



M1 DUNDALK WESTERN BYPASS

SITE 103: LITTMILL 4 & 5
CHAINAGE CH 17.790 – 17.890
NGR: 302617/305562

FINAL REPORT

ON BEHALF OF
LOUTH COUNTY COUNCIL and the
NATIONAL ROADS AUTHORITY

LICENSEE: BRIAN Ó DONNCHADHA
LICENCE NUMBER: 02E01833

JULY 2009

NON-TECHNICAL SUMMARY

Irish Archaeological Consultancy Ltd. (IAC), funded by Louth County Council and the National Roads Authority undertook an excavation in the townland of Littlemill c. 2km to the south-east of Dundalk in advance of the construction of the Dundalk Western Bypass (DWB) (Figure 1).

The archaeological excavations followed a detailed programme of archaeological test trenching carried out in order to define the location, nature and extent of potential archaeological remains along the route of the Dundalk Western Bypass. This report deals with the excavation at Site 103, Littlemill 4 & 5.

Site 103, at Littlemill 4 & 5 was identified during archaeological test trenching, revealing a collection of large, shallow pits, postholes and stakeholes. Prehistoric pottery identified as Middle Neolithic Impressed Ware (Appendix 2.2) and struck flints which are commonly found throughout the Neolithic and Bronze Age periods in Ireland (Appendix 2.1) were recovered from a number of features indicating a probable Neolithic date for the site.

Resolution excavation of Site 103, Littlemill 4 & 5 was completed between Chainage 17.790 – 17.890 (NGR 302617/305562). Topsoil stripping of the area commenced on December 9th 2002 with a team of eleven field archaeologists. The fieldwork was completed on December 20th 2002. Archaeological fieldwork was directed by Brian O' Donnchadha of Irish Archaeological Consultancy Ltd (IAC Ltd).

ACKNOWLEDGEMENTS

The archaeological excavation at Site 103, Littlemill 4 & 5, County Louth was carried out on behalf of Louth County Council and the National Roads Authority in advance of the construction of the M1 Dundalk Western Bypass.

The author would like to thank:

Niall Roycroft, National Roads Design Office, Navan
Sean Molony, Louth County Council
David McGuill, DWB Resident Engineer, Louth County Council
Geraldine Fitzpatrick and Michael Nolan, NRA.
Helen Kavanagh, Report Editor, IAC Ltd.

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1 INTRODUCTION

This report provides comment and analysis on the excavation carried out in the townland of Littlemill, at Littlemill 4 & 5 (Site 103), c.2km to the southwest of Dundalk, Co. Louth as part of an archaeological mitigation programme associated with the Dundalk Western Bypass (DWB). Archaeological fieldwork was directed by Brian Ó Donnchadha of Irish Archaeological Consultancy Ltd (IAC Ltd.), and was funded by Louth County Council and the National Roads Authority.

1.1 Site location

The sites at Littlemill 4 & 5 were located in the Littlemill townland (Figure 1) to the north of the R171, c.2km south west of Dundalk (Louth OS sheet number 007, Plate 1). The site is:

- Site 103, Littlemill 4 & 5, Excavation Licence 02E1833, Ch17.790–17.890, NGR 302617/305562.

The site was identified as a result of archaeological test trenching undertaken by IAC in March 2002 (Licence Ref.: 02E0373). The area comprised a very gently undulating landscape with the site primarily focused on gently sloping land rather than at the top or bottom of slopes.

1.2 The scope of the project

General

Louth County Council proposed to construct a motorway called the ‘Dundalk Western Bypass – Northern Link’. The scheme also included ancillary roads and other structures.

The Dundalk Western Bypass – Northern Link connects the existing Dunleer-Dundalk Motorway, which terminated in the area of the N52 Ardee Road, to the N1 Ballymascanlan Roundabout in an arc situated c.2.5km - 3km to the west and north of Dundalk.

The scheme was divided into two sections. Section 1 (7.8km main centre line chainage (Ch) runs from Ch16.000 to Ch23.870 (the Armagh Road, R177). Work on the southern end of Section 1 commenced so that the main cutting and rough surfacing for the road had been completed to chainage point Ch17.100. The chainage zone Ch16.000 – 17.100 had therefore not been investigated archaeologically under the present contract. Section 2 (2.08km main centre line chainage) ran from the Armagh Road Ch23.870 to the Ballymascanlan Roundabout, Ch25.950.

Therefore the archaeological potential of the route represented a distance of 8.49km (Ch17.100 – 25.950). The route corridor varied between 60m and 200m (not including side roads) and was on average 100m wide. The archaeological site area was thus approximately 85 hectares.

Specific

Three excavations were undertaken in the townland of Littlemill, spread out over a distance of c.450m (see individual reports). The distance between Site 101, Littlemill 1 and site 102, Littlemill 2 was c.50m, with Littlemill 4 & 5 located 400m to the north of Littlemill 2.

Background historical research undertaken as part of the EIS and test trenching programme revealed Littlemill townland to contain a site listed in the Record of Monuments and Places (RMP LH007-071) namely, a double souterrain located c.30m to the east of the fence line at Ch17.640.

An area of approximately 100m x 50m was opened up for archaeological resolution at Littlemill 4 & 5.

1.3 Circumstances and dates of fieldwork

The excavation was undertaken to offset the adverse impact of road construction on known and potential subsoil archaeological remains in order to preserve these sites by record.

Topsoil stripping of the area commenced on the 2nd of December 2002 and the fieldwork was completed on the 10th of December 2002. The order and date of the excavation is as follows:

After initial bulk stripping, the area of excavation was hand cleaned in order to identify potential archaeological remains. All features were subsequently fully excavated and recorded by hand, using the single context recording system with plans and sections being produced at a scale of 1:50 or 1:20 (sections were recorded generally at 1:10) and photographs where necessary. All works were carried out in agreement with the Project Archaeologist, the National Monuments Section of the Department of the Environment, Heritage and Local Government (formerly *Dúchas*-The Heritage Service).

It was agreed in advance that adequate funds to cover excavation, post-excavation, conservation and dating analysis would be made available by Louth County Council. Dating involved pottery and lithic analysis through typological study. The site archive, and any finds, samples et cetera were kept in safe storage by IAC Ltd during the post-excavation stage.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The following archaeological and historical background refers to the wider archaeological landscape through which the DWB passes.

The town of Dundalk lies at the north end of Dundalk Bay and is the administrative centre of County Louth, located in the north east of Leinster. The area spans two geographical areas. To the west, the rural landscape surrounding the urban district consists of undulating topography, with low drumlins rising to 30-40m from the coastal plain. As is the case with much of Louth, this covers thick strata of Ordovician and Silurian slates, with some rock outcrops (Gosling 1993, 237) notable. To the east of the urban district, the flat, low lying coastal plain is comprised of recent estuarine and alluvial clays and silts, shaped by the sea level changes following the end of the Ice Age in Ireland c.10,000 years ago.

At the time of the earliest habitation in Ireland (Early Mesolithic Period, c.7000BC), the sea submerged the area of the town to a depth of 4-5m, although it continued to retreat to its present level until the Late Neolithic/Early Bronze Age period (c.2500BC), replacing the submerged area with salt marshes and tidal flats. At various stages from the 17th century onwards, these areas were improved by reclamation projects.

The proposed route for the Dundalk Western Bypass–Northern Link is located within an area that avoids the major recorded archaeological monuments in the vicinity. This is a particularly rich archaeological landscape but the great majority of known sites lie beyond the perimeter of the original study area. It is important to note, however, that a significant number of sites in this part of County Louth survive as crop marks, where the above ground indication of the monument has been destroyed. The recognition of such monuments has often been the result of chance discovery from ploughing and construction work, or by observation from the air where the distinctive traces of the buried features can sometimes be observed. The strong tradition of arable agriculture in the locality has been largely responsible for this occurrence.

2.1 Prehistoric Period (7000BC-AD500)

The archaeological record provides evidence that the locality was occupied from the Late Mesolithic period (c.4200 BC) onwards, with the excavation of Mesolithic shell midden sites with flint material at Rockmarshall c.5km from the town of Dundalk.

Above the ground, a large, granite standing stone known locally as *Dealg Fhinn* (LH007-11806) is the only remaining visible reminder of prehistoric occupation of the area. Another standing stone, on the Bellew's Bridge Road, was removed at the beginning of the twentieth century. The pollen record for this area during the prehistoric period indicates that the indigenous forestry was not cleared and replaced by cereals until farming in Ireland was well into its second millennium (3000-2500BC).

2.1.1 The Neolithic (c.4000BC – c.2500BC)

Although we can say with confidence that a substantial Neolithic culture existed in Ireland shortly after 4000BC, which had many similar features with contemporary sites in Britain and West Europe, uncertainty still remains over how the culture arrived in Ireland and how the new economy altered the environment.

The origins of the Neolithic in Ireland are disputed. Pollen records reveal forest clearances occurring before our earliest dated Neolithic sites or monuments; however this may be a reflection that our dating methods are too crude to discriminate between an early and a late Neolithic settlement rather than an indication of the true chronology (Mitchell & Ryan 1997). A debate rages over whether the culture evident in Ireland during the Neolithic was a product of a migrating people into Ireland or an indigenous development. The introduction of certain flora and fauna, management techniques, cultural traits in architecture and domestic crafts with a striking resemblance to those evident in Britain at the time has been suggested by Mitchell & Ryan (1997) to indicate colonisation from Britain.

Arguments for the Neolithic culture as a native evolution makes the observation that the Irish Mesolithic was a period of isolation rather than contact, and that if the Megalithic tombs were constructed by a migrating population a prolonged period of consolidation would be required in advance of their construction (Mitchell & Ryan). Thus, it is possible that the Mesolithic peoples gradually adopted new customs and practices through contacts with Britain and the continent leading to the incremental growth of a distinctive economy before a consolidated Neolithic culture emerged.

The vast majority of the archaeological evidence for this period is to be found at the 4-5m (25ft) contour, which reflects the coastline during the maximum post-glacial marine transgression, and it has been suggested that this settlement location would have facilitated the exploitation of the higher ground for farming and the lower ground for summer grazing (Gosling 1993, 242). There is a concentration of Megalithic tombs in the Flurry Valley to the north-east of the sites at Littlemill 4 & 5 (with the nearest example located at Faughart Lower (LH004-062), c.6.7km to the northeast) and scattered throughout the Cooley peninsula. Archaeological discoveries elsewhere on the DWB scheme revealed Late Neolithic /Early Bronze Age habitation activity at Site 115, Newtownbalregan 5 (Bayley, D. forthcoming (c)), located c.3.2km north of Site 103 and the truncated remains of a Late Neolithic/Early Bronze Age house identified at Site 101, Littlemill 1 (Ó Donnachadha, B. forthcoming (d)), located c.300m to the south of Site 103. A number of Neolithic huts with associated pits were excavated at Site 124, Carn More 1 (Delaney, S. forthcoming (b)), located c.5.5km northeast of the site. Several pits containing Early Neolithic pottery were identified at Site 132, Faughart Lower 5 (Delaney, S. forthcoming (c)), located c.6.2 km north east of the site. A middle Neolithic to Late Neolithic/Early Bronze Age Beaker habitation was identified at Site 108, Donaghmore 1 (Ó Donnachadha, B. forthcoming (e)) which is located on a low ridge only c.1.65km north of Site 103.

The archaeological remains found at Site 103, Littlemill 4 & 5 provide considerable information regarding early prehistoric settlement in the area. The analysis of the small assemblage of Neolithic pottery from the site indicates that the possible hut structure and associated pits date to the Middle Neolithic period. Settlement in the Neolithic varied considerably. For example, a cluster of six houses were discovered at Corbally, Co. Kildare, while a number of single isolated structures were identified at Kishoge, Co. Dublin. Several structures at Thornhill, Co. Derry were enclosed by a palisade. Similarly the morphology and construction techniques were equally as diverse although large rectangular structures were the most common. These range in size with an internal area generally measuring from 20 to 50m². The largest examples are nearly twice that such as the rectangular structure at Knowth 1, County Meath, which had an internal area of 96m². The larger rectangular structures tend to have 2 or 3 internal divisions while the smaller examples have none (Armit *et al* 2003, 146).

However, during the Neolithic, Waddell (1998) points out that while it is believed that scattered self-sufficient farmsteads were typical for the majority of settlements (which may have included rectangular built houses), relatively temporary, replaceable dwellings may have been the norm for some sections of the society. This may well be illustrated by the archaeological remains indicating settlement found at Littlemill 4 & 5, which appears to be a temporary structure. He draws on Thomas's (1996) proposal that social units may have had seasonal fluidity that would have also tied into the Megalithic landscape of the Neolithic. Transhumance (the practice of movement of livestock to summer hill pastures) and the exploitation of seasonal resources, such as fishing shellfish and salt collection, is thought to explain the numerous finds of flints and pottery in sand dunes along the north-east Irish coast and often found in association with hearth remains (Waddell 1998).

2.1.2 The Bronze Age (c.2500BC – c.500BC)

Bronze Age discoveries along the DWB consist of an Early Bronze Age Beaker (2400-2200BC) habitation site at Site 112, Newtownbalregan 2 (Bayley, D. forthcoming (e)), located c.3.2km north of the site. A number of Bronze Age ring-barrows, a cist and a cairn were excavated at Site 127, Carn More 5 (Bayley, D. forthcoming (g)), located c.5.6km northeast of Site 103. A total of 3 Bronze Age burnt mounds/*fulachta fiadh* were excavated along the route of the DWB at Site 111, Newtownbalregan 1.1, Site 113, Newtownbalregan 5 and at Site 128, Faughart 1, 2 and 3. The burnt mound excavated at Site 102, Littlemill 2 dated to the medieval period (890-1250AD). A further 6 burnt mounds/*fulachta fiadh* were excavated by Archaeological Development Services Ltd (ADS Ltd.) as part of the archaeological resolution of the Dunleer/Dundalk Motorway.

2.1.3 The Iron Age (c.500BC – c.500AD)

There is a marked lack of known Iron Age (500BC-AD500) activity within the surrounding area. The ring barrow identified at Site 131, Donaghmore 7 (Ó Donnachadha, B. forthcoming (g)) is the sole example of a definitive Iron Age site identified through the DWB archaeological investigations. The site consists of a small ring barrow and a single piece of unworked flint was found in the barrow with remains of three charred wooden planks found within the barrow ditch. These were taken for specialist analysis and were submitted for Carbon 14 dating. The dates returned confirmed that the ring barrow belongs to the Iron Age period, specifically the mid-Iron Age based on Cal 120BC-60AD.

2.2 Early Medieval Period (AD500-1169)

The early medieval period is depicted in the surviving sources as entirely rural characterised by the basic territorial unit known as *túath*. Byrne (1973) estimates that there were probably at least one hundred and fifty kings in Ireland at any given time during this period, each ruling over his own *túath*. During this sometimes violent period, roughly circular defensive enclosures known as ringforts were constructed to protect farmsteads. Although most of the ringforts that have been excavated are shown to date to this period, some have earlier origins and may have been originally constructed during the Iron Age, or even earlier.

The ringfort or rath is considered to be the most common indicator of settlement during the early medieval period (c.500-1160 AD). The most recent study of the ringfort (Stout 2000) has suggested that there is a total of 45,119 potential ringforts or enclosure sites throughout Ireland. They are typically enclosed by an earthen bank and exterior ditch, and range from 25m to 50m in diameter. The smaller sized and single banked type (univallate) were more likely to be home to the lower ranks of

society while larger examples with more than one bank (bivallate/trivallate) housed the more powerful kings and lords. At Site 124, Carn More 1, (Area 1) a ringfort identified in the RMP as LH004-067 was excavated in advance of the motorway's construction, with the RMP originally listing the monument as a circular enclosure.

Souterrains are artificial underground structures, usually built of dry stone walling and comprising of passages and chambers with creeps connecting them. Souterrains are generally regarded as having had a defensive or protective function, as evidenced by the complex construction of many of the sites, with narrow winding passages, deliberate obstructions and small chambers. Raiding was endemic to early medieval society, and souterrains are thought to have served to house portable valuables and non-combatants during a raid. There is a previously recorded souterrain located 30m to the E of the CPO line at Ch17.640 (LH007-071), also in Littlemill townland.

The historical sources for the early medieval period indicate that the main population group in north Louth was the *Conaille Muirtheimne*. They controlled the areas of *Cuailgne* (Cooley) and *Mag Muirtheimne* (Plain of *Muirtheimne*) –corresponding to the area south of Dundalk, roughly equating with the modern baronies of Lower and Upper Dundalk. It has been suggested (Gosling 1993, 46) that the ancient boundaries of this kingdom may coincide with the dense concentration of souterrains in N Louth. Though nominally a branch of the *Ulaid*, who had their capital at *Eamain Mhaca* or Navan Fort, Armagh. The *Conaille Muirtheimne* appear to have been subject to the kingdom of *Brega*, which had its capital at *Cnógbha* or Knowth in Co. Meath at the time of its greatest political cohesion, during the first half of the 7th century A.D. Their earliest appearance in the annals is in 688 A.D. as allies of the Knowth branch of the *Síl nÁeda Sláine* at the battle of *Imblech Pich* (Emlagh, Co. Meath), which was a key event in the political fragmentation of the *Síl nÁeda Sláine* dynasty. They were subsumed by the *Airgialla* in the early 12th century.

The *fulacht fiadh* identified at Site 102, Littlemill 2 was Radiocarbon 14 dated to Cal. 890AD -1250AD (968 ± 85BP). Site 102, Littlemill 2 was roughly circular in shape and it is suggested that these sites which are identified as early medieval and medieval in dating, tend to be circular to oval in shape with no evidence for pit lining (O'Neill, pers.comm, 2007). The example at Littlemill 2, however was lined with wooden planks.

2.3 Medieval Period (AD1169-1700)

The motte and bailey at Castletown (LH007-11807) located c.2.8 km north of Littlemill 4 & 5, represents the initial phase of Anglo-Norman activity in the area. Although there are some suggestions that John de Courcy was responsible for this development, it is generally accepted that it represents the initial headquarters of the de Verdon family in their new territory. The Anglo-Normans were responsible for the construction of a network of towns throughout Ireland with Louth being the most urbanised county.

The land in and around Castletown and Dundalk environs was granted to the Anglo-Norman Bertram de Verdon following his arrival 1185, and corresponds to the modern barony of Upper Dundalk (Gosling, 1993, 252). The de Verdon estate passed onto the Bellews with many of the tower houses constructed at this time. The Bellews contributed two large examples in 1472 and 1479, of which only the later survives, in the grounds of St. Louis convent (LH007-11801). The earlier tower house is known to have stood at Castletown cross (LH007-11803), but no traces of the tower house survive above ground. In 1429 Henry IV introduced a £10 subsidy to

encourage the King's 'liege men' to build tower houses in the Pale, under the condition that they were built within ten years. This venture was so successful that twenty years later a limit was imposed on their construction. In Counties Louth, Kildare and Meath, the towers were mostly concentrated along the borders of the Pale (Davin 1982). The surviving tower house at Castletown (LH007-11801), most likely functioned as the centre of the Bellew manor of Dundalk during the 15th century. Garstin's map of 1655 shows it protected by a bawn wall, which also enclosed outhouses.

For information of the Anglo-Norman land ownership we are reliant on documentary sources, and in Louth this information is recorded in the 'Dowdall deeds'. The lack of documentary sources and archaeological excavations in the area has led to large gaps in the record regarding the size of the Anglo-Norman settlement and how it was laid out. By the 13th century it seems that Castletown had its own church and burgesses. Garstin's map does point out the existence of burgage plots and streets in the vicinity of Mill road and Castletown cross. A watermill, most likely attached to the manor, is known from documentary sources although its precise location is not known.

At this time the new town of Dundalk, which lies c.2km to the east of Castletown developed as the major urban centre. This was due to its market centre and port in addition to its more strategic sitting on the major routeway linking Dublin with Ulster. It is probable that another factor influencing the move of the de Verdon's was the nature of the topography of the general area. The unsatisfactory nature of the river at the Castletown location must have made it inaccessible to shipping even in the late 12th century. The new town also had the advantage of considerable natural defences. The site of the new town, which was to grow into the modern town of Dundalk, was thus better situated than Castletown from a commercial and defensive perspective. As Dundalk developed and became the focus for Anglo-Norman settlement in the area, Castletown fell into decline and Dundalk became the economic heart of the Lordship. The precise date for the foundation of the "newtown" of Dundalk is unclear. However by the late 13th century surviving property deeds make the distinction between the late 12th century settlement at Castletown and the Newtown or '*nove ville de Dundalc*'.

As a result of the low-lying nature of the surrounding landscape and the form of the gravel ridge on which the Newtown (Dundalk) was located, the town developed a markedly linear aspect, which is still apparent today.

2.4 Post Medieval (1700-1900)

Post-medieval archaeological remains identified in the study area relate to industrial structures particularly mills and kilns surrounding the Castletown and Kilcurry Rivers, with these structures usually being served by a mill race. Two mills and associated races occur near to the Castletown-Kilcurry confluence. A quarry for limestone is situated to the north of the corridor. Small scale extraction cuts are also known sunk into natural rock outcrops such as the one at Ch19,200.

Site 102 at Littlemill 2 (Ó Donnachadha, B. forthcoming (f)) contained the remains of a post-medieval structure, which cartographic evidence demonstrates supports its existence at this location since the first edition OS map dating to 1836. It is probable that this structure was a small vernacular style residence accompanied by a small farmyard as was typical of the area and indeed most of Ireland during the 19th century.

At Site 119, Balregan 3 & 4 (Delaney, S. forthcoming (d)), the subsurface remains of a north-south oriented masonry structure was recorded. The foundations measured 21m in length and 6.5m in width and consisted of two rooms. The building appears to have been of 19th century construction based on the artefactual evidence and identifiable construction methods, however, the structure is not depicted on the 1835 or the 1908-9 1:10, 560 scale Ordnance Survey editions. Anecdotal evidence from a local landowner notes that a structure formerly located at this site was demolished around the mid 20th century; it is likely the building dates from the later 19th century and fell out of use at the same time as the Scotch Green Mill.

Site 118, Balregan 5 & 6 (Delaney, S. forthcoming (e)), contained the remains of a post-medieval water mill, which even in its ruinous condition showed a complete example of this form. Millrace, millpond, main sluices, internal wheel race and a number of main rooms along with the access road and access road and yard for the mill buildings were present.

3. THE EXCAVATION

3.1 Introduction

The excavation of Site 103, Littlemill 4 & 5 was undertaken as part of the archaeological mitigation for the DWB in the townland of Littlemill.

3.2 Methodology

Topsoil stripping of the area commenced on the 2nd of December 2002 and the fieldwork in the areas below was completed on the 10th of December 2002, using a team of one Supervisor and four Assistant Archaeologists.

The topsoil was removed by a machine equipped with a flat toothless bucket under strict archaeological supervision. After initial bulk stripping the area of excavation was hand cleaned in order to identify potential archaeological remains. All features were subsequently fully excavated and recorded by hand, using the single context recording system with plans and sections being produced at a scale of 1:50 and 1:20 (sections were recorded generally at 1:10) and photographs where necessary. All works were carried out in agreement with the Project Archaeologist and the National Monuments Section of the Department of Environment, Heritage and Local Government (DoEHLG) (formerly *Dúchas*-The Heritage Service). All contexts are described in Appendix 1.

3.3 Legends and Brackets

In the following text, the authors have used three types of brackets:

- { } = These enclose Subgroup numbers.
- () = These enclose Deposit numbers.
- [] = These enclose both Cut and Masonry Structure numbers.

CONTEXT KEY;

- prof = profile
- NSEW = Compass points, Eg; 'N-S' = North-South oriented feature
- All dimensions are given in metres
- d/l/w = depth/width/length
- s/m/lg = small/medium/large
- ang/sub-ang/rou/sub-rou = refer to stones, Eg; 's sub-ang' = small sub-angular stone
- mixed = ang + sub-ang + rou + sub-rou
- Dk/Lt = dark/light
- mod = moderate/moderately
- freq/occ = frequent/occasional
- ch = charcoal
- Hb/Ht = Human bone/teeth
- Ab/At = Animal bone/teeth
- frags/fls = fragments/flecks
- vert = vertical
- constr = construction
- sk = skeleton
- t'd/unx/s'd = truncated/unexcavated/segmented
- w/- = with
- pres = preservation

PERIOD KEY:

- PH: Prehistoric
- EM: Early Medieval
- MD: Medieval
- PM: Post-medieval
- MOD: Modern

4 EXCAVATION RESULTS

STRATIGRAPHY

4.1 GROUP 1: The Natural Drift Geology

4.1.1 SUBGROUP {1000}: Natural Drift Geology

Contexts:

C	Area (E/N)	Fill of	Filled by	Interpretation	Description
2	Site	N/A	N/A	Natural	Mid yellow grey sandy clay with frequent mixed stones.

Finds:

None

Interpretation:

Natural drift geology into which features are cut.

GROUP 1 DISCUSSION: Natural Geology

The DWB in this area crosses a zone of prime agricultural land, with soils in the category of 'Wide Use Range' being very suitable for grassland and tillage enterprises. In general terms, the ground conditions comprise typically 3m to 5m of glacial till over Bedrock. The glacial nature of the sand and stone-strewn natural subsoil ensures the area is well drained. Bedrock consists of Silurian siltstones, mudstones, and sandstones, and locally Dinatian limestone.

The Littlemill sites are on an agriculturally productive area of land that undulates between c.20m OD and c.33m OD that surrounds Dundalk. Such a topographical location would be ideal for agricultural habitation at any period. Site 103, Littlemill 4 & 5 lies on a slight rise at c.28m OD.

4.2 GROUP 2: Prehistoric Activity

4.2.1 SUBGROUP {1001}: A pit, two postholes and stakeholes at north end of site

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
3	30/120	C24	N/A	Pit	Med-dark brown, friable silty clay, freq ch, mod med-lge ang+sub-ang stones
10	110/30	N/A	C11	Posthole	Circular in plan, 0.10d x 0.30dia, W side stepped, sides slope steeply, base flat
11	110/30	C10	N/A	posthole fill	Dark grey brown, compact clay, mod ch, freq grass/straw
18	20/100	N/A	C19	Posthole	Sub-circular in plan, 0.15d x 0.37l x 0.32w, sides gently sloped, base concave
19	20/100	C18	N/A	Pit/posthole fill	Black, ch-rich silty clay
20	10/110	N/A	C21, C25	Poss stakehole	Oval in plan, 0.10d x 0.24l x 0.17w, NNW-SSE in orientation
21	10/110	C20	N/A	Poss burnt stake	Charred fill of stakehole
22		N/A	C23	Posthole	Circular in plan
23		C22	N/A		Light-med brown v loose sandy silt, occ ch, occ sm ang+sub-ang stones
24	120/30	N/A	C3	Pit	Kidney-shaped in plan, gen N-S in orientation, sides fairly steep, base irregw/several sub-circular depressions of depths up to 0.16
25	10/110	C20	N/A	Poss stake packing	Brown, loose clay

Finds:

None

Interpretation:

Pit [C24], postholes [C10], [C18] and [C22] and stakehole [C20] were located at the north end of Site 103. No finds were found in these features.

4.2.2 SUBGROUP {1002}: Group of pits, postholes and stakeholes

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
4	40/110	N/A	C5	Small shallow pit	Irreg in plan, 0.07d x 0.45l x 0.28w, NE-SW in orientation E+W slopes steep, N+S ends imperceptible, base flat+ irreg
5	40/110	C4	N/A	Pit fill	Med brown, fairly soft compact soil, rare ang stones
6	120/30	N/A	C8	Stakehole	Circular in plan, 0.17d x 0.18dia, U-shaped in profile
7	120/30	N/A	C9	Stakehole	Sub-circular in plan, 0.19d x 0.20l x 0.18w, sides steeply sloped, axis of inclination ca 30, base rounded
8	120/30	C6	N/A	Poss burnt stake	Black, sticky mod compact ch-rich clay, freq ch,
9	120/30	C7	N/A	Poss burnt stake	Black, mod compact, clay, freq ch
12	50/120	N/A	C13	Posthole	Sub-triangular in plan, 0.07d x 0.27 x 0.25, sides very shallow, base irreg
13	50/120	C12	N/A	Prob burnt post	Grey brown, loose clay, freq ch, mod sm round pebbles
14	40/110	C17	N/A	Top fill of [17]	Red brown friable clay, freq ch, decayed stone
15	40/110	C17	N/A	Basal fill of [17]	
16	40/110	C17	N/A	Middle fill of [17]	Yellow brown compact clay, occ ch fl, poss redeposited natural
17	40/110	N/A	C14, C15, C16	Pit	Irreg in plan, 0.32d x 0.93l x 0.78w, E-W in orientation, N side slopes steeply, others more gradual, base concave
102	40/110	N/A	C103	Posthole	Roughly circular in plan, 0.15d x 0.37l x 0.33w, sides slope gradually, base subrect+ flat
103	40/110	C102	N/A	Posthole fill	Med brown, loose silty clay

Finds:

None

Interpretation:

Subgroup {1002} was located to the west and south of {1001}. It comprised two pits [C4] and [C17], two postholes [C12] and [C102] and four stakeholes [C6], [C7], [C8] and [C9]. No finds were retrieved from these features.

4.2.3 SUBGROUP {1003}: Group of pits and postholes

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
33	30/80	N/A	C34	Poss posthole	Circular in plan, 0.28d x 0.4dia, S side gently sloped, others steeper, base concave
34	30/80	C33	N/A	Fill of poss posthole	Brown, loose clay, freq ch, freq worked flint
37	20/60	N/A	C38	Posthole	
38	20/60	C37	N/A	Fill of posthole	Med -light brown sandy silt, occ ch, rare sm sub-ang stones
44	70/10	C53, C66	N/A	Upper fill]	Light grey brown, loose fill, ch, freq sm-med irreg stones
45	70/10	C53	N/A	Lower fill	
46	30/80	N/A	C47	Posthole	Circular in plan, 0.28m x 0.22m x 0.10m d, steep sides
47	30/80	C46	N/A	Fill of posthole	Light brown grey, loose sandy silt, occ ch, rare sm ang stones
51	10/80	N/A	C52	Poss pit	
52	10/80	C51	N/A	Fill of	Light -med brown silty soil, occ ch+burnt bone frags, occ sm stones, 2 lge rocks in centre
53	70/10	N/A	C44, C45	Posthole	
60	40/80	N/A	C63,C67,C69	Linear feature	Linear in plan, 0.23d x 2.67l x 0.91, N-S in orientation, sides vert, base flat
63	40/80	C60	N/A	Burnt Material	Black, clayey fill, v freq ch+freq burnt bone, over [69]
64	40/80	N/A	C65	Posthole	
65	40/80	C64	N/A	Poss burnt post	Light -med brown sandy silt, occ ch+ burnt bone, mod ang stones
66	70/10	N/A	C68	Posthole	
67	40/80	C60	N/A	Small lens of re-deposited natural	Re-deposited natural
68	70/10	C66	N/A	Fill of [66]	
69	40/80	C60	N/A	Fill of [60]	Brown, loose clay
80	40/80	N/A	C81	Small pit	
81	40/80	C80	N/A	Fill of pit [80]	Med-dark brown, v friable+ loose sandy silt, occ ch, rare v large ang+sub-ang stones

Finds:

C	Find no.	Material	Period	Pottery form	Artefact type	Comments
34	02E1833:34:1	Flint	Neolithic		Modified Scraper fragment	
34	02E1833:34:2	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:3	Flint	Neolithic		Flake Platform blade	
34	02E1833:34:4	Flint	Neolithic		Flake Bipolar complete	
34	02E1833:34:5	Flint	Neolithic		Angular shatter	
34	02E1833:34:6	Flint	Neolithic		Angular shatter	
34	02E1833:34:7	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:8	Flint	Neolithic		Modified Knife distal fragment	
34	02E1833:34:9	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:10	Flint	Neolithic		Modified Knife distal fragment	
34	02E1833:34:11	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:12	Flint	Neolithic		Angular shatter	

34	02E1833:34:13	Flint	Neolithic		Angular shatter	
34	02E1833:34:14	Flint	Neolithic		Angular shatter	
34	02E1833:34:15	Flint	Neolithic		Angular shatter	
34	02E1833:34:16	Flint	Neolithic		Angular shatter	
34	02E1833:34:17	Flint	Neolithic		Angular shatter	
34	02E1833:34:18	Flint	Neolithic		Angular shatter	
34	02E1833:34:19	Flint	Neolithic		Angular shatter	
34	02E1833:34:20	Flint	Neolithic		Angular shatter	
34	02E1833:34:21	Flint	Neolithic		Angular shatter	
34	02E1833:34:22	Flint	Neolithic		Angular shatter	
34	02E1833:34:23	Flint	Neolithic		Angular shatter	
34	02E1833:34:24	Flint	Neolithic		Angular shatter	
34	02E1833:34:25	Flint	Neolithic		Angular shatter	
34	02E1833:34:26	Flint	Neolithic		Angular shatter	
34	02E1833:34:27	Flint	Neolithic		Angular shatter	
34	02E1833:34:28	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:29	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:30	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:31	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:32	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:33	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:34	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:35	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:36	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:37	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:38	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:39	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:40	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:41	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:42	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:43	Flint	Neolithic		Angular shatter	
34	02E1833:34:44	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:45	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:46	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:47	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:48	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:49	Flint	Neolithic			
34	02E1833:34:50	Flint	Neolithic			
34	02E1833:34:51	Flint	Neolithic			
34	02E1833:34:52	Flint	Neolithic			
34	02E1833:34:53	Flint	Neolithic			
34	02E1833:34:54	Flint	Neolithic			
34	02E1833:34:55	Flint	Neolithic			
34	02E1833:34:56	Flint	Neolithic			
34	02E1833:34:57	Flint	Neolithic			
34	02E1833:34:58	Flint	Neolithic			
34	02E1833:34:59	Flint	Neolithic			
34	02E1833:34:60	Flint	Neolithic			
34	02E1833:34:61	Flint	Neolithic			
34	02E1833:34:62	Flint	Neolithic			
52	02E1833:52:1	Flint	Neolithic		Fragment of scraper	

Interpretation:

Subgroup {1003} was located south of {1001} and central to the excavated area. There were 2 pits [C51] and [C80] in this area with 6 postholes. Postholes [C53] and [C64] contained the remains of possible burnt posts.

Posthole [C33] was located on the highest point of the site and contained a charcoal-rich fill (C34). A total of 62 pieces of flint were found in this pit, the majority of which were in a burnt condition. The majority of the flint was worked, including scrapers and tiny sherds of debitage. According to Nelis (Appendix 2.1), a small number of flake debitage from (C34) indicate that both bipolar and platform reduction techniques were utilised. Bipolar and platform techniques are commonly found throughout the Neolithic and Bronze Age periods in Ireland, particularly where raw material sources are limited (Nelis 2003), and it is common to find both techniques side-by-side in a given assemblage. A modified knife fragment 02E1833:34:8 and fragment of scraper 02E1833:52:1 were identified in the flint assemblage (Figure 6).

A quantity of animal bone was retrieved from fills (C 44), (C52), (C63) and (C64) however it was too fragmented to identify (McCarthy, Appendix 2.3).

4.2.4 SUBGROUP {1004}: Pits

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
30	30/60	N/A	C40, C39, C32, C31	Shallow stone-capped pit	Sub-rect in plan 0.22d x 1.90l x 1.4w, N-S in orientation, corners rounded, sides concave, base irreg+stoney,
31	30/60	C30	N/A	Capstones	Stone layer 0.80h x 1.90l x 1.40w, flat ang+sub-ang stones ranging from 0.18-0.40 dia, T'd by machine during stripping
32	30/60	C30	N/A	Sealing fill of pit	Dark grey brown, loose silt, mod ch fl, occ burnt bone, T'd by machine during stripping
35	70/30	N/A	C36, C50	Stone layered pit	Oval in plan, 0.27d x 2.20l x 2.10w, E-W in orientation, sides concave, base flat
36	70/30	C35, C104	N/A	Fill	Dark grey brown, loose silty clay, ch, burnt bone, lge flat stones
39	30/60	C30	N/A	Fill of pit	Dark black grey, loose silt, freq ch fl+frags, freq burnt bone, mod med sub-ang pebbles, T'd by machine during stripping
40	30/60	C30	N/A	Basal fill	Med brown grey, loose silt, freq ch fl+frags, sm-med ang+sub-ang pebbles
41	20/70	N/A	C42, C43, C54, C56, C58	Shallow pit	Circular in plan, 0.14d x 0.65dia, sides+base concave,
42	20/70	C41	N/A	Upper fill	Grey silty fill, ch fl, Burnt bone occ round+flat stones
43	20/70	C41	N/A	Lower fill	Brown silty fill, ch, burnt bone,
50	70/30	C35	N/A	Re-deposited natural, overlying [C36]	Light brown sandy silt, ang stones
54	20/70	N/A	C55	Stakehole, in base of pit [C41]	Circular in plan, 0.15d x 0.10dia, steep sides, base concave
55	20/70	C54	N/A	Fill	Brown silty soil, occ ch fl, occ sm stones, 3 larger flat stones lining edges of cut
56	20/70	N/A	C57	Stakehole, in base of pit [C41]	Circular in plan, 0.12d x 0.10dia, sides mod steep, base concave
57	20/70	C56	N/A	Fill	Brown silt
58	20/70	N/A	C59	Stakehole, in base of pit [C41]	Circular in plan, 0.12d x 0.10dia, sides mod steep, base concave
59	20/70	C58	N/A	Fill	Brown silt
104	70/30	N/A	C36	Posthole, in base of pit [C35]	Circular in plan, 0.18d x 0.22dia, sides slope steeply, base concave

Finds:

C	Find no.	Material	Period	Pottery form	Artefact type	Comments
36	02E1833:36:1	Flint				
36	02E1833:36:2	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:3	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:4	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:5	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:6	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:7	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:8	Pottery	Middle Neolithic	Bodysherd	Broad Rimmed bowl	
36	02E1833:36:9	Pottery	Middle Neolithic	Fragment	Broad Rimmed bowl	
36	02E1833:36:10	Pottery	Middle Neolithic	Fragment	Broad Rimmed bowl	
36	02E1833:36:11	Pottery	Middle Neolithic	Fragment	Broad Rimmed bowl	
36	02E1833:36:12	Stone				
36	02E1833:36:13	Stone				
39	02E1833:39:1	Flint				
40	02E1833:40:1	Flint			Possible Scraper	

Interpretation:

Three pits in subgroup {1004} were identified in the south of the site. The shallow pit [C30] contained four fills. The upper charcoal-flecked fill (C32) was overlain by a stone layer (C31). The lower fill (C39) was charcoal-flecked and contained burnt stone on the east side of the pit (Plate 3). A possible thumbnail scraper was recovered from (C39). A large round pit [C35] was filled with burnt material, which contained burnt bone. The base of this pit was truncated by a posthole [C104] and it was filled with the same fill (C36) (Plate 2). Several sherds of prehistoric pottery identified as sherds of Middle Neolithic Impressed Ware were recovered from this fill (Appendix 2.2).

Pit [C41] had been truncated and as a result was quite shallow. Three stakeholes [C54], [C56], and [C58] were cut into the base of [C41]. This feature could possibly be the remains of an oven.

A quantity of animal bone was retrieved from fills (C32), (C36), (C39) and (C40) fragments of which were identified as cow teeth and jaw bone (McCarthy, Appendix 2.3).

4.2.4 SUBGROUP {1005}: Postholes and stakeholes in south section of site

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
70	20/60	N/A	C71	Stakehole	Circular in plan, 0.15d x 0.20dia, tapered rounded point
71	20/60	C70	N/A	Stakehole fill	Light brown silty soil
72	20/60	N/A	C73	Stakehole	Circular in plan, 0.18d x 0.18dia, base tapered +rounded
73	20/60	C72	N/A	Stakehole fill	Light brown silty soil
74	40/40	N/A	C75	Posthole	Circular in plan, 0.08d x 0.36 dia, sides mod sloped, flat bottom
75	40/40	74	N/A	Posthole fill	Charcoal
97	20/60	N/A	98	Posthole	Fully excavated during testing
98	20/60	97	N/A	Posthole fill	Fully excavated during testing
99	30/60	N/A		Posthole	Fully excavated during testing

100	30/60	N/A		Posthole	Fully excavated during testing
101	20/60	N/A		Posthole	

Interpretation:

Subgroup {1005} comprised stakeholes and postholes located in and about the pits of Subgroup {1004}. No definite structure could be identified from the positioning of these features as were not sufficient identified features to create a building. However postholes [C101], [C97], [C99] and [C100] may represent the partial remains of a structure, possibly around pit [C30].

The deficiency in feature numbers may be due to truncation by modern agricultural practises. The loss of features is potentially evidenced by the location of posthole [C74] in seeming isolation, c.16.5m southwest of the main body of the site.

GROUP 2 DISCUSSION: Prehistoric Activity

Group	Subgroup	Subgroup type	Period by finds/stratigraphy	Period by interpretation	Group Interpretation
2	1001	Pits, 2 postholes and stakeholes	Prehistoric	Prehistoric	Prehistoric
2	1002	Pits, postholes and stakeholes	Prehistoric	Prehistoric	Prehistoric
2	1003	Pits and postholes	Neolithic	Neolithic	Neolithic
2	1004	Pits	Middle Neolithic	Middle Neolithic	Middle Neolithic
2	1005	Postholes and stakeholes	Prehistoric	Prehistoric	Prehistoric

A small group of cut features comprising three pits, five postholes and three stakeholes were excavated at the northern limit of the site. Several of the features contained burnt fills, possibly the remains of burnt posts or stakes.

At the centre of the site, southeast of the above, two pits and six postholes were excavated. Two postholes contained the remains of possible burnt posts, while another, located on the highest point of the site, contained a charcoal-rich fill and a large quantity of burnt flint.

Approximately 10m southwest of the above lay three pits and a small scatter of postholes and stakeholes. Pit [C30] appears to have had a stone capping, while Pit [C35] was filled with burnt material and produced several sherds of a middle Neolithic Impressed Ware vessel (Appendix 2.2). Three stakeholes were found cut into the base of Pit [C41]. All three pits contained burnt bone. The few postholes and stakeholes around these pits did not have any definite structural arrangement, although additional postholes may have been truncated.

4.3 GROUP 3: Topsoil

4.3.1 Subgroup {1003}: Topsoil

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
2	Site	n/a	n/a	Topsoil	

Finds:

None

Interpretation:

Topsoil sealed the entire site and all the archaeological features.

GROUP 3 DISCUSSION: Topsoil

Group	Subgroup	Subgroup type	Period by finds/ stratigraphy	Period by interpretation	Group Interpretation
3	1003	Topsoil			

Summary:

Topsoil sealed the entire site and all the archaeological features.

4.4 SYNTHESIS

Open Area 1: Natural drift geology

The DWB in this area crosses a zone of prime agricultural land, with soils in the category of 'Wide Use Range' being very suitable for grassland and tillage enterprises. In general terms, the ground conditions comprise typically 3m to 5m of glacial till over Bedrock. The glacial nature of the sand and stone-strewn natural subsoil ensures the area is well drained. Bedrock consists of Silurian siltstones, mudstones, and sandstones, and locally Dinanian limestone.

The Littlemill sites are on an agriculturally productive area of land that undulates between c.20m OD and c.33m OD that surrounds Dundalk. Such a topographical location would be ideal for agricultural habitation at any period. Site 103, Littlemill 4 & 5 lies on a slight rise at c.28m OD.

Open Area 2: Neolithic Activity

A small group of cut features comprising three pits, five postholes and three stakeholes were excavated at the northern limit of the site. Several of the features contained burnt fills, possibly the remains of burnt posts or stakes.

At the centre of the site, southeast of the above, two pits and six postholes were excavated. Two postholes contained the remains of possible burnt posts, while another, located on the highest point of the site, contained a charcoal-rich fill and a large quantity of burnt flint.

Approximately 10m southwest of the above lay three pits and a small scatter of postholes and stakeholes. Pit [C30] appears to have had a stone capping, while Pit [C35] was filled with burnt material and produced several sherds of a middle Neolithic Impressed Ware vessel (Appendix 2.2). Three stakeholes were found cut into the base of Pit [C41]. All three pits contained burnt bone. The few postholes and stakeholes around these pits did not have any definite structural arrangement, although additional postholes may have been truncated.

Open Area 3: No discernable activity

There is no evidence for archaeological activity from the Neolithic to the post-medieval period.

Open Area 4: Post-medieval and modern activity

It again is thought that the site has been seriously affected by modern agricultural practices and that much of the archaeological evidence has been removed.

5 DISCUSSION

5.1 Realisation of the original research aims

This section examines the extent to which preliminary assessment of the results of the excavations reveals how the original research aims have been or can be answered.

Original Research Questions (**ORQ**) were prepared after the results of the test-trenching exercise were known and before the rescue excavations began. The following are the Original Research Questions relating to the excavation at Site 103, Littlemills 4 & 5 and Responses (**R**) based on preliminary assessment of the site data.

Site 103, Littlemill 4 & 5

ORQ 1: *Are there burials on the site? If so what are the numbers, burial rites, dates, locations and survival? With what type of monument/grave are burials associated?*

R: No burials were found.

ORQ 2: *Are there burials that appear to be associated or relate to monuments/other features?*

R: N/A

ORQ 3: *What are the different methods of burial? Are there accompanying grave goods? If so, what are they?*

R: N/A

ORQ 4: *What does the burial population consist of?*

R: N/A

ORQ 5: *Is there any evidence for buildings or other structures? Are there areas used for different functions at different periods?*

R: The site appears to be a very truncated, possibly domestic, site that lay between Ch17.810 – 17.880). No secure evidence for buildings or structures was found (possibly due to plough truncation). The finds indicate a Middle Neolithic date.

The main features consisted of 18 pits. Of these the most interesting were two large sub-circular pits which had been deliberately back-filled with small sub-angular stones. At the base of one was found some small fragments of burnt animal bones, including teeth, while at the base of the other were twelve sherds of Middle Neolithic Impressed Ware (Appendix 2.2). A small number of flake debitage (from [C34],[C63],[C69] and [C40]) indicate that both bipolar and platform reduction techniques were utilised. Bipolar and platform techniques are commonly found throughout the Neolithic and Bronze Age periods in Ireland (Appendix 2.1).

ORQ 6: *What is the nature of the finds and environmental evidence? Are there finds associated with burials? Is there any indication of organic material in metal corrosion products?*

R: See ORQ 5 above. The only finds consisted of small fragments of Middle Neolithic Impressed Ware and flint tools.

5.2 Conclusions

Discussion of Neolithic Activity at Site 1.3, Littlemill 4 & 5 (by Dr. Jessica Smyth M.A, Phd.)

Littlemill 4/5 (Site 103) is located in Littlemill townland, c.2km southwest of Dundalk, Co. Louth. The total area excavated measured 100m x 50m (5000m²). The site appears to have suffered serious horizontal truncation by modern agricultural practices and many of the shallower features on this site may have been lost.

Three sites were excavated in Littlemill townland, all occurring within 450m of one another. Littlemill 2, 400m to the southeast, yielded a date of AD890-1250. A further 50m to the southeast, Littlemill 1 produced an Early Neolithic building and pits containing Middle Neolithic pottery. All of the sites were located on very gentle slopes within an undulating terrain between 20m and 33m OD. Littlemill 4/5 lay on a slight rise at c.28m OD.

A small group of cut features comprising three pits, five postholes and three stakeholes were excavated at the northern limit of the site. Several of the features contained burnt fills, possibly the remains of burnt posts or stakes.

At the centre of the site, southeast of the above, two pits and six postholes were excavated. Two postholes contained the remains of possible burnt posts, while another, located on the highest point of the site, contained a charcoal-rich fill and a large quantity of burnt flint.

Approximately 10m southwest of the above lay three pits and a small scatter of postholes and stakeholes. Pit [C30] appears to have had a stone capping, while Pit [C35] was filled with burnt material and produced several sherds of a middle Neolithic Impressed Ware vessel (Appendix 2.2). Three stakeholes were found cut into the base of Pit [C41]. All three pits contained burnt bone. The few postholes and stakeholes around these pits did not have any definite structural arrangement, although additional postholes may have been truncated.

The scatters of pits, postholes and stakeholes excavated at Littlemill 4/5 could be interpreted as the remains of a Middle Neolithic occupation site. The nature of the (surviving) structural evidence and the relatively small amount of lithics and pottery recovered suggest that the period of occupation was short-lived or periodic in nature. While the only date for the site comes from the pottery identified in the fill of one pit, the broad similarity across the groups of pits, postholes and stakeholes suggests that all of the features were roughly contemporary. The features also appear to be contemporary with pits dug at Littlemill 1, 450m to the southeast, which contained sherds of Middle Neolithic pottery (Grogan and Roche 2006b). The closest parallel to Littlemill 4/5 is the site excavated at Townleyhall 2, Co. Louth (Eogan 1963), approximately 35km to the south of Littlemill 4/5. Here, underneath a passage tomb, lay an occupation layer measuring approximately 16m x 11m and containing 142 stakeholes.

Nine hearths were also excavated, some showing traces of intense, prolonged burning. A relatively large amount of carbonised cereal grains, charred hazelnut fragments and lithics (including 46 hollow scrapers) were recovered, as well as a number of sherds of Middle Neolithic Impressed Ware (Grogan and Roche 2006b). The numbers of stakeholes excavated at Townleyhall 2 contrast sharply with the structural remains uncovered at the Littlemill site. However, it is possible that many of

these features have been truncated (see above). At the southern end of the site, Posthole [C74] lay some distance - c.16.5m – southeast of the main concentration of features and suggests that postholes/ stakeholes may have originally been more numerous in this area.

We know very little about the nature of Middle Neolithic settlement in Ireland. Relative to the number of Early Neolithic houses that have been uncovered, the number of identifiable Middle Neolithic structures is quite small. Indeed, a significant number of sites dated by pottery or charcoal samples to the mid-late fourth millennium BC often lack structural remains. On the Middle Neolithic sites that do yield structural evidence, there is often a lack of clearly defined building forms. At Townleyhall 1 & Townleyhall 2, Co. Louth, for example, the clusters of stakeholes uncovered lacked a coherent pattern and could only be interpreted as the remains of a series of temporary, perhaps light, structures erected on the same spot over a period of time (Liversage 1960; Eogan 1963; although see Leon 2005: 17). At Knowth, Co. Meath, a dark habitation layer overlay the Early Neolithic remains but was partially covered by the main passage tomb. This layer contained several concentrations of stakeholes, some of which formed arcs that were interpreted as the partial remains of circular houses. At least ten Middle Neolithic dwellings were identified in this way.

Many more stakeholes from across the area could not be tied into any logical plan but were thought to represent successive phases of house-building (Eogan & Roche 1997: 65). Such scatters of stakeholes, hearths and occupation debris do not give the impression of substantial and permanent dwellings at the centre of Neolithic social life. This observation is not new - Grogan has noted that the houses of the Middle and Later Neolithic “appear to be relatively simple domestic dwellings, lacking the status or symbolism of the large rectangular sites”. This change, he suggests, “reflects a primarily a change in the range of house-centred activities, as well as a possible reduction in the social role and status of the buildings themselves” (Grogan 2002: 524).

Anthropological research has demonstrated that even highly mobile groups, who establish a new settlement every few years, can ascribe a wealth of meaning to the house (e.g. Rivière 1995; Waterson 1995). Moreover, it has been shown that groups who place the house at the very heart of social organisation can still build very unexceptional structures, impermanent and mobile and lacking any elaborate symbolism (Carsten 1995: 107). However, the contrast between the evidence from the Early Neolithic to the Middle Neolithic evidence does suggest that a great deal of meaning and symbolism had shifted from the houses to other realms such as the human body or the sacred space enclosed within the kerbs of the great passage tombs. It is only with the appearance of Grooved Ware in Ireland, in the Late Neolithic, that buildings begin once more to display some formal elements, such as an emphasis on the hearth and on the entrance.

The evidence from Littlemill 4/5 also hints at some level of formalised or ritualised behaviour, in particular the large quantity (48 pieces) of intensely burnt flint debitage and shatter recovered from Posthole [C33]. This posthole was located at the highest point of the site. This may in itself be significant, the original post perhaps serving as a marker of some kind. Recent research (Smyth 2007b) has indicated that a feature of many Middle Neolithic pits is the deposition of ‘caches’ of hollow scrapers and blades, as uncovered at Moynagh Lough, Knowth and Newgrange, Co. Meath (Bradley 1999; Eogan 1984, 24-6; Hartnett 1954, 181-2). The amount of worked flint and finished tools within these pits exceeds anything recovered from Early Neolithic

pit contexts and may indicate a growing complexity both in the material included in pits and how it is arranged.

Another feature of note is the relatively high level of burning on site. Several of the postholes and stakeholes contain black, charcoal-rich fills or the burnt remains of timbers. Many of the pits contained similar fills and nearly all produced burnt bone. Burnt pits and/or pit fills are commonly interpreted as the remains of hearths or cooking pits and it is possible that the relatively ephemeral features from Littlemill 4/5 represent hearths and hearth furniture in-filled with cooking debris from a short-term occupation. However, posts and stakes were also subjected to burning at Littlemill 4/5, and this suggests that the use of fire was not limited to cooking or heating but may also relate to the deliberate decommissioning of structures through fire, a practice well attested in the Early Neolithic and Late Neolithic (e.g. Smyth 2007a; Hartwell 1998; Roche and Eogan 2001).

Domestic or ritual interpretations of activity at Littlemill 4/5 are not mutually exclusive. The features at Littlemill 4/5 may represent a Middle Neolithic short-stay site whose period of occupation was formally marked through the burning of structures and deposition of material such as pottery and burnt flint in cut features. Another alternative – and this interpretation rests on whether the burnt bone from the pits at Littlemill 4/5 is human or animal – is that the site functioned as a place of burial and deposition for Middle Neolithic groups in the area. The occurrence of bone in pits appears much more common in the Middle Neolithic than in the Early Neolithic (Smyth 2007b) and most of it appears to be human – e.g. Townleyhall 1, Co. Louth (Liversage 1960); Martinstown, Co. Meath (Hartnett 1951); Clane, Co. Kildare (Ryan 1979/80) and possibly Balgatheran 1, Co. Louth (Chapple 2002; Robert Chapple, pers. comm.).

6 BIBLIOGRAPHY

General Sources

Armit, I et al (eds) 2003 *Neolithic Settlement in Ireland and Western Britain*. Oxford University Press

Carlin, N 2005 *An Exploration of Approaches to the finds from foundations of Early Neolithic Rectilinear Structures*. (Unpublished academic essays from Queens University)

Cooney, G and Grogan, E 1994 *Irish Prehistory. A Social Perspective*. Dublin

Buckley, V.M and Sweetman, P.D 1991, *Archaeological Survey of County Louth*

Byrne, F. J 1973 *Irish Kings and High Kings* London

Office of Public Works, 1996, *Recorded Monuments Protected under Section 12 of the National Monuments (Amendment) Act, 1994: County Louth*

Gosling, P. 1993. *From Dún Delca to Dundalk: the Topography and Archaeology of a Medieval Frontier Town*, Dundalk: Co Louth Archaeological and Historical Society.

Mitchell, G.F and Ryan, M 1997 *Reading the Irish Landscape*. Dublin

Pollard, J. 1999. 'These places have their moments': thoughts on settlement practice in the British Neolithic. In J. Bruck & M. Goodman (eds), *Making Places in the Prehistoric World*: 76-93. London: UCL Press.

Pollard, J. 2001. The aesthetics of depositional practice. *World Archaeology* 33(2): 315-33.

Smyth, J. in prep. Our hidden Neolithic? Following the paper trail. Proceedings of *Living Landscapes* conference, Belfast 2007, British Archaeological Reports.

Stout, M 2000 *The Irish Ringfort* Four Courts Press: Dublin

Cartographic Sources

First Edition Ordnance Survey Map, 1835, Sheet 7, County Louth, scale 1:10,560.

Office of Public Works, 1996, *Recorded Monuments Protected under Section 12 of the National Monuments (Amendment) Act, 1994: County Louth*

Ordnance Survey First Edition (surveyed) 1835, County Louth, Sheet 007

Ordnance Survey Revised 1938-9, County Louth, Sheet 007

Petty, W., 1656, *The Down Survey of the Barony of Lower Dundalk*

Petty, W., 1656, *The Down Survey of the Barony of Upper Dundalk*

Second Edition Ordnance Survey Map 1863, Sheet 7, County Louth, scale 1:10,560.

Taylor, A., & Skinner, J., 1783, Map of County Louth.

Third Edition Ordnance Survey Map 1938, Sheet 7, County Louth, scale 1:2,500

Other Archaeological Work on the Dundalk Western Bypass

Bayley, D., forthcoming (a), Site 120, Fort Hill (Licence Ref.: 02E1326), *Final Report*. Dublin: IAC Ltd.

Bayley, D., forthcoming (b), Site 111, Newtownbalregan 1.1 (Licence Ref.: 02E1835), *Final Report*. Dublin: IAC Ltd.

Bayley, D., forthcoming (c), Site 113, Newtownbalregan 5 (Licence Ref.: 03E0114), *Final Report*. Dublin: IAC Ltd.

Bayley, D., forthcoming (d), Site 114, Newtownbalregan 6 (Licence Ref.: 03E0115), *Final Report*. Dublin: IAC Ltd.

Bayley, D., forthcoming (e), Site, Newtownbalregan 2 (Licence Ref.: 03E0113), *Final Report*. Dublin: IAC Ltd.

Bayley, D., forthcoming (f), Site, Newtownbalregan, 1.2 (Licence Ref.: 02E1836), *Final Report*. Dublin: IAC Ltd.

Bayley, D., forthcoming (g), Site, Carn More 5 (Licence Ref.: 03E0873), *Final Report*. Dublin: IAC Ltd.

Delaney, S., forthcoming (a), Site 132, Faughart 1, 2, 3 (Licence Ref.: 03E1394), *Final Report*. Dublin: IAC Ltd.

Delaney, S., forthcoming (b), Site 124, Carn More 1 (Licence Ref.: 03E1867), *Final Report*. Dublin: IAC Ltd.

Delaney, S., forthcoming (c), Site 132, Faughart Lower 5 (Licence Ref.: 03E01575), *Final Report*. Dublin: IAC Ltd.

Delaney, S., forthcoming (d), Site 119, Balregan 3 & 4 (Licence Ref.: 03E0158), *Final Report*. Dublin: IAC Ltd.

Delaney, S., forthcoming (e), Site 118, Balregan 5 & 6 (Licence Ref.: 03E0159), *Final Report*. Dublin: IAC Ltd.

Ó Donnachadha, forthcoming (a), 2002, Site 109, Donaghmore 6, (Licence Ref.: 02E1335), *Final Report*. Dublin: IAC Ltd.

Ó Donnachadha, B., forthcoming (b), Site 110, Donaghmore 5, (Licence Ref.: 02E1333), *Final Report*. Dublin: IAC Ltd.

Ó Donnachadha, B., forthcoming (c), Site 103, Littlemill 4/5, (Licence Ref.: 02E1833), *Final Report*. Dublin: IAC Ltd.

Ó Donnachadha, B., forthcoming (d), Site 101, Littlemill 1, (Licence Ref.: 02E1752), *Final Report*. Dublin: IAC Ltd.

Ó Donnachadha, B., forthcoming (e), Site 108, Donaghmore 1, (Licence Ref.: 02E1330), Final Report. Dublin: IAC Ltd.

Ó Donnachadha, B., forthcoming (f), Site 102, Littlemill 2, (Licence Ref.: 02E01753), Final Report. Dublin: IAC Ltd.

Ó Donnachadha, B., forthcoming (g), Site, Donaghmore 7, (Licence Ref.: 02E1583), Final Report. Dublin: IAC Ltd.

GSB Prospection. 2002. 'Geophysical Survey Report 2002/10, Dundalk Western Bypass'.

Louth County Council. 2001. 'Dundalk Western Bypass PPP Scheme: Tender for Archaeological Services'.

Louth County Council. 2000. 'Dundalk Western Bypass Northern Link: Environmental Impact Statement'.

Louth County Council. 1993. 'Dunleer – Dundalk Motorway Project Environmental Impact Study'. Archaeology prepared by Valerie J Keeley.

Valerie J Keeley Ltd. 2000. 'Archaeological Assessment, Proposed Route, Western Bypass-Northern Link, Dundalk, Co. Louth'.

Valerie J Keeley Ltd. 1999. 'Archaeological Aerial Survey, Western Bypass, Northern Link, Dundalk, Co. Louth'.



Site 103
Littlemill 4&5

DUNDALK
WESTERN BYPASS

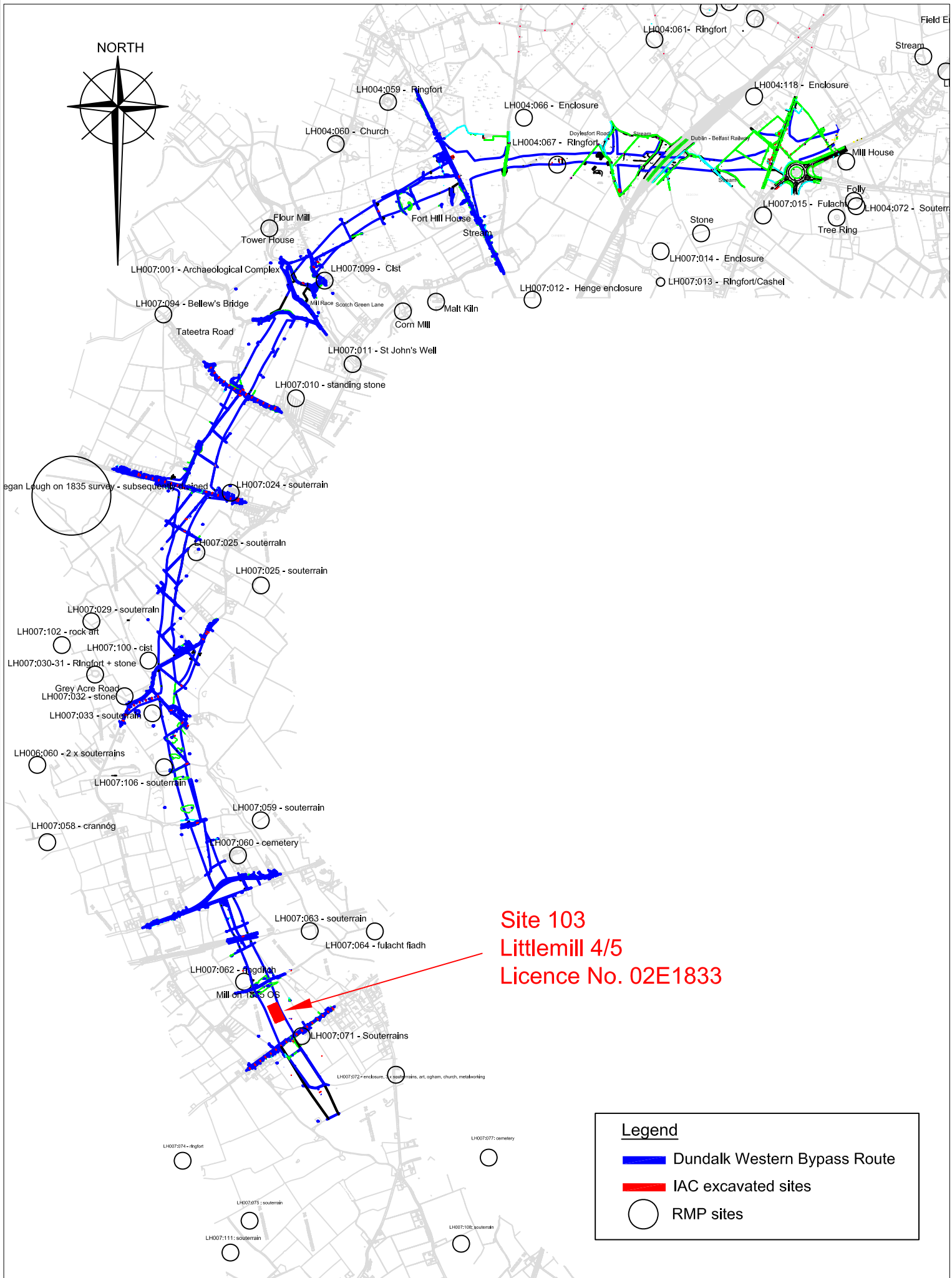
DUNLEER DUNDALK
MOTORWAY



Irish
Archaeological
Consultancy Ltd.

Title: Site 103, Littlemill 4&5 Site location
Project: M1 Dundalk Western Bypass
Client: Louth County Council

Scale: N.T.S.
Date: 16/11/07
Produced by: P Higgins
Job No: J2041
Figure No: 1



Site 103
Littlemill 4/5
Licence No. 02E1833

Legend

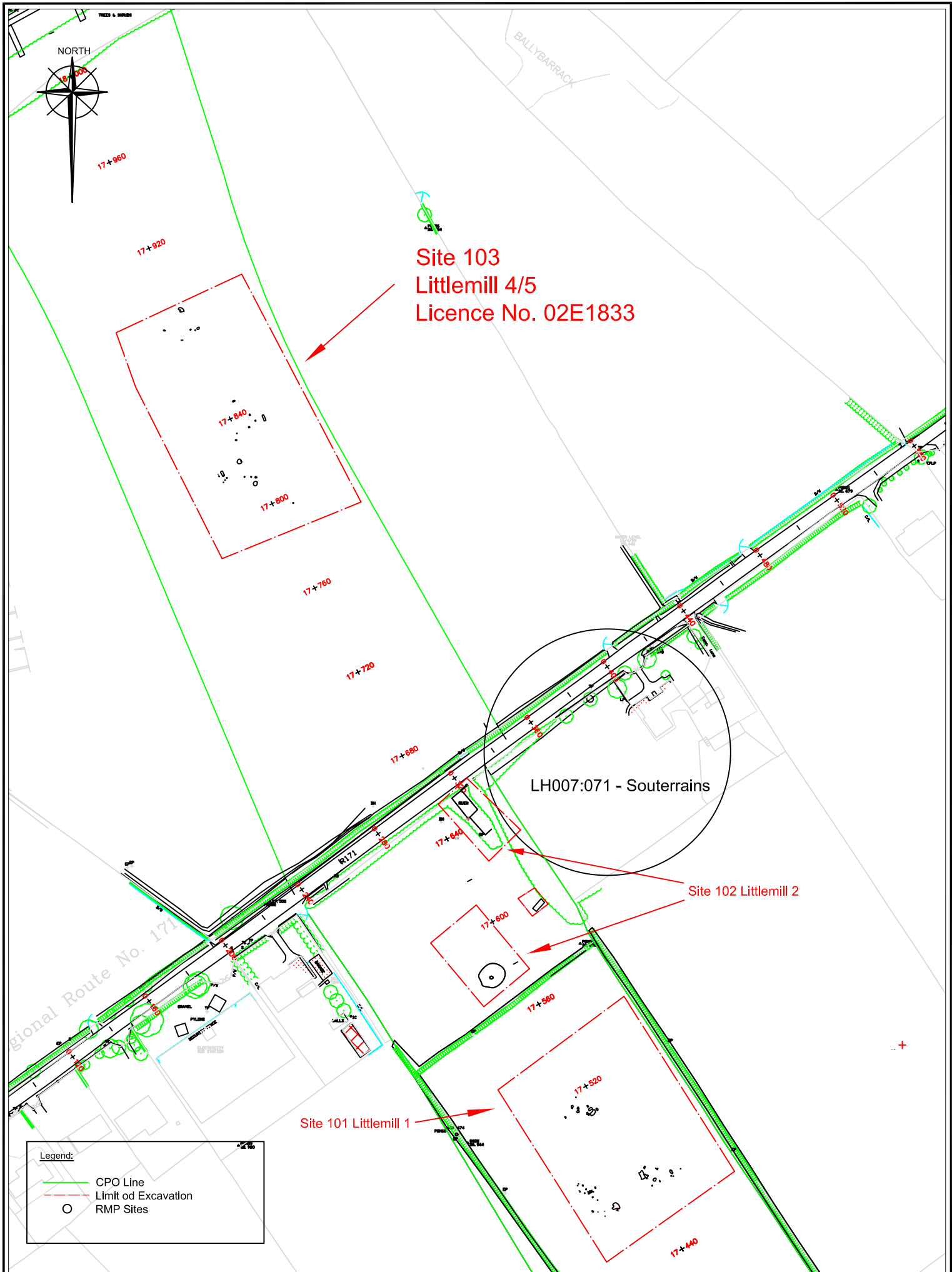
- Dundalk Western Bypass Route
- IAC excavated sites
- RMP sites



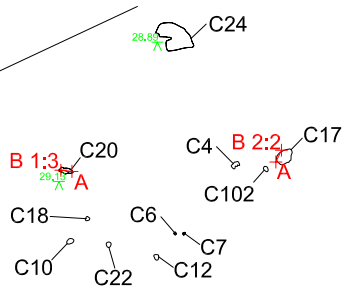
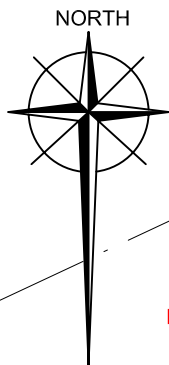
Irish
Archaeological
Consultancy Ltd.

Title: Extract from RMP map showing location of Site 103,
Littlemill 4 & 5
Project: M1 Dundalk Western Bypass
Client: Louth County Council

Scale: 1:30000
Date: 16/11/07
Produced by: P Higgins
Job No: J2041
Figure No: 2

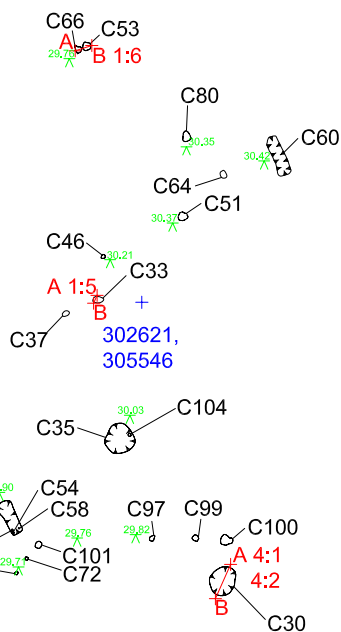


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+
302601,
305566

+
302601,
305546



+



Legend	
C##	Cut number
- - -	Section line
—	Limit of excavation
∧	OD Levels



Irish
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Consultancy Ltd.

Title: Post Excavation Plan of Site 103, Littlemill 4&5

Project: M1 Dundalk Western Bypass

Client: Louth County Council

Scale: 1:500

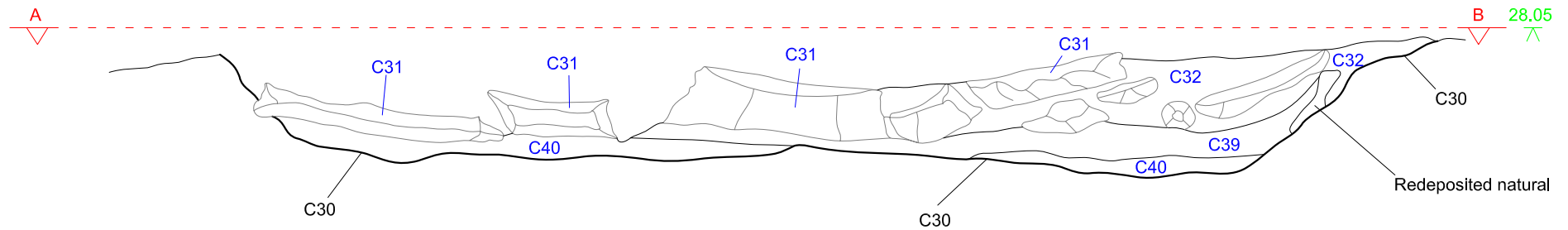
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Produced by: P Higgins

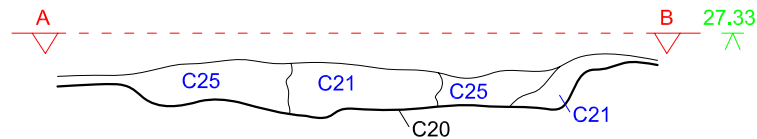
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Figure No: 4

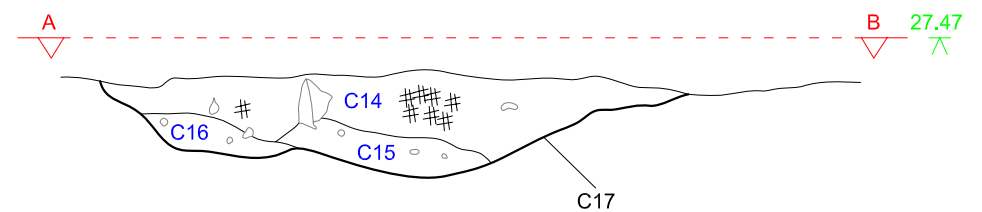
Littlemill 4
North-West Facing Section #4:1 #4:2 of C30



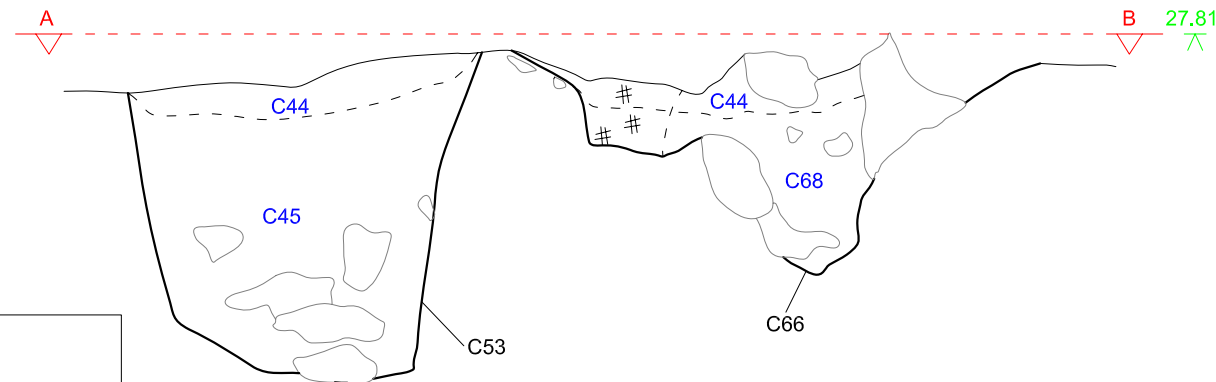
Littlemill 5
North East Facing Section #1:3 of C20



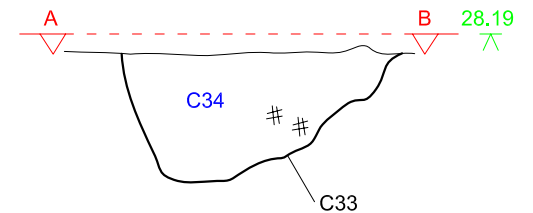
Littlemill 5
North Facing Section #2:2 of C17



Littlemill 4
North Facing Section #1:6 of C53 and C66



Littlemill 4&5
West Facing Section #1:5 of C33



Legend

- C## Fill numbers
- C## Cut number
- Stone
- OD Level
- # Charcoal

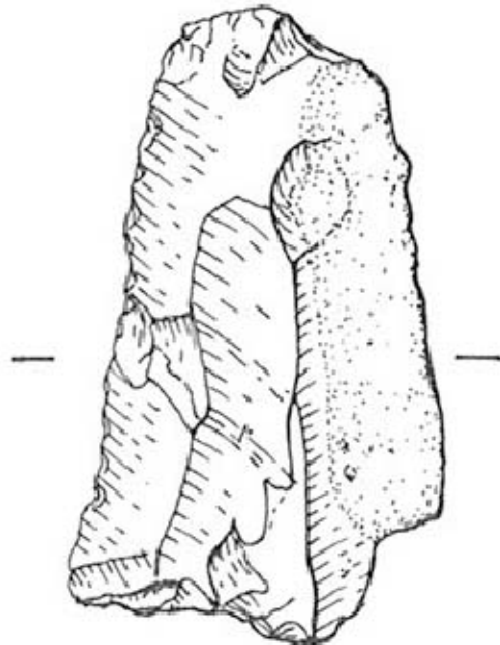


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Archaeological
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Title: Site 104 Littlemill 4&5.
Sections of Group 2 (Pits and postholes)
Project: M1 Dundalk Western Bypass
Client: Louth County Council

Scale: 1:10
Date: 16/11/07
Produced by: P Higgins
Job No: J2041
Figure No: 5

02E1833:34:8

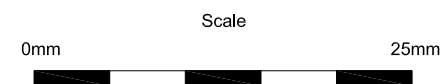


Knife

02E1833:52:1



Fragment of
scraper



**Irish
Archaeological
Consultancy Ltd.**

Title: Site 104 Littlemill 4&5.
Illustration of 02E1833:34:8 and 02E1833:52:1

Project: M1 Dundalk Western Bypass

Client: Louth County Council

Scale: 2:1 @A4

Date: 28/07/09

Produced by: G Kearney

Job No: J2041

Figure No: 6



Plate 1: General overhead view of Site 103, Littlemill 4 & 5



Plate 2: Pit [C35], north facing section



Plate 3: Pit [C30], east facing section

APPENDIX 1: CATALOGUE OF PRIMARY DATA

Context Index

C	Area E/N	Fill of	Filled by	Interpretation	Description
1	Site	N/A	N/A	Topsoil	
2	Site	N/A	N/A	Natural	
3	30/120	C24	N/A	Poss pit Burial	Med-dark brown, friable silty clay, freq ch, mod med-lge ang+sub-ang stones
4	40/110	N/A	C5	Small shallow pit	Irreg in plan, 0.07d x 0.45l x 0.28w, NE-SW in orientation E+W slopes steep, N+S ends imperceptible, base flat+irreg
5	40/110	C4	N/A	Pit fill	Med brown, fairly soft compact soil, rare ang stones
6	120/30	N/A	C8	Stakehole	Circular in plan, 0.17d x 0.18dia, U-shaped in profile
7	120/30	N/A	C9	Stakehole	Sub-circular in plan, 0.19d x 0.20l x 0.18w, sides steeply sloped, axis of inclination ca 30, base rounded
8	120/30	C6	N/A	Poss burnt stake	Black, sticky mod compact ch-rich clay, freq ch,
9	120/30	C7	N/A	Poss burnt stake	Black, mod compact, clay, freq ch
10	110/30	N/A	C11	Posthole	Circular in plan, 0.10d x 0.30dia, W side stepped, sides slope steeply, base flat
11	110/30	C10	N/A	Posthole fill	Dark grey brown, compact clay, mod ch, freq grass/straw
12	50/120	N/A	C13	Posthole	Sub-triangular in plan, 0.07d x 0.27 x 0.25, sides very shallow, base irreg
13	50/120	C12	N/A	Prob burnt post	Grey brown, loose clay, freq ch, mod sm round pebbles
14	40/110	C17	N/A	Top fill of [17]	Red brown friable clay, freq ch, decayed stone
15	40/110	C17	N/A	Basal fill of [17]	
16	40/110	C17	N/A	Middle fill of [17]	Yellow brown compact clay, occ ch fl, poss redeposited natural
17	40/110	N/A	C13, C14, C15	Pit	Irreg in plan, 0.32d x 0.93l x 0.78w, E-W in orientation, N side slopes steeply, others more gradual, base concave
18	20/100	N/A	C19	Posthole	Sub- circular in plan, 0.15d x 0.37l x 0.32w, sides gently sloped, base concave
19	20/100	C18	N/A	Pit fill	Black, ch-rich silty clay
20	10/110	N/A	C21, C25	Poss stakehole	Oval in plan, 0.10d x 0.24l x 0.17w, NNW-SSE in orientation
21	10/110	C20	N/A	Poss burnt stake	Dry crusty cylinder of burnt material+ ch
22		N/A	C23	Posthole	Circular in plan
23		C22	N/A		Light-med brown v loose sandy silt, occ ch, occ sm ang+sub-ang stones
24	120/30	N/A	C3	Cut of poss pit burial [3]	Kidney-shaped in plan, gen N-S in orientation, sides fairly steep, base irreg w/ several sub-circular depressions of depths up to 0.16
25	10/110	20	N/A	Poss stake packing	Brown, loose clay
26				Non Archaeological	
27				Non Archaeological	
28				Non Archaeological	
29				Non Archaeological	
30	30/60	N/A	C40, C39, C32, C31	Shallow stone-capped pit	Sub-rect in plan 0.22d x 1.90l x 1.4w, N-S in orientation, corners rounded, sides concave, base irreg+stone, stones ranging from 0.18-0.40 dia, T'd by machine during stripping
31	30/60	C30	N/A	Capstones of [30]	Dark grey brown, loose silt, mod ch fl, occ burnt bone, T'd by machine during stripping
32	30/60	C30	N/A	Sealing fill of pit [30]	Circular in plan, 0.28d x 0.4dia, S side gently sloped, others steeper, base concave
33	30/80	N/A	C34	Poss posthole	Brown, loose clay, freq ch, freq worked flint
34	30/80	C33	N/A	Fill of poss posthole [33]	Oval in plan, 0.27d x 2.20l x 2.10w, E-W in orientation, sides concave, base flat
35	70/30	N/A	C36, C50	Stone layered pit	Dark grey brown, loose silty clay, ch, burnt bone, lge flat stones
36	70/30	C35, C104	N/A	Fill of [35] and [104]	
37	20/60	N/A	C38	Posthole	

C	Area E/N	Fill of	Filled by	Interpretation	Description
38	20/60	C37	N/A	Fill of posthole [37]	Med –light brown sandy silt, occ ch, rare sm sub-ang stones
39	30/60	C30	N/A	Fill of pit [30]	Dark black grey, loose silt, freq ch fl+frags, freq burnt bone, mod med sub-ang pebbles, T'd by machine during stripping
40	30/60	C30	N/A	Basal fill of [30]	Med brown grey, loose silt, freq ch fl+frags, sm-med ang+sub-ang pebbles
41	20/70	N/A	C42, C43, C54, C56, C58	Shallow pit	Circular in plan, 0.14d x 0.65dia, sides+base concave,
42	20/70	C41	N/A	Upper fill of [41]	Grey silty fill, ch fl, Burnt bone occ round+flat stones
43	20/70	C41	N/A	Lower fill of [41]	Brown silty fill, ch, burnt bone,
44	70/10	C53, C66	N/A	Upper fill of [53] and [66]	Light grey brown, loose fill, ch, freq sm-med irreg stones
45	70/10	C53	N/A	Lower fill of [53]	
46	30/80	N/A	C47	Posthole	Circular in plan, 0.28m x 0.22m x 0.10m d, steep sides
47	30/80	C46	N/A	Fill of posthole [46]	Light brown grey, loose sandy silt, occ ch, rare sm ang stones
48				VOID	
49				VOID	
50	70/30	C35	N/A	Redeposited natural, overlying [36]	Light brown sandy silt, ang stones
51	10/80	N/A	C52	Poss pit	
52	10/80	C51	N/A	Fill of [51]	Light -med brown silty soil, occ ch+burnt bone frags, occ sm stones, 2 lge rocks in centre
53	70/10	N/A	C44, C45	Posthole	
54	20/70	N/A	C55	Stakehole, in base of pit [41]	Circular in plan, 0.15d x 0.10dia, steep sides, base concave
55	20/70	C54	N/A	Fill of [54]	Brown silty soil, occ ch fl, occ sm stones, 3 larger flat stones lining edges of cut
56	20/70	N/A	C57	Stakehole, in base of pit [41]	Circular in plan, 0.12d x 0.10dia, sides mod steep, base concave
57	20/70	C56	N/A	Fill of [56]	Brown silt
58	20/70	N/A	C59	Stakehole, in base of pit [41]	Circular in plan, 0.12d x 0.10dia, sides mod steep, base concave
59	20/70	C58	N/A	Fill of [58]	Brown silt
60	40/80	N/A	C61	Linear feature	Linear in plan, 0.23d x 2.67l x 0.91, N-S in orientation, sides vert, base flat
61	40/80	C60		Same as [63]	
62	40/80	N/A		Same as [60]	
63	40/80	C60	N/A	Burnt Material	Black, clayey fill, v freq ch+freq burnt bone, over [69]
64	40/80	N/A	C65	Posthole	
65	40/80	C64	N/A	Poss burnt post	Light -med brown sandy silt, occ ch+ burnt bone, mod ang stones
66	70/10	N/A	C68, C53	Posthole	
67	40/80	C60	N/A	Small lens of re-deposited natural	Re-deposited natural
68	70/10	C66	N/A	Fill of posthole	
69	40/80	C60	N/A	Fill	Brown, loose clay
70	20/60	N/A	C71	Stakehole	Circular in plan, 0.15d x 0.20dia, tapered rounded point
71	20/60	C70	N/A	Stakehole fill	Light brown silty soil
72	20/60	N/A	C73	Stakehole	Circular in plan, 0.18d x 0.18dia, base tapered +rounded
73	20/60	C72	N/A	Stakehole fill	Light brown silty soil
74	40/40	N/A	C75	Posthole	Circular in plan, 0.08d x 0.36 dia, sides mod sloped, flat bottom
75	40/40	C74	N/A	Posthole fill	Charcoal
76	40/80	N/A	C77,C78,C79	Oval Pit – Modern	Deemed Non-Archaeological
77	40/80	C76	N/A	Fill of pit [76]	Deemed Non-Archaeological
78	40/80	C76	N/A	Fill of pit [76]	Deemed Non-Archaeological
79	40/80	C76	N/A	Fill of pit [76]	Deemed Non-Archaeological

80	40/80	N/A	C81	Small pit	
81	40/80	C80	N/A	Fill of pit [80]	Med-dark brown, v friable+ loose sandy silt, occ ch, rare v large ang+sub-ang stones
82				Non-Archaeological	
83				Non-Archaeological	
84				Non-Archaeological	
85				Number not used	
86				Number not used	
87				Number not used	
88				Number not used	
89				Non-Archaeological	
90				Number not used	
91				Number not used	
92				Non-Archaeological	
93				Non-Archaeological	
94				Non-Archaeological	
95				Non-Archaeological	
96				Non-Archaeological	
97	20/60	N/A	C98	Posthole	
98	20/60	C97	N/A	Posthole fill	
99	30/60	N/A		Posthole	Fully excavated during testing
100	30/60	N/A		Posthole	Fully excavated during testing
101	20/60	N/A		Posthole	
102	40/110	N/A	C103	Posthole	Roughly circular in plan, 0.15d x 0.37l x 0.33w, sides slope gradually, base subrect+ flat
103	40/110	C102	N/A	Posthole fill	Med brown, loose silty clay
104	70/30	N/A	C36	Posthole, in base of pit [35]	Circular in plan, 0.18d x 0.22dia, sides slope steeply, base concave, in base of pit [35]

FINDS REGISTER

C	Find No.	Material	Period	Pottery form	Artefact type	Comments
34	02E1833:34:1	Flint	Neolithic		ified Scraper fragment	
34	02E1833:34:2	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:3	Flint	Neolithic		Flake Platform blade	
34	02E1833:34:4	Flint	Neolithic		Flake Bipolar complete	
34	02E1833:34:5	Flint	Neolithic		Angular shatter	
34	02E1833:34:6	Flint	Neolithic		Angular shatter	
34	02E1833:34:7	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:8	Flint	Neolithic		Modified Knife distal fragment	
34	02E1833:34:9	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:10	Flint	Neolithic		Modified Knife distal fragment	
34	02E1833:34:11	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:12	Flint	Neolithic		Angular shatter	
34	02E1833:34:13	Flint	Neolithic		Angular shatter	
34	02E1833:34:14	Flint	Neolithic		Angular shatter	
34	02E1833:34:15	Flint	Neolithic		Angular shatter	
34	02E1833:34:16	Flint	Neolithic		Angular shatter	
34	02E1833:34:17	Flint	Neolithic		Angular shatter	
34	02E1833:34:18	Flint	Neolithic		Angular shatter	
34	02E1833:34:19	Flint	Neolithic		Angular shatter	
34	02E1833:34:20	Flint	Neolithic		Angular shatter	
34	02E1833:34:21	Flint	Neolithic		Angular shatter	
34	02E1833:34:22	Flint	Neolithic		Angular shatter	
34	02E1833:34:23	Flint	Neolithic		Angular shatter	

34	02E1833:34:24	Flint	Neolithic		Angular shatter	
34	02E1833:34:25	Flint	Neolithic		Angular shatter	
34	02E1833:34:26	Flint	Neolithic		Angular shatter	
34	02E1833:34:27	Flint	Neolithic		Angular shatter	
34	02E1833:34:28	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:29	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:30	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:31	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:32	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:33	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:34	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:35	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:36	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:37	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:38	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:39	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:40	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:41	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:42	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:43	Flint	Neolithic		Angular shatter	
34	02E1833:34:44	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:45	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:46	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:47	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:48	Flint	Neolithic		Flake Platform shatter	
34	02E1833:34:49	Flint	Neolithic			
34	02E1833:34:50	Flint	Neolithic			
34	02E1833:34:51	Flint	Neolithic			
34	02E1833:34:52	Flint	Neolithic			
34	02E1833:34:53	Flint	Neolithic			
34	02E1833:34:54	Flint	Neolithic			
34	02E1833:34:55	Flint	Neolithic			
34	02E1833:34:56	Flint	Neolithic			
34	02E1833:34:57	Flint	Neolithic			
34	02E1833:34:58	Flint	Neolithic			
34	02E1833:34:59	Flint	Neolithic			
34	02E1833:34:60	Flint	Neolithic			
34	02E1833:34:61	Flint	Neolithic			
34	02E1833:34:62	Flint	Neolithic			
36	02E1833:36:1	Flint	Neolithic		Unworked Lump	
36	02E1833:36:2	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:3	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:4	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:5	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:6	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:7	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:8	Pottery	Middle Neolithic		Bodysherd	
36	02E1833:36:9	Pottery	Middle Neolithic		Fragment	
36	02E1833:36:10	Pottery	Middle Neolithic		Fragment	

36	02E1833:36:11	Pottery	Middle Neolithic		Fragment	
36	02E1833:36:12	Stone	Neolithic		Unworked Beach pebble	
36	02E1833:36:13	Stone	Neolithic		Unworked Beach pebble	
39	02E1833:39:1	Flint	Neolithic		Angular shatter	
40	02E1833:40:1	Flint	Neolithic		Flake Bipolar	
40	02E1833:40:2	Flint	Neolithic		Scraper	
40	02E1833:40:3	Flint	Neolithic			
52	02E1833:52:1	Flint	Neolithic		Modified Scraper	
63	02E1833:40:4	Flint	Neolithic			
69	02E1833:40:5	Flint	Neolithic			
63	02E1833:63:1	Flint	Neolithic		Flake Platform shatter	
69	02E1833:69:1	Flint	Neolithic		Flake Platform complete	

APPENDIX 2: SPECIALIST REPORTS

APPENDIX 2.1: LITHICS REPORT

CHIPPED STONE AND WORKED STONE ASSEMBLAGE
ANALYSIS REPORTS AND CATALOGUES
FOR
LITTLEMILLS 4 AND 5: (02E1833)

DR EIMÉAR NELIS
MA PHD MIAI

Introduction

An assemblage of 56 chipped stone artefacts were recovered from Site 103, Littlemills 4 and 5 (02E1833) (Ó Donnchadha 2006e) which were mainly comprised of flint (with the exception of a single quartz piece: 02E1833:36:12).

Unique No	Basic Character	Classification	Condition	Cortex	Fragment (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
02E1833:40:1	Flake	Bipolar complete	Fresh	Primary	-	16	11	3	1.14
02E1833:52:1	Modified	Scraper fragment	Patinated	Tertiary	18	-	15	4	1.30
02E1833:63:1	Flake	Platform shatter	Patinated	Tertiary	27	-	29	9	5.64
02E1833:69:1	Flake	Platform complete	Burnt	Primary	-	42	38	19	28.44
02E1833:34:1	Modified	Scraper fragment	Burnt	Secondary	-	30	35	17	14.12
02E1833:34:2	Flake	Platform shatter	Burnt	Secondary	30	-	35	14	12.12
02E1833:34:3	Flake	Platform blade	Fresh	Secondary	-	52	20	3	5.12
02E1833:34:4	Flake	Bipolar complete	Fresh	Secondary	-	42	22	12	11.48
02E1833:34:5	Angular shatter	Burnt shatter	Burnt	Primary	-	35	25	6	6.15
02E1833:34:6	Angular shatter	Burnt shatter	Burnt	Primary	-	29	13	9	3.59
02E1833:34:7	Flake	Platform shatter	Burnt	Secondary	25	-	20	6	2.71
02E1833:34:8	Modified	Knife distal fragment	Burnt	Secondary	36	-	22	7	5.92
02E1833:34:9	Flake	Platform shatter	Burnt	Tertiary	37	-	20	12	7.22
02E1833:34:10	Modified	Knife distal fragment	Burnt	Tertiary	21	-	12	6	2.08
02E1833:34:11	Flake	Platform shatter	Burnt	Tertiary	17	-	16	4	1.04
02E1833:34:12	Angular shatter	Burnt shatter	Burnt	Secondary	-	18	17	12	5.87
02E1833:34:13	Angular shatter	Burnt shatter	Burnt	Tertiary	-	22	12	8	1.97
02E1833:34:14	Angular shatter	Burnt shatter	Burnt	Secondary	-	25	22	16	9.51
02E1833:34:15	Angular shatter	Burnt shatter	Burnt	Tertiary	-	15	10	1	.30
02E1833:34:16	Angular shatter	Burnt shatter	Burnt	Tertiary	-	11	6	1	.14
02E1833:34:17	Angular shatter	Burnt shatter	Burnt	Tertiary	-	11	6	2	.16
02E1833:34:18	Angular shatter	Burnt shatter	Burnt	Tertiary	-	25	12	8	2.06
02E1833:34:19	Angular shatter	Burnt shatter	Burnt	Tertiary	-	16	15	3	.53
02E1833:34:20	Angular shatter	Burnt shatter	Burnt	Tertiary	-	17	12	3	.58
02E1833:34:21	Angular shatter	Burnt shatter	Burnt	Tertiary	-	15	12	5	.52
02E1833:34:22	Angular shatter	Burnt shatter	Burnt	Tertiary	-	17	15	6	1.40
02E1833:34:23	Angular shatter	Burnt shatter	Burnt	Tertiary	-	18	11	2	.58
02E1833:34:24	Angular shatter	Burnt shatter	Burnt	Tertiary	-	16	10	7	.75
02E1833:34:25	Angular shatter	Burnt shatter	Burnt	Tertiary	-	16	15	9	1.59
02E1833:34:26	Angular shatter	Burnt shatter	Burnt	Tertiary	-	25	13	8	1.61
02E1833:34:27	Angular shatter	Burnt shatter	Burnt	Tertiary	-	19	12	5	1.01
02E1833:34:28	Flake	Platform shatter	Burnt	Tertiary	-	15	10	2	.35
02E1833:34:29	Flake	Platform shatter	Burnt	Tertiary	-	21	8	2	.36
02E1833:34:30	Flake	Platform shatter	Burnt	Tertiary	-	18	8	6	1.23
02E1833:34:31	Flake	Platform shatter	Burnt	Secondary	-	18	12	5	.67

02E1833:34:32	Flake	Platform shatter	Burnt	Tertiary	-	20	17	6	2.08
02E1833:34:33	Flake	Platform shatter	Burnt	Tertiary	-	17	11	2	.45
02E1833:34:34	Flake	Platform shatter	Burnt	Tertiary	-	15	12	4	.52
02E1833:34:35	Flake	Platform shatter	Burnt	Tertiary	-	10	8	2	.23
02E1833:34:36	Flake	Platform shatter	Burnt	Tertiary	-	19	12	4	.68
02E1833:34:37	Flake	Platform shatter	Burnt	Tertiary	-	11	10	4	.33
02E1833:34:38	Flake	Platform shatter	Burnt	Tertiary	-	8	6	3	.32
02E1833:34:39	Flake	Platform shatter	Burnt	Tertiary	-	18	11	4	.68
02E1833:34:40	Flake	Platform shatter	Burnt	Tertiary	-	14	12	3	.64
02E1833:34:41	Flake	Platform shatter	Burnt	Tertiary	-	14	11	2	.35
02E1833:34:42	Flake	Platform shatter	Burnt	Tertiary	-	12	8	8	.60
02E1833:34:43	Angular shatter	Burnt shatter	Burnt	Tertiary	-	13	11	4	.61
02E1833:34:44	Flake	Platform shatter	Burnt	Tertiary	-	14	6	3	.26
02E1833:34:45	Flake	Platform shatter	Burnt	Tertiary	-	16	6	5	.43
02E1833:34:46	Flake	Platform shatter	Burnt	Tertiary	-	11	8	2	.19
02E1833:34:47	Flake	Platform shatter	Burnt	Tertiary	-	11	7	2	.16
02E1833:34:48	Flake	Platform shatter	Burnt	Tertiary	-	15	8	4	.44
02E1833:36:1	Unworked	Lump	Patinated	Secondary	-	19	15	6	1.75
02E1833:36:12	<i>Unworked</i>	<i>Beach pebble</i>	<i>Water rolled</i>	<i>Primary</i>	-	20	15	10	4.62
02E1833:36:13	Unworked	Beach pebble	Water rolled	Primary	-	52	42	31	120.54
02E1833:39:1	Angular shatter	Knapping debitage	Patinated	Tertiary	-	15	6	4	.48

Table 1: Dundalk Western Bypass: Littlemills 4 and 5 (02E1833): showing basic composition of the flint assemblage (italics denotes quartz).

The assemblage is mainly comprised of flake debitage (29/56 pieces) and angular shatter (20/56 pieces), and also includes a small number of unworked pieces (3/56 pieces), as well as a number of modified tools (4/56 pieces); no cores were recovered.

General provenance of assemblage

Context No	Description	Unworked	Core	Flake Debitage	Angular shatter	Modified	TOTAL
34	Group 2: Subgroup 1004: Fill of posthole C33	-	-	26	19	3	48
36	Group 2: Subgroup 1004: Fill of pit C35	3	-	-	-	-	3
39	Group 2: Subgroup 1004: Fill of pit C30	-	-	-	1	-	1
40	Group 2: Subgroup 1004: Fill of pit C30	-	-	1	-	-	1
52	Group 2: Subgroup 1003: Fill of pit C51	-	-	-	-	1	1
63	Unspecified: possibly related to C40	-	-	1	-	-	1
69	Unspecified: possibly related to C40	-	-	1	-	-	1
TOTAL		3	-	29	20	4	56

Table 2: Dundalk Western Bypass: Littlemills 4 and 5 (02E1833): showing distribution and basic composition of the flint assemblage.

The assemblage was derived from a small number of contexts, all of which relate to Group 2 Neolithic/Bronze Age activity, which is comprised of ephemeral structural remains and occupation activity (Ó Donnchadha 2006e). The overwhelming majority of the assemblage (48/56 piece) was found within a single pit ([C34]: 48/56 pieces), and this includes most of the flake debitage, angular shatter and modified tools (Table 2). Single examples of flake debitage were recovered from [C40], [C63] and [C69]; while the context of [C63] and [C69] is not specified, it may be associated with the pit [C30], from which [C40] was also derived. [C39], another fill of the pit C30, yielded a piece of angular shatter, and a single modified tool was found in [C52], the

fill of pit [C52]. All of the unworked pieces (3 pieces: of which one was quartz) were found in the fill [C36] of pit [C35] (3 pieces).

The vast majority of the recovered artefacts were in a burnt condition (47/56 pieces), all but one of which were found in [C34] (46 pieces); the remaining burnt piece was found in [C69]. In addition to these, a small number survived in a fresh condition (3/56 pieces), two of which derived from [C34], with the remaining piece being found in [C40]. A similar number of patinated pieces (3/56 pieces) were found in [C39], [C52] and [C63]. The unworked material, found in [C36], had been water-rolled. The source of the raw material could not be ascertained for the majority of the assemblage, but where it could be determined, the main source seems to have been beach pebbles. All of the unworked material found in [C36] (including the quartz piece) were beach pebbles, and a flake from [C40] was also knapped from a beach pebble. To some extent, the heavily burnt condition of the much of the assemblage has contributed to the inability to identify the raw material source: this is particularly evident from the material recovered from [C34], where all but two pieces (27/29 pieces) were in a burnt condition; those which survived in an unburnt, fresh condition (2/29 pieces), however, were clearly derived from beach pebbles.

Assemblage summary: LITTLEMILLS 4 AND 5: (02E1833)

The assemblage included a small number of unworked pieces ([C36]: 3 pieces), which included two beach rolled pebbles (1 quartz, 1 flint), and a thermal flake derived from a beach rolled flint pebble. The flint thermal flake and the quartz pebble had maximum lengths of just 19mm and 20mm (respectively), while the beach rolled flint pebble was larger, measuring 52mm in maximum length. It is probable that only the latter piece would have been considered for use as a source of raw material, but there is no way to tell if it had ever been intended for use.

No cores were found, but a substantial flake debitage assemblage was recovered, most of which derived from [C34], the fill of posthole [C33]. A single pebble-opening bipolar flake, derived from a beach pebble, was found in [C40]. Two platform reduced flakes were found in [C63] and [C69]: the proximal fragment of an uncorticated flake was found in [C63], and from [C69] a burnt, heavily corticated core trimming flake was found. All of the remaining flake debitage was found in [C34] (26 pieces), a deposit which also yielded a significant quantity of angular shatter (19 pieces). All but two artefacts from this feature had been subject to intense burning, and therefore it is unsurprising that the bulk of the flake debitage was barely recognizable as such, and could not be further classified (20/26 pieces); the flake debitage from this deposit which could be further classified included distal fragments of flakes (2 pieces) and a blade (1 piece), and the proximal fragment of a flake (1 piece: with a corticated platform), all of which seemed to be platform reduced. The remaining two pieces survived intact, and were the only unburnt artefacts recovered from this context: they were comprised of a complete platform reduced blade, and a complete bipolar flake, both of which were heavily corticated.

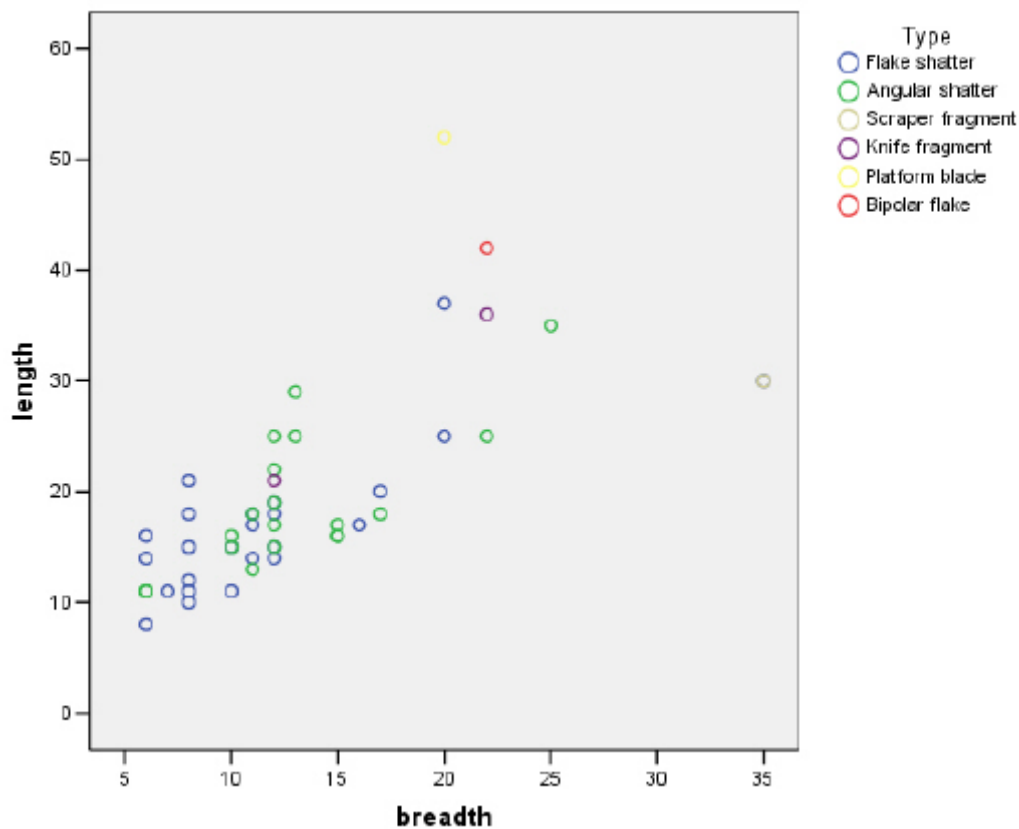


Fig 1: Dundalk Western Bypass: Littlemills 4 and 5 (02E1833): [C34]: showing length by breadth (mm) of all artefacts found in [C34].

The angular shatter derived from [C34] was heavily burnt, beyond further classification, and ranged in maximum length from 11-35mm (Fig 1). Due to its condition, it is not entirely clear that this body of material had been worked, but it may represent the burnt and heavily damaged remains of knapping debitage, flakes or cores, or even modified tools. The remaining piece of angular shatter found at Littlemills 4 and 5 was an unburnt piece of knapping debitage recovered from [C39]. The small number of modified tools found (4 pieces) were mainly recovered from [C34] (3 pieces), all of which were burnt and fragmentary. They included the distal fragment of a burnt scraper (02E1833:34:1): this piece may have been produced after the flake had broken, and had two lateral notches near its base, which may have been used for hafting; it had a steep scraping edge, with a high dorsal ridge, thinning down towards the point of medial fracture.

In addition to this, two burnt knife fragments were found, both of which may be minimally retouched plano-convex knives; the dating of knives is particularly problematic, but it would appear that plano-convex knives date to the Neolithic period, particularly during the Early Neolithic (Nelis 2003). One of the knives at Littlemills 4 and 5 (02E1833:34:8: Plate 1) was a distal blade fragment, corticated along its right lateral edge where it was mainly retouched, to the tip; along the left lateral edge, this tool may have been minimally retouched or simply utilised for cutting without retouch. The other knife also survives as a distal fragment, with steep retouch along the right lateral edge, with the left lateral edge being simply utilised without modification. A further modified tool was found at Littlemills 4 and 5: this was

a scraper found in [C52], the fill of pit [C51] (02E1833:52:1). It was unburnt and survived as the distal quartile fragment (ie fractured along its long and short axis) of a minimally retouched scraper, formed on a thin flake (Plate 2).

Discussion: LITTMILLIS 4 AND 5: (02E1833)

The assemblage recovered from Littlemills 4 and 5 included small numbers of unworked material and modified tools, but was largely comprised of flake debitage and angular shatter.

The majority of the assemblage, including most of the modified tools, flake debitage and angular shatter, was recovered from a single context: [C34], the fill of the posthole [C33]. Not only did this deposit yield an apparently intentional deposition of an unusually large body of material, but the bulk of it had been subject to intensive burning, which included all of the angular shatter and modified tools, and most of the flake debitage assemblage found within this deposit. It is primarily due to the condition of the assemblage that much of the material could only be classified as angular shatter, and where flake debitage traits were discernable, no further diagnostic features survived to elucidate the specific type of flake debitage involved. It is not clear, of course, if the burnt angular shatter simply represented the burnt remains of knapping angular shatter, or if (when complete) these pieces may have been recognizable as cores, flake debitage or even modified tools.

Given the heavily damaged and fragmentary nature of the bulk of the assemblage, only a few artefacts offer more information regarding the chipped stone technology evident at the site. A small number of flake debitage (from [C34],[C63],[C69] and [C40]) indicate that both bipolar and platform reduction techniques were utilised, and where platform techniques were present, they were based on simple planar platforms, showing that reduction techniques were simplistic. Bipolar and platform techniques are commonly found throughout the Neolithic and Bronze Age periods in Ireland, particularly where raw material sources are limited (Nelis 2003), and it is common to find both techniques side-by-side in a given assemblage. However, the fragmentary condition and limited number of modified tools, coupled with the lack of cores, offers little further potential to comment on the technology at the site. It is possible that the scrapers and knives which were found may particularly point to a Neolithic date, and the putative identification of the fragmentary knives as plano-convex types may point to early in the Neolithic, although knives (particularly minimally modified examples such as these) can be highly variable and are therefore extremely difficult to date (Nelis 2004) (Plate 1). The similarities drawn between the archaeological remains at Littlemills 4 and 5, and Littlemills 1, by the excavator (Ó Donnchadha 2006e) may also be echoed by the chipped stone technology: both assemblages exhibited bipolar and platform reduction techniques, and the presence of a putative bifacial thinning flake within the Littlemills 1 assemblage also hints at a Neolithic date for this material, also possibly in the Early Neolithic.

References

Nelis, E. 2003. *Lithics of the Northern Irish Neolithic*. Unpublished PhD thesis. Belfast: Queen's University, Belfast.

Ó Donnchadha, B. 2006d. *M1 Dundalk Western Bypass: Site 101: Littlemills 1: 02E1833: Stratigraphic report*. Dublin: IAC Ltd.

Ó Donnchadha, B. 2006e. *M1 Dundalk Western Bypass: Site 101: Littlemills 4 & 5: 02E1752: Stratigraphic report*. Dublin: IAC Ltd.



Plate 1: Littlemills 4 and 5 (02E1833): Knife fragment (02E1833:34:8).



Plate 2: Littlemills 4 and 5 (02E1833): Scraper quartile fragment (02E1833:52:1).

APPENDIX 2.2: PREHISTORIC POTTERY REPORT

THE PREHISTORIC POTTERY
FROM
LITTLEMILL 4/5, CO. LOUTH
(02E1833)

EOIN GROGAN AND HELEN ROCHE

1 Summary

The Littlemills 4/5 site produced a small group of sherds from a middle Neolithic Impressed Ware vessel, possibly a Broad Rimmed Bowl.

The pottery

The single vessel is represented by seven bodysherds from feature [C36] (sherds 2-8l crumbs: [C36].9-11) of thick-walled fabric with dark grey-brown burnished exterior, a grey core and a dark grey to brown-buff interior. Although well-made and carefully finished the vessel has a slightly 'lumpy' appearance resulting from marked variations in the wall thickness (9.2-11.2mm). There is a possible line of ornament on [C36].4 and a possible small boss on [C36].9. There is a high content of crushed coarse-grained dolerite and shale ($\leq 6 \times 6\text{mm}$).

These sherds are from the deep hemispherical body of a middle Neolithic bowl of the Impressed Ware tradition: in the absence of any feature sherds the particular vessel type could not be identified but it may be a Broad Rimmed Bowl of the type represented at Balregan 1 and Littlemill 1, Co. Louth (Ó Donnchadha 2002; 2003; Grogan and Roche 2005; 2006).

References

Grogan, E. and Roche, H. 2005 The prehistoric pottery from Balregan 1, Co. Louth (03E0157). Unpublished Report for Irish Archaeological Consultancy Ltd.

Grogan, E. and Roche, H. 2006 The prehistoric pottery from Littlemill 1, Co. Louth (03E1752). Unpublished Report for Irish Archaeological Consultancy Ltd.

Ó Donnchadha, B. 2003a M1 Dundalk Western Bypass. Site 116, Balregan 1 and 2. Unpublished Report for Irish Archaeological Consultancy Ltd.

Ó Donnchadha, B. 2003b M1 Dundalk Western Bypass. Site 101, Littlemill 1. Unpublished Report for Irish Archaeological Consultancy Ltd.

APPENDIX 2.3: ANIMAL BONE REPORT

OSTEOLOGICAL REPORT OF FAUNAL REMAINS FROM 02E1833 SITE 103: LITTLEMILLS 4 & 5 CO. LOUTH M1 DUNDALK WESTERN BYPASS

**AUTHOR: AOIFE MCCARTHY MA BA
DATE: JULY 2009**

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1. INTRODUCTION

1.1 INTRODUCTION

This report details the osteological analysis of faunal remains recovered during excavations at Site 103, 02E1833 Littlemills 4 & 5 in the townland of Littlemill c. 2km to the south-east of Dundalk, Co. Louth in advance of the construction of the Dundalk Western Bypass (DWB). Aoife McCarthy MA (Osteoarchaeology University of Southampton 2006) undertook the analysis on behalf of Irish Archaeological Consultancy Ltd. in July 2009.

1.2 GENERAL OSTEOLOGICAL INFORMATION

The osteological analysis of faunal remains was undertaken to provide an overview of animal consumption at the site. A total of 113 fragments from 16 anatomical units were recorded within the assemblage. A total of 95 of the bone fragments displayed evidence of burning, whilst the remaining 18 were un-burnt. The bones were in a very poor state of preservation and weighed a total of 27.34g. Due to the fragmented nature and small size of the bone recovered, as well as its poor state of preservation the majority of the assemblage was unidentifiable to species. The faunal remains assemblage contained bones from one recognisable species *bos/cow*. The data collected within this report was based on species identification (where possible), ageing, and sexing (where possible), butchery, gnawing, burning pathology or injury.

2. METHODOLOGY

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

- **NISP:** Number of Identified Specimens Indicates the total number of fragments found.
- **MNI:** Minimum Number of Individuals. Indicates the minimum number of individuals from every species that were present in the material. The MNI is calculated on the specimen of the most abundant skeletal element present. The MNI is only an estimate.
- **MNE:** Minimum Number of Elements. Indicates the minimum number of anatomical units that are present and what side they are from. To avoid getting a higher MNE all loose epiphyses have to be paired with all unfused diaphysis.

AGEING: Two main methods are used to determine the age of faunal remains; tooth eruption and degree of epiphyseal fusion (a less reliable method). Tooth eruption and wear stages were recorded for the following teeth where possible; dP4 (deciduous fourth premolar), P4 (fourth premolar), M1 (first molar), M2 (second molar) and M3 (third molar) of cattle, sheep/goat and pig (Grant 1982). The analysis of tooth wear patterns refers to the alteration of the enamel surface and exposure of inner dentine through use.

BIOMETRICAL DATA: Due to the degree of fragmentation of the faunal remains recovered from Site 103 02E1833 Littlemills 4&5 measurements were not taken.

SEX DETERMINATION: Sex determination of animal remains is possible by analysis of certain sexually dimorphic elements. For example goat horncores may be classified as male or female based on their morphology and cattle metacarpals can be defined

as male or female through calculation of the slenderness index (McCormick 1992). Sexual determination of species was not possible due to the degree of fragmentation of the assemblage.

BUTCHERY/GNAWING/BURNING: Evidence for butchery was recorded under the categories of cut, chopped, chopped and cut. All specimens were analysed for evidence of rodent or carnivorous gnawing and evidence of burning.

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

3. RESULTS

Context 36 Sample 33:

A total of twenty tiny burnt bone fragments (1.30g) representing two possible anatomical units were identified within (**C36**) the loose silty fill of [**C35**] an oval shaped stone layered pit. Due to the fragmented nature of the material it was not possible to discern species.

Unidentified Fragments

Due to a high level of fragmentation the 20 fragments of burnt bone recovered from (**C35**) were unidentified to species. The long bone and possible rib fragments (1.30g) represent two anatomical units. All of the bone fragments displayed white discolouration and alteration in bone texture indicating a possible exposure to heat. When bone is exposed to heat the process of decomposition of organic elements is accelerated (Luff R. & Pearce J. 1994). This accelerated mineralisation is manifested on bone surface as a glossy grey-white surface (Luff R. & Pearce J. 1994).

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Unidentified Fragments	20	100%	2	1.30g	100%
Total	20	100%	2	1.30g	100%

Table 1. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (**C35**).

Context 63 Sample 28:

A total of twenty eight minute burnt bone fragments (0.04g) representing two possible anatomical units were identified within (**C63**) the black clayey fill of linear feature [**C60**]. Due to the fragmented nature and small size of the faunal material it was not possible to identify species

Unidentified Fragments:

Due to a high degree of fragmentation the 28 fragments of burnt bone recovered from (**C63**) were unidentified to species. The possible skull and unidentified fragments (0.04g) represent two possible anatomical units. All of the bone fragments displayed blackening at the margins as well as white discolouration of the bone surface, indicating exposure to heat. The structure of bone changes through exposure to heat. Contact of bone with heat diminishes its moisture content and results in the combustion of the organic or collagen component; the remaining structure of the bone after this process is mineral. Such distortion to the bone structure reduces its size and as detailed above alters bone colour.

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Unidentified Fragments	28	100%	2	0.04g	100%
Total	28	100%	2	0.04g	100%

Table 2. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (**C63**).

Context 64 Sample 28:

A total of nine small burnt bone fragments (1.5g) representing three possible anatomical units were identified within (**C65**) the sandy silty fill of posthole feature [**C64**]. Due to the small size of the burnt bone fragments as well as the degree of fragmentation it was not possible to identify species.

Unidentified Fragments:

Due to its very fragmented nature the burnt bone recovered from (**C65**) was not identified to species. The possible skull, rib and unidentified fragments (1.5g) representing three possible anatomical units. All of the bone fragments recovered from (**C65**) were discoloured to grey-white indicating exposure to heat.

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Unidentified Fragments	9	100%	3	1.5g	100%
Total	9	100%	3	1.5g	100%

Table 3. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (**C65**).

Context 39 Sample 26:

A total of nine bone fragments (10.4g) representing one anatomical unit were identified within (**C39**) loose silty fill of [**C30**] a shallow stone capped pit. The bone fragments were identified as the mandible and first molar of *bos/cow*.

Bos/Cow

Five fragments of un-burnt *bos/cow* mandible (4.8g) and four fragments of *cow/bos* molar 1 (5.6g) representing one anatomical unit were identified and recorded in moderate to poor state of preservation within fill material (**C39**). The recorded M1 consisted of a cracked and partially intact tooth crown and root. Evidence of possible rodent gnawing in the form three puncture marks are visible on the tooth root surface. The degree of dental wear of M1 was recorded against Grant (Grant A, 1982) dental wear codes. The degree of wear was within category M-N, allowing an estimated age of 18 Months upwards. Unfortunately as no other teeth were recovered within (**C39**) it was not possible to fully confirm dental age of the material.

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Fragments ID to Species	9	100%	1	10.4g	100%
Unidentified Fragments	0	0	0	0	0
Total	9	100%	1	10.4g	100%

Table 4. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (**C39**).

Context 40 Sample 24

A total of eighteen burnt cow/bos molar fragments (1.9g) representing one anatomical unit were identified within (C40) the basal fill of [C30] a shallow stone capped pit.

Bos/Cow

Eighteen small fragments of a single cow/bos molar (1.9g) representing one anatomical unit were identified and recorded in a poor state of preservation within fill material (C40). It was not possible to discern which cow/bos molar was present as the eighteen fragments consisted of burnt tooth root.

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Fragments ID to Species	18	100%	1	1.9g	100%
Unidentified Fragments	0	0	0	0	0
Total	18	100%	1	1.9g	100%

Table 5. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (C40).

Context 44 Sample 14

A total of nine small burnt bone (2.4g) and seven un-burnt fragments (4.2g) representing three possible anatomical units were identified within (C44) the upper fill of posthole features [C53] and [C66]. Due to the small size of the burnt bone fragments as well as the degree of fragmentation it was not possible to identify species.

Unidentified Fragments:

Due to a high degree of fragmentation the burnt and un-burnt bone recovered from (C44) were not identified to species. The possible skull, long bone and unidentified fragments (6.6g) representing three possible anatomical units. Nine of the sixteen possible skull bone fragments recovered from (C44) were discoloured to grey-white indicating exposure to heat.

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Unidentified Fragments	16	100%	3	6.6g	100%
Total	16	100%	3	6.6g	100%

Table 6. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (C44).

Context 52 Sample 15

A total of two burnt bone fragments (1.4g) representing two possible anatomical units were identified within (C52) the silty fill of possible pit [C51]. Due to the small size of the burnt bone fragments as well as the degree of fragmentation it was not possible to identify species.

Unidentified Fragments:

Due to a high degree of fragmentation the burnt bone recovered from (C52) were not identified to species. The possible long bone fragments (1.4g) representing two possible anatomical units. Both bone fragments displayed blackening at the margins as well as white discolouration of the bone surface, indicating exposure to heat. As detailed previously the structure of bone changes through exposure to heat. Contact of bone with heat diminishes its moisture content and results in the combustion of the

organic or collagen component; the remaining structure of the bone after this process is mineral. Such distortion to the bone structure reduces its size and alters bone colour

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Unidentified Fragments	2	100%	2	1.4g	100%
Total	2	100%	2	1.4g	100%

Table 7. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (**C52**).

Context 32 Sample 25

A total of six small un-burnt bone (0.80g) and five burnt bone fragments (3.4g) representing four possible anatomical units were identified within (**C32**) the sealing fill of shallow stone capped pit [**C30**].

Bos/Cow

Six small un-burnt fragments of a single cow/bos molar (0.80g) representing one anatomical unit were identified and recorded in a poor state of preservation within fill material (**C32**). It was not possible to discern which cow/bos molar was present as the six fragments consisted of burnt tooth root.

Unidentified Fragments:

Due to a high degree of fragmentation the five burnt bone fragments recovered from (**C32**) were not identified to species. The possible long bone fragments (3.4g) representing three possible anatomical units. All five unidentified fragments displayed blackening at the margins as well as white discolouration of the bone surface, indicating exposure to heat. As detailed previously the structure of bone changes through exposure to heat. Contact of bone with heat diminishes its moisture content and results in the combustion of the organic or collagen component; the remaining structure of the bone after this process is mineral. Such distortion to the bone structure reduces its size and alters bone colour

Group	No. Fragments	% Fragments	MNE	Weight (g)	Weight %
Fragments ID to Species	6	54.55%	1	0.80g	19.05%
Unidentified Fragments	5	45.45%	3	3.4g	80.95%
Total	11	100%	4	4.2g	100%

Table 8. Total number of bone fragments, anatomical units (MNE) and the total weight identified to species (**C32**).

4. Summary

One hundred and thirteen bone fragments from various archaeological contexts on Site 103 02E1833 Littlemills 4 & 5 were submitted for examination. The bone samples were assessed and identified to species where possible. From these, a total of 80 fragments (70.8%) were not possible to identify to species due to the size and fragmented nature of the pieces. The remaining 33 fragments (29.2%) were identified and divided into species. The faunal remains assemblage contained bones from one recognisable species *bos/cow*. No definite conclusions could be drawn from the bone assemblage retrieved from Site 103 02E1833 Littlemills 4 & 5 due to its limited size and poor degree of bone preservation.

However, as detailed and represented in Table 9 a large proportion of the bone assemblage across all contexts displayed evidence of exposure of the bone to heat. These alterations of the bone are indication that the animals recorded on Site 103 02E1833 Littlemills 4 & 5 had most likely been cooked and the food debris was discarded and exposed to scavengers.

Species	Cut	% Cut	Gnaw	% Gnaw	Path	% Path	Burn	% Burn	Total
Cattle	0	0	1	100%	0	0	18	19.78%	19
Unidentified	0	0	0	0	0	0	73	80.23%	73
Total	0	100%	1	100%	0	0	91	100%	92

Table 9. Number of fragments from entire assemblage with cut; gnaw marks evidence of pathology or burning/heat exposure.

5. BIBLIOGRAPHY:

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

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

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

Fisher J.W. (1995) 'Bone Surface Modifications in Zooarcheology' in *Journal of Archaeological Method and Theory* Vol. 2 No.1, Springer, Netherlands.

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

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

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

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

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

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

Reitz, E.J and Wing, E.S. (1999) *Zooarchaeology*. Cambridge Manuals in Archaeology, Cambridge University Press.

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

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

Site	Spec	C	S	Tax	Anat	Side	Prox	Dist	1	2	3	4	5	6	7	8	But	Bu	G	Q	Weight (g)	Comment	P
103	1	36	33	Unid	poss rib													W		20	1.30	Series of small to tiny pieces of unid burnt bone fragments. Possible rib, or diaphysis fragment of small-medium sized mammal.	N
103	2	63	28	Unid	Skull													B,W		21	0.02	Minute fragments of unidentified skull	N
103	3	63	28	Unid	Unid													B,W		7	0.02	Series of tiny burnt bone fragments, distinct burning in the form of black and whitened surfaces. Possible rib or skull bone due to thinness	N
103	4	64	28	Unid	Skull													W		1	0.40	Fragment of burnt possible skull bone,	N
103	5	64	28	Unid	Skull/ Rib													W		1	0.20	Tiny fragment of burnt possible rib/skull. Small to medium sized mammal	N
103	6	64	28	Unid	Unid													W		1	0.30	Burnt fragment of diaphysis possibly due to slight thickness in bone. Small-medium sized mammal	N
103	7	64	28	Unid	Skull													G,W		1	0.20	Possible fragment of skull of small mammal, inner cortex exposed. Bone is greying to white	N
103	8	64	28	Unid	Skull/ Rib													G,W		5	0.40	Series of 5 fragments possibly from rib or skull due to thin nature of bone, from small to medium sized mammal.	N
103	9	39	26	Cow	Jaw						1									5	4.80	Un-burnt fragments of cow jaw. Bone is in moderate-poor state of preservation. Metrics not possible.	N
103	10	39	26	Cow	M1														R	4	5.60	Cracked, partially intact crown and root of cow M1. Low degree of blackening at the margins of the tooth. Possible evidence of rodent gnawing in the form of 3 puncture marks on root surface. Dental notes taken	N
103	11	40	24	Cow	Molar													G		18	1.90	V fragmented and v poorly preserved root of cow molar. Not possible to discern which molar due to tiny nature of pieces. Inside surface is greying possible exposure to heat. Dental notes not possible	N
103	12	44	14	Unid	Skull													B,G		9	2.40	Series of small to tiny pieces of unidentified burnt bone, possible skull of small-medium sized mammal.	N

103	13	44	14	Unid	Long Bone													1	0.60	Un-burnt section of diaphysis, unid, small to medium mammal	N
103	14	44	14	Unid	Skull													2	0.80	Unidentified to species.	N
103	15	44	14	Unid	Long Bone													4	2.80	Un-burnt section of diaphysis, badly fragmented, unidentifiable to species.	N
103	16	52	15	Unid	Long Bone											W		1	1.00	Section of burnt diaphysis bone, white in colour.	N
103	17	52	15	Unid	Long Bone											B,W		1	0.40	Burnt section of inner cortex of bone, possible diaphysis. Unidentifiable to species.	N
103	18	32	25	Cow	Molar													6	0.80	Series of small-tiny fragments of cow molar root. V poor condition. No crown. Dental notes not possible	N
103	19	32	25	Unid	Unid											W		1	0.40	Fragment of inner cortex of burnt bone, possible diaphysis.	N
103	20	32	25	Unid	Unid											W		1	0.30	Fragment of inner cortex of burnt bone, possible diaphysis.	
103	21	32	25	Unid	Long Bone											W,B		2	1.20	Fragment of diaphysis bone, possible medium to large mammal. Unidentifiable to species	
103	22	32	25	Unid	Long Bone											W		1	1.50	Fragment of thick diaphysis bone, possible medium to large mammal. Unidentifiable to species	

Key:

C= Context

S=Sample

Anat=Anatomical Element

Prox=Proximal

Dist=Distal

But=Butchery

Bu=Burnt

G=Gnaw

Q=Quantity of Pieces

P=Photograph

N=No

Unid=Unidentifiable

Tax=Taxon

B=Black

G=Grey

W=White

R=Rodent

Dental Notes:

Site	SPEC	Context	Sample	TAXON	(DP4) P4	M1	M2	M3	COMMENTS
103	10	39	26	Bos/Cow		M-N			18 Months + Other teeth not available but heavy wear sustained on Molar, at least adult if not old adult.