
Total	*253*	*21*	*(8)*	*7*	*14*	*1*	*8*	*118*	*53*	*372*	*851*

Appendix 9: Results of radiocarbon analysis

Excavations Ref No	Lab Ref	Dated Material	Context	Measured Radiocarbon Age (BP)	Std Dev	13C/ 12C Ratio 0/00	2Sigma Calibration
E2124: Site 148.1	Beta - 231089	Animal Bone	F27	2100	40	-23	Circa 350-50 cal. BC.
E2124: Site 148.1	Beta - 231090	Human Bone	F59	1250	40	-21	Cal. AD 650-780
E2124: Site 148.1	Beta - 231092	Human Bone	F235	1150	40	-21	Cal. AD 690-900
E2124: Site 148.1	Beta - 233934	Hazel	F14	1460	40	-25.7	Cal. AD 550-660
E2124: Site 148.1	Beta - 233935	Hazel & oak	F61	1500	40	-27.3	Cal. AD 540-650
E2124: Site 148.1	Beta - 232706	Pomaceous Fruitwood	F18	1980	40	-26.6	40 cal. BC-Cal. AD 130
E2124: Site 148.1	UB-7841	Blackthorn/ cherry	F162	1298	43	-20.9	cal AD 649-857

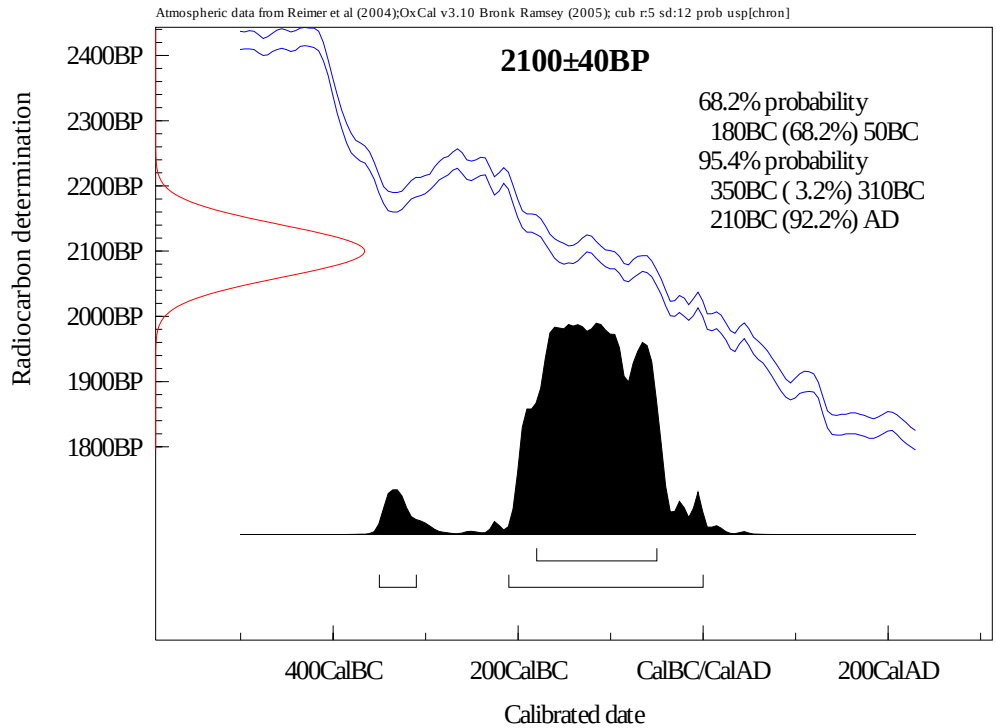


Figure 1: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1: F27

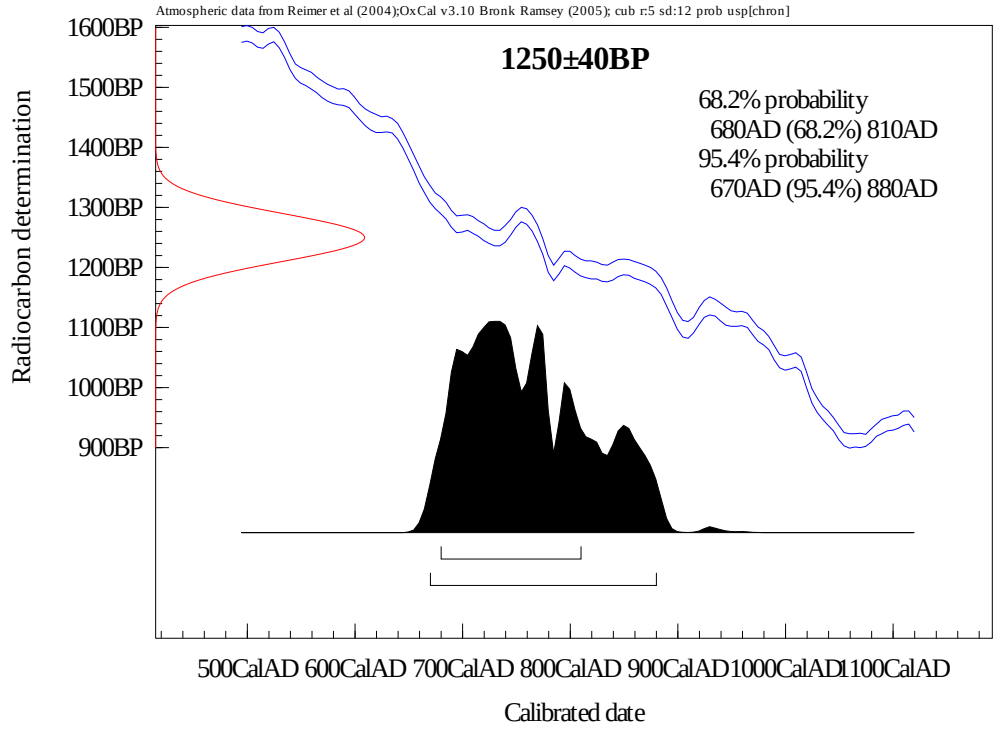


Figure 2: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1: F59

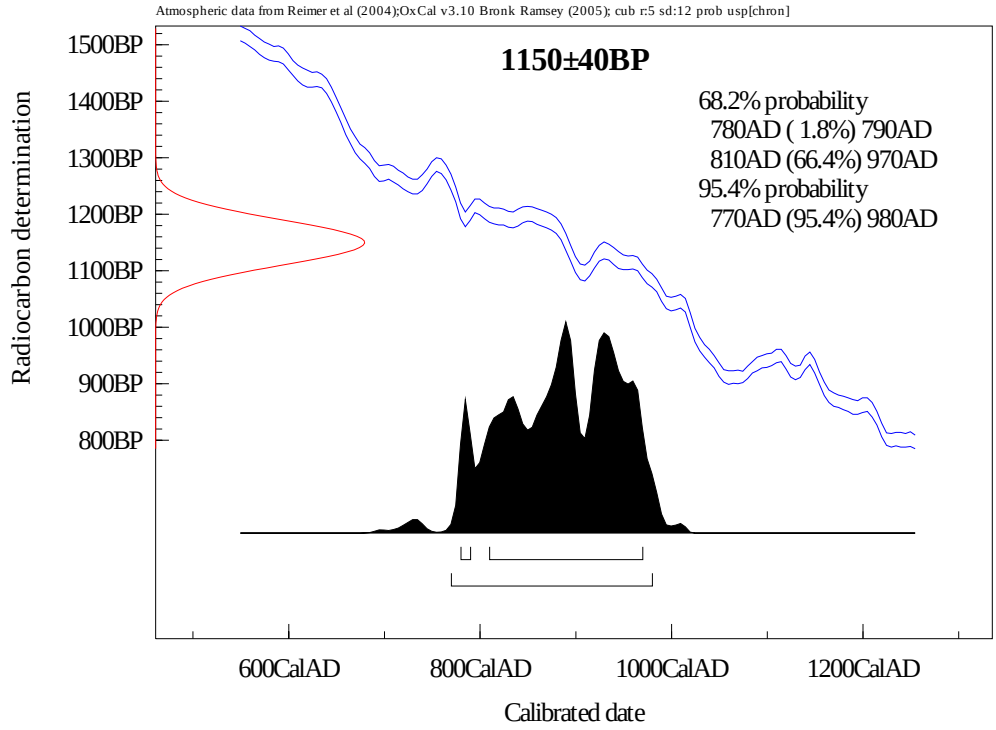


Figure 3: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1:F235

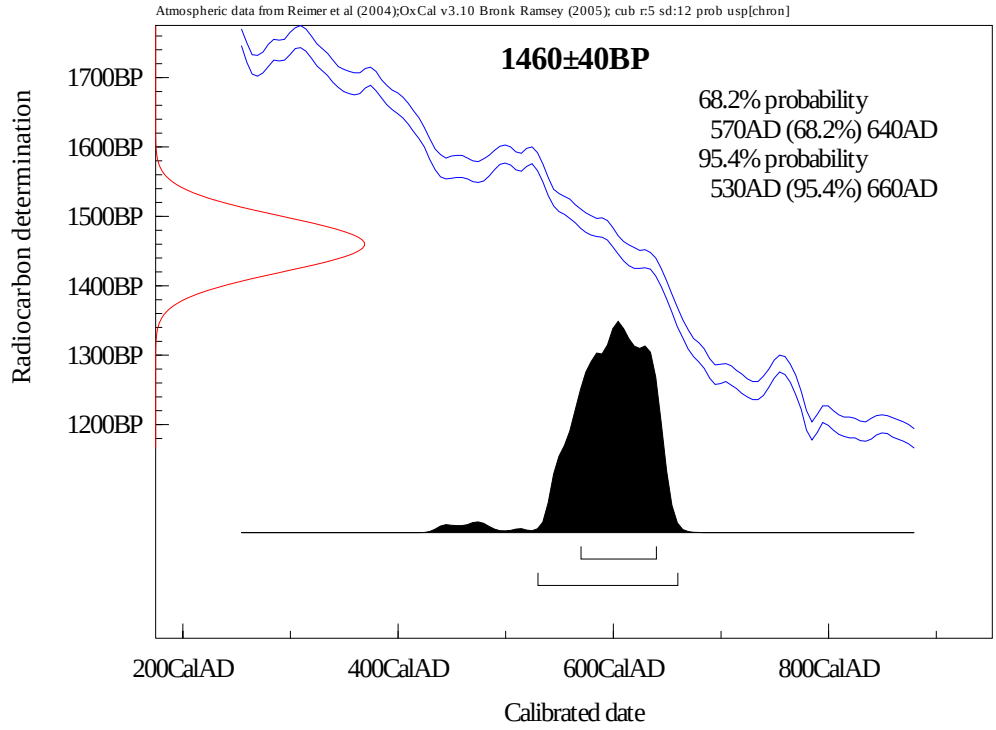


Figure 4: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1:F14

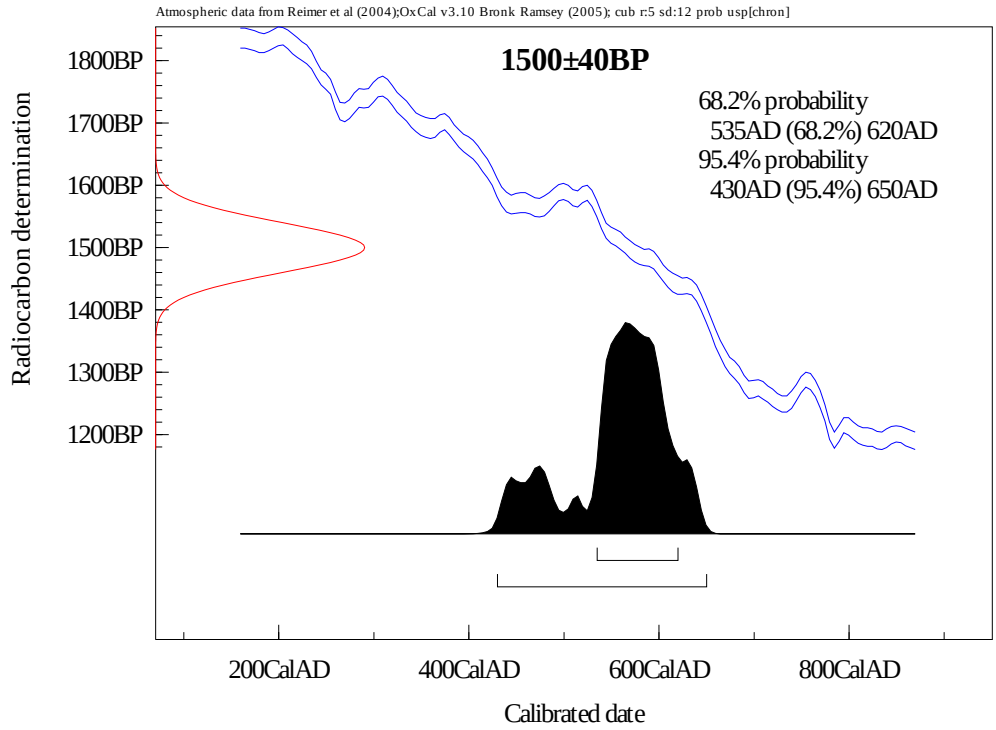


Figure 5: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1:F61

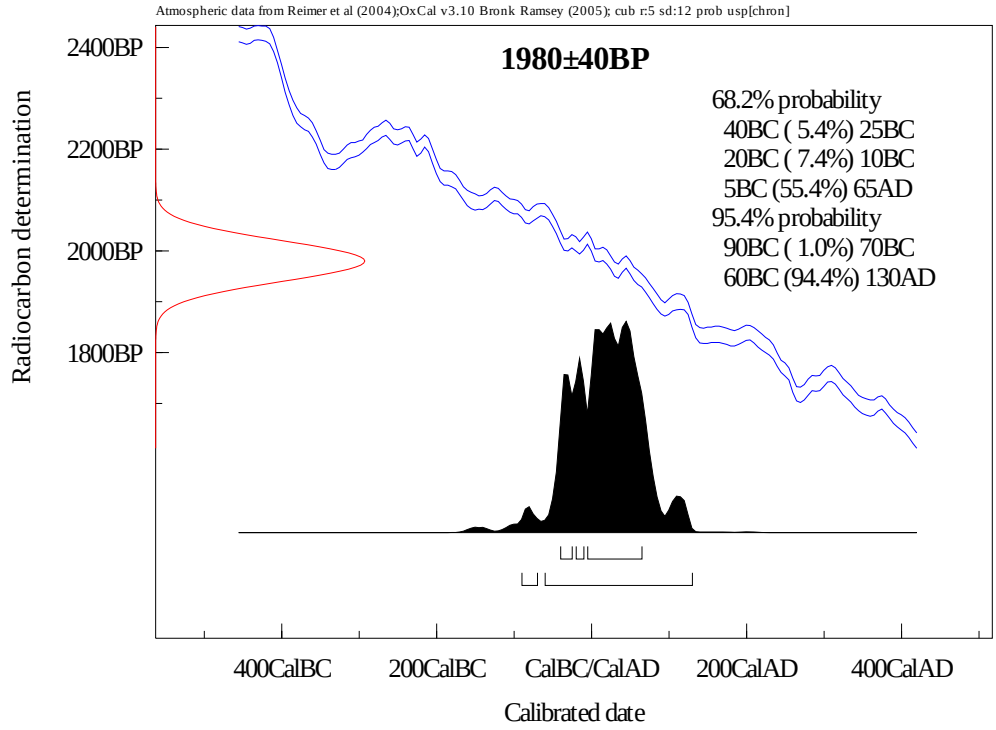


Figure 6: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1:F18

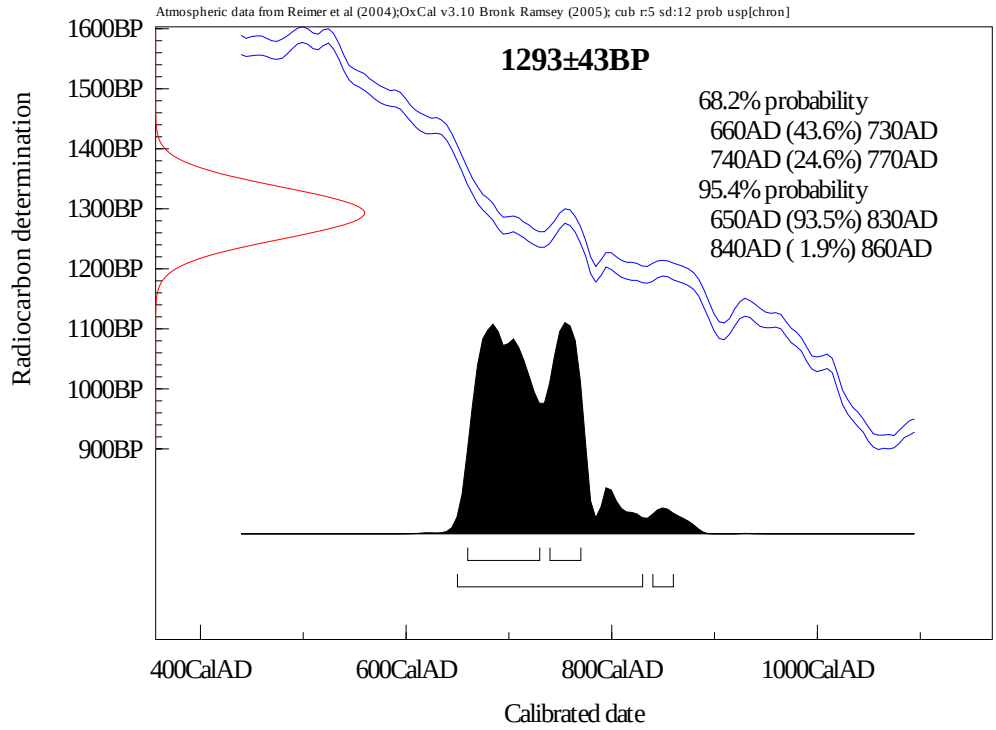
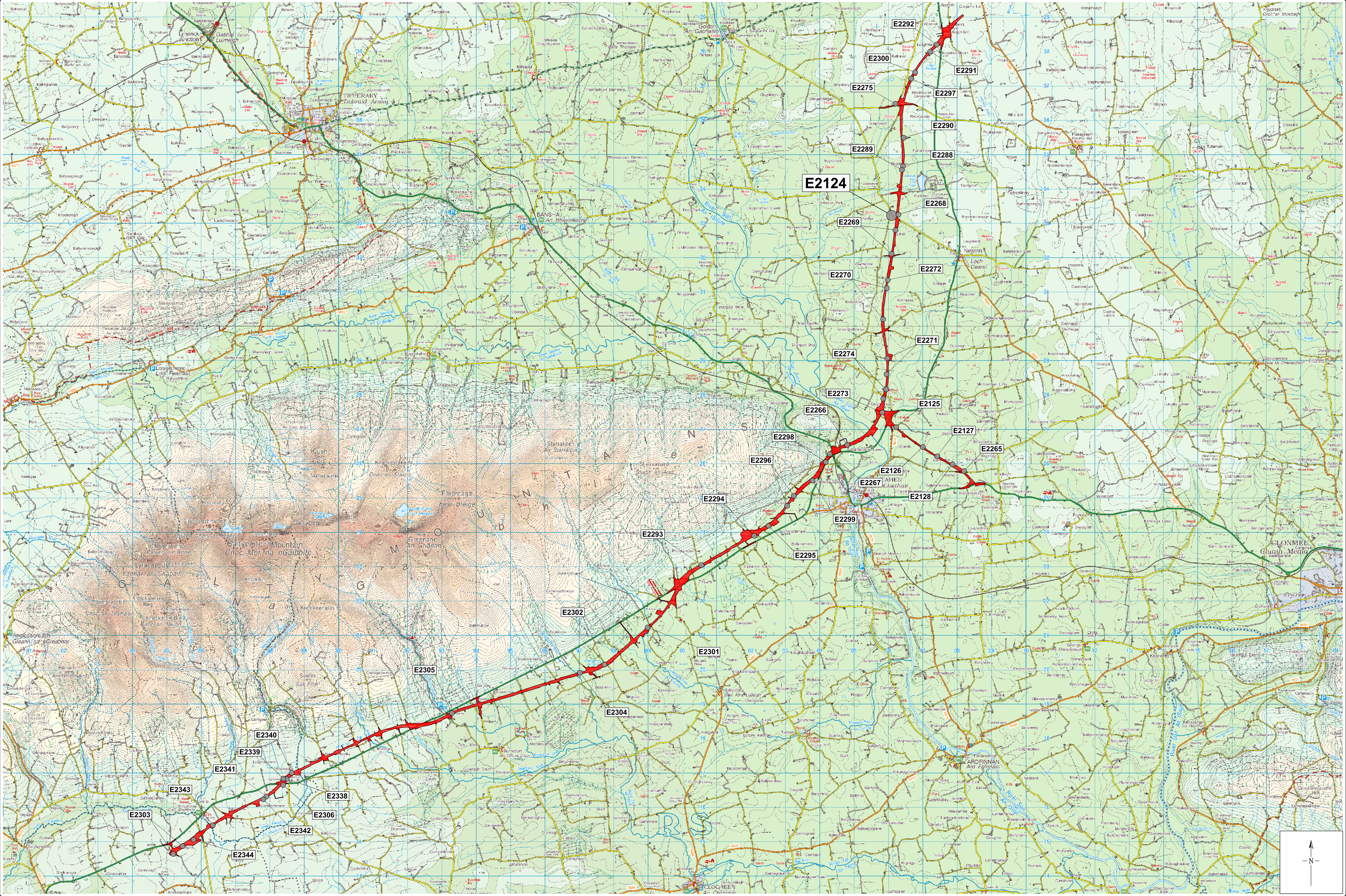


Figure 7: Graph* indicating calibration curve for a radiocarbon date from E2124: Site 148.1:F162



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PROJECT: N8 Cashel to Michelstown Road Improvement Scheme

TITLE: Route of road and location of excavation sites

CLIENT: South Tipperary County Council

JOB NO.: 07014-R2
DRAWING NO.: 07014-01-R2
FIG. NO.: 1
SCALE: 1/100000 @ A3

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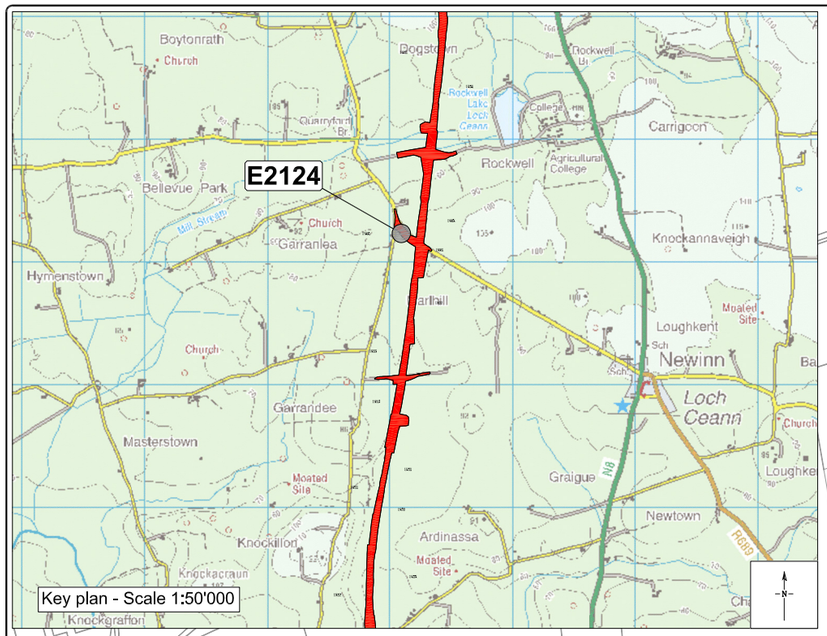

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FIG. NO. 2
SCALE: 1/5000 @ A3

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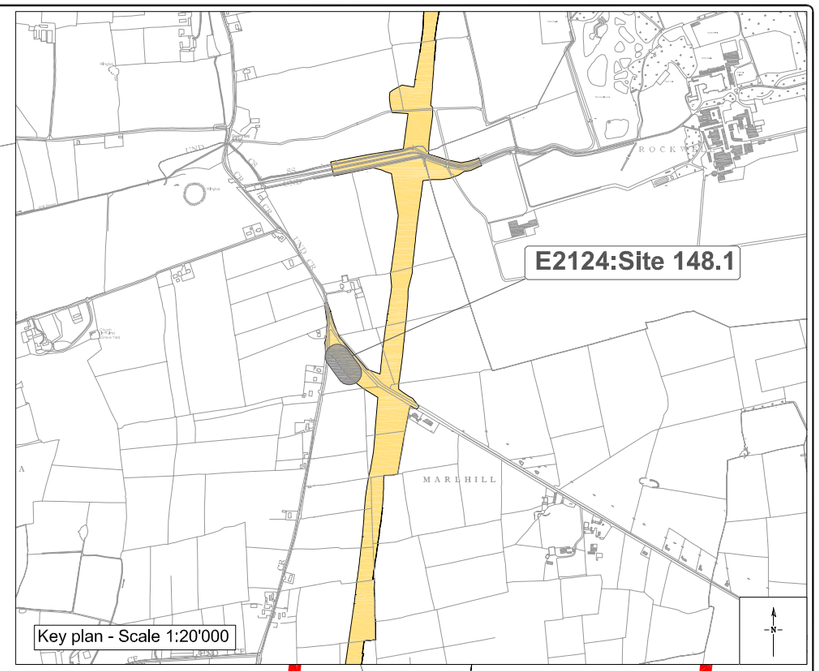
E2124:Site 148.1

Fig. 4

Fig. 5

Fig. 6



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TITLE: Site Locations
CLIENT: South Tipperary County Council

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DRAWING NO.: 07014-03-R2
FIG. NO.: 3
SCALE: 1/1000 @ A3

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Excavation No. 2124

Site: 148.1

88.997

F38

88.947

89.067

88.757

F114

Stone-lined drain

F108

F104

88.935

89.035

F94

89.037

88.402

F79

F98

88.712

F75

F77

88.818

F100

F101

88.814

88.946

F92

89.036

Edge of Excavation

88.814

Fig. 4

CPO

Fig. 5

Edge of Excavation

Fig. 6

0 5m

1/100

N

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PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme

TITLE: Post-excavation plan, Site 148.1

CLIENT: South Tipperary County Council

JOB NO.: 07014-R2

DRAWING NO.: 07014-04-R2

FIG. NO. 4

SCALE: 1:100 @ A4

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Excavation No. 2124

Site: 148.1

Key to Colours:

- Barrow
- Structural features
- Post-Medieval / Modern

F239

F62

F89

F52

F87

F96

Entrance

F60

F69

F67

F58 Grave cut

F124

F122

Slot trench F120

F56

Rectangular Structure

F28

F37

F44

Inner Roof Supports

F244

Slot trench F116

F83

F85

F64

Cremation Pit F143

Cremation Pit F150

Cremation Pit F204

Ring Barrow F17

Ring Barrow Dates:
Primary Cut: 350 - 50 cal. BC
Recut: 40 cal. Bc - AD130

Entrance

F182

F163

Edge of Excavation

CPO

Gully F228

Ditch F133
(cal. AD649 - 783)

Pit F5
(cal. AD550 - 660)

Ditch F41

Ditch F50

F41

F50

Ditch F187

F9

Edge of Excavation

0 5m

1/100

Fig. 4

Fig. 5

Fig. 6

CPO

Edge of Excavation

Scale 1/1500

N

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CHECKED BY: BM

DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme

TITLE: Post excavation plan, Site 148.1

CLIENT: South Tipperary County Council

JOB NO.: 07014-R2

DRAWING NO.: 07014-05-R2

FIG. NO.: 5

SCALE: 1/100 @ A3

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Excavation No. 2124

Site: 148.1

Key to Colours:

- Post-Medieval / Modern

87.986

88.184

87.880

87.859

F223

87.984

F221

87.869

87.880

88.065

87.976

87.704

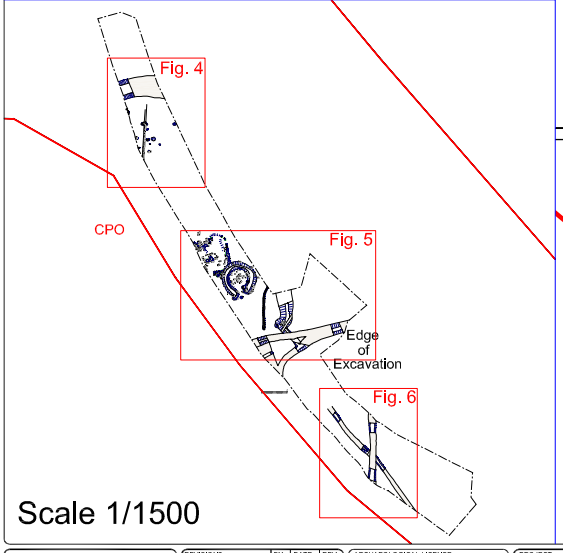
Edge of Excavation

87.693

87.682

F223

CPO



5m

1/100

Scale 1/1500

N

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CHECKED BY: BM | DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme

TITLE: Post-excavation plan, Site 148.1

CLIENT: South Tipperary County Council

JOB NO.: 07014-R2

DRAWING NO.: 07014-06-R2

FIG. NO.: 6

SCALE: 1:100 @ A4

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Excavation No. 2124
Site: 148.1 Barrow

F89
F87
Entrance
F52
88.728
88.708
F60
88.788
F124
F69
F67
F58 Grave cut
F122
88.788
Slot trench F120
Rectangular Structure
88.698
88.618
F56
F28
88.748
F37
F44
88.648
88.698
B
E
88.208
C
Slot trench F116
Cremation Pit
F143
B1
C1
F83
88.748
88.392
F85
F64
88.690
Cremation Pit
F150
A1
88.691
D1
88.194
A
Cremation Pit
F204
Ring
Barrow F17
88.295
87.898
D
E1
Edge
of
Excavation
Entrance
F182
F163
Gully F228

Key to Colours:
- Barrow

0 5m
1/100

CPO
Fig. 7
Edge of Excavation

Scale 1/1500

ISO 9001:2000 EQA QUALITY ASSURED ORGANISATION CERT NO. 2976

REVISIONS: | BY: | DATE: | REV:

ARCHAEOLOGICAL LICENCE: Scheme No. A035 - E2124
PRODUCED BY: CL, JPR, JF, AA
DATE SURVEYED: N/A
CHECKED BY: BM
DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme
TITLE: Post-excavation plan of Barrow, SIte 148.1
CLIENT: South Tipperary County Council

JOB NO.: 07014-R2
DRAWING NO.: 07014-07-R2
FIG. NO.: 7
SCALE: 1/50 @ A3

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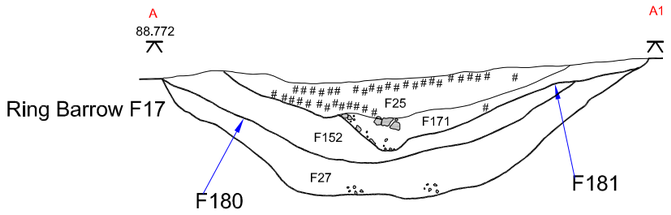
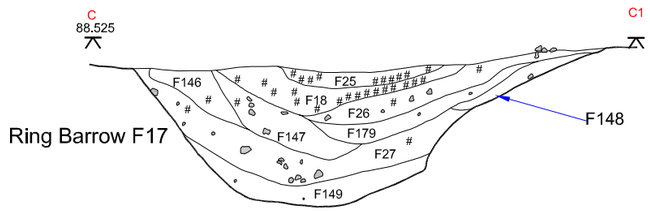
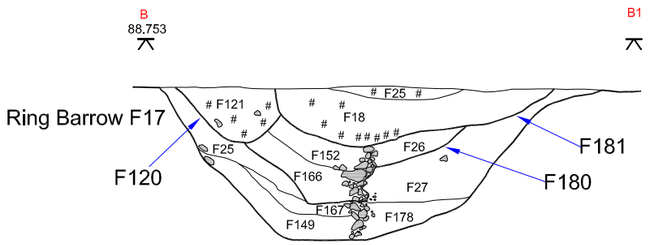
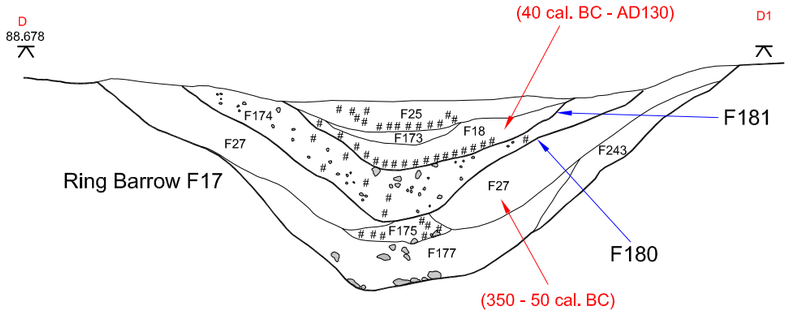
Excavation No. 2124
Site: 148-1

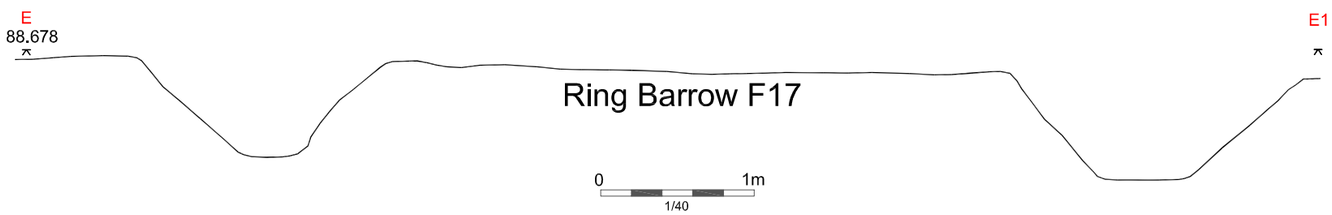








0 1m
1/20



0 1m
1/40

ISO 9001:2000
EQA QUALITY ASSURED ORGANISATION
CERT NO. 2976

REVISIONS: | BY: | DATE: | REV:

ARCHAEOLOGICAL LICENCE: Scheme No. A035 - E2124

PRODUCED BY: CL, JPR, JF, AA
DATE SURVEYED: N/A
CHECKED BY: BM
DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme
TITLE: Sections and profile of the Ring Barrow, SIte 148.1
CLIENT: South Tipperary County Council

JOB NO.: 07014-R2
DRAWING NO.: 07014-08-R2
FIG. NO.: 8
SCALE: As Indicated

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Excavation No. 2124
Site: 148-1 Structure

F233 Grave cut
(cal. AD650 - 780)

F236

F239

Edge of Excavation

88.768

F62

F89

I

F52

F87

Entrance

88.728

88.708

F96

F1

G1

F60

88.788

F69

F

H1

I1

F124

88.688

F67

G

F58 Grave cut

88.518

H (cal. AD690 - 900)

F122

88.788

Slot trench F120

88.698

88.618

F56

J1

88.358

J

F28

Rectangular Structure
(cal. AD540 - 650)

88.748

F37

K1

F44

88.518

K

F244

88.448

88.648

Ring Barrow F17

Inner Roof Supports

88.758

88.698

Slot trench F116

88.518

88.358

F83

88.748

88.558

F85

F64

88.690

Key to Colours:

- Barrow
- Structural features

0 5m

1/100

Fig. 9

CPO

Edge of Excavation

Scale 1/1500

N

ISO 9001:2000 EQA QUALITY ASSURED ORGANISATION CERT NO. 2976	REVISIONS:	BY:	DATE:	REV:	ARCHAEOLOGICAL LICENCE: Scheme No A035 - E2124 PRODUCED BY: CL, JPR, JF, AA — DATE SURVEYED: N/A CHECKED BY: BM — DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme
TITLE: Post-excavation plan of Structure, Site 148.1
CLIENT: South Tipperary County Council

JOB NO.: 07014-R2
DRAWING NO.: 07014-09-R2
FIG. NO. 9
SCALE: 1/50 @ A3

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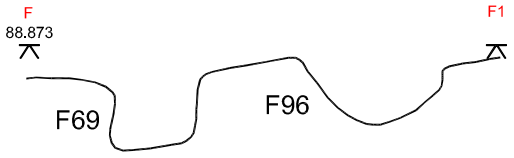
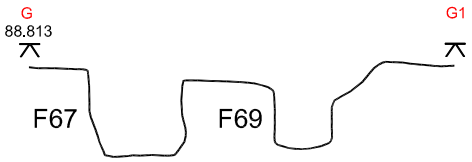
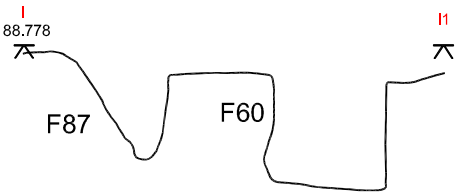
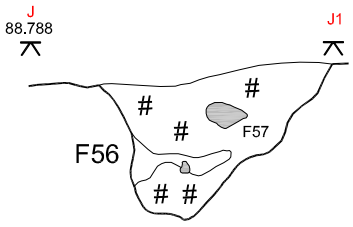
Excavation No. 2124

Site: 148-1









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ARCHAEOLOGICAL LICENCE: Scheme No. A035 - E2124

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CHECKED BY: BM | DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme

TITLE: Section and profiles of Structure, Site 148.1

CLIENT: South Tipperary County Council

JOB NO.: 07014-R2

DRAWING NO.: 07014-10-R2

FIG. NO.: 10

SCALE: 1:20 @ A4

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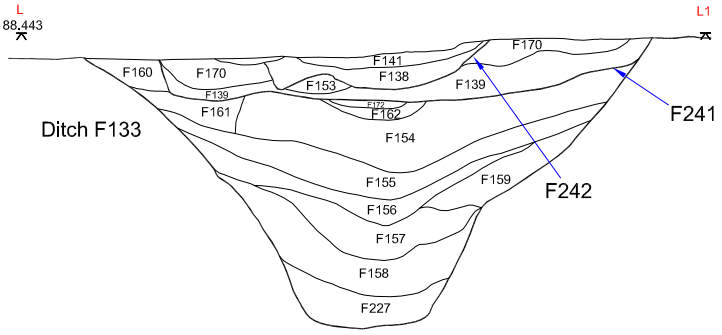
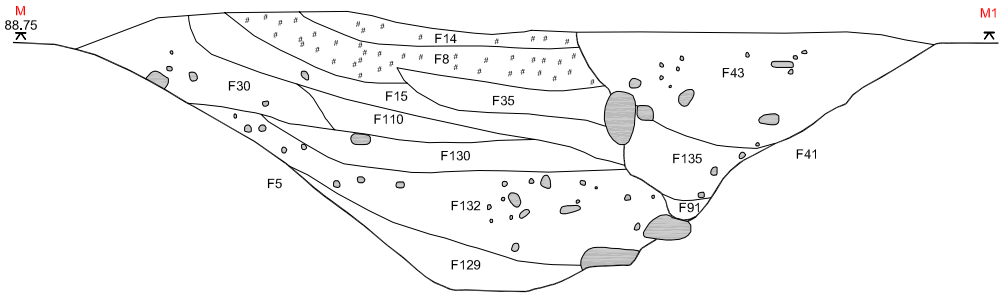
Excavation No. 2124

Site: 148-1





ISO 9001:2000 ERA QUALITY ASSURED ORGANISATION CERT NO. 2976

REVISIONS: | BY: | DATE: | REV:

ARCHAEOLOGICAL LICENCE: Scheme No. A035 - E2124

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CHECKED BY: BM | DATE ISSUED: 05.11.07

PROJECT: N8 Cashel to Mitchelstown Road Improvement Scheme

TITLE: Sections, Site 148.1

CLIENT: South Tipperary County Council

JOB NO.: 07014-R2

DRAWING NO.: 07014-11-R2

FIG. NO.: 11

SCALE: 1:40 @ A4

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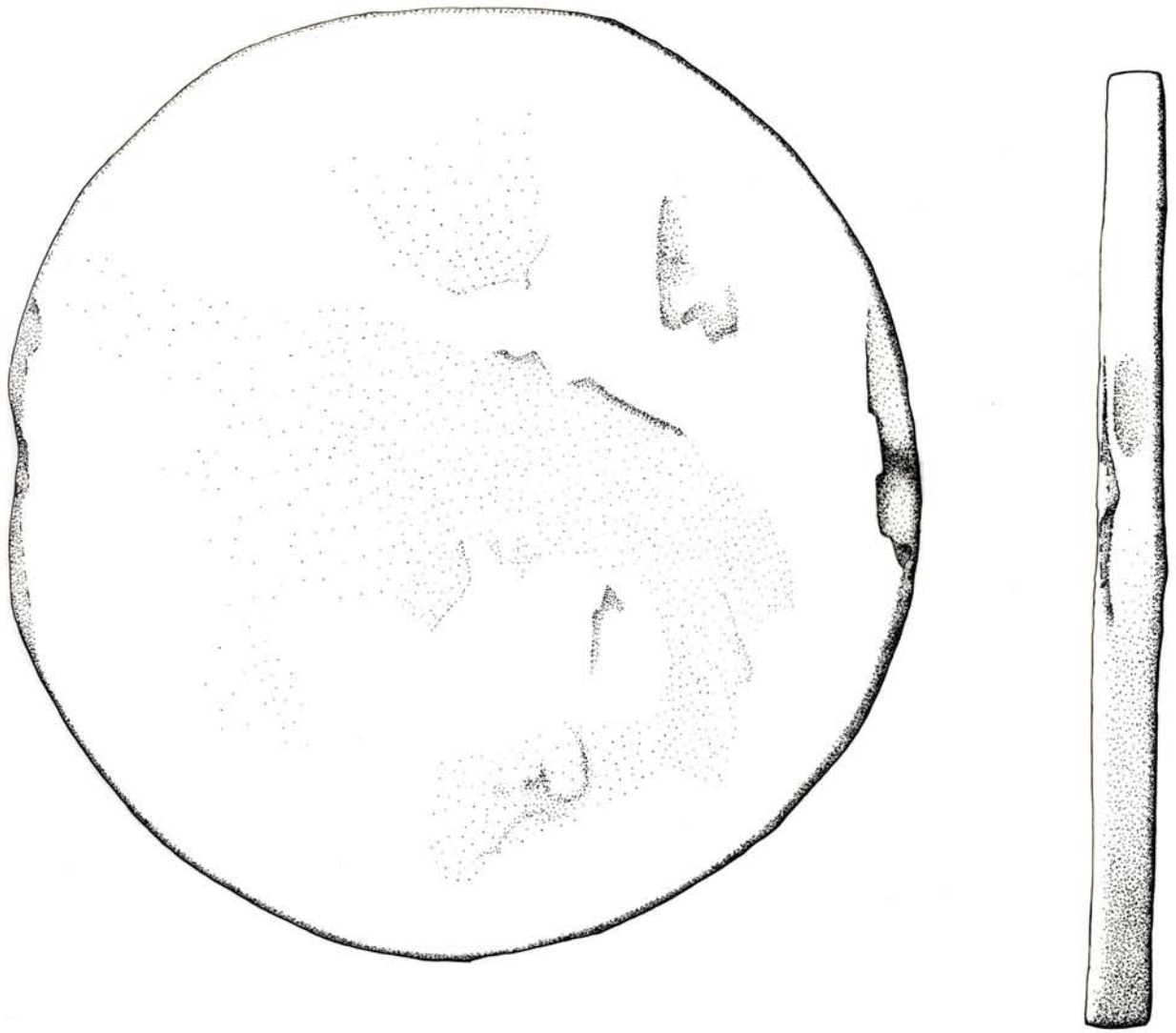
Flat Stone Disc
E3124:29



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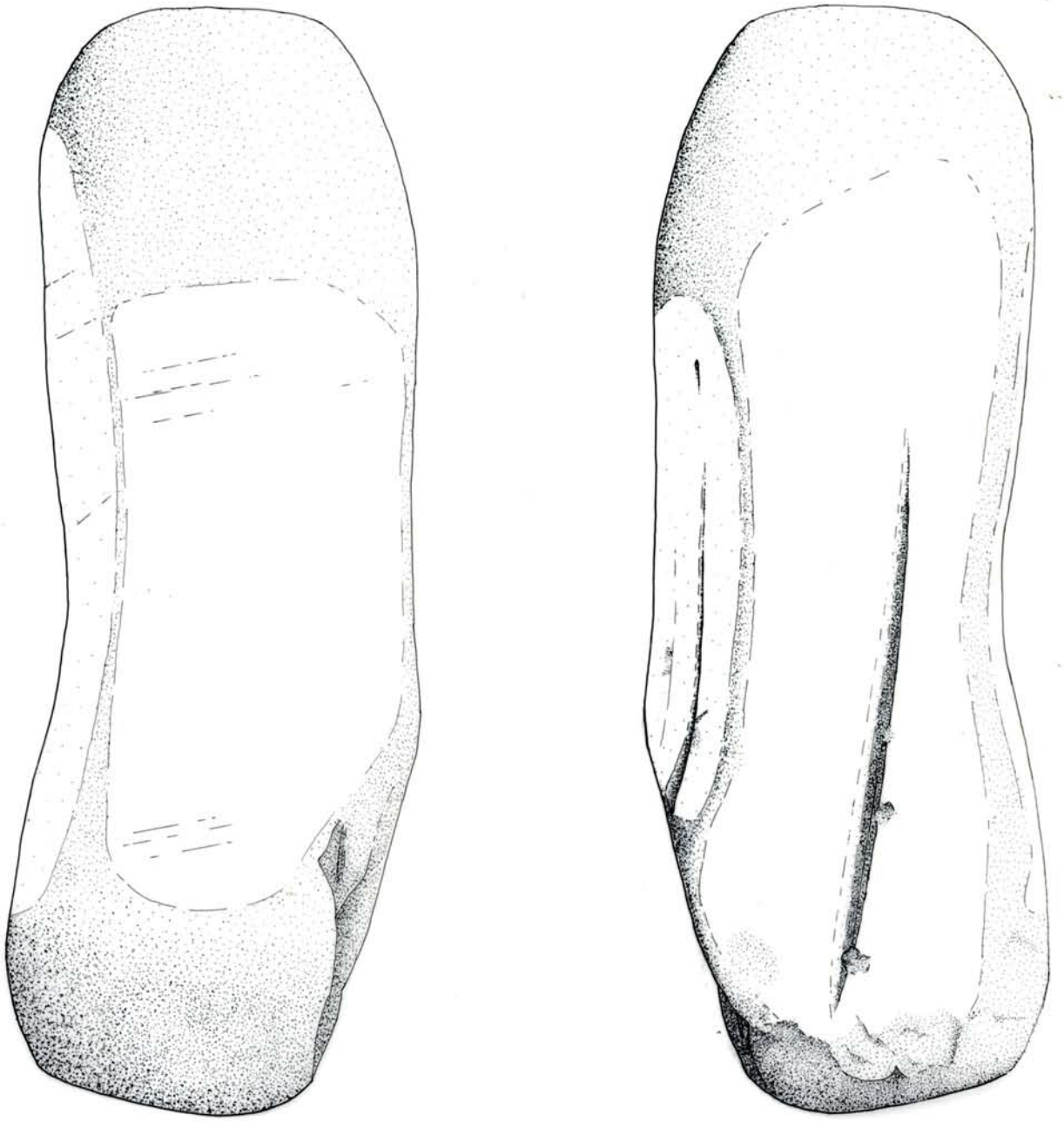
Job	N8/M8 Cashel-Mitchelstown, Co. Tipperary (E2274)
Ref.	07014-R2
Date	02/10/07
Client	South Tipperary County Council
Scale	1:1
Fig. 12	Finds Illustration: Flat stone disc

Whelstone / Honestone
E2124:30



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Job	N8/M8 Cashel-Mitchelstown, Co. Tipperary (E2274)
Ref.	07014-R2
Date	02/10/07
Client	South Tipperary County Council
Scale	1:1
Fig. 13	Finds Illustration: Hone/ Whetstone

Plate 1 Aerial view of ring-barrow post-excavation (with Structure 1 to the north) from the east

Plate 2 Aerial view of ring-barrow post-excavation from the east

Plate 3 Post-excavation view of ring-barrow from the west

Plate 4 View of south-facing section at eastern extent of ring-barrow

Plate 5 View of north-facing section at northern extent of ring-barrow

Plate 6 View of west-facing section at western extent of ring-barrow

Plate 7 Post-excavation view of Pit F143 from the northwest

Plate 8 Post-excavation view of Pit F150 from the east

Plate 9 Post-excavation view of intercutting cremation pits F204/F185 from the northwest

Plate 10 Mid-excavation view of intercutting cremation pits F204/F185 from the north

Plate 11 Post-excavation view of pit F163 from the west

Plate 12 Post-excavation view of pit F182 from the west

Plate 13 Post-excavation aerial view of Structure 1 from the east

Plate 14 Post-excavation aerial view of Structure 1 from the east

Plate 15 Post-excavation view of Structure 1 from the north

Plate 16 Post-excavation view of slot trench F116 and postholes F83, F85 & F64 from the northwest

Plate 17 Pre-excavation view of posthole F136 from the northeast

Plate 18 Mid-excavation view of posthole F136 from the southeast

Plate 19 Post-excavation view of slot trench F120 from the southwest

Plate 20 Post-excavation view of entrance features of Structure 1 from the southeast

Plate 21 Post-excavation view of F28, F37 & F44 in Structure 1 from the south

Plate 22 Mid-excavation view of Pit F5 showing stone lining

Plate 23 Section of ditch F133

Plate 24 Section through ditch F38

Plate 25 Grave-cut F58 from the west

Plate 26 Grave-cut F233 from the east

Plate 27 Section through ditch F231 from the northeast

Plate 28 Section through ditch F233 from the south

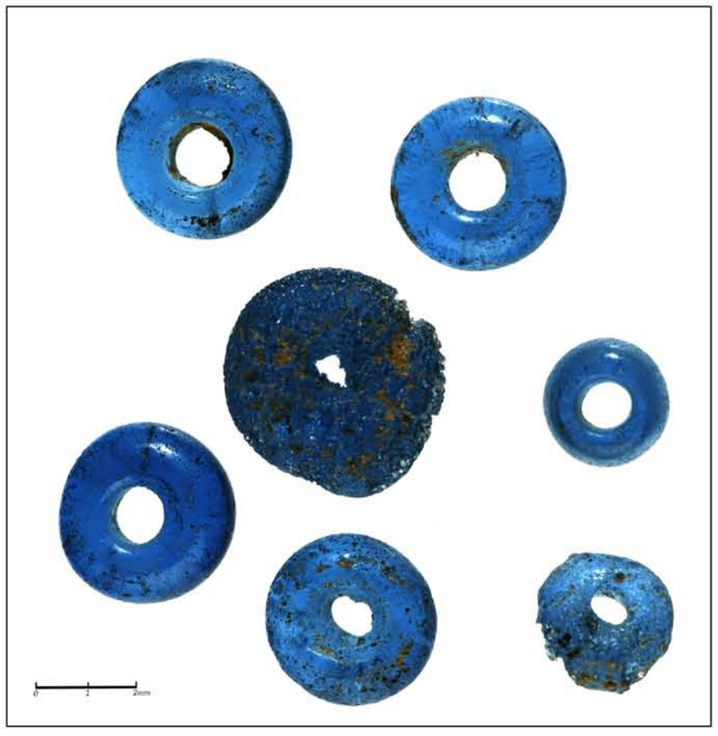

Plate 29 Blue glass beads from deposit F18

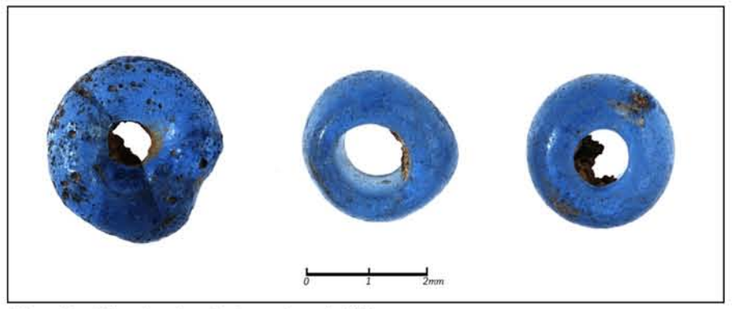

Plate 30 Blue glass beads from deposit F25

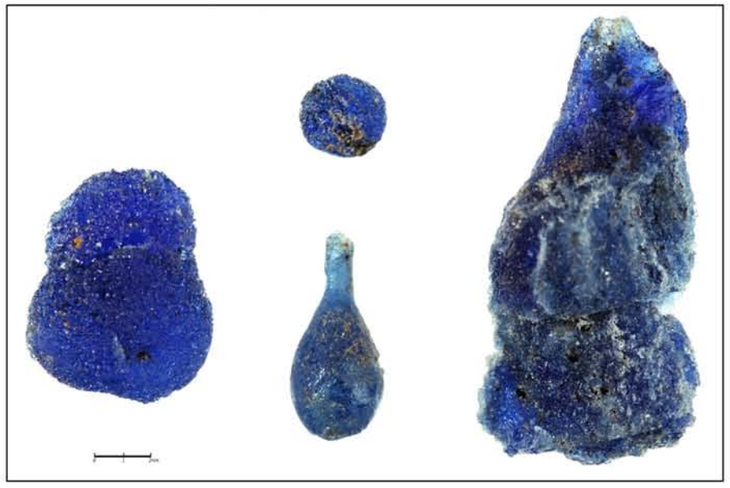

Plate 31 Molten blue glass fragments from deposit F18

Plate 32 Iron nails from deposit F18

Plate 33 Iron nails from deposit F18

Plate 34 Stone disc from ditch F133

Plate 35 Fragment of lignite bracelet from ditch F50