



## M1 DUNDALK WESTERN BYPASS

SITE 102: LITTMILL 2  
CHAINAGE Ch 17.580 – 17.660  
NGR: 302726 / 305324

### FINAL REPORT

ON BEHALF OF  
LOUTH COUNTY COUNCIL and the  
NATIONAL ROADS AUTHORITY

LICENSEE: BRIAN Ó DONNCHADHA  
LICENCE NUMBER: 02E01753

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**IAC** Irish Archaeological  
Consultancy



## NON-TECHNICAL SUMMARY

Irish Archaeological Consultancy Ltd. (IAC) undertook an excavation in the townland of Littlemill c. 4km to the southeast of Dundalk in advance of the construction of the Dundalk Western Bypass (DWB). The project was funded by Louth County Council and the National Roads Authority. The excavation was undertaken to ensure all subsoil archaeological remains were preserved by record in advance of construction groundwork.

The archaeological excavation 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. Site 102, at Littlemill 2 was identified during archaeological test-trenching, revealing three areas of archaeological interest, including a 19<sup>th</sup> century house and track way and a burnt spread.

The excavation of Site 102, Littlemill 2, was located between Chainage 17.570 – 17.635 (NGR 302726/305324). The excavation commenced on 2<sup>nd</sup> December 2002 and was completed by 10<sup>th</sup> December 2002 using a team of one Supervisor and four Assistant Archaeologists, directed by Brian Ó Donnchadha (Licence 02E1753). The total area excavated measured c. 3000m<sup>2</sup>. The site lies in a bowl shaped depression at c. 28m OD where there are numerous natural springs.

At Site 102, Littlemill 2, a large burnt mound or *fulacht fiadh* (truncated levelled by plough action) which had a roughly circular trough and a post-medieval building were recorded. No datable finds were recovered from the *fulacht fiadh*; however samples of burnt bone and charcoal were recovered with the charcoal sample taken for specialist wood and Carbon 14 analysis. The charcoal sample was retrieved from the fill of the trough identified in the *fulacht fiadh* and was identified as Hazel (*Corylus avellana*). Although *fulachta fiadh* are most prevalent in the Mid to Late Bronze Age Period (c. 1500–600BC), the returned date for Site 102, Littlemill 2 was Cal AD 890–1250. This dates the charcoal sample from the fill of the trough to the Early Medieval Period.

Many post-medieval finds were discovered from the topsoil of Site 102 in the vicinity of the ruined cottage and associated outbuildings, making this structure easily dateable to the post medieval period, most likely the 19<sup>th</sup> Century when considering the cartographic evidence also.

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# 1 INTRODUCTION

This report refers to an excavation carried out at site 102, Littlemill 2, in the townland of Littlemill, c. 2km to the southwest of Dundalk, Co. Louth. It was carried out as part of an archaeological mitigation program associated with the Dundalk Western Bypass (DWB). All archaeological fieldwork was directed by Brian Ó Donnchadha of Irish Archaeological Consultancy Ltd. (IAC) and was funded by Louth County Council and the National Roads Authority.

## 1.1 Site location

Site 102 is located in Littlemill townland, c. 2km southwest of Dundalk (Louth OS sheet number 7, Figure 1). The site is:

- Site 102, Excavation Licence 02E1753, route chainage (Ch) 17.570 – 17.635.

The site was identified as a result of archaeological test trenching undertaken by IAC in March 2002 under licence to Shane Delaney of IAC Ltd (Licence Ref.: 02E0373). The area comprised a very gently undulating landscape with the sites primarily focused on gently sloping land rather than at the upper or lower extent 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 terminates 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) ran from Ch16.000 to Ch23.870 (the Armagh Road, R177). Work on the southern end of Section 1 was previously 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 450m (see individual reports). The distance between Littlemill 1 and 2 was c.50m, with Littlemill 4/5 located 400m to the north of Littlemill 2 (Figure 5).

Background historical research undertaken as part of the EIS (Valerie J. Keeley Ltd, 2002) and this identified 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 (Figure 2) within the townland of Littlemill.

An area of 60m x 50m investigated during the archaeological resolution. A building survey of the upstanding remains of a cottage located to the N of Site 102 (Figure 6) was conducted also; with a post medieval date (possibly 19<sup>th</sup> century) suggested for the structure. A large spread of burnt clay and stone was also identified at Site 102, Littlemill 2. This site type which typically dates to the Mid to Late Bronze Age Period (c. 1500BC - c. 600BC), however Carbon 14 analysis of a sample of hazel charcoal retrieved from the fill of the trough returned an early medieval date of Cal 890AD – 1250AD.

### **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 this site by record.

Topsoil stripping of the area commenced on Monday the 2<sup>nd</sup> December 2002. Site 102, Littlemill 2 consisted of a team of one Supervisor and four Assistant Archaeologists. It was completed by 10<sup>th</sup> December 2002.

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 1:20 or 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 the Environment, Heritage and Local Government (formerly Dúchas -The Heritage Service). Charcoal samples were taken for species identification and Carbon 14 dating.

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. Typically, dating would involve pottery analysis through typological study and radiocarbon analysis.

## 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 N end of Dundalk Bay and is the administrative centre of County Louth, located in the northeast 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 notable. (Gosling 1993, 237). To the east of the urban district, the flat, low lying coastal plain comprises of recent estuarine and alluvial clays and silts, shaped by the sea level changes following the end of the last Ice Age period in Ireland c. 10000 years ago.

At the time of the earliest habitation in Ireland, the Early Mesolithic period: (c. 7000BC), the sea would have 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 17<sup>th</sup> 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-AD400)

The archaeological record provides evidence that the locality was occupied from the Late Mesolithic period (c. 4200BC) onwards, with the excavation of Mesolithic shell midden sites with flint material at Rockmarshall, (O Sullivan 2002, 10-11) c. 5 km northeast of the town of Dundalk.

Although we can say with confidence that substantial Neolithic activity is evidenced by the archaeological record from c. 4000BC onwards, which had many similar features with contemporary sites in Britain and Western Europe, uncertainty still remains concerning the circumstances of the arrival of Neolithic customs and traditions within Ireland and how the new economy altered the environment.

#### 2.1.1 Neolithic Period (c. 4000BC – c. 2500BC)

A debate ensues over whether the culture evident in Ireland during the Neolithic was a product of a migrating people into Ireland or an indigenous development from Mesolithic populations. The introduction of certain flora and fauna species, landscape management techniques, traits in architectural construction and domestic crafts, bearing with a striking resemblance to contemporary evidence in Britain has lead some authors to suggest colonisation from outside of Ireland Mitchell & Ryan (1997). Recent studies (Cooney 2000, 13) have suggested that a combination of small-scale

movement across the Irish Sea by migrating communities and developments within the existing Mesolithic populations within Ireland resulted in the innovative beginnings of this era.

Pollen records reveal forest clearances occurring before our earliest dated Neolithic sites or monuments; however this may be a reflection of some modern dating methods being too crude to discriminate between early and late Neolithic settlement rather than an indication of the true chronology (Mitchell & Ryan 1997). A debate ensues over whether the culture evident in Ireland during the Neolithic was a product of a migrating people into Ireland or an indigenous development from Mesolithic populations. The introduction of certain flora and fauna species, landscape management techniques, traits in architectural construction and domestic crafts, bearing with a striking resemblance to contemporary evidence in Britain has lead some authors to suggest colonisation from outside of Ireland Mitchell & Ryan (1997). Recent studies (Cooney 2000, 13) have suggested that a combination of small-scale movement across the Irish Sea by migrating communities and developments within the existing Mesolithic populations within Ireland resulted in the innovative beginnings of this era.

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 northeast of the site at Littlemill 2 (with the nearest example located at Faughart Lower (LH004-062), c. 6.5 km to the north) and scattered throughout the Cooley peninsula. Archaeological discoveries elsewhere on the DWB scheme revealed settlement evidence from the Neolithic period, with a the truncated remains of a late Neolithic/early Bronze Age house identified at Site 101, Littlemill 1 (O'Donnchadha forthcoming (d)), located c. 0.5km to the south of Site 105 (Donaghmore 8.)

Other Neolithic activity identified as part of the Dundalk Western Bypass consisted of Neolithic occupation at Site 120, Fort Hill (Bayley, forthcoming (a)), Late Neolithic/Early Bronze Age hearths and pits at Site 113, Newtownbalregan 5 (Bayley forthcoming (c)), a possible structure at Site 108 Donaghmore 1 (Ó Donnchadha forthcoming (e)) and a collection of pits possibly Neolithic/Early Bronze Age in dating at Site 103, Littlemill 4/5. (Ó Donnchadha (c)).

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

Bronze Age discoveries along the DWB consist of an Early Bronze Age Beaker (c. 2500BC - c. 2200BC) habitation site at Site 112, Newtownbalregan 2 (Bayley forthcoming (e)), located c. 3.1km north of site 106, Donaghmore 8. 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. 5.8km northeast of Site 102.

Site 102 at Littlemill 2 was similar in appearance to a burnt mound or *fulacht fiadh*. Over 4500 burnt mounds have been recorded in the country making them the most prevalent prehistoric monument in Ireland (Waddell, 1998, 174). The quantity of this site type is ever increasing as a result in most instances of development led archaeological investigations. In some cases burnt mounds or *fulachta fiadh* can occur in clusters, with a complex of 18 previously unrecorded sites excavated in 2001 on the N11 Newtownmountkennedy to Ballynabarney road scheme by Archaeological Development Services Ltd (ADS Ltd 2001) in Co. Wicklow. In County Louth, there are 18 recorded burnt mounds/*fulacht fiadh* noted in the Records of

Monuments and Places, a figure which must be regarded as a minimum representative of the original number (Buckley & Sweetman, 1991). This is further supported by the discovery of 3 other burnt mounds/*fulachta fiadh* as part of the DWB scheme at Site 111, Newtownbalregan 1.1, located 2km to the south, Site 113, Newtownbalregan 5 located 2.8km to the north and at Site 128, Faughart 1, 2 and 3 located 5.6km northeast of Site 118, Donaghmore 8. 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.

Although burnt mounds of shattered stone occur as a result of various activities that have been practiced from the Mesolithic to the present day, those noted in close proximity to a wooden trough are generally interpreted as Bronze Age (c. 2500BC - c. 500BC) cooking/industrial sites which were probably associated with a mobile or nomadic population, and are referred to as *fulacht fiadh*. A sample of charcoal from the fill of the trough at Site 102, Littlemill 2 (C7) was subject to charcoal and Carbon 14 analysis. The date returned did not correlate to the conventional Mid to Late Bronze Age dating (c. 1500BC - c. 600BC) for this site type, rather, an Early Medieval date was returned for Site 102, Littlemill 2 ranging from Cal 890AD - 1250AD (968 ± 85BP).

*Fulacht fiadh* generally consist of a low mound of burnt stone, commonly in horseshoe shape, and are found in low lying marshy areas or close to streams. Often these sites have been ploughed out and survive as a spread of heat shattered stones, with minimal surface expression in charcoal rich soil in close proximity to a trough and a water source. Recent studies have identified that radiocarbon dates support a predominantly mid to late Bronze Age (c. 1500 - c. 500 BC), and suggest multifunctional usage. Alternative theories which have been proposed include bathing, dyeing, metalworking and tanning. Experiments in 2007 postulated the theory that the primary use of the *fulacht* was for brewing beer (Moore Group Ltd 2007), however, it generally agreed that their primary function was to heat water by depositing fired stones into a water-filled trough (<http://www.mooregroup.ie/beer/fulacht.html>).

The types of stones available for heating can explain regional difference in the morphology of this site type. Sedimentary rocks produce more waste leaving large distinctive mounds as seen in classic upstanding examples in Cork, while igneous and metamorphosed rock could be frequently reused thereby leaving slighter traces as has been noted in northern counties. As a cooking site, stones would have been heated on a fire before being deposited in a trough of water. Experiments have shown that the water in the trough could be brought to the boil in about 20 min and 4.5kg joint of meat could be cooked in 3hr and 40min by this method (O' Kelly 1954).

The hot stones heat the water and after use the stones were discarded forming a mound behind the trough. A marked preference for drift-derived sedimentary rock to heat the water has been noted, although the use of naturally occurring bedrock is also known (Buckley 1990). The term *fulacht* or *fulacht fian* is found in early Irish literature from at least the 9<sup>th</sup> century AD and refers to open air cooking places often associated with the young warrior hunters of the *Fianna* and the legendary *Fionn Mac Cumhail* (Waddell, 1998, 174). Although they may have functioned as cooking sites, dates in the mid-late Bronze Age (c. 1500BC - c. 600BC) show that they significantly predate the cooking sites referred to in early Irish literature (Brindley & Lanting, 1990).

Burnt mounds/*Fulachta fiadh* tend to yield very few artefacts, even fewer of which have been useful in accurately and precisely dating this site type (Cherry 1990). Burnt mounds/*Fulachta fiadh* are also known to occur in Scotland, Wales and

England where they are variously referred to as 'burnt mounds', 'boiling mounds' or 'pot-boiler sites' (Buckley & Sweetman, 1991).

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

There is a marked lack of known Iron Age (c. 500BC -c. 500AD) activity within the surrounding area. The ring barrow identified at Site 131, Donaghmore 7 (Ó Donnachada 2002, forthcoming (g)) is the sole example of a definitive Iron Age site identified through the DWB archaeological investigations. The site is located 1.9km to the north and 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 (WK 18564). 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 (c. 500AD – c. 1100AD)**

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. 500AD – c. 1100 AD). The most recent study of the ringfort (Stout 2000) has suggested that there are 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. A previously unrecorded souterrain was identified at Site 114, Newtownbalregan 6 (Bayley 2003, forthcoming (d)) located c. 3.4km to the N of site 106, Donaghmore 8. Located in the interior of the extensive souterrain, a capstone decorated with Megalithic and possible Iron Age carvings was identified demonstrating the reuse of materials within the area. At Site 124, Carn More 1 (Delaney forthcoming (b)) located 2.6km to the northeast; a ringfort was identified in Area 1 and is listed in the Records of Monuments and Places as LH004-067 was excavated in advance of the motorway's construction. The site was originally listed as a circular enclosure.

Early Medieval activity was also identified at Site 109, Donaghmore 6 located 2.3km to the north, where two pits were identified (O'Donnchadha forthcoming (a)) and at Site 110, Donaghmore 5 (O'Donnchadha forthcoming (b)), located 2.3km to the north where two pits were identified in addition to the discovery of copper alloy fragment and a blue glass bead, which supports Early Medieval dating.

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 7<sup>th</sup> century AD. Their earliest appearance in the annals is in 688 AD, 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* or Oriel in the early 12<sup>th</sup> century.

The *fulacht fiadh* identified at Site 102, Littlemill 2 was Carbon 14 dated to Cal 890AD -1250AD (968 ± 85BP). Site 102, Littlemill 2 is 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).

### 2.3 Medieval Period (AD1169-1700)

The motte and bailey at Castletown (LH007-11807) located c. 3 km north of Littlemill 2, 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 Castletown and Dundalk environs was granted to the Anglo-Norman Bertram de Verdon following his arrival in 1185 and corresponds to the modern barony of Upper Dundalk (Gosling, 1993, 252). The de Verdon estate passed onto the Bellew's with many of tower houses constructed at this time. The Bellew's 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 15<sup>th</sup> 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 is recorded in the 'Dowdall deeds'. The lack of documentary sources and archaeological excavation in the area has led to gaps in the record regarding the size of the Anglo-Norman settlement and how it was laid out. By the 13<sup>th</sup> 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 siting on the major routeway linking Dublin with Ulster. It is probable that another factor influencing the move of the de Verdons 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 12<sup>th</sup> century. The new town also had the advantage of considerable natural defences. The site of the new town 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 13<sup>th</sup> century surviving property deeds make the distinction between the late 12<sup>th</sup> 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 Period (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 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 also 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 (Figure 3 & 4). This building had only become ruined in the past 20-30 years, and a large amount of 19<sup>th</sup> and 20<sup>th</sup> century ceramic and glass finds were found in and around the house supported this dating. 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 19<sup>th</sup> century. Vernacular Architecture is defined in James Steven Curl's Encyclopedia of Architectural Terms (1997) as 'a term used to describe the local regional traditional building forms and types using indigenous materials, and without grand architectural pretensions', i.e. the homes and workplaces of the ordinary people built by local people using local materials. This is in contrast to formal architecture, such as the grand estate houses of the gentry, churches and public buildings, which were often designed by architects or engineers.

## 3 THE EXCAVATION

### 3.1 Introduction

The excavation of Site 102, Littlemill 2 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 2<sup>nd</sup> December 2002 and the fieldwork in the areas below was completed on 10<sup>th</sup> 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 (formerly *Dúchas*-The Heritage Service) of the Department of Environment, Heritage and Local Government (DoEHLG). 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

### 4.1 GROUP 1: The Natural Drift Geology

#### 4.1.1 SUBGROUP {1000}: Natural drift geology

##### CONTEXTS:

C	Area	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 subsoil.

##### GROUP 1 DISCUSSION: Natural Geology

The sites identified at Littlemill, are on an agriculturally productive area of land that undulates between c. 20m OD and c. 33m OD that surrounds Dundalk. Site 102, Littlemill 2 lies in a bowl shaped depression at c. 28m OD where there are numerous natural springs (Ch17.570 – 17.635). The natural drift has been leached and discoloured by water action. In addition, areas of the field appear to have been washed by surface water in the past.

The conclusion is that there was a body of water at many times in this field in the past. However, the springs that occur in this field (approximately five); appear to have all been culverted by the time of the first edition Ordnance Survey in 1836. No deposits of peat were found in this field.

## 4.2 GROUP 2: Early Medieval Activity

### 4.2.1 SUBGROUP {1001}: A burnt mound and associated trough.

#### CONTEXTS:

C	Type	Fill of	Filled by	Interpretation	Description	Area
3	Depression	n/a	4	Natural Depression	Irregular linear in plan, shallow, base irregular, 0.25d x 12.00l x 7.00w N-S.	10/20
4	Fill	3	n/a	Burnt spread	Black, loose very ch-rich clay, rare bb, very freq s-m sub-ang, stained black.	10/20
6	Cut	n/a	7	Cut of trough	Circular in plan, shallow NE side steep, SW side shallower, base flat generally, 0.16depth x 1.35m diameter.	10/20
7	Fill	6	n/a	Fill of trough	Charcoal stained, med sub-ang stones, occ burnt stone+burnt bone.	10/20

**FINDS:** None

**FIGURE:** Figures 6, 7 & 8

#### INTERPRETATION:

Located in an area riddled by natural springs and roughly the typical horseshoe shape, {1001} consisted of a single cut feature, a trough [6] located in a natural depression (3) in the localised topography. This natural depression appears to have been utilised advantageously in terms of reducing the labour involved in the construction of the burnt mound and in terms of its location in proximity to the natural springs in the area. The circular shaped trough was cut a natural depression (3), which was sealed by the burnt mound material (4). A circular shaped trough [6] cut the burnt material (4) and was filled by burnt stone material (7) which is suggestive of it being deliberately placed into the trough [6] to mark the end of the burnt mounds' usage.

#### GROUP 2 DISCUSSION: Burnt Mound And Trough

Group 2 relates to a burnt mound and trough which was identified as early medieval in date following Carbon 14 dating.

Group	Sub Group	Subgroup type	Period by finds/stratigraphy	Period by interpretation	Group Interpretation
2	1001	Cut	EM	EM	Early Medieval Activity
2	1001	Trough	EM	EM	Early Medieval Activity

#### SUMMARY:

A single sub-circular shaped mound of burnt stones and charcoal deposits was identified at Site 102, Littlemill 2. Buried beneath this deposit was a roughly circular trough filled by burnt stones and occasional charcoal (Figure 7). The most prevalent archaeological theories suggest that burnt mounds such as this example at Littlemill 2, are the physical remains of devices for creating hot or boiling water. No datable finds were retrieved from Site 102, Littlemill 2; however a sample of bone was recovered from the burnt mound which was unsuitable for analysis. It was not therefore possible to state whether the mound had a primary a cooking function.

A sample of charcoal was taken for specialist analysis and was identified as Hazel (*Corylus avellana*). The sample of charcoal was submitted for Carbon 14 analysis in order to ascertain an accurate date for the burnt mound. The dates returned ranged from Cal 890AD -1250AD, breaking with the conventional Mid to Late Bronze Age dating (c. 1500BC - c. 600BC) for this site type.

### 4.3 GROUP 3: Post Medieval and Modern Activity

#### 4.3.1 SUBGROUP {1002}: Topsoil

##### CONTEXTS:

C	Type	Fill of	Filled by	Interpretation	Description	Area
1	Cut	n/a	n/a	Topsoil		Entire Site

##### INTERPRETATION:

Subgroup {1002} is the topsoil that covered the site. Found throughout the topsoil as surface finds was a wide assortment of blackware, China delft, glass bottles, and clay pipes, all of which belong to the post-medieval period. The above was suggestive of widespread agricultural use during the post medieval period, and this can be said to be the case with the present day land usage. In the NE of the Littlemill 2 site stood the ruins of a 19<sup>th</sup> century cottage, farmyard, and lane. To the west of the house was a large spread of kitchen 'midden' type material, on inspection, all the inclusions appeared to be late 19<sup>th</sup> or 20<sup>th</sup> century in date. Anecdotal evidence, from the previous landowner, states that this house had been occupied until relatively recently, having only fallen into disrepair within the last 20-30 years.

#### GROUP 3 DISCUSSION: Post Medieval and Modern Activity

Group	Sub Group	Subgroup type	Period by finds/stratigraphy	Period by interpretation	Group Interpretation
3	1002	Topsoil	PM	PM	Post Medieval Activity

##### SUMMARY:

The post-medieval and modern activity consists of a house structure and accompanying outbuildings, a farmyard, a lane, and a midden. There were also two man-made drainage culverts. The house dates to the 19<sup>th</sup> century, many alterations are evident, and it was still occupied up to 20 or 30 years ago. Many post-medieval finds were discovered here {1002} therefore, a post-medieval date is acceptable with regard to this site.

The house was rectangular measuring 10.50m in length x 7m in width, with a gable end at the north and south elevations. The eastern side of the house, fronted onto a track, extending north-south from the southern side of the Knockbridge Road R171, had been demolished. The surviving portions of the western elevation wall stood at a height of 3.10m and the elevation contained three window opes (Plate 3 & 4). The average dimensions for these window opes were 0.70m in length x 0.40m in width and they were positioned 0.90m above the internal floor surface. The house, which is single storey, was originally divided into two rooms measuring 5.90m in length x 2.10m in width and 7.30m in length x 5.90m in width respectively. The northern room had a fireplace incorporated into the internal elevation of the north gable end of the building and was clearly the principal room within the structure (Plate 7). The function of the south room is unclear based on the surviving elements of the room; it was possibly used for storage as it was only accessible from the track to the west. The building was constructed from roughly coursed local stone.

Alterations and additions were clearly visible within the structure, with all windows and doorjambes having been replaced with red brick surrounds (Plate 5 & 6). In addition, the fireplace in the northern elevation of the principal room was evidently rebuilt or refaced in red brick. This room showed evidence for having been divided into two by a partition wall. The division created two new rooms measuring 5.90m in length x 3m in width and 5.90m in length x 4m in width respectively with the fireplace located in the larger of the two rooms. The redbrick partition wall itself was 0.3m in

thickness. The final phase of the buildings construction was evidenced by the roof being tiled with slate tiles, as numerous examples lay around the site.

To the south there was a small extension that seems to have functioned as an additional 'outside' toilet. The house had been connected to the Electricity Supply Board in the recent past and anecdotal evidence from the previous landowner, states that this house had been occupied until relatively recently and has only fallen into disrepair within the last 20-30 years.

To the west of the house was a large spread of 'kitchen midden' type material. However, closer inspection, all the inclusions appeared to be late 19<sup>th</sup> or 20<sup>th</sup> century in date.

The track way/lane was accessed from the S side of the Knockbridge Road (R171) through a stone and red brick gateway, set in a coarse stone and red brick wall, extending north-south to the west of the cottage. At its southern end, the track was flanked by a large stone circular gatepost that, it's surviving elements measuring 2m high.

The entire farm complex was set in a terrace cutting into the land rising to the east. The eastern limit to the terrace cut coincides with the eastern side of the track/laneway. The terrace had a cut depth of 0.67m. To the eastern of this track, the traces of a now demolished boundary wall of brick and stone were discernable.

## 4.4 Synthesis

### Open Area 1: Geology and natural topography:

The Littlemill sites are on an agriculturally productive area of land that undulates between c. 20m OD and c. 33m OD contour lines to the west of Dundalk. Site 102, Littlemill 2 lies in a bowl shaped depression at c. 28m OD, where there are numerous natural springs (Ch17.570 – 17.635). The natural drift has been leached and discoloured by water action. In addition, in some areas of the field, there appears to have been washed by surface water in the past.

The conclusion is that there was a body of water at many times in this field in the past. However, the springs that occur in this field (approximately five) have all been culverted by the time of the first edition Ordnance Survey of 1838. No peat deposits were identified in this field.

### Open Area 2: Use of site for a Burnt Mound, Early Medieval Period

A single irregularly shaped sub-circular mound of burnt stones and charcoal deposits was identified at Site 102, Littlemill 2. The mound measured 12m in length x 7m in width and 0.25m in depth with a roughly circular 'trough' sealed beneath this deposit. The trough measured 1.35m in diameter and 0.16m in depth and was filled with burnt stone material and occasional deposits of charcoal.

The date of the burnt mound is based on a date obtained from a sample of charcoal from the fill of the trough (C7). The wood was identified as Hazel (*Corylus avellana*), following specialist analysis and a small sample (1.2g) was chosen for Carbon 14 dating. This charcoal sample returned a date of 968 +/- 85 BP (WK – 185530) (Appendix 2.1). The 2 sigma calibrated result from this sample produced a date of Cal 890AD– 1250AD. This dates this burnt mound to the later stages of the Early Medieval Period. This date breaks with the conventional Mid to Late Bronze Age dating for this site type. In general, it is considered that most burnt mounds date from the Bronze Age onwards and as such, this is an unusual site considering its date within the latter part of the early medieval Period.

Various interpretations have been proposed regarding the function and origin of burnt mounds, with the most widely held view that they were used for cooking. Other theories put forward include tanning leather or dyeing material or even preparation of a ceremonial alcohol drink. Although some burnt animal bone was recovered, there were no diagnostic finds.

### Open Area 3: No discernible landuse

There is no evidence for on-site activity from the disuse of the burnt mound until the post-medieval period. The site continued as a known area of springs and it is likely that there was often standing water in the field. However, site conditions were not suitable for the growth of peat deposits.

### Open Area 4: Land reclamation, and post-medieval use

The springs were culverted and the field used for agricultural purposes during the post-medieval and modern periods. The stimulation for the reclamation may have been the construction of the R171 (most likely a military road) from Dundalk to Louth village.

### Building 1: Post-medieval Farm associated with Open Area 4

A farmhouse consisting of a single bungalow dwelling was built on the eastern side of the R171, accessed by brick built gate piers. This building is visible on the 1835 OS



survey but also showed considerable signs of alteration during the 19<sup>th</sup> and 20<sup>th</sup> centuries.

## 5 DISCUSSION

### 5.1 Realisation of the original research aims

This section examines the extent to which assessment of the results of the excavation reveal 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 of Site 102, Littlemills 2 and Responses (**R**) based on assessment of the site data.

#### **Site 102, Littlemill 2**

**ORQ 1:** *How many 'burnt mounds' are present on this site?  
Are there associated structures, troughs, areas of burning or other features? If so what are the forms and functions?*

**R:** A single sub-circular mound of burnt stones and charcoal {1001} was identified at Ch17.590. Sealed beneath the burnt mound was a roughly circular 'trough' filled by burnt stones and occasional charcoal deposits.

**ORQ 2:** *Are there areas where different activities were undertaken? Does the site change in use through time?*

**R:** During topsoil stripping of this low-lying, marshy field, five sources of water were identified; three were naturally occurring fresh water springs, while the remaining two were man-made drainage culverts. The burnt mound was located centrally among these watercourses, however it was not directly associated with any of them. The nature of the field is bowl shaped with the bowl base in the area towards the Knockbridge Road R171. In all likelihood there was a pool located here fed by the springs, and the burnt mound was on the southern side of this pool. The present stream flows in a SW direction along the southern side of the Knockbridge Road (R171).

In relation to the burnt mound, the quantities of material (which represent the duration in which the trough was filled by hot stones) suggest that this burnt mound was a single phase event, with the burnt mound (7) material deliberately placed within the trough [6], marking the end of the mounds usage.

Various interpretations have been proposed regarding the function and origin of burnt mounds, with the most widely held view that they were used for cooking, by creating hot or boiling water. Hot or boiling water has many domestic and industrial uses. Other theories put forward include tanning leather or dyeing material and recently the preparation of a ceremonial alcohol drink (Moore Group Ltd 2007). Although small quantities of burnt animal bone were recovered, there were no diagnostic finds at Site 102, Littlemill 2.

In more recent times the area has been subject to post medieval activity in the form of the construction a small (probably 19<sup>th</sup> century) vernacular house and associated farmyard, which has become ruined in the past 20-30 years.

**ORQ 3:** *What is the dating sequence for the burnt areas and how does the site change through time?*

**R:** Burnt mounds or *fulachta fiadh* are traditionally associated with Mid to Late Bronze Age dating (c. 1500BC - c. 600BC), however the date returned following Carbon 14 analysis did not correspond with the conventional dating for this site type. The analysis returned the dates Cal 890AD -1250AD, (968 ± 85BP), placing this site in the later stages of the Early Medieval Period.

**ORQ 4:** *What is the nature of the finds and environmental evidence? Are there finds associated with the site use? Are there waterlogged deposits and is there wood or other organic survival?*

**R:** A sample of bone was recovered from the burnt mound, however the sample was unsuitable for analysis and as such it was not possible to state whether this site had a primary cooking function. A sample of charcoal was taken for specialist wood analysis and was identified as Hazel (*Corylus avellana*).

**ORQ 5:** *How many buildings are present, what were the construction methods and are there different phases of construction and use?*

**R:** The only buildings present on site was a ruined 19<sup>th</sup> century farm complex consisting of a single storey, three bay stone cottage and associated small scale outbuildings. The structures are located on the S side of the Knockbridge Road R171 (Ch17.640). The cottage had been re-furbished in the 20<sup>th</sup> century and had become a ruin in the last 20 to 30 years.

**ORQ 6:** *What are the dates of construction and occupation?*

**R:** See ORQ5.

## 5.2 Conclusions

Site 102 revealed the remains of a truncated *fulacht fiadh* consisting of a burnt mound and a trough. Burnt mounds or *fulachta fiadh* are traditionally associated with Mid to Late Bronze Age dating (c. 1500BC - c. 600BC), however the date returned following Carbon 14 analysis of a charcoal sample taken from the fill of the trough did not correspond with the conventional dating for this site type. The analysis returned the dates Cal 890AD -1250AD, (968 ± 85BP), placing this site in the later stages of the Early Medieval Period. O'Neill (2003-2004, 83) notes the occurrence of later burnt mounds at Site 23 Killoran Co. Tipperary (Stevens 1998) dated to 660AD - 880AD (Beta -117550); Nenagh Co. Tipperary (Murphy 2000) dated to 1270AD - 1420AD (UCD 0104) and Ballymount Great (Ó'Neill 2002) 1400AD -1630AD (GrN-27659). Burnt mounds which are occurring later in the chronological sequence tend to be large and oval or circular in form like the example at Littlemill 2, and tend not to contain linings or troughs (O'Neill pers.comm., 2007) however a trough was identified at Site 102, thus highlighting the uniqueness of this *fulacht fiadh* site.

The results from this excavation add to the existing body of data concerning burnt mounds or *fulacht fiadh* nationally. This is especially pertinent in light of the unconventional dating provided by the Carbon 14 analysis of the *fulacht fiadh* at Site 102, Littlemill 2, which attributes the site to the latter part of the Early Medieval Period cal 890AD -1250AD.

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Site 102  
Littlemill 2

DUNDALK  
WESTERN BYPASS

DUNLEER DUNDALK  
MOTORWAY



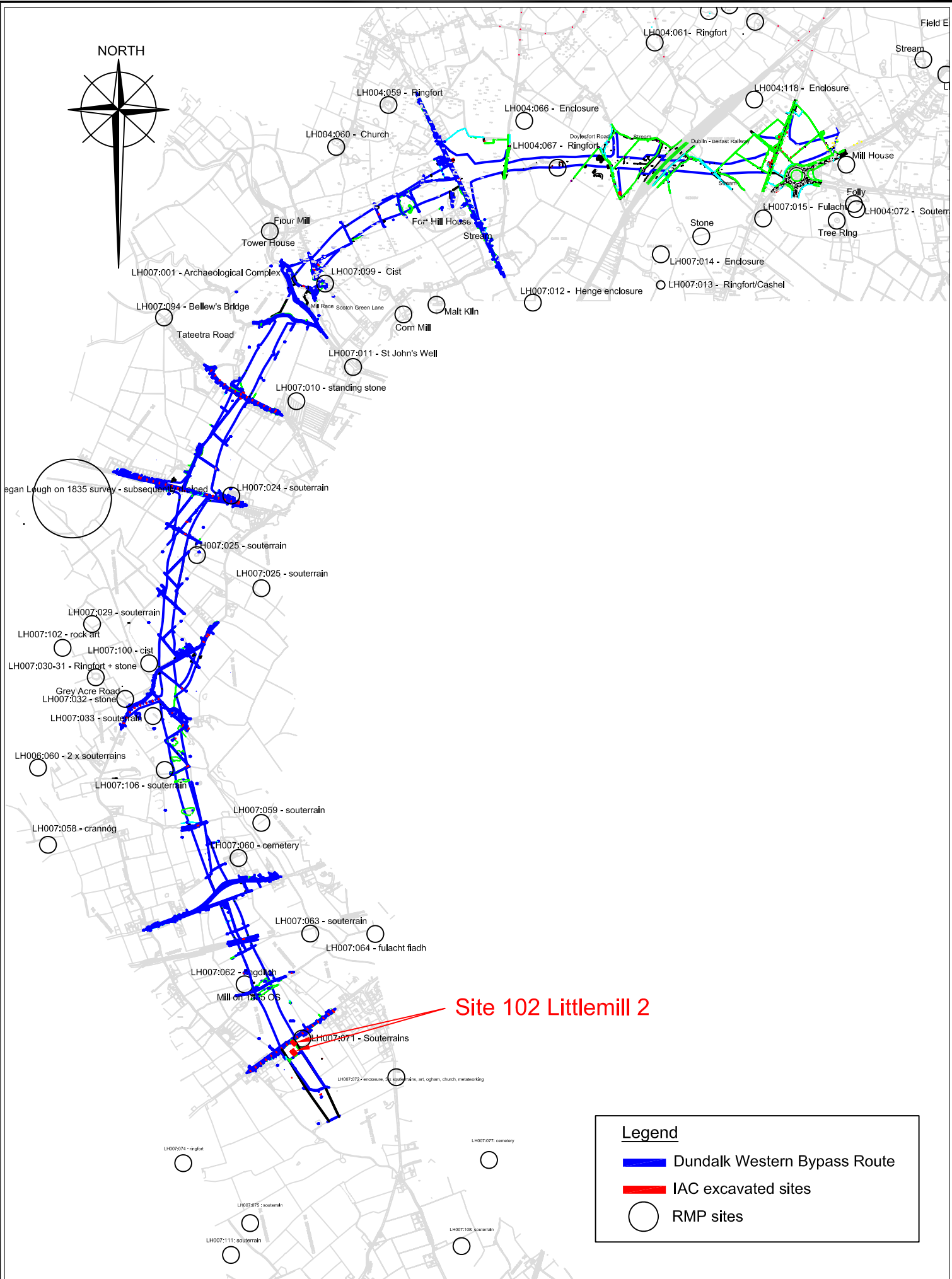
Irish  
Archaeological  
Consultancy Ltd.

Title: Site 102, Littlemill 2 Site location  
Project: M1 Dundalk Western Bypass  
Client: Louth County Council

Scale: N.T.S.  
Date: 14/11/07  
Produced by: P Higgins  
Job No: J2041  
Figure No: 1



NORTH



Site 102 Littlemill 2

### Legend

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



Irish  
Archaeological  
Consultancy Ltd.

Title: Extract from RMP map showing location of Site 102, Littlemill 2

Project: M1 Dundalk Western Bypass

Client: Louth County Council

Scale: 1:30000

Date: 14/11/07

Produced by: P Higgins

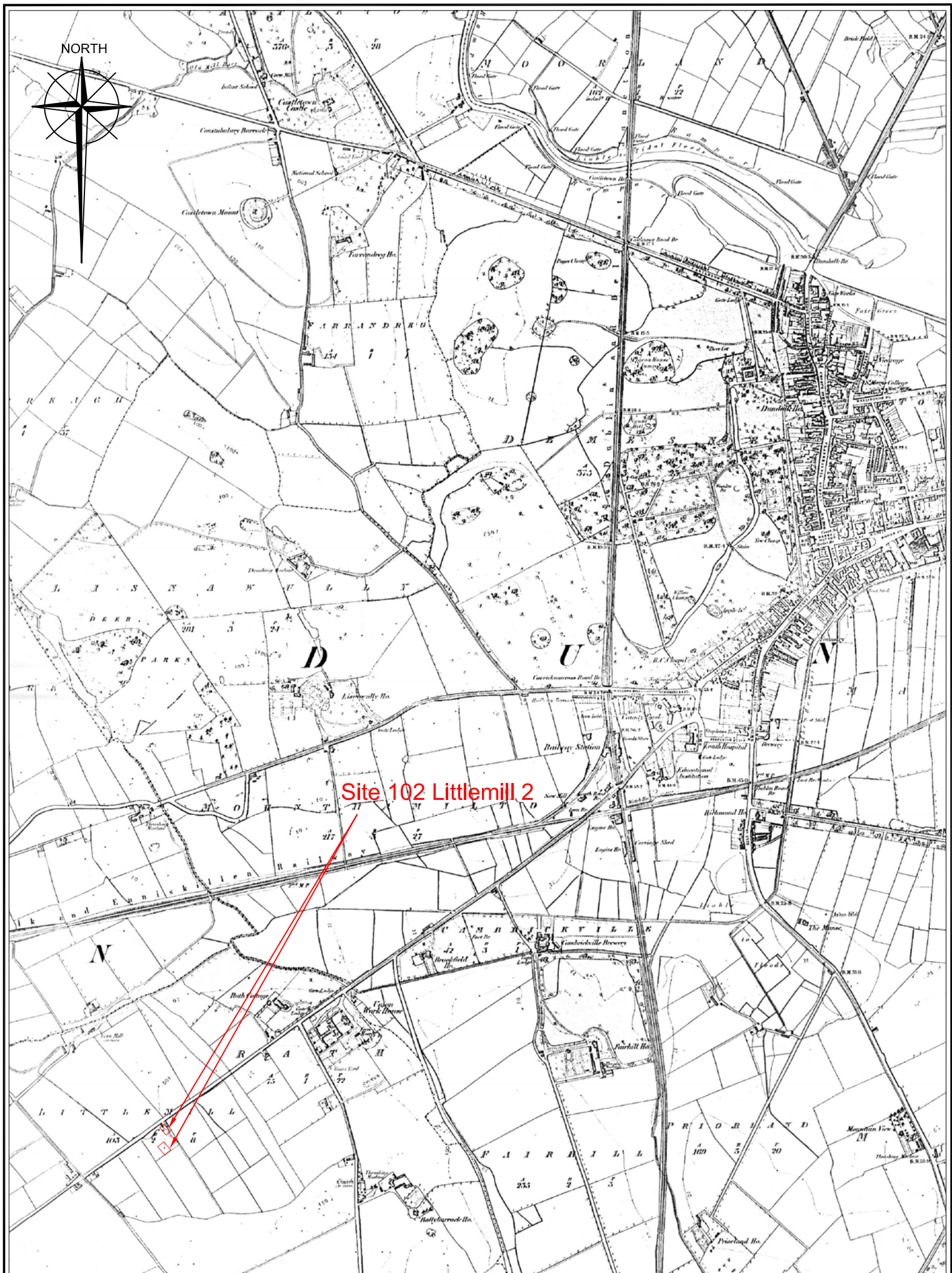
Job No: J2041

Figure No: 2









Site 102 Littlemill 2

Title: Extract from second edition OS map (1864)  
showing location of site 102 Littlemill 2

Project: M1 Dundalk Western Bypass

Client: Louth County Council

Scale: N.T.S.

Date: 14/11/07

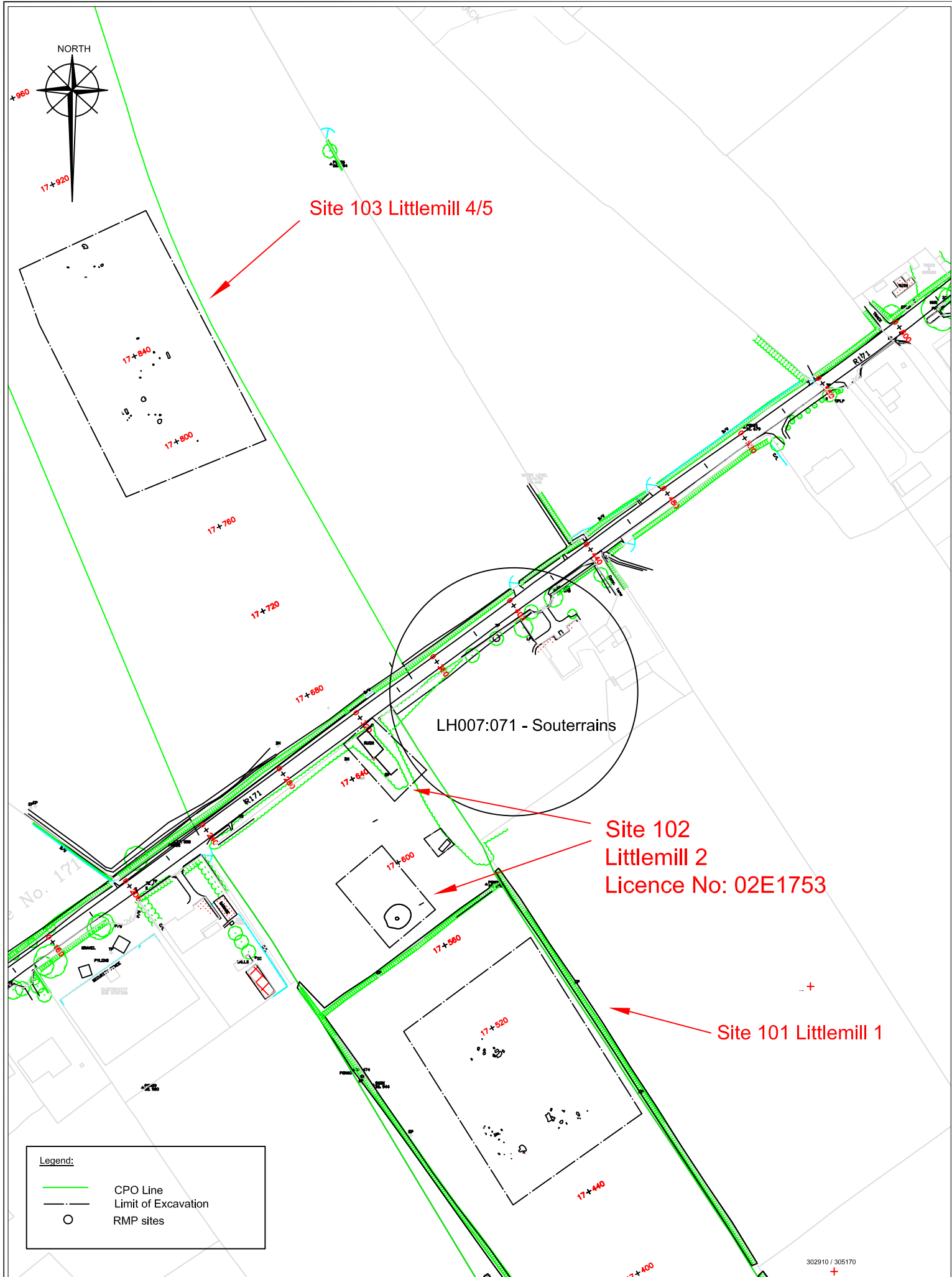
Produced by: P Higgins

Job No: J2041

Figure No: 4



Irish  
Archaeological  
Consultancy Ltd.



Irish  
Archaeological  
Consultancy Ltd.

**Title:** Location of site 102 Littlemill 2 within the Dundalk Western Bypass Road Scheme

**Project:** M1 Dundalk Western Bypass

**Client:** Louth County Council

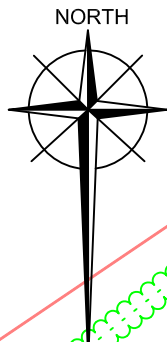
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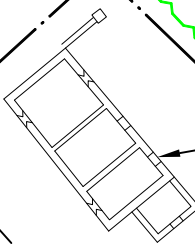
**Produced by:** P Higgins

**Job No:** J2041

**Figure No:** 5

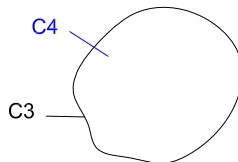


Plan of ruined house



302695E  
305335N

302735E  
305335N



302735E  
305320N

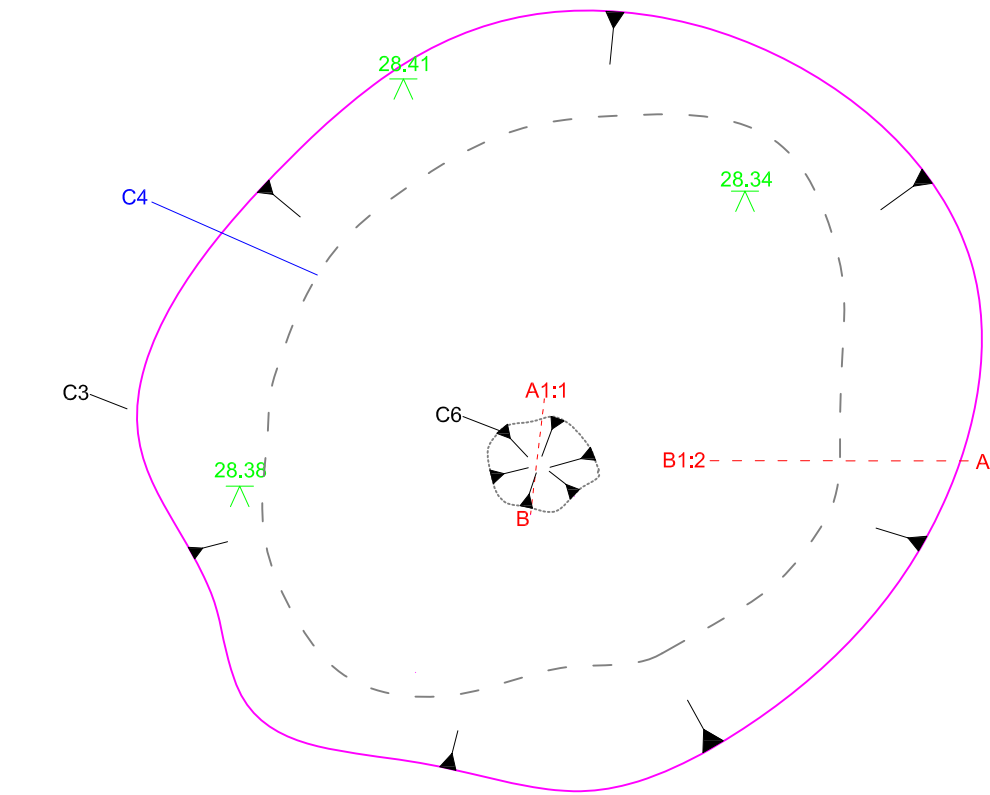
OIL  
TANK


Legend	
C##	Fill number
- - -	Section line
- . - . -	Limit of excavation
^	OD Levels
—	CPO



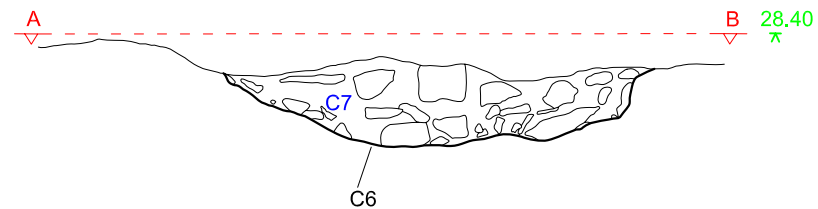
Irish  
Archaeological  
Consultancy Ltd.

Title:	Pre Excavation Plan of Site 102, Littlemill 2	Scale:	1:500
Project:	M1 Dundalk Western Bypass	Date:	14/11/07
Client:	Louth County Council	Produced by:	P Higgins
		Job No:	J2041
		Figure No:	6

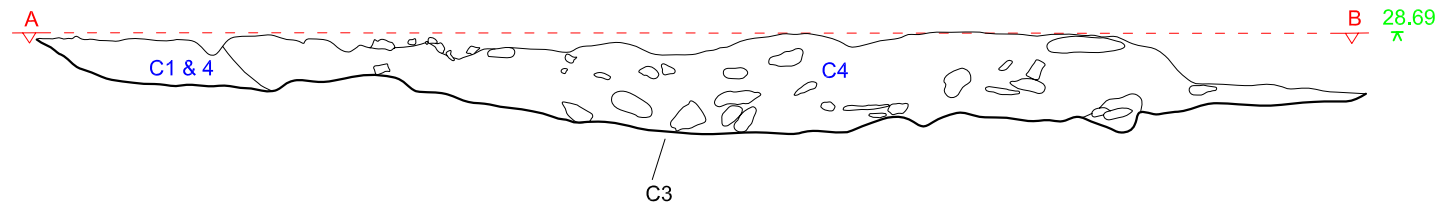


 <p>Irish Archaeological Consultancy Ltd.</p>	<b>Title:</b>	Post-excavation plan of <i>fulacht fiadh</i> Site 102, Littlemill 2	<b>Scale:</b>	1:100
	<b>Project:</b>	M1 Dundalk Western Bypass	<b>Date:</b>	14/11/07
	<b>Client:</b>	Louth County Council	<b>Produced by:</b>	P Higgins
			<b>Job No:</b>	J2041
			<b>Figure No:</b>	7

Littlemill 2  
North West Facing Section #1:1 of C6



Littlemill 2  
North Facing Section #1:2 of C3



# Legend

- C## Fill numbers
- C## Cut number
- Stone
- OD Levels



Irish  
Archaeological  
Consultancy Ltd.

Title:	Site 102 Littlemill 2. Section of Group 2 (Burnt Mound, trough)
Project:	M1 Dundalk Western Bypass
Client:	Louth County Council

Scale:	1: 20
Date:	14/11/07
Produced by:	P Higgins
Job No:	J2041
Figure No:	8





Plate 1 – General overhead view of Site 101, Littlemill 1 and Site 102, Littlemill 2



Plate 2 – Overhead view of Site 102, Littlemill 2





Plate 3 – Northerly internal room of 19<sup>th</sup> century cottage with wooden timber frame, facing west



Plate 4 – Southerly internal room of 19<sup>th</sup> century cottage with wooden timber frame, facing west





Plate 5 – South east corner of cottage from interior



Plate 6 – South east corner of cottage, facing west



Plate 7 – North gable of  
cottage, facing north  
(interior)

## APPENDIX 1: CONTEXT INDEX

C	Area	Fill of	Filled by	Interpretation	Description
1	Site	n/a	n/a	Topsoil	
2	Site	n/a	n/a	Natural	Mid yellow grey sandy clay with frequent mixed stones.
3	10/20	n/a	4	Depression	Irregular circular in plan, shallow, base irregular, 0.25d x 12.00l x 7.00w N-S.
4	10/20	3	n/a	Burnt spread	Black, loose very ch-rich clay, rare bb, very freq s-m sub-ang, stained black.
5	Void	Void	Void	Void	void
6	10/20	n/a	7	Cut of trough	Circular in plan, shallow NE side steep, SW side shallower, base flat generally, 0.16d x 1.35d diameter.
7	10/20	6	n/a	Fill of trough/ Burnt mound debris	Charcoal stained, med sub-ang stones, occ burnt stone+burnt bone.
8				Linear feature	Non archaeological
9				Possible pit	Non archaeological
10				Fill of [8]	Non archaeological
11				Fill of [9]	Non archaeological

## APPENDIX 2: SPECIALIST REPORTS

### APPENDIX 2.1: RADIOCARBON DATING REPORT

The University of Waikato Radiocarbon Dating Laboratory  
One C 14 date was established for the site at Littlemill 2

The un-calibrated result is as follows:

Wk18553	Littlemill 2; 02E01753:( <b>C7</b> ), <b>Hazel Charcoal (1.2g)</b>
dC13	-25.9+/-0.2
% modern	88.7+/-0.9
Result	968+/-85 BP

The calibrated results were processed using the Intcal 04 calibration curve. The result (95.4% probability) was as follows:

Wk18553	Littlemill 2; 02E01753:( <b>C7</b> ), <b>Hazel Charcoal (1.2g)</b> Cal AD 890-1250AD (95.4% probability)
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**Intcal 04 reference:** Reimer, P. J., Baillie, M. G. L., Bard, E., Bayliss, A., Beck, J. W., Bertrand, C. J. H., Blackwell, P. G., Buck, C. E., Burr, G. S., Cutler, K. B., Damon, P.E., Edwards, R. L., Fairbanks, R. G., Friedrich, M., Guilderson, T. P., Hogg, A. G., Hughen, K. A., Kromer, B., McCormac, G., Manning, S., Bronk Ramsey, C., Reimer, R. W., Remmele, S., Southon, J. R., Stuiver, M., Talamo, S., Taylor, F. W., van der Plicht, J., Weyhenmeyer, C. E., IntCal04 Terrestrial Radiocarbon Age Calibration, 0 - 26 ka cal BP, *Radiocarbon* 46 (nr 3, 2004).

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**Report on Radiocarbon Age Determination for Wk- 18553**

**Submitter** Li Johnston  
**Submitter's Code** Little Mill 2/7/3  
**Site & Location** Dundalk Western Bypass, Ireland  
**Sample Material** Hazel  
**Physical Pretreatment** Possible contaminants were removed. Washed in ultrasonic bath.  
**Chemical Pretreatment** Sample washed in hot 10% HCl, rinsed and treated with hot 0.5% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

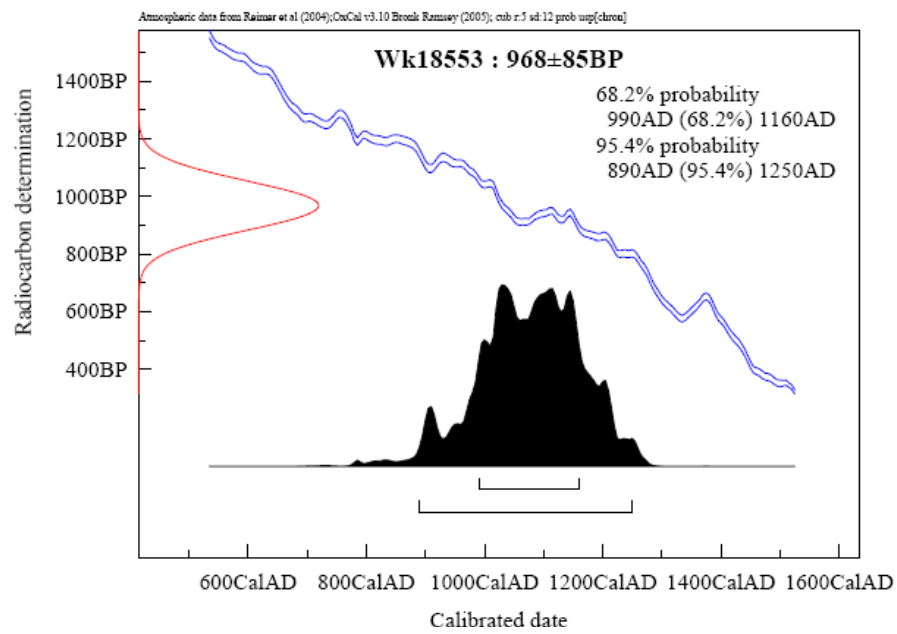
$\delta^{14}\text{C}$	$-115.0 \pm 9.4$	‰
$\delta^{13}\text{C}$	$-25.9 \pm 0.2$	‰
$\text{D}^{14}\text{C}$	$-113.5 \pm 9.4$	‰
% Modern	$88.7 \pm 0.9$	%
<b>Result</b>	<b><math>968 \pm 85</math> BP</b>	

**Comments**

*Alan Hogg*

3/5/06

- Result is *Conventional Age* or *% Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1.
- The isotopic fractionation,  $\delta^{13}\text{C}$ , is expressed as ‰ wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.



## **APPENDIX 2.2: CHARCOAL SAMPLE REPORT**

### **SPECIES IDENTIFICATION REPORT OF CHARCOAL SAMPLES FROM**

**SITE 102: LITTLEMILL 2  
CHAINAGE Ch 17.580 – 17.660  
NGR: 302726 / 305324**

**ELLEN O'CARROLL**

**FEBRUARY 2006**



## 1. INTRODUCTION

One charcoal sample was submitted for analysis. The charcoal was excavated from the trough area of a *Fulachta fiadh* excavated at Littlemill 2, Co Louth. Littlemill 2 is located in an area of natural springs south west of Dundalk town on the southern end of the M1 Dundalk By-Pass. Other sites excavated close by to the area comprises Littlemill 1 to the south, which was interpreted as a Neolithic settlement site and Littlemill 4 and 5. The *Fulachta fiadh* excavated at Littlemill 1 was roughly the typical horseshoe shape of a burnt mound comprising a depression [C3], possibly natural in origin, containing burnt spread material [C4]. Under the spread of burnt material was the trough [C6] a roughly circular cut filled by [C7], the same burnt mound material as [C4]. Fill [C7] was most likely deliberately placed into trough [C6] to mark the end of the burnt mounds' usage.

The charcoal sample identified and analysed was taken from C7, the fill of the trough. The charcoal was sent for species identification prior to <sup>14</sup>C dating and also to give an indication of the range of tree species, which grew in the vicinity. Charcoal and wood analyses may also provide information on the utilization of certain species for various functions. Wood used for fuel at pre-historic sites would generally have been sourced at locations close to the site. Therefore species identifications may, but do not necessarily, reflect the composition of the local woodlands.

## 2. METHODS

The process for identifying wood, whether it is charred, dried or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990). The identification of charcoal material involves breaking the charcoal piece so as a clean section of the wood can be obtained. This charcoal is then identified to species under an Olympus SZ3060 zoom stereomicroscope. By close examination of the microanatomical features of the samples the species were determined. The diagnostic features used for the identification of charcoal are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement and also the type of perforation plates.

## 3. QUANTIFICATION/RESULTS

Table 1: Results from charcoal identifications

Site no.	Context No and type	Sample No	Identification	Weight and comment
Littlemill 2 02E1753	C7, Charcoal from of trough	3	Hazel ( <i>Corylus avellana</i> )	1.2g

## 4. PROVENANCE

The charcoal sample was retrieved from the fill [C7] of a trough associated a *fulachta fiadh*. The excavator has interpreted this material as most likely to have been deliberately placed into the trough [C6] to mark the end of the burnt mounds' usage.

The sample has been identified as hazel (*Corylus avellana*). The exact function attributable to the charcoal is difficult to interpret, as it does not appear to have performed a structural function. The charcoal may represent the last fire or burning



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

## 5. CONSERVATION

The samples presented for analysis is only suitable for an AMS  $^{14}\text{C}$  dating as it weighs only 1.2 grammes. The desired amount of charcoal for a conventional  $^{14}\text{C}$  date is 5 grammes. The best material to send for dating is shorter-lived species such as alder and hazel therefore the sample identified above is ideal for  $^{14}\text{C}$  dating purposes.

## 6. COMPARATIVE MATERIAL

In recent years a considerable amount of structural as well as non-structural wood has been recovered from archaeological deposits in Ireland. Wood was a vital and widely used raw material from prehistoric to medieval times although its importance is rarely reflected in the analysis of archaeological assemblages mainly due to its perishable nature. It is important to note that people in prehistoric, Early Christian and medieval communities were mainly dependant on woodland resources for the construction of buildings and for the manufacture of most implements. The woods in a surrounding catchment area were exploited and often managed to provide an essential raw material for the community. The economic importance of wood cannot be overestimated.

A study of the range of species on an archaeological site offers an indication of the composition of a local woodland in its period of use. When some trees are felled the stool left in the ground will produce several new stems, which will grow rapidly. This type of management is known as coppicing. In many woodland areas a number of species of wood are suitable for the production of crops of long narrow stems used for fences, brushwood, hurdle trackways and wattle walls.

From the preliminary studies mentioned above it is clear that oak was the most common species used for wall-posts and planks, hazel was preferred for wattle structures and species such as ash, willow, alder, birch and holly were utilised for a variety of other structural requirements. The work carried out on species selection suggests that availability around a given catchment area was probably the main factor which influenced choice of timber.

The charcoal assemblage from Littlemill 2, although as yet undated, is probably associated with the later pre-historic period (Bronze Age) and represents the remains of material deliberately placed into the trough [C6] to mark the end of the burnt mounds' usage.

The author has carried out a large number of charcoal identifications from excavated *fulachta fiadh* or burnt mound sites and a range of species is generally identified from these cooking places. It is difficult to make direct comparisons with similar sites and assemblages due to the small sample set and the enigmatic function attributable to the

sample. Alder (*Alnus glutinosa*) is generally the most dominant species identified from excavated *fulachta fiadh* but hazel is also represented among these assemblages.

Although the excavator has ascribed the charcoal as material deliberately placed into the trough [C6] to mark the end of the burnt mounds' usage it is not inconceivable that the hazel charcoal was associated with a wattle structure surrounding the trough. The use of hazel wood within troughs/boiling pits associated with *fulachta fiadh* has been observed at other Bronze Age sites throughout Ireland. These include (Derryville bog, Co. Tipperary (97E0158), Hughestown trough, Co. Roscommon (99E0401), Derrinumbera, Co. Mayo (03E1209) and Monanny 2, Co. Monaghan (IAC excavations).

## 7. DISCUSSION

One species was identified from the features investigated. The hazel identified from the trough material may suggest hazel wattling or posts in the trough or it may simply represent kindling selected for use at the site. The peoples who used these *fulachta fiadh* would have been collecting kindling, which was close by to the site therefore hazel coppice may have been growing close by to the site. The hazel identified above is indicative of a dryland terrain and would have grown in drier conditions preferring free-draining soils and nutrient rich clays.

## 8. REFERENCES

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