



M1 DUNDALK WESTERN BYPASS

SITE 114: NEWTOWNBALREGAN 6
CHAINAGE 21.320 – 21.420
NGR: 302156/308928

FINAL REPORT

ON BEHALF OF
LOUTH COUNTY COUNCIL AND THE
NATIONAL ROADS AUTHORITY

LICENSEE: DAVID BAYLEY
LICENCE NUMBER: 03E0115

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IAC Irish Archaeological
Consultancy

NON-TECHNICAL SUMMARY

Irish Archaeological Consultancy Ltd. (IAC Ltd.), funded by Louth County Council and the National Roads Authority, undertook a licensed excavation in the townland of Newtownbalregan, c. 2km north-west of Dundalk in advance of the construction of the Dundalk Western Bypass (DWB). The excavation was undertaken to ensure all subsoil archaeological remains were preserved by record in advance of groundwork.

The previously unknown site was discovered during a test trenching programme undertaken in by IAC in March 2002 (Licence 02E0373). Resolution excavation was completed between chainage 21.320 – 21.420 (NGR 302156 / 308928) between March and September 2003 with a total of 25 staff and was directed by David Bayley (Licence 03E0115). The total area excavated measured c.75m x 95m.

The main focus of the site was situated on a well drained plateau made up of glacially mixed gravels and is located approximately 30m OD. The hill was steeply sloped to the south and north, and had commanding views over the surrounding landscape.

The site was comprised of an early medieval circular enclosure 46m in diameter with a causewayed ditch open to the east. The distribution pattern of finds recovered from the ditch may suggest the different functions carried out in various parts of the ringfort. The animal bone recovered from the ditch fills was concentrated to the north-western part of the ditch, which suggests that slaughtering or hide preparation may have been carried out in this area. Unfortunately the flint distribution was too random to confirm this. The high quality finds such as the brooch, glass beads and stick-pin were all recovered from the south central part of the ringfort, which suggests that this may have been the main living area.

On the interior of the enclosure, truncation meant that little of identifiable form survived. Most of the features were located in the southern part of the enclosure and consisted of simple pits and postholes. The most notable features were the postholes which may have formed the corner of a structure (Structure 1) 3.10m x 1m, and a linear arrangement of postholes that may have formed one side of another structure (Structure 2), c. 3.50m in length.

It was shown through stratigraphy that after the ringfort ditch had been backfilled; a large pit was cut through the backfilled material. This pit yielded a ring pin, which also dates to the early medieval period, which may show that the enclosure was occupied, possibly abandoned, and re-used all within a relatively short period of time. There was little evidence for activity on the exterior of the enclosure, with only a hearth and a small number of shallow pits uncovered.

The main building on site was a dry stone built souterrain situated 5m to the south-west of the ringfort. The souterrain was 46m in length, of which 33m comprised intact tunnels and two chambers. The most notable features of this souterrain were an internal door with boltholes in the walls on the interior of the door, two air vents incorporated into the chambers, a drop hole and a capstone with Megalithic art. The quality of souterrain construction appears to indicate a high status structure. Evidence from the excavation suggests that the entrance to Gallery 1 may have been partly above ground, rather than being completely hidden. Certain features within the souterrain (e.g. internal door) ensured its security.

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Contents

1	INTRODUCTION	7
1.1	Site location	7
1.2	The scope of the project	7
1.2	Circumstances and dates of fieldwork	8
2	ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	10
2.1	Prehistoric Period (7000BC-AD400)	10
2.2	Early Medieval Period (AD400-1169)	12
2.3	Medieval Period (AD1169-1700)	13
2.4	Post-Medieval Period (1700-1900)	14
2.5	Archaeological Typology Background (Raths/Ringforts)	14
3	THE EXCAVATION	16
3.1	Introduction	16
3.2	Geology, Topography and Landscape	16
3.3	Dates and Methodology	16
3.3	Legends and Brackets	17
4	EXCAVATION RESULTS	18
4.1	GROUP 1: Natural Drift Geology	18
4.1.1	SUBGROUP {1000}: Natural Geology	18
4.2	GROUP 2: Early Medieval Ringfort	19
4.2.1	SUBGROUP {1001}: Ringfort ditch and natural silting fills	19
4.2.2	SUBGROUP {1002}: Stakehole	20
4.2.3	SUBGROUP {1003}: Pit	20
4.2.4	SUBGROUP {1004}: Occupational fills of ringfort ditch	21
4.2.5	SUBGROUP {1005}: Deliberate backfilling of ringfort ditch	22
4.2.6	SUBGROUP {1006}: Pits cutting through upper fills of ditch	23
	GROUP 2 Discussion: Ringfort Ditch	24
4.3	GROUP 3: Internal Features	25
4.3.1	SUBGROUP {1007}: Irregular-shaped linear feature	25
4.3.2	SUBGROUP {1008}: Posthole	26
4.3.3	SUBGROUP {1009}: Posthole	26
4.3.4	SUBGROUP {1010}: Posthole	26
4.3.5	SUBGROUP {1011}: Stakeholes	27
4.3.6	SUBGROUP {1012}: Truncated Posthole	27
4.3.7	SUBGROUP {1013}: Truncated Posthole	27
4.3.8	SUBGROUP {1014}: Posthole	28
4.3.9	SUBGROUP {1015}: Pit	28
4.3.10	SUBGROUP {1016}: Irregular-shaped pit	28
4.3.11	SUBGROUP {1017}: Posthole structure	29
4.3.12	SUBGROUP {1018}: Posthole	29
4.3.13	SUBGROUP {1019}: Pit	30
4.3.14	SUBGROUP {1020}: Refuse Pit	30
4.3.15	SUBGROUP {1021}: Charcoal filled pit	30
4.3.16	SUBGROUP {1022}: Posthole	31
4.3.17	SUBGROUP {1023}: Posthole	31
4.3.18	SUBGROUP {1024}: Linear pit	31
4.3.19	SUBGROUP {1025}: Irregular-shaped pit	32
4.3.20	SUBGROUP {1026}: Irregular-shaped pit	32
4.3.21	SUBGROUP {1027}: Refuse pit	32
4.3.22	SUBGROUP {1028}: Posthole	33
4.3.23	SUBGROUP {1029}: Posthole	33
4.3.24	SUBGROUP {1030}: Stakehole	33

4.3.25	SUBGROUP {1031}: Posthole.....	34
4.2.26	SUBGROUP {1032}: Linear arrangement of postholes.....	34
4.3.27	SUBGROUP {1033}: Pit	35
4.3.28	SUBGROUP {1034}: Posthole.....	35
4.3.29	SUBGROUP {1035}: Posthole.....	36
4.3.30	SUBGROUP {1036}: Pit	36
4.3.31	SUBGROUP {1037}: Pit	36
4.3.32	SUBGROUP {1038}: Pit	37
	GROUP 3 DISCUSSION: Internal Features.....	37
4.4	GROUP 4: External Features	39
4.4.1	SUBGROUP {1039}: Hearth.....	39
4.4.2	SUBGROUP {1040}: Hearth.....	39
4.4.3	SUBGROUP {1041}: Posthole.....	39
4.4.4	SUBGROUP {1042}: Pit and posthole.....	40
4.4.5	SUBGROUP {1043}: Posthole.....	40
4.4.6	SUBGROUP {1044}: Posthole.....	40
4.4.7	SUBGROUP {1045}: Charcoal Spread.....	41
4.4.8	SUBGROUP {1046}: Burning event	41
4.4.9	SUBGROUP {1047}: Hearth and associated pit.....	41
4.4.10	SUBGROUP {1048}: Pit	42
4.4.11	SUBGROUP {1068}: Pit	42
	GROUP 4 DISCUSSION: External Features	43
4.5	GROUP 5: Souterrain Construction and Use	44
4.5.1	SUBGROUP {1049}: Souterrain Construction, Galleries 1 – 5 and Chamber 1.....	44
4.5.2	SUBGROUP {1050}: Souterrain Construction Gallery 6 and Chamber 2	47
4.5.3	SUBGROUP {1051}: Air vent 1	48
4.5.4	SUBGROUP {1052}: Air vent 2	49
4.5.5	SUBGROUP {1053}: Floor surface and drain, Chamber 1	49
4.5.6	SUBGROUP {1054}: Backfilling of construction cut	50
4.5.7	SUBGROUP {1055}: Pit	50
4.5.8	SUBGROUP {1056}: Pit	50
4.5.9	SUBGROUP {1057}: Posthole.....	51
4.5.10	SUBGROUP {1058}: Posthole.....	51
4.5.11	SUBGROUP {1059}: Stakeholes.....	51
	GROUP 5 DISCUSSION: Construction and Use of Souterrain.....	52
4.6	GROUP 6: Abandonment and Backfilling/ Silting of Souterrain	58
4.6.1	SUBGROUP {1060}: Filling of Gallery 1	58
4.6.2	SUBGROUP {1061}: Silting of Souterrain	58
4.6.2	SUBGROUP {1062}: Lower Backfills of Galleries 1 and 2	58
4.6.3	SUBGROUP {1063}: Upper Backfills of Galleries 1 and 2	59
4.6.4	SUBGROUP {1064}: Pit / Reuse of Gallery 1.....	60
	GROUP 6 DISCUSSION: Abandonment and Silting of Souterrain	61
4.7	GROUP 7: Post-Medieval Activity	62
4.7.1	SUBGROUP {1065}: Structure	62
4.7.2	SUBGROUP: {1066} Field Boundaries and land drains	63
	GROUP 7 DISCUSSION: Post-Medieval Activity.....	63
4.8	GROUP 8: Topsoil.....	64
5	SYNTHESIS	65
5.1	Group 1: Natural geology and topography	65
5.2	Group 2, Enclosure 1	65
5.3	Group 3, Activity on interior of enclosure.....	66
5.4	Group 4, Activity on exterior of enclosure.....	67

5.5	Group 5, Souterrain	67
5.6	Group 1 and Group 6, Abandonment and Destruction of enclosure	72
5.7	GROUP 6	73
5.8	GROUP 7	73
6	DISCUSSION	74
6.1	Realisation of the original research aims	74
6.2	General discussion of potential	76
6.3	Significance of the Data	77
7	BIBLIOGRAPHY	79
	FIGURES	1
	PLATES	1
	APPENDIX 1: CATALOGUE OF PRIMARY DATA	I
	APPENDIX 1.1: CONTEXT INDEX	i
	APPENDIX 1.2: FINDS REGISTER	xiii
	APPENDIX 2 SPECIALISTS REPORTS	XXXII
	APPENDIX 2.1 RADIOCARBON DATING REPORT	xxxii
	APPENDIX 2.2 SPECIES IDENTIFICATION OF CHARCOAL SAMPLES	xxxiv
	APPENDIX 2.3: LITHICS REPORT	xlii
	APPENDIX 2.4: REPORT ON CARVED STONES	lx
	APPENDIX 2.5: EARLY MEDIEVAL POTTERY REPORT	xc
	APPENDIX 2.6 SMALL FINDS REPORT	cii
	APPENDIX 2.7 MEDIEVAL AND POST-MEDIEVAL POTTERY REPORT	cix
	APPENDIX 2.8 ANIMAL BONE REPORT	cx

List of Figures

Figure 1	Site 114, Newtownbalregan 6 – site location
Figure 2	Site location with RMP sites shown
Figure 3	Site 114, Newtownbalregan 6 – site within the development
Figure 4	Site 114, Newtownbalregan 6 – post-excavation plan of ringfort
Figure 5	Site 114, Newtownbalregan 6 – sections of ditch C5
Figure 6	Section of pit C60 and sections of possible structure {1017}
Figure 7	Post excavation plan of souterrain after removal of stones
Figure 8	Plan of souterrain with capstones removed
Figure 9	Plan of souterrain with capstones
Figure 10	Plan of souterrain with construction fill sealing the capstones
Figure 11	Souterrain gallery 1 – elevations, profiles and cross sections
Figure 12	Souterrain gallery 2 – elevations
Figure 13	Souterrain gallery 2 – cross sections and profiles
Figure 14	Souterrain gallery 3 - elevations, profiles and cross sections
Figure 15	Souterrain gallery 4 - elevations, profiles and cross sections
Figure 16	Souterrain gallery 5 - elevations, profiles and cross sections
Figure 17	Souterrain chamber 1 – elevation and cross sections
Figure 18	Souterrain chamber 1 – plan of floor
Figure 19	Souterrain gallery 6 - elevations
Figure 20	Souterrain gallery 6 – cross sections and profiles
Figure 21	Souterrain chamber 2 – elevation, cross sections and profiles
Figure 22	Floor plan of chamber 2
Figure 23	Site 114, Newtownbalregan 6 - Artefact illustrations – small finds
Figure 24	Site 114, Newtownbalregan 6 - Artefact illustrations - lithics

List of Plates

Plate 1	Overhead view of site, facing east (Studiolab).
Plate 2	General overhead view of site (Studiolab).
Plate 3	Overhead view of souterrain, facing east (Studiolab).
Plate 4	Overhead view of ringfort and internal features, facing east
Plate 5	Overhead view of ringfort, facing east (Studiolab).
Plate 6	Souterrain under excavation
Plate 7	Galleries 3 and 5 under excavation facing east
Plate 8	Galleries 5 and 6 under excavation facing southwest
Plate 9	Chamber 2 and gallery 6 under excavation facing northeast
Plate 10	Entrance and gallery 1 with light alcove and door jamb with bolt holes, facing east
Plate 11	Light alcove facing east down gallery 3, facing west
Plate 12	Smokebox and gallery 1, facing south (Studiolab).
Plate 13	Air vent 1, facing east
Plate 14	Floor of chamber 1 with drop hole entrance to gallery 6, facing south
Plate 15	Paved floor of chamber 1
Plate 16	Paved floor of chamber 2
Plate 17	Internal door within souterrain, facing south (Studiolab).
Plate 18	Pennanular brooch (03E0115:37:3) prior to conservation (Niall Roycroft).
Plate 19	Pennanular brooch (03E0115:37:3) after conservation on exhibition (N Roycroft).
Plate 20	Meare spiral glass bead (03E0115:37:5) and black glass bead (03E0115:37:1) on exhibition (N Roycroft).

1 Introduction

This stratigraphic report refers to an excavation carried out at Site 114 Newtownbalregan 6, in the townland of Newtownbalregan, c.2km to the north-west of Dundalk, Co. Louth. It was carried out as part of an archaeological mitigation program associated with the Dundalk Western Bypass (DWB). Archaeological fieldwork was directed by David Bayley of Irish Archaeological Consultancy Ltd. (IAC) and was funded by Louth County Council and the National Roads Authority.

1.1 Site location

Site 114 is located in Newtownbalregan townland, to the north of the N53 Castleblayney Road, c. 2km north-west of Dundalk (Louth OS sheet 007) (Figure 1). The site is:

- Site 114, Excavation Licence 03E0115, route chainage (Ch) 21.320 – 21.420, NGR 302156 / 308928

The site was identified as a result of a test trenching exercise undertaken by IAC Ltd. in March 2002 (Test Excavation Licence 02E0373, Shane Delaney). The area comprised a hilltop site with commanding views over the surrounding countryside, including Dundalk Bay to the east. The site was located to the north of another site, Site 113, Newtownbalregan 5 (Bayley, 2009c).

1.2 The scope of the project

General

Louth County Council proposes to construct a motorway called the 'M1 Dundalk Western Bypass – Northern Link'. The scheme will also include ancillary roads and other structures.

As currently understood, the M1 Dundalk Western Bypass – Northern Link will connect the existing Dunleer-Dundalk Motorway, presently terminating 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 (Figure 1).

The scheme is presently 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 was previously commenced so that the main cutting and rough surfacing for the road has been completed to chainage point Ch17.100. The chainage zone Ch16.000 – 17.100 has therefore not been investigated archaeologically under the present contract. Section 2 (2.08km main centre line chainage) runs from the Armagh Road Ch23.870 to the Ballymascanlan Roundabout, Ch25.950.

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

Specific

Site 114, Newtownbalregan 6 was situated at Ch 21.320 – 21.420. At this point of the proposed bypass the lands made available were 145m wide and at 37.3m OD (max.). This area formed part of the proposed grade separated junction with the N53

Castleblayney road. The construction guide drawings indicated the area of Site 114 would be in a cut up to 17m deep.

The original stripped area covered an area approximately 40m x 30m. This was later extended to the south and west following agreement with Niall Roycroft, Project Archaeologist and the National Monuments Section of the Department of the Environment, Heritage and Local Government formerly (*Dúchas*-The Heritage Service) to give a total site area of c.75m x 95m.

To the west of the excavation area, an extensive programme of additional test trenching was undertaken. This involved stripping parallel trenches 2m wide spaced 2m apart. This exposed 50% of the below topsoil levels over an area c.50m x 80m. No obviously archaeological features were found here.

The site was discovered by M1 Dundalk Western Bypass Test trenching in 2002 and was not a Recorded Monument (Figure 2).

1.2 Circumstances and dates of fieldwork

The excavations were 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 Wednesday the 12th of March 2003 and the fieldwork in the areas below was completed on 12th September 2003. The order and date of the excavation is as follows (Figure 3):

- Site 114, Newtownbalregan 6, machine stripping of original area finished Friday 14th March 2003.
- Site 114, Newtownbalregan 6, resolution excavations commenced on 22nd April 2003 with a team of field director, two Supervisors, eleven assistant archaeologists and two graduate archaeologists. The team gradually rose in numbers to twenty assistant archaeologists. Cleaning back and planning was followed by hand recording and resolution of site. The initial focus of the site (circular enclosure) was completed on 26th June 2003.
- Site 114, Newtownbalregan 6, stripping of the overburden on the intact part of the souterrain began on the 23rd June 2003 and was completed in one day. Cleaning, internal and external recording, and dismantling of the souterrain by hand was completed on 12th September 2003.
- Site 114, Newtownbalregan 6 west of excavation area. Extra test trenches were excavated in the original linear testing zone in August 2003.

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 the Environment, Heritage and Local Government (formerly *Dúchas* - The Heritage Service). Samples were taken of any environmental and burnt material.

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 of the site involved pottery analysis through typological study and radiocarbon analysis. 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 northern end of Dundalk Bay and is the administrative centre of Co. Louth, located in the northeast of Leinster. The area spans two geographical areas. To the west, the rural landscape surrounding the urban district is one of undulating topography, with low drumlins rising to 30-40m from the coastal plain. As with much of Louth, this covers thick strata of Ordovician and Silurian slates, with some rock outcrops (Gosling 1993, 237). 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 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.2400BC), 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 Co. 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 situation. Given this pattern of buried remains, it is entirely likely that the topsoil stripping associated with the proposed scheme will uncover new sites that previous ploughing activity has helped to remove from view. An aerial survey was carried out with the objective of discovering such sites and features before the main construction phase commenced, and this identified five of the sites in the EIS.

2.1 Prehistoric Period (7000BC-AD400)

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* (LH 007-118-06) is the only remaining visible reminder of the 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).

The origins of Neolithic activity in Ireland are disputed. 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 Carn More 1 (with the nearest example located at Faughart Lower (LH004-062), c. 0.2 km to the northeast) and scattered throughout the Cooley peninsula. Archaeological discoveries elsewhere on the DWB scheme revealed Late Bronze Age/Early Neolithic settlement activity at Site 115, Newtownbalregan 5 (Bayley, D. forthcoming (c)), located c. 3km southwest of Site 124 and the truncated remains of a Late Neolithic/Early Bronze Age House identified at Site 101, Littlemill 1 (Ó Donnachada, B. forthcoming (d)), located c. 5.7km to the southwest of the site. A collection of pits dating to the Late Neolithic/Early Bronze Age were identified at Site 103, Littlemill 4 & 5 (Ó Donnachada, B. forthcoming (c)), c. 5.4km south of Site 124 (Carn More 1). A Middle Neolithic to Late Neolithic/Early Bronze Age Beaker settlement was also identified at Site 108, Donaghmore 1 (Ó Donnachada, B. (e)) which was located c. 4.3km south of Site 124.

From the relatively scant prehistoric archaeological evidence, there are indications that the area was not densely settled until the beginning of the Bronze Age (2400 BC). 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). Bronze Age activity is distributed fairly evenly across the study area. These are indicated in the antiquarian drawings of Wright at the Castletown/Kilcurry confluence.

Bronze Age discoveries along the DWB consisted of an early Bronze Age Beaker (2500-2200BC) settlement at Site 112, Newtownbalregan 2 (Bayley, D. forthcoming (d)), located c. 3.2km southwest 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 (f)), located c. 3km northeast of Site 124. A total of 3 Bronze Age burnt mounds/fulachta fiadh were excavated along the route of the DWB at Site 113, Newtownbalregan 5 (Bayley, D. forthcoming (c)) and at Site 128, Faughart 1, 2 & 3 (Delaney, S. forthcoming (a)).

There is a marked lack of known Iron Age (500BC-AD400) activity within the surrounding area. The ring barrow identified at Site 131, Donaghmore 7 (Ó Donnachada, B. forthcoming (g)) has been dated to the Iron Age. 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. The dates returned confirmed that the ring barrow belongs to the Iron Age period, specifically the mid-Iron Age based on Cal 170BC-130BC. A late Iron Age date was returned from a dumb bell shaped cereal drying kiln at Balriggan and from the drip gully of a round house at the Fort Hill site.

2.2 Early Medieval Period (AD400-1169)

The study area lies within a rich early medieval landscape. By far the most numerous type of monument to be recorded within the study area is the 'enclosure' site. This tends to be equated with the dispersed farmstead of the pre-twelfth-century era, known as the ringfort or rath. Such sites are classically identified as circular enclosures of c. 30m internal diameter with a series of earthen banks and fosses outside to define the boundary and protect the complex. Site 13 on the DWB for example was identified as a possible ringfort in the EIS (March 2000). These were the homes of farmers who practiced a mixed-farming economy. Ringforts are one of the most common site types in north Co. Louth. Many have had their surface remains destroyed, with the banks ploughed back into the soil. To the north of the northern end of Section 1 there is a concentration of ringforts or earthworks.

Site 114 at Newtownbalregan 6 consisted of a ringfort and souterrain. The ringfort or rath is considered to be the most common indicator of settlement during the early medieval Period (c. 400AD – 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 families. At Site 124, Carn More 1 (Delaney (b), 2009), 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 were artificial underground structures, usually built of dry stone walling and comprised 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 may have served to house portable valuables and non-combatants during a raid. There is a previously recorded souterrain located 30m to the east of the CPO line at Ch17.640 (LH007-071).

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 north Louth. Though nominally a branch of the Ulaid, who had their capital at Eamain Mhaca or Navan Fort, Co. Armagh, the Conaille Muirtheimne appear to have been subject to the kingdom of Brega 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 (Ó Donnachada, B. (f) 2009) was Carbon 14 dated to Cal 890AD -1250AD (968 +/- 85BP). Site 102, Littlemill 2 was roughly circular in shape and it has been suggested that these sites which were identified as early medieval and medieval in dating, tend to be circular to oval in shape with no evidence for pit lining. The example at Littlemill 2 however was lined with wooden planks.

2.3 Medieval Period (AD1169-1700)

The motte and bailey at Castletown (LH 007-118-07) located c. 2km west of Newtownbalregan 1.1 represents the initial phase of Anglo-Norman activity in the area. The decision to create a motte and bailey as an initial Anglo-Norman base was the easiest way to construct a headquarters, in contrast to the construction of stone castle structures which required substantial time, materials and organisation. It is not the case however that these constructions were always replaced by a stone structure. 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 the Ireland with Louth being the most urbanised county.

The land in Castletown and the Dundalk environs was granted to the Anglo-Norman Bertram de Verdon following his arrival in 1185, and corresponds to the barony of Upper Dundalk (Gosling, 1993, 252). The de Verdon estate passed onto the Bellews. It was at this time that many of the tower houses were constructed, and 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 dependent 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. The Anglo-Normans were responsible for the network of towns throughout the country, with Louth being the most heavily urbanised county (Barry 1987, 118).

At this time however the new town of Dundalk, which lies c. 2km to the east of the motte, 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 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 a 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 of the foundation of the “newtown” was established 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 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 River waters, with these structures usually being served by a millrace. A mill and associated race 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 (O Donnachada, B. (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.

Site Specific

Newtownbalregan 6 was not marked on the 1835 OS Survey and was discovered as part of the archaeological testing works associated the Dundalk Western Bypass.

2.5 Archaeological Typology Background (Raths/Ringforts)

This section was prepared by Jonathan Kinsella.

Raths or ringforts were enclosed farmsteads dating to the early medieval period. The majority were univallate, surrounded by one ditch and bank, but some were surrounded by two and, to a lesser extent, three enclosing ditches and banks and were known as bivallate and trivallate raths respectively (for example Garranes, Co. Cork, Ó Ríordáin 1942). Another morphological variation consisted of the platform or raised rath – the former resulting from the construction of the rath on a naturally raised area (for example Big Glebe, Co. Derry, Lynn 1988) while the latter's height resulted from prolonged occupation over many centuries (for example Rathmullan, Co. Down, Lynn 1981/82). Most raths were circular or oval in shape but they also occurred as D-, pear- and sub-rectangular-shaped enclosures (Kinsella 2007).

Many raths were situated on valley sides and on the brow of drumlins whilst avoiding low-lying terrain and the uplands (Stout 1991, 206). Various local and regional studies have shown that the majority of raths occur between 30m and 200m OD and are rarely found above or below these altitudes. In Skibbereen, Co. Cork, 80% of surviving raths are located below 120m and are most densely distributed between 60m and 120m (Fahy 1969). In the Lisleagh area of Co. Cork and Munster generally, raths are sited in elevated positions between 60m and 120m (Monk 1998, 40). Their builders avoided areas below 30m in the Dingle area, building them between 30m and 60m OD and in south Donegal most were built between 60m and 90m OD

(Barrett and Graham 1975, 38–9). The most recent study of rath locations in northwest Ulster has revealed similar findings (Kerr 2007).

While raths, for the most part, were located to avoid the extreme low and uplands, they also indicate that there was a preference for areas with the most productive soils (Stout 1997, 107). Evidence from the above local and regional studies further supports this view as raths generally were not built on unproductive highland and peaty lowland soils (Barrett and Graham 1975, 39; Fahy 1969; Kerr 2007, 76–9). Stout (1997, 107) argues that raths were deliberately located to avail of soils best suited to pasture while Kerr (2007) has developed this idea to suggest that platform and raised raths were positioned in areas more suited to tillage unlike typical univallate raths.

The dating of raths has been a cause of contention (see Limbert 1996 for his argument that they have their origins in the Iron Age) but Stout (1997, 24) has shown that the majority were occupied from the beginning of the seventh until the end of the ninth centuries, covering a 300-year period. Kerr's (2007, 99) recent research has revealed that raised and platform raths are slightly later in date and were constructed between approximately the mid-eighth and mid-tenth centuries AD.

Raths were essentially early medieval enclosed farmsteads. The majority were simple univallate enclosures, surrounded by a bank and ditch, which enclosed a number of domestic and agricultural structures. Excavations (for general overviews see Comber 2008; Edwards 1990, 6–33; Mallory and McNeill 1991, 181–248; Mytum 1992; Proudfoot 1961, 94–122; Stout 1997) and historical research (Kelly 1997) has revealed houses, out-buildings and artefacts that typically illustrated a range of activities associated with self-sufficient farmers, their families and retainers. A smaller number of raths were high-status sites and were archaeologically differentiated from the majority by an increased quantity and quality of artefacts, noticeably items of adornment, evidence for non-ferrous metalworking and, in some cases, by their larger size and scale of defences (Kinsella 2007). Recent excavations, in advance of major developments, is challenging accepted traditional discourse on the function and role of raths throughout the early medieval period and it is now becoming evident that they were constructed in a variety of shapes and sizes, were situated in many differing landscape settings and they were occupied by a range of people from the lowest to the highest social grades (Kinsella 2007; 2008, 98–103).

3 The EXCAVATION

3.1 Introduction

The excavation at Newtownbalregan 6 was undertaken as part of the archaeological mitigation for the DWB in the townland of Newtownbalregan. Hand excavations began on 22nd April and were completed 12th September 2003. The site comprised a univallate ringfort, 46m in internal diameter and a six gallery souterrain, c.46m in length comprising c.33m of intact tunnels and two chambers.

3.2 Geology, Topography and Landscape

Geology and topography

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 main focus of the site is situated on a well drained plateau made up of glacially mixed gravels and is located approximately 30m OD. The hill is steeply sloped on the S and the N, and has commanding views over the surrounding landscape.

The site overlooks site 113, Newtownbalregan 5 (excavated by David Bayley 03E0114), which lies downslope to the S. Newtownbalregan 5 and shows no evidence for any use that is contemporary with the Newtownbalregan 6 site. Topsoil over the site generally varied from 200mm-500mm but was up to 1.20m downslope to the south on site 114.

3.3 Dates and Methodology

Topsoil stripping of the area commenced on Wednesday the 12th of March 2003 and the fieldwork in the areas below was completed on 12th September 2003, with a team of one Director, two supervisors and twenty Assistant Archaeologists.

The topsoil was removed using a machine with a flat edged bucket across the entire area and then the areas of potential were cleaned down using shovels with any potential archaeology excavated by hand. All archaeological material was fully recorded and then excavated by hand until natural geological layers were reached. All contexts are described in Appendix 1.

As the intact section of the souterrain was identified late in the excavation further topsoil stripping by machine was required. Stripping of this overburden on the intact part of the souterrain began on the 23rd June 2003 and was completed in one day. Cleaning, internal and external recording, and dismantling of the souterrain by hand was completed on 12th September 2003. Unfortunately as a consequence of the depth of the construction cut, galleries and chambers the true level height of the topsoil surface across the souterrain was not recorded. All levels indicated along the intact length of the souterrain reflect the machine reduced level at the surface of the construction zone.

Additional linear test trenches were also excavated in the original linear testing zone in August 2003 to the west and north of the site.

The environmental sample policy was to recover soil samples from individual features where it was felt there was some potential for revealing environmental information and from a selection of features on the site to see if there was any overall environmental information.

Once off site the soil samples were scanned for potential for environmental remains. In combination with checked stratigraphic and artefact information, individual samples were then selected, based on those with the most potential for adding to site knowledge. These samples were processed with the residues sorted and assessed by material. Based on the results of these assessments;

- Some or all of the sample residues were selected for analysis
- Further processing was undertaken to expand the information recovered
- No samples were sent for analysis.

Analyses of the processed samples from Newtownbalregan 6 are included as the various Specialist reports in Appendix 2 of this report.

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: Natural Drift Geology

4.1.1 SUBGROUP {1000}: Natural Geology

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
2	Site	-	-	Natural	Brown orange sandy, silty clay

Finds:

Context	Find Number	Material	Period	Description
2	1-37	Flint		Unworked
2	38	Flint		Angular shatter
2	39-61	Flint		Unworked

Interpretation:

The natural subsoil was uniform in compaction and consistency across the extent of the site.

The M1 Dundalk Western Bypass 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 Dinavian limestone.

The main focus of the site is situated on a well drained plateau made up of glacially mixed gravels and is located approximately 30m OD. The hill is steeply sloped on the S and the N, and has commanding views over the surrounding landscape.

The site overlooks site 113, Newtownbalregan 5 (excavated by David Bayley 03E0114), which lies downslope to the S. Newtownbalregan 5 and shows no evidence for any use that is contemporary with the Newtownbalregan 6 site. Topsoil over the site generally varied from 200mm-500mm but was up to 1.20m downslope to the south on site 114.

South to North profile across the area of the site before topsoil stripping:

Chainage point (from south to north)	Level (m OD)	General area of ringfort souterrain	Specific focus of ringfort
21.220	25.06		
21.320	33.87	*	
21.360	36.99	*	
21.380	37.27	*	*
21.400	36.75	*	*
21.440	34.42		
21.560	25.61		
21.760	14.71		

Landscape

The ringfort is pitched with views to the west, north and east, overlooking the 2 - 4km wide Castletown / Kilcurry River valley, Dundalk harbour and Bay and with views all along the south side of the Cooley mountains and peninsular (up to 10km).

To the south of the ridge there are limited views across a dry valley (occupied by the N53, Castleblayney Road) for a maximum distance of c.1km. The souterrain was on the south-facing slope and this may have been deliberate as it was thus hidden from the main areas of visibility to the north.

4.2 GROUP 2: Early Medieval Ringfort

4.2.1 SUBGROUP{1001}: Ringfort ditch and natural silting fills

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
5		-	C11-30, C32, C36, C37, C39-42, C48-59, C62, C63, C151-155	Ring ditch	Penannular in plan, entry gap in NE, sides vary from concave-convex, base is flat generally, depth varies from 0.19 -1.07m, width at top ranges from 1.7-3.6m, width at base ranges from 0.74-1.72m dia at outer edge 46.2 E-W+ 45 N-S
18		C5	-	Natural silting	Med brown soft sandy clay, occ ch fl, freq sub-ang,
21	20/30	C5	-	Natural silting	Lt brown, loose sandy clay, mod s stones
24		C5	-	Natural silting	Med brown, loose silty clay, occ s-m ang
25		C5	-	Natural silting	Lt yellow brown, loose silty clay, occ m sub-ang
32	30/0	C5	-	Natural silting	Med orange brown, soft silty clay, rare ch fl, occ s ang
36	30/0	C5	-	Redeposited natural	Yellow brown, mod compact clay freq s sub-ang
51	50/10	C5	-	Natural silting	Dk brown, loose silty clay, rare ch fl, rare s-m sub-ang
52	60/20	C5	-	Re-deposited natural	Med grey brown loose clayey silt + fine sand, occ decayed stone
53	60/20	C5	-	Natural silting	Med grey brown, mod soft clayey silt w/ purple brown+ yellow mottling, gravel +s pebbles
54	50/20	C5	-	Re-deposited natural	Green yellow, mod loose clayey silt, freq decayed stone, occ s sub-ang+s pebbles
57	20/0	C5	-	Natural silting	Med-dk grey brown loose clayey silt, mod tiny gravel + occ s pebbles
59	50/40	C5	-	Natural silting	Med brown, soft sandy clay, freq decayed stone, occ s-m sub-ang
62	10/20	C5	-	Natural silting	Reddish grey brown, soft clay
63	50/20	C5	-	Redeposited natural	Med yellow brown, loose silty clay mottled coarse sand+ decayed stone, mod s pebbles
152	40/50	C5	-	Natural silting	Red brown, loose clayey silt, freq gravel+m flat ang
153	40/50	C5	-	Natural silting	Lt brown, densely compacted sandy silt, freq gravel, mod sub-round.
155	40/50	C5	-	Natural silting	Lt brown, densely compacted silty clay, mod s-m sub-round.

Finds:

Context	Find Number	Material	Period	Description
18	1-5	Flint		Unworked
18	6	Flint		Angular shatter
18	7-19	Flint		Unworked
18	20	Flint		Core

18	21–33	Flint		Unworked
18	34	Flint		Core
18	35	Flint		Unworked
24	1–7	Flint		Unworked
51	1	Flint		Unworked
153	1	Ferrous metal		Undiagnostic lump

Interpretation:

The ringfort ditch [C5] in subgroup {1001} was circular in plan with an internal diameter of c.46m (Figure 4 and 5). The ditch [C5] was U-shaped in profile and survived to a maximum width of 3m and a maximum depth of 1.50m. The ditch had been severely truncated on the north side and was between 0.30m and 0.10m deep. The ditch was interrupted on the east side by a causewayed entrance 5m wide. A minor/secondary crossing point was visible by a patch of hard gravels in a shallow area of the ditch on the northern side. There was no trace of any bank. The basal fills of the ditch, listed above, appear to be the result of natural silting. One human skull fragment was retrieved from C18 (Lofqvist, Appendix 2.7). This fragment was most likely from a middle to mature adult individual; unfortunately there is little else that can be inferred from it.

4.2.2 SUBGROUP {1002}: Stakehole**Contexts:**

C	Area	Fill of	Filled with	Interpretation	Description
356	50/40	-	C362	Stakehole	Circular in plan, sides steep + slightly concave, base concave, 0.14d x 0.09l x 0.08
362	50/40	C356, C5	-	Deliberate deposit	Med greyish, friable clayey silt with occ ang + sub-ang. Occ ch fl.

Finds:

None

Interpretation:

At the base of ditch [C5] in the subgroup {1001} was the stakehole, [C356]. It was located at the north terminus of [C5], on the east side of the cut. Its function is unknown, but it was filled by (C362), which was a stony dumped fill in the base of [C5]. This shows that the stake was removed prior to the filling / silting of the ditch.

4.2.3 SUBGROUP {1003}: Pit**Contexts:**

C	Area	Fill of	Filled with	Interpretation	Description
225	20/10	C232	-	Burnt spread	Dk black brown, ch-rich loose silty clay, occ bb, occ burnt twigs, mod s-m sub-ang
232	20/10	-	C225	Pit	Circular in plan, shallow, base rounded, within C18, 0.08d x 0.80 l x 0.72w

Finds:

None

Interpretation:

The pit [C232] in subgroup {1003} was a shallow pit cut through (C18), one of the natural silt fills of ditch [C5] in subgroup {1001}. It was filled by (C225), which appears to be fire debris. The lack of reddened clay around the edges of the cut suggests that the material was burnt elsewhere and dumped in rather than being burnt *in situ*.

4.2.4 SUBGROUP {1004}: Occupational fills of ringfort ditch

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
17	40/40	C5	n/a	Natural silting	Med brown, hard sandy clay, occ stones
20	10/30	C5	n/a	Natural silting	Med brown, soft silty clay, occ ch frags, mod s-m sub-ang
23		C5	n/a	Occupational layer	Dk brown, loose silty clay, mod ch fl, occ sub-ang
26	20/0	C5	n/a	Natural silting	Lt grey brown, soft silty clay, rare ch fl, rare ang
27	30/0	C5	n/a	Natural silting	Lt brown, soft silty clay, rare ang
28	30/0	C5	n/a	Occupational layer	Med orange brown firm sandy clay, rare s stones
29	20/0	C5	n/a	Natural silting	Lt yellow brown, soft silty clay, rare ch fl, rare s ang
30	30/0	C5	n/a	Occupational layer	Med brown, mod compact silty clay, rare ch, occ l+freqs-m stones
37	30/0	C5	n/a	Occupational layer	Med greyish brown, soft silty clay, occ ch fl, occ ang
39	40/10	C5	n/a	Occupational layer	Med brown, soft silty clay, occ ch fl, animal tooth, burnt flint
40	50/10	C5	n/a	Natural silting	Med yellow brown, firm sandy clay, occ s pebbles
41	50/10	C5	n/a	Occupational layer	Med orange brown, mod compact sandy clay, occ ch fl, occ s ang.
42	50/10	C5	n/a	Occupational layer	Med-dk brown firm silty clay, freq ch, occ s sub-ang
48	50/10	C5	n/a	Occupational layer	Lt-med grey brown, mod compacted ch-rich silty clay, occ s sub-ang.
49	50/10	C5	n/a	Occupational layer	Lt-med brown, compact silty clay, occ ch fl, occ s sub-ang
50	50/10	C5	n/a	Occupational layer	Lt-med brown, loose silty clay, occ ch fl, freq s sub-ang
58	50/40	C5	n/a	Natural silting	Lt yellow brown grey, mod loose silty clay, mod m+s sub-ang

Finds:

Context	Find Number	Material	Period	Description
17	1–6	Flint		Unworked
17	7	Flint		Convex scraper
17	8–10	Flint		Unworked
17	11–12	Flint		Angular shatter
17	13–23	Flint		Unworked
17	24	Flint		Core
17	25	Flint		Unworked
17	26	Ferrous metal		Blade
17	27–41	Flint		Unworked
17	42	Not used		
17	43–44	Flint		Unworked
17	45	Flint		Angular shatter
17	46	Flint		Unworked
20	1	Flint		Unworked
23	1–2	Flint		Unworked
23	3	Flint		Core
23	4–7	Flint		Unworked
23	8	Iron		Undiagnostic lump
23	9	Flint		Unworked
26	1	Flint		Modified
26	2	Flint		Unworked
26	3	Flint		Flake debitage
26	4	Burnt bone		Unworked
27	1–2	Flint		Unworked

27	3	Flint		Flake debitage
27	4–9	Flint		Unworked
28	1–2	Flint		Unworked
28	3	Flint		Flake debitage
37	1	Glass		Blue glass bead
37	2	Copper alloy		Stick pin
37	3	Copper alloy		Penannular brooch
37	4	Glass		Yellow glass bead
37	5	Glass		Translucent / yellow glass bead
37	6	Flint		Gun flint
37	7–11	Flint		Unworked
39	1	Flint		Scraper
39	2	Ceramic		Souterrain Ware?
40	1–4	Flint		Unworked
40	5	Flint		Core
41	1–8	Flint		Unworked
41	9	Flint		Core
41	10–11	Flint		Unworked
42	1	Ceramic		Souterrain Ware?
48	1	Flint		Flake debitage
48	2–4			Unworked
48	5	Iron		Undiagnostic lump
49	1	Flint		Flint debitage
49	2	Flint		Unworked

Interpretation:

The basal fills were overlain throughout by a grey/brown 'refuse' deposit of approximately 0.25m thick, (C37). This fill contained most of the finds and animal bone. Other finds included a decorated copper alloy penannular brooch (41mm diameter), two copper alloy stick pins (one with a semi-circular/crescent/finger style head), three decorated glass beads, two pieces of early medieval pottery (Figure 23), several lumps of a slag-like material, animal bone (burnt and unburnt) and 157 pieces of struck flint. Analysis of these finds suggest dates of the 6th or 7th century (Scully, Appendix 2.6). However, sherds of souterrain ware, which were recovered from features on the interior of the ringfort, have generally been dated to 8th – 10th centuries (Zajac, Appendix 2.5).

Distribution patterns showed that the metal finds all came from the central south part of the ditch and most of the animal bone came from the west to north-west section. This distribution may reflect activities or areas of use internal to the ringfort.

4.2.5 SUBGROUP {1005}: Deliberate backfilling of ringfort ditch

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
11	30/40	C5	-	Deliberate deposit	Dk reddish grey brown, soft silty clay, occ ch fl, mod s pebbles+ occ m sub-ang.
12	30/40	C5	-	Deliberate deposit	Dk brown, soft silty clay, occ ch fl, mod s -m sub-ang
13	40/40	C5	-	Deliberate deposit	Med brown, soft sandy clay, rare ch fl, freq m sub-ang + occ s ang
14	40/40	C5	-	Deliberate deposit	Med orange brown, soft sandy clay, occ s-m sub-ang
15	50/40	C5	-	Natural silting	Lt brown, loose sandy clay, occ m ang
16	40/40	C5	-	Natural silting	Med brown, hard sandy clay, freq ang
19	20/40	C5	-	Deliberate deposit	Dk brown, loose silty clay, freq ch, occ s

					pebbles
55	50/40	C5	-	Deliberate deposit	Med brown, soft silty clay, rare ch fl, occ ang.
56	50/40	C5	-	Deliberate deposit	Dk brown loose silty clay, freq ch fl, occ s ang.
151	40/50	C5	-	Deliberate deposit	Red brown, mod compact clayey sand, occ ch fl, very freq s sub-ang + sub-rou
154	40/50	C5	-	Natural silting	Lt grey brown, mod compact silty clay, mod s sub-rou. May be same as C16

Finds:

Context	Find Number	Material	Period	Description
11	1	Iron		Non diagnostic lump
12	1	Flint		Flake debitage
13	1	Tooth		Non archaeological
13	2-3	Flint		Unworked
13	4	Bone		Unworked
13	5	Flint		Unworked
13	6-7	Antler		Unworked
13	8-13	Flint		Unworked
14	1	Bone		Unworked

Interpretation:

The fills sealing the occupation / refuse layers appear to show a deliberate backfilling of the ringfort ditch (Figure 5). Nothing datable was recovered from these fills, but it is believed that it was completed in a short space of time. The filled ringfort ditch was subsequently cut by a later pit [C214], from which an iron ring pin was recovered.

4.2.6 SUBGROUP {1006}: Pits cutting through upper fills of ditch**Contexts:**

C	Area	Fill of	Filled with	Interpretation	Description
202	20/10	C214, C365	-	<i>In situ</i> burning	Black brown, ch-rich silty clay mottled w/orange+grey ashes, burnt branches + wood, occ bb fl, charred seeds, mod l ang + sub-ang
214	20/10	-	C202, C215, C216, C217, C234, C245	Pit	U-shaped in profile, sides quite steep, breaking into concave base. 1.10 l x 0.96 w x 0.65 d
215	20/10	C214, C 365	-	Prob firebase	Dk grey brown, soft silty clay, freq ch frags, occ bb, mod m-l ang+ sub-ang + sub-rou, cluster of l cobbles in NW quadrant of base
216	20/10	C214, C 365	-	<i>In situ</i> burning	Red orange, ash + ch, mod bb fl,
217	20/10	C214	-	Fire reddened clay	Red brown, mod compact clay, built up around the cluster of l stones, occ ch fl, very freq pebbles
234	20/10	C214	-	Prob firebase	Dk grey brown, soft silty clay, freq ch frags, occ bb, mod m-l ang+ sub-ang+sub-round
245	20/10	C214	-	<i>In situ</i> burning	Black brown, ch-rich silty clay mottled w/orange+grey ashes, burnt branches+wood, occ bb fl, charred seeds, mod l ang+sub-ang
365	20/10	-	C202, C 215, C 216	Pit	U-shaped in profile, sides gently sloped, into flat concave base. 0.75l x 0.5w x 0.27d

Finds:

Context	Find Number	Material	Period	Description
202	1-5	Ceramic		Souterrain Ware
215	1-9	Ceramic		Souterrain Ware
215	10	Iron		Ring headed stick pin

215	11	Iron		Sheet metal
215	12	Flint		Unworked

Interpretation:

The pits [C214] and [C365] in subgroup {1006} cut through the upper fills of the ringfort ditch [C5] in subgroup {1001}. As fills (C202), (C215) and (C216) are present in both pits, it appears that they were both open at the same time. The fills contain evidence of *in situ* burning with fire reddened clay (C217) present in the base of [C214]. Analysis of the pottery recovered from the fills (C202) and (C215) during post-excavation revealed that a total of 9 sherds of coarse pottery representing 2 vessels of 'Souterrain war' (Zajac, Appendix 2.5). An iron ring pin was also recovered from (C215) indicating an 8th -10th century date. It is believed that the features [C214] and [C365] functioned as domestic hearths or cooking pits.

GROUP 2 Discussion: Ringfort Ditch

Group	Subgroup	Interpretation	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
2	1001	Ringfort ditch and natural silting fills	Early medieval	Early medieval	Early medieval ringfort
2	1002	Stakehole	Early medieval	Early medieval	Early medieval ringfort
2	1003	Pit	Early medieval	Early medieval	Early medieval ringfort
2	1004	Occupational fills of ringfort ditch	Early medieval	Early medieval	Early medieval ringfort
2	1005	Deliberate backfilling of ringfort ditch	Early medieval - medieval	Early medieval - medieval	Early medieval ringfort
2	1006	Pits cutting through upper fills of ditch	Early medieval - medieval	Early medieval - medieval	Early medieval ringfort

Group 2 comprised a circular ringfort 46m in internal diameter with a causewayed ditch [C5] in subgroup {1001} open to the east (Dundalk Bay and Dun Dealgan). A minor/secondary crossing point was visible by a patch of hard gravels in a shallow area of the ditch on the northern side (see figure 4). At the base of the ditch were also a pit [C232] and a stakehole [C356], which may be related to the construction of the ditch.

The ditch [C5] in subgroup {1001} had three phases of filling consisting of natural silting at the base, occupational layers in the middle, followed by a deliberate backfilling of the ditch. The presence of all the occupational material in the middle of the ditch may reflect a clearance of the internal areas of the ringfort in order to change the use of the enclosure, such as a change from high status, domestic occupation/farming to a less dynamic and poorer land use, such as using the ringfort as a stock enclosure. The distribution pattern of finds recovered from the ditch may suggest the different functions carried out in various parts of the ringfort. The animal bone recovered from the ditch fills was concentrated to the north-west part of the ditch, which suggests that slaughtering or hide preparation may have been carried out in this area. Unfortunately the flint distribution was too random to confirm this. The high quality finds such as the brooch, glass beads and stick-pin were all recovered from the south central part of the ringfort, which suggests that this may have been the main living area.

Apart from two stick pins and the Penannular brooch, there was a remarkable lack of metal objects on the site. The Penannular brooch contained widened and flattened angular terminals, which were decorated in relief with curvilinear designs, similar in

style to La Tène type motifs but typical of a 6th – 7th C AD date. The length of the pin was 56.3mm, with the outer diameter of the brooch being 42.8mm. The stick pin recovered from the same context as the brooch has been referred to as a 'finger' pin, due to the presence of three 'knuckles' on the pin head. The diameter of the head of the pin was 5.7mm and the length was 50.5mm. The second ring pin recovered from C215, was made from iron and was badly corroded. It measured 102.5mm in length, while the ring at the top of the pin had a diameter of 13mm.

The three glass beads from layer/fill [C37] of the ringfort ditch are of superb quality. One is a blue base with a design in white on it, the yellow glass bead is opaque and plain, and the translucent bead has a series of connected spirals in yellow impressed into it. They are typical of beads found during the early medieval period (Scully, Appendix 2.6).

The pits [C214] and [C365] in subgroup {1006} that cut through the upper fills of the ditch, show that the ringfort was abandoned and the ditch backfilled during or at the end of the early medieval period as they contained finds dating to that period. The reason for this apparent abandonment is not known, but it would appear that the ringfort was rendered undefendable at this time.

The animal species identified on site and generally from the ditch fill were *Bos taurus* (cattle), *Sus domesticus* (pig), *Ovis aries*/*Capra hircus* (sheep/goat), *Canis familiaris* (dog), *Equus caballus* (horse), *Cervus elaphus* (red deer) and *Felis catus* (cat) (Lofqvist, Appendix 2.7). Thirty seven of the bones from within the assemblage had cut marks or evidence of butchery. Cattle dominated the assemblage followed by pigs and sheep which is typical for a settlement of this type during the early medieval period. Dogs, cats and evidence for horse are also typical from this period and all would have fulfilled a specific function. The red deer evidence related to an antler fragment. Antler was a trade good and was used to produce a variety of items for composite tools and jewellery. For a full discussion of the faunal assemblage please refer to Lofqvist in Appendix 2.7.

One human skull fragment was retrieved with the Newtownbalregan 6 animal bone material. This fragment was most likely from a middle to mature adult individual.

4.3 GROUP 3: Internal Features

4.3.1 SUBGROUP {1007}: Irregular-shaped linear feature

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
140	40/40	-	C141	Possible refuse pit	Irregular-shaped in plan, sides concave, shallower in E, base irreg, 0.37d x 2.80l x 0.80w, E-W
141	40/40	C140	-	Deliberate fill	Red brown sandy silt, rare ch, many fist sized stones

Finds:

None

Interpretation:

The pit [C140] in subgroup {1007} had a keyhole-shaped cut deliberately filled by (C141), a stony silty material. Nothing to indicate a function for [C140] was recovered, but it was probably a refuse pit.

4.3.2 SUBGROUP {1008}: Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
111	30/30	-	C112	Posthole	Subcircular in plan, sides convex, base tapered rounded point, 0.08d x 0.37l x 0.56w, N-S
112	30/30	C111	-	Nat silting	Med dk brown, mod loose silty clay, rare ch, freq s stones

Finds:

Context	Find Number	Material	Period	Description
112	1-2	Flint		Flake debitage

Interpretation:

The Posthole [C111] in the subgroup {1008} naturally silted up with (C112). It did not appear to form part of any structure, or be related to any other features on site.

4.3.3 SUBGROUP {1009}: Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
187	20/20	C190	-	Deliberate backfill	Med Dk brown, mod loose silty clay, freq s pebbles_occ m sub-ang
190	20/20	-	C187, C192	Poss posthole	Oval in plan, sides straight +regular, base flat, 0.22d x 0.68l x 0.38
192	20/20	C190	-	Natural silting	Friable silty clay, freq pebbles+m sub-ang

Finds:

None

Interpretation:

The posthole [C190] in subgroup {1009} was partially filled as a result of natural silting (C192) and then was deliberately filled by (C187). It does not appear to be related to any other features and does not seem to form part of any structure.

4.3.4 SUBGROUP {1010}: Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
193	30/30	-	C194, C195	Posthole	Circular in plan, sides steep except in NNW, base flat + sloping to the E, 0.15d x 0.24 dia
194	30/30	C193	-	Deliberate backfill	Dk brown, loose ch, occ s ang pebbles
195	30/30	C193	-	Natural silting	Lt-med brown, quite loose silt, freq s pebbles,

Finds:

None

Interpretation:

The posthole [C193] in subgroup {1010} was partially naturally silted by (C195), before being deliberately filled by (C194). [C193] was in close proximity to stakeholes [C210] and [C211] described below, and may be related.

4.3.5 SUBGROUP {1011}: Stakeholes

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
196	30/30	C210	-	Natural silting	Lt-med brown, quite loose silt, freq s pebbles
210	30/30	-	C196	Stakehole	Oval in plan, sides steep, except in N, Base rounded+sloped to the W, abutted/ T'd by C193 in SSE, 0.12d x 0.20l x 0.11w, NW-SE
211	30/30	-	C222,C 223	Stakehole	Sub-circular in plan, E side irreg, W side convex, base slightly concave, 0.20d x 0.11l x 0.12w
222	30/30	C211	-	Natural silting	Lt-med grey brown, loose sandy silt, occ s sub-ang
223	30/30	C211	-	Natural silting	Med pink grey brown, mod loose sand, occ s stony grains

Finds:

None

Interpretation:

The stakeholes [C210] and [C211] in subgroup {1011} were located close to the posthole [C193] described above. [C210] naturally silted up with (C196), while [C211] naturally silted up with (C222) and (C223). It appears that [C210] was used to provide support for posthole [C193] in subgroup {1010}, while [C211] was adjacent.

4.3.6 SUBGROUP {1012}: Truncated Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
103	40/10	-	C104	Posthole	Circular in plan, very shallow, sides nearly vert, base flat, 0.09d x 0.28 diam
104	40/10	C103	-	Nat silting	Med brown, silty clay, occ ch

Finds:

None

Interpretation:

The feature [C103] in subgroup {1012} was the remains of a truncated posthole, naturally silted up with (C104). Nothing to suggest a function for this posthole was recovered. It does not appear to be related to any other features on site.

4.3.7 SUBGROUP {1013}: Truncated Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
79	40/20	-	C80	Posthole	Circular in plan, shallow, sides steep, base slightly concave, 0.60d x 0.20 dia
80	40/20	C79	-	Deliberate backfill	Med brown, mod compact silty clay, freq ch

Finds:

None

Interpretation:

The feature [C79] in subgroup {1013} was the remains of a truncated posthole, deliberately filled by (C80). [C79] did not appear to be related to any other feature and nothing to determine a function for this posthole was recovered during the excavation.

4.3.8 SUBGROUP {1014}: Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
113	30/10	-	C116	Posthole	Sub-circular in plan, sides straight in E, otherwise convex, base undulating
116	30/10	C113	-	Natural silting	Dk brown clayey silt, occ ch fl, mod m-l sub-ang

Finds:

None

Interpretation:

The posthole [C113], in subgroup {1014} naturally silted with (C116), a stony clayey silt. Posthole [C113] does not appear to be related to any other feature.

4.3.9 SUBGROUP {1015}: Pit

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
143	40/10	C149	-	Deliberate backfill	Dk red brown, friable clay, mod ch, freq m sub-ang + sub-rou
149	40/10	-	C143	Pit	Circular in plan, steep sloping sides, irreg concave base, 0.22d x 1.00 diam

Finds:

None

Interpretation:

The pit [C149], in the subgroup {1015} was deliberately filled by (C143). No function was determined for [C149], but it appears to be related to pit [C60] in subgroup {1016}, described below.

4.3.10 SUBGROUP {1016}: Irregular-shaped pit

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
43	40/10	C60	-	Deliberate fill	Lt-med red brown, soft sandy clay, rare ch fl, occ s sub-ang
60	40/20	-	C43, C61, C67, C158	Pit	Irreg curvilinear in plan, sides + base irreg, 0.25d x 0.2.65w, NE-SW
61	40/20	C60	-	Natural silting	Med yellow brown, friable silty clay, occ s pebbles + sub-ang
67	40/20	C60	-	Natural silting	Med grey brown, soft silty clay, freq s-l sub-ang
158	40/20	C60	-	Natural silting	Med red grey, thin layer above natural

Finds:

Context	Find Number	Material	Period	Description
43	1-8	Ceramic		Souterrain Ware
43	9-31	Flint		Unworked
158	1-17	Flint		Unworked

Interpretation:

The pit [C60] in subgroup {1016} was a large irregular-shaped pit that may have been formed by a series of shallow, inter-cutting 'hollows' that were open all at the same

time. Pit [C60] was filled by several layers of natural silting, (C61), (C67) and (C158), which were then sealed by a layer of randomly laid and loosely consolidated field stones (C43). Eight sherds of coarse fabric pottery, which were identified as souterrain ware (Zajac, Appendix 2.5) and represented a single vessel, were recovered from between the stones. It is not known what the function of this pit was, or the function of the stone fill [C43]. The stones could have been a simple consolidation layer filling in the hollow of the pit, or it could have formed some sort of construction, like a foundation to a surface. A second similar pit is described in subgroup {1024} below.

4.3.11 SUBGROUP {1017}: Posthole structure

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
115	20/10	-	C120	Posthole	Sub-circular in plan, U-shaped in profile, 0.42d x 0.50l x 0.40w. E-W
120	20/10	C115	-	Deliberate backfill	Med orange brown mod compact silty clay, mod ch, mod m sub-ang + ang + subrou
124	20/10	-	C125	Posthole	Oval in plan, sides vert, base flat, 0.35d x 0.35l x 0.25w, NE-SW
125	20/10	C124	-	Natural silting	Lt-med brown, firm sandy silt, occ ch fl, mods sub-rou
136	20/10	-	C137	Stakehole	Circular in plan, sides near vertical, base narrow U shape, 0.23d x 0.07 diam
137	20/10	C136	-	Natural silting	Lt grey brown, mod compact silty clay, occ ch fl, occ m sub-ang
156	20/10	-	C157	Posthole	Oval in plan, sides steep-vert, uneven base, 0.45d x 0.50l x 0.38w, NW-SE
157	20/10	C156	-	Deliberate backfill	Lt-med brown mod compact sandy silt, occ ch fl, many sub-ang + sub-rou + freq pebbles

Finds:

Context	Find Number	Material	Period	Description
120	1	Flint		Unworked

Interpretation:

The postholes [C115], [C124] and [C156] in subgroup {1017} were in close proximity to each other and formed an L-shape that may indicate a corner of a structure (Figure 4 and 6). This structure would have been oriented roughly north-west/south-east, with dimensions of 3.10m x 1m. [C115] was deliberately filled by (C120), a charcoal-rich silty clay. [C124] was naturally filled by (C125), while [C156] was deliberately filled by (C157), a stony, sandy silt. Due to the level of truncation on site, the rest of the possible structure formed by these three postholes did not survive. The stakehole [C136] was located close to [C115] and may be related. It was naturally silted up with (C137).

4.3.12 SUBGROUP {1018}: Posthole

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
146	30/20	-	C358, C359	Posthole	Oval in plan, sides + base concave, 0.25d x 0.54l x 0.38w,
358	30/20	C146	-	Burnt post	Black, v loose charcoal+ some burnt clay, l stones at base.
359	30/20	C146	-	Post packing	Black, loose clay, minimal inclusions

Finds:

None

Interpretation:

The posthole [C146], in subgroup {1018} filled by the remains of a burnt post (C358) and packing material (C359). [C146] was an isolated feature and does not appear to be related to any of the other features on site.

4.3.13 SUBGROUP {1019}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
147	30/20	-	360, 361	Pit	Irreg sub-oval in plan, E side slopes gently, other sides more steep, base concave, 0.77d x 0.37l x 0.27w
360	30/20	147	-	Deliberate fill	Blackish fill, ch + burnt clay, some m-l stones
361	30/20	147	-	Deliberate fill	Black fill, ch + burnt clay, some m-l stones

Finds:

None

Interpretation:

The pit [C147] in subgroup {1019} was an irregular-shaped pit deliberately filled by (C360) and (C361). Nothing to indicate a function for [C147] was recovered.

4.3.14 SUBGROUP {1020}: Refuse Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
110	30/10	C117	-	Refuse / ash dump	Med-dk brown, mod loose silt, mod ch fl, occ m fire-cracked stones, mod m-l sub-ang
117	30/10	-	C110, C122	Refuse pit	Oval in plan, sides slightly concave, poss T'd, base slightly rounded, 0.15d x 0.51l x 0.46w, N-S
122	30/10	C117	-	Refuse / ash dump	Med yellow grey brown, mod loose fine silt, occ ch fl, rare bb, rare fire-cracked stone,

Finds:

None

Interpretation:

The pit [C117] in subgroup {1020} appears to be a refuse pit deliberately filled by (C117) and (C122). Both (C110) and (C122) appear to be fire debris, but were not burnt *in situ*. The material was burnt elsewhere and dumped in at a later stage.

4.3.15 SUBGROUP {1021}: Charcoal filled pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
144	20/10	-	C145	Pit	Wedge-shaped in plan, sides straight-concave, base flat, 0.19d x 1.47l x 0.69w, ENE-WSW
145	20/10	C144	-	Deliberate fill	Brown black silty clay, occ ch, occ s sub-rou, some large stones near the surface

Finds:

None

Interpretation:

The pit [C144] in subgroup {1021} was a wedge-shaped pit, filled by charcoal-rich clay (C145). Nothing to indicate a function was recovered from the fill. It was originally believed to be a hearth, but no evidence of *in situ* burning was recovered. It appears that the material was burnt elsewhere and dumped into this pit.

4.3.16 SUBGROUP {1022}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
189	20/20	C191	-	Nat silting	Lt yellow brown, compact silty clay, occ pebbles
191	20/20	-	C189, C203	Posthole	Sub-circular in plan, sides vert except SW which is sloping+SE which is undercut, base uneven +stepped, 0.36d x 0.51l x 0.43w, NW-SE
203	20/20	C191	-	Prob post packing	Med grey brown, mod compact silty clay, freq s-l pebbles (all types)

Finds:

None

Interpretation:

The posthole [C191] in subgroup {1022} was filled by post packing material (C203) sealed by a layer of natural silting (C189). It is believed that (C203) was originally packing material around the post that slumped in when the post was removed.

4.3.17 SUBGROUP {1023}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
307	30/20	-	C308	Poss posthole	Sub-circular in plan, sides slope mod, except in NW, which is more steep, 0.20d x 0.50l x 0.40w E-W
308	30/20	C307	-	Deliberate backfill	Dk mod loose silty clay, occ ch + burnt clay, s-m stones

Finds:

None

Interpretation:

The posthole [C307] in subgroup {1023} was deliberately filled by (C308). [C307] did not appear to be related to any other features.

4.3.18 SUBGROUP {1024}: Linear pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
184	30/10	-	C237	Linear pit	Cut by C168 + C170, so original shape in plan unclear, sides steep, base flat, 0.12d x 0.60l x 0.50w, E-W
237	30/10	C184	-	Natural silting	Med-dk brown, quite compacted sandy silty clay, occ s sub-rou

Finds:

None

Interpretation:

The pit [C184] in subgroup {1024} was a linear pit that was truncated on its eastern side by [C170] and [C168] described in the subgroups {1025} and {1026} below. Nothing was recovered from the fill (C237) to indicate a function.

4.3.19 SUBGROUP {1025}: Irregular-shaped pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
169	30/10	C170	-	Natural silting	Mid orange brown, quite compacted sandy clay, mod m sub-rou + occ s-l sub-ang + sub-rou
170	30/10	-	C169, C183, C185	Unclear	L-shaped in plan, sides steep+uneven, base flat+ slightly undulating, 0.35 d
183	30/10	C170	-	Natural silting	Lt orange brown, very compacted sandy clay, mod s-l ang + sub-ang,
185	30/10	C170	-	Natural silting	Lt grey orange brown, sandy clay, mod s-l sub-ang + sub-rou

Finds:

None

Interpretation:

The pit [C170] in subgroup {1025} was an L-shaped pit naturally silted with (C169), (C183) and (C185). It truncated the eastern end of pit [C184], and was in turn re-cut by [C168] described below. Nothing to indicate a function was recovered from the fills.

4.3.20 SUBGROUP {1026}: Irregular-shaped pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
167	30/10	C168	-	Deposit	Med dk brown, mod compact sandy clay, freq m-l sub-ang + sub-rou + ang
168	30/10	-	C167	Re-cut of c.170	L-shaped in plan, sides near vert in S, very steep elsewhere, base flat, 0.35d

Finds:

None

Interpretation:

The pit [C168] in subgroup {1026} was a re-cut of pit [C170] {1025}. [C168] follows the line of [C170], but is narrower. As with [C170], nothing was recovered to indicate a function for this pit. This series of inter-cutting pits is similar to pit [C60] described in subgroup {1016} above, but it is believed that all of the pits that made up [C60] were open at the one time, whereas pits [C184] and [C170] had partially filled up before being re-cut.

4.3.21 SUBGROUP {1027}: Refuse pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
93	30/10	C96	-	Refuse material	Med grey brown, mod loose silty clay, freq ch fl + frags, occ bb fl + frags, mod s-m sub-ang
94	30/10	C96	-	Refuse material	Dk grey brown, mod loose silty clay, freq ch fl + frags, occ bb, mod heat shattered stone, occ s sub-ang
95	30/10	C96	-	Nat silting	Mid grey brown, mod loose silty clay, occ ch fl,

					occ s sub-ang
96	30/10	-	C93, C94, C95	Refuse pit	Sub-rectangular in plan, sides irreg + slightly concave, base flat, 0.24d x 0.68l x 0.58w, E-W

Finds:

None

Interpretation:

The pit [C96] in subgroup {1027} was a refuse pit filled by refuse material (C93) and (C94), which were partially sealed by a layer of natural silting (C95). It was located close to posthole [C98] and [C101] and may be related.

4.3.22 SUBGROUP {1028}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
98	40/10	-	C99	Poss posthole	Oval in plan, Sides regular+mod steep, base flat, 0.32d x 0.52l x 0.39w, E-W
99	40/10	C98	-	Poss post packing	Med-dk brown grey loose clayey silt, freq ch, freq s pebbles + m sub-ang between fill+ natural

Finds:

None

Interpretation:

The posthole [C98] in subgroup {1028} was filled by packing material and natural silting mix (C99). It appears that the packing stones fell into the base of the cut when the post was removed and were subsequently sealed by a layer of natural silting. It was later re-cut by [C101] described below.

4.3.23 SUBGROUP {1029}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
92	40/10	C101	-	Deliberate deposit	Dk grey, ch-rich silty clay, bb + freq heat cracked stone, freq m sub-ang + sub-ang pebbles
101	40/10	-	C92	Re-cut posthole	Re-cut of c.98. Roughly circular in plan, sides smooth +steep, base flat, 0.16d x 0.29l x 0.34w

Finds:

None

Interpretation:

The posthole [C101] in subgroup {1029} was a re-cut of posthole [C98] in subgroup {1028}. It was filled by refuse material (C92), which was similar in composition to the fill of adjacent refuse pit [C96] in subgroup {1027} described above and may indicate a relationship between them.

4.3.24 SUBGROUP {1030}: Stakehole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
138	30/20	-	C139	Stakehole	Circular in plan, sides steeply sloped, base slightly rounded, 0.11d x 0.09 dia

139	30/20	C138	-	Nat silting	Med yellow brown, mod loose silt, rare ch fl, rare fine gravel + sub-rou, sub-ang concentrated at base
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Finds:

None

Interpretation:

The stakehole [C138] in subgroup {1030}, naturally silted up with (C139). It was located immediately south of the posthole [C135] in subgroup {1031} and may be related.

4.3.25 SUBGROUP {1031}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
133	30/20	C135	-	Post packing + silting	Med yellow brown, mod loose silty clay, occ ch fl + rare frags, rare m sub-ang conc in centre
135	30/20	-	C133	Posthole	Oval in plan, sides steep + irreg, base flat generally, 0.15d x 0.28l x 0.25w, N-S

Finds:

None

Interpretation:

The posthole [C135] in subgroup {1031}, naturally silted up with (C133). It was located immediately north of stakehole [C139] in subgroup {1030}, which may have been inserted to provide support for [C135].

4.2.26 SUBGROUP {1032}: Linear arrangement of postholes

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
70	40/20	C73	-	Poss decayed post	Dk rich brown, mod loose silty clay, freq ch fl, occ s sub-ang
73	40/20	-	C70, C74, C75, C76	Posthole	Sub-circular in plan sides steeply sloped + somewhat irreg, base slightly rounded, 0.30d x 0.43l x 0.38w
74	40/20	C73	-	Poss post packing	Med grey brown, mod loose silty clay, mod ch fl, occ s-m stones
75	40/20	C73	-	Redeposited natural used as post packing	Lt yellow brown, firm fine sandy silt, occ ch fl, occ s-m sub-ang+fine gravel
76	40/20	C73	-	Poss nat silting	Med yellow grey brown, mod loose clay silt, occ ch fl, mod s sub-ang.
84	40/20	C86	-	Nat silting	Med yellow brown, mod loose silty clay, occ ch frags, occ s sub-ang
86	40/20	-	C84	Posthole	Sub-circular in plan, sides regular +steeply sloping to a tapered point at base, axis of inclination is to the NE, 0.26d x 0.17dia
119	30/20	C121	-	Burnt <i>in situ</i> post	Med dk brown, loose silty clay+ orange burnt clay, freq ch frags, fire-cracked stone, mod m sub-ang
121	30/20	-	C119	Posthole	Circular in plan, sides irreg, base flat, 0.10d x 0.20l x 19w
134	30/20	C142	-	Natural silting	Dk brown soft silty clay, freq ch fl, freq m sub-ang
142	30/20	-	C134, C148	Posthole	Oval in plan, sides near vert, base irreg, 0.29d x 0.42l x 0.30w, N-S
148	30/20	C142	-	Post packing	M - l sub-ang stones lining feature cut

181	40/20	C182	-	Nat silting	Med grey brown, mod loose silty clay, occ ch fl + frag, occ s sub-ang, some decayed stone
182	40/20	-	C181	Posthole	Sub-circular (almost D-shaped) in plan, straighter side slopes gradually, rounder sides steeper base slopes down to N, 0.14d x 0.20 diam

Finds:

Context	Find Number	Material	Period	Description
84	1	Ceramic		Souterrain Ware

Interpretation:

The postholes [C73], [C86], [C121], [C142] and [C182] in subgroup {1032} appear to have formed a linear alignment. It is possible that these postholes may have formed the side of a structure, with the postholes situated c. 0.80m apart. The posthole [C73] cut both the pit [C77] in subgroup {1037} and the pit [C175] in subgroup {1036}. It was filled by (C70), which was a rich organic material that was probably the decayed remains of the post. This was surrounded by the fills (C74) and (C75) which appear to have acted as packing material. The posthole [C86] was filled as a result of natural silting (C84). It also truncated the western part of the pit [C77], and may have acted as a bracing post for [C73]. A sherd of pottery was recovered from (C84), but its state of preservation was poor, and post-excavation analysis of it proved inconclusive. The posthole [C121] was filled with the remains of the burnt *in situ* post (C119). This feature was truncated. The posthole [C142] was filled by a layer of packing stones at the base (C148) and a layer of natural silting (C134). The posthole [C182] had naturally silted up with (C181).

4.3.27 SUBGROUP {1033}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
109	30/10	-	C127	Pit	Oval in plan, slope gradual on E+NE sides, very slight on W, cut by C129 on W side+C244 on S side, base concave, 0.30d x 1.37l x 0.61w, E-W
127	30/10	C109	-	Deliberate backfill	Dk red brown, mod compact silty clay, freq ch fl + frags, occ s-l ang + sub-ang + sub-rou

Finds:

None

Interpretation:

The pit [C109] in subgroup {1033}, was deliberately backfilled by (C127). Nothing to indicate a function for [C109] was recovered from the fill, but it was cut by two postholes, [C244] in subgroup {1034} and [C129] in subgroup {1035}.

4.3.28 SUBGROUP {1034}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
128	30/10	C244	-	Burnt <i>in situ</i> post	Med orange brown sandy clay, occ ch, occ m sub-ang + ang, mainly around edges of cut
244	30/10	-	C128	Posthole	Circular in plan, V-shaped in section, 0.29d x 0.54 dia

Finds:

Context	Find Number	Material	Period	Description
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128	1	Flint		Angular shatter
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Interpretation:

The posthole [C244] in subgroup {1034} cut through the south-west corner of pit [C109] in subgroup {1033}. It was filled by (C128), which appears to have been a burnt *in situ* post. It was probably related to posthole [C129] in subgroup {1035} which was in the south-east corner of [C109].

4.3.29 SUBGROUP {1035}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
129	30/10	-	C130, C131	Posthole	Posthole cut into C127. V-shaped in sect, 0.22d x 0.24 diam.
130	30/10	C129	-	Post packing	Med yellow brown, compact sandy clay, occ ch fl, mod m-l ang + sub-ang
131	30/10	C129	-	Natural silting	Dk red brown, loose silty clay, freq ch fl+frags, occ s ang + sub-ang

Finds:

Context	Find Number	Material	Period	Description
130	1	Flint		Unworked
131	1	Flint		Flake debitage

Interpretation:

The posthole [C129] in subgroup {1035}, filled by packing material (C130) and natural silting (C131). It cut through the SE corner of pit [C109] in subgroup {1033} and is probably related to the posthole [C244] in subgroup {1034} which is situated in the south-west corner of [C109].

4.3.30 SUBGROUP {1036}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
90	40/20	C175	-	Natural silting	Med orange brown, mod compact silty clay, freq ch, freq s-m sub-ang + occ l
175	40/20	-	C90	T'd pit	Irreg in plan, sides sloping, base irreg, T'd by C72+77, 0.27d x 1.22l x 1.30w, N-S

Finds:

None

Interpretation:

An irregular shaped pit [C175] in subgroup {1036}, was the earliest feature in a series of inter-cutting pits towards the centre of the enclosure. It was filled by (C90), a natural silt fill. It was truncated by the pits [C72] in subgroup {1038} and [C77] in subgroup {1037}, which are described below.

4.3.31 SUBGROUP {1037}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
77	40/20	-	C78	Pit	Oval in plan, smooth steep sides generally, base rounded, T'd in N by C73 + in W by C86, 0.18d x 0.73l, E-W
78	40/20	C77	-	Poss nat silting	Med yellow grey brown, mod loose silty clay, occ ch fl at top, mod gravel + s sub-ang

Finds:

None

Interpretation:

The pit [C77] in subgroup {1037}, naturally silted up with (C78). It cuts through the pit [C175] in subgroup {1036} described above, but is in turn truncated by postholes [C73] and [C86] in subgroup {1032}. Nothing to indicate a function was recovered from the fill of [C77].

4.3.32 SUBGROUP {1038}: Pit**Contexts:**

C	Area	Fill of	Filled by	Interpretation	Description
71	40/20	C72	-	<i>In situ</i> burning	Dk brown, mod loose silty clay, freq ch fl, freq s-m sub-ang
72	40/20	-	C71	Pit	Sub-circular in plan, sides + base concave, 0.23d x 0.75l x 0.70w

Finds:

None

Interpretation:

The pit [C72] in subgroup {1038} contained evidence of *in situ* burning, as fire reddened clay was evident around the edges of the cut. It may have functioned as a temporary hearth, but does not appear to have been used extensively. The pit [C72] cut through pit [C175] in subgroup {1036} described above.

GROUP 3 DISCUSSION: Internal Features

Group	Subgroup	Interpretation	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
3	1007	Irregular shaped linear feature	UND	Early medieval	Ringfort: internal features
3	1008	Posthole	UND	Early medieval	Ringfort: internal features
3	1009	Posthole	UND	Early medieval	Ringfort: internal features
3	1010	Posthole	UND	Early medieval	Ringfort: internal features
3	1011	Stakeholes	UND	Early medieval	Ringfort: internal features
3	1012	Truncated Posthole	UND	Early medieval	Ringfort: internal features
3	1013	Truncated posthole	UND	Early medieval	Ringfort: internal features
3	1014	Posthole	UND	Early medieval	Ringfort: internal features
3	1015	Pit	UND	Early medieval	Ringfort: internal features
3	1016	Irregular-shaped pit	Early medieval	Early medieval	Ringfort: internal features
3	1017	Posthole structure	UND	Early medieval	Ringfort: internal features
3	1018	Posthole	UND	Early medieval	Ringfort: internal features
3	1019	Pit	UND	Early medieval	Ringfort: internal features
3	1020	Refuse Pit	UND	Early medieval	Ringfort: internal features
3	1021	Charcoal filled pit	UND	Early medieval	Ringfort: internal features
3	1022	Posthole	UND	Early medieval	Ringfort: internal features
3	1023	Posthole	UND	Early medieval	Ringfort: internal features
3	1024	Linear pit	UND	Early medieval	Ringfort: internal features
3	1025	Irregular-shaped pit	UND	Early medieval	Ringfort: internal features
3	1026	Irregular-shaped pit	UND	Early medieval	Ringfort: internal features

3	1027	Refuse pit	UND	Early medieval	Ringfort: internal features
3	1028	Posthole	UND	Early medieval	Ringfort: internal features
3	1029	Posthole	UND	Early medieval	Ringfort: internal features
3	1030	Stakehole	UND	Early medieval	Ringfort: internal features
3	1031	Posthole	UND	Early medieval	Ringfort: internal features
3	1032	Linear arrangement of postholes	Early medieval	Early medieval	Ringfort: internal features
3	1033	Pit	UND	Early medieval	Ringfort: internal features
3	1034	Posthole	UND	Early medieval	Ringfort: internal features
3	1035	Posthole	UND	Early medieval	Ringfort: internal features
3	1036	Pit	UND	Early medieval	Ringfort: internal features
3	1037	Pit	UND	Early medieval	Ringfort: internal features
3	1038	Pit	UND	Early medieval	Ringfort: internal features

On the interior of the enclosure, truncation meant that little of identifiable form survived. Most of the features were located in the southern part of the enclosure and consisted of simple pits and postholes.

The most notable features were the postholes [C115], [C124] and [C156] in subgroup {1017} that may have formed the corner of a structure (Structure 1) 3.10m x 1m, and the linear arrangement of postholes in subgroup {1032} that may have formed one side of another structure (Structure 2), c. 3.50m in length.

There were two irregular-shaped pits in the southern half of the enclosure. The south-east of the enclosure contained a large, irregular-shaped pit in subgroup {1016} with a rough, uneven base. It appears that this pit was a series of shallow, intercutting 'hollows' that were all open at the same time. The basal fill of the pit in subgroup {1016} was orange brown silts [C158] but the uppermost fill was a layer of randomly laid and loosely consolidated field stones. From between the stones eight sherds of coarse fabric pottery which were identified as sherds of souterrain ware (Zajac, Appendix 2.5) were recovered. It is not known what the function of this pit was, or the function of the stone fill [C43]. The stones could have been a simple consolidation layer filling in the hollow of the pit, or it could have formed some sort of construction, like a foundation to a surface. A second smaller, but similar feature in subgroup {1025} was recorded in the southern part of the enclosure. Unlike the pit in subgroup {1016}, where the intercutting hollows all appear to have been open at one time, three separate phases were recorded in the pit in subgroup {1025}. After the pit in subgroup {1025} had silted up, the pit in subgroup {1026} was re-cut through the upper fills [C169] and [C183]. The pit [C168] was in turn cut by [C184]. All the fills of these pits were sterile silts, with a stone packing layer [C237] sealing them. No finds were recovered.

There was no evidence for metal working or any other industrial activity, such as pottery bone/horn working, weaving etc. It is possible that the activities undertaken within the enclosure were concerned with degradable products such as animal skinning, but it is also clear that tanning was not undertaken on the site.

There was no evidence for any form of human burial.

The pattern of the site seems to indicate a

- high status - through finds and size of the enclosure
- domestic - through lack of any obvious industrial activities
- command - through views, proximity to Tateetra Road and Dun Dealgan

- probable stock-rearing (?horses) site - possibly through flint and animal bone assemblage.

The south central area of the ringfort appears to have contained most of the finds of a domestic nature. This and the two possible structure remains suggests that this was probably the area of main domestic activity. The concentrations of animal bone from the north-west part of the ditch suggests that most of the animal butchering was carried out in this area.

4.4 GROUP 4: External Features

4.4.1 SUBGROUP {1039}: Hearth

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
206	10/50	-	C219, C220, C221	Poss hearth	Circular in plan, sides slightly concave, base flat or slightly concave, 0.13d x 0.76l x 0.75w
219	10/50	C206	-	Ash/charcoal layer	Grey black, clayey ch + ash, occ s rou pebbles
220	10/50	C206	-	Ash layer	Yellow clayey silt + ash, occ ch fl
221	10/50	C206	-	Fire reddened clay	Med red oxidised silty clay

Finds:

None

Interpretation:

The feature [C206] in subgroup {1039} was the cut of a hearth which was located along the exterior of the ringfort ditch to the west-north-west. It comprised of fire reddened clay (C221) that was sealed by a layer of ash (C220), which in turn was sealed by layer of charcoal/ash mix (C219). [C206] was an isolated feature on site and was not directly related to any other feature on site.

4.4.2 SUBGROUP {1040}: Hearth

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
274	0/10	C291	-	Fire debris	Dk brown ch-rich silty clay, occ bb, mod m sub-ang.
291	0/10	-	C274, C292	Pit	Sub-circular in plan, sides concave except in S, base irreg, 0.36d x 1.00l x 1.00w
292	0/10	C291	-	Fire reddened clay.	Red brown, stiff clay, rare ch fl, rare bb, mod s-m stone

Finds:

None

Interpretation:

The feature [C291] in subgroup {1040} was the cut of a hearth that was filled by a layer of fire reddened clay (C292) and fire debris (C274). [C291] was isolated on site and did not appear to be directly related to anything else on site.

4.4.3 SUBGROUP {1041}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
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269	30w/30	C271	-	Nat silting	Lt brown, loose sandy silt, mod ch
271	30w/30	-	C269	Posthole	Oval in plan, E side steep, others more gentle, base flat, 0.08d x 0.38l x 0.20w, E-W

Finds:

None

Interpretation:

The posthole [C271], was filled naturally by (C269). It was located 1.20m to the north-west of pit [C270] in subgroup {1042}, but no direct relationship was established between the two features during the excavation.

4.4.4 SUBGROUP {1042}: Pit and posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
268	30w/30	C270	-	Fire debris	Mid brown, loose crumbly ch-rich sandy silt, freq ch in centre + occ around sides, freq m-l sub-rou + sub-ang
270	30w/30	-	C268	Pit	Irreg shaped cut, sides steeply sloped into concave base. 0.35 d x 1.25 l x 0.71 w.
364	30w/30	-	C268	Posthole	U-shaped profile, sides quite steep breaking into flat base. 0.20 d x 0.30 l x 0.20 w

Finds:

None

Interpretation:

This subgroup {1042} consists of an Irregular-shaped pit [C270] with a posthole [C364] located at the western end of the pit. Both cuts were filled by the same material, (C268), which was fire debris. The lack of fire reddened clay around the edges of the cut suggests that material was burnt elsewhere and dumped in rather than being burnt *in situ*. Nothing to suggest a function for this pit and posthole was recovered.

4.4.5 SUBGROUP {1043}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
256	10W/30	C260	-	Nat silting	Dk brown, clayey silt, rare ch fl, v freq pebbles + mod s stones
260	10W/30	-	C256	Posthole	Sub-oval in plan, sides concave generally, base flat, 0.10d x 0.26l x 0.15w, NW-SE

Finds:

None

Interpretation:

The posthole [C260] in subgroup, silted up naturally with (C256). The southern side of the cut was gently sloped, which suggested that the post may have leaned to the South. The posthole [C259] in subgroup {1044} situated 1.20m to the north, had a similar profile, which suggests that the two may be related.

4.4.6 SUBGROUP {1044}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
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254	10W/30	C259	-	Nat silting	Dk brown clayey silt, rare ch fl, freq pebbles
259	10W/30	-	C254	Posthole	Sub-oval in plan, sides slightly concave, base sloped down towards SE, 0.13d x 0.21l x 0.15w, NW-SE

Finds:

None

Interpretation:

The posthole [C259] in subgroup {1044} silted up naturally with (C254). The southern side of the cut sloped gently, which suggests that the post may have leaned to the south, although this may also have been caused during the removal of the post. It is similar in profile to [C260] in subgroup {1043} situated 1.20m to the south, and may indicate a relationship between the two.

4.4.7 SUBGROUP {1045}: Charcoal Spread

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
253	10W/30	C261	-	Fire debris	Dk brown silty clay, freq ch fl, mod pebbles
261	10W/30	-	C253	Poss nat depression	Sub-oval in plan, Sides irreg, base has no defined shape

Finds:

None

Interpretation:

The feature [C261] in subgroup {1045} appeared to be a natural depression that was filled by fire debris (C253). The lack of fire reddened clay around the edges of [C261] suggest that the debris was burnt elsewhere and dumped in, rather than being burnt *in situ*.

4.4.8 SUBGROUP {1046}: Burning event

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
251	10W/30	C252	-	<i>In situ</i> burning	Med red brown, loose very fine crumbly silt, mod ch, occ bb, mod s-m stones, some poss burnt
252	10W/30	-	C251	Burning event	Oval in plan, shallow, sides slope gently, base uneven + stony, 0.09d x 0.87l x 0.48w, E-W

Finds:

None

Interpretation:

The pit [C252] was a shallow pit where a burning event (C251) took place. It did not appear to have been used extensively and probably served as a temporary hearth. It does not appear to be related to any other features.

4.4.9 SUBGROUP {1047}: Hearth and associated pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
334	0/0	C346	-	Fire debris	Med brown grey, soft silt, mod ch
335	0/0	C347	-	Fire debris	Grey black, chunks of ch

344	0/0	C347	-	Ash layer	Med brown grey, soft silt, occ ch frags, freq tiny pebbles + mod s sub-ang
345	0/0	C347	-	<i>In situ</i> burning	Orange brown soft silty clay, v occ ch fl, mod tiny pebbles,
346	0/0	-	C334	Pit	Sub-circular in plan, sides convex, rounded base, 0.14d x 0.65l x 0.73w
347	0/0	-	C335, C344, C345	Hearth	Circular in plan, sides concave, base stepped. 0.16d x 0.91l x 0.81w

Finds:

None

Interpretation:

The pit [C346] and the hearth [C347] in subgroup {1047} were located in the test trenches to the north-west of the site. The Pit [C346] was filled by fire debris (C334), which was not burnt *in situ*, but may have originated in the adjacent hearth [C347], which contained three fills, (C335), (C344) and (C345).

4.4.10 SUBGROUP {1048}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
286	20/40	C288	-	Refuse material	Med brown, loose crumbly silty clay, mod ch, occ m sub-ang
288	20/40	-	C286	Poss nat depression	Sub-circular in plan, very shallow, sides + base irreg, 0.05d x 0.53l x 0.48w, E-W

Finds:

None

Interpretation:

The pit [C288] in subgroup {1049} was located to the west of the ringfort ditch [C5]. It was a shallow natural depression that was filled by refuse material (C286), which contained pieces of animal bone.

4.4.11 SUBGROUP {1068}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
341	105/115	C343	-	<i>In situ</i> burning	Med-dk black brown, loose smooth clay silt, freq ch fl+frags + burnt clay fl, mod s sub-ang, occ heat-cracked stone.
343	105/115	-	C341, C348	Pit	Sub-circular in plan, edges concave generally, except in N which is steep and straight, base concave +slopes down from E-W, poss T'd in the W+S, 0.22d x 0.66l x 0.54, NW-SE
348	105/115	C343	-	Redeposited natural	Med yellow brown, mod loose slightly gritty clayey silt, mod ch fl+occ frags, mod s ang+platey, +occ m sub-ang

Finds:

Context	Find Number	Material	Period	Description
341	1	Flint		Unworked
341	2-4	Ceramic		Souterrain Ware

Interpretation:

The Pit [C343] in subgroup {1068} was located approximately 2m to the east of gallery 6 of the souterrain described in Group 5. It is not known if it is contemporary with the construction or occupation of the souterrain, or if its location close to the souterrain is purely coincidental. The pottery sherds recovered from the fill (C341) in [C343] were examined by a pottery specialist but remain unclassified.

GROUP 4 DISCUSSION: External Features

Group	Subgroup	Interpretation	Period by Finds/ Stratigraphy	Period by Interpretation	Group Interpretation
4	1039	Hearth	UND	Early Medieval	Ringfort: external features
4	1040	Hearth	UND	Early Medieval	Ringfort: external features
4	1041	Posthole	UND	Early Medieval	Ringfort: external features
4	1042	Pit and posthole	UND	Early Medieval	Ringfort: external features
4	1043	Posthole	UND	Early Medieval	Ringfort: external features
4	1044	Posthole	UND	Early Medieval	Ringfort: external features
4	1045	Charcoal Spread	UND	Early Medieval	Ringfort: external features
4	1046	Burning event	UND	Early Medieval	Ringfort: external features
4	1047	Hearth and associated pit	UND	Early Medieval	Ringfort: external features
4	1048	Pit	UND	Early Medieval	Ringfort: external features
4	1068	Pit	UND	Early Medieval	Ringfort: external features

Along the exterior of the enclosure[C5], most of the features recorded were located to the north-west of the site, and consisted of a small number of isolated, shallow, pits (often containing burnt material) and postholes, as well as two small hearths. No significant finds were recovered from any of these features so it cannot be stated that they were absolutely contemporary with the ringfort. The 'hearths' may have been starter pits for charcoal clamps or fire pits for cooking.

It is not yet known whether this activity dates to the early medieval period or is medieval in date. It is even possible that some of this activity might relate to post-medieval tree clearance activity.

4.5 GROUP 5: Souterrain Construction and Use

4.5.1 SUBGROUP {1049}: Souterrain Construction, Galleries 1 – 5 and Chamber 1

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
33	Gall 1-5, ch1	C44	-	Wall	Mostly comprised roughly coursed, small, ang quarried stone.
44	Souterrain	-	C45-47, C66, C 83, C85, C 89, C97, C100, C102, C107, C108, C118, C123, C150, C 275, C309, C310, C313, C325, C327, C332, C333, C336	Souterrain foundation cut	Linear in plan, walls corbelled, base generally flat. Comprised 6 galleries and two chambers. See sheets for details
301	Souterrain	C44	-	Capstones	30 stones ranging from 1.14 x 0.44 x 0.25 to 0.68 x 0.38 x 0.06 in size, most S capstone of Gall 6 also acts as a lintel for the entrance to ch2
303	Souterrain	C44	-	Sealing stones	S-m stones of various shapes used to seal gaps between the capstones throughout the souterrain
309	Gall 6/ ch1	C44	-	Foundation fill	Red brown, crumbly clay w/ coarse silt, freq stones ranging from very s-l
313	Gall 2b+3	C44	-	Foundation fill	Med brown gritty clay silt, mottled w/ sand + patches of nat, calcium granules, freq tiny grit stones, occ-mod s stones, fills foundation cavity behind Gall 2b+3 walls
327	Gall 2	C44	-	Floor surface	Metalled stone surface directly above natural in Gall 2, stones range from s- quite l, + rou-platey, stones embedded in redeposited natural
336	Ch1, Gall 6	C44	-	Upper foundation fill	Mid orange brown mod loose clayey silt w freq sand patches, occ m sub-ang + rou, rare l sub-ang

Finds:

Context	Find Number	Material	Period	Description
293	1	Stone		Decorated stone
300	1	Stone		Decorated stone

Interpretation:

The souterrain was located approximately 5m to the south-west of the ringfort ditch in subgroup {1001}. The visible remains of the souterrain (after initial topsoil stripping) comprised two collapsed and backfilled galleries that formed a 'T-shaped' structure. It was only during the excavation of these backfilled passages that the rest of the intact structure was discovered. The intact part of the souterrain comprised four galleries and two chambers, with incorporated features including air vents, lighting alcoves and a drop-hole. The structure was built on the hillside and the lowest chamber had partly filled with water. All the walls in the souterrain were built with large field/foundation stones at the base, a vertical wall and then a corbelled in section for the top 4 - 6 courses (0.45m), upon which rested large capstones. The cracks between the capstones were filled from above by smaller stones prior to the

backfilling of the construction cut. It is estimated that the volume of stone used in the building of the souterrain was approximately 39.98m³, including capstones and packing stones.

Gallery 1 (Figure 11)

Gallery 1 was visible directly below the topsoil and may have been upstanding when constructed. It was oriented east-west and measured 4.40m in length, 0.75m in surviving height, and was 0.70m in width. The surviving walls [C33] appear to have been constructed by placing large sub-rectangular stones on their long end, with average dimensions of 0.60m x 0.35m x 0.25m. The walls of Gallery 1 were not corbelled and as such may not have been roofed with capstones. The floor sloped down to the junction of Gallery 2 and there was evidence for a door or grille in subgroup {1059}, on the east side. Given the shallowness of Gallery 1, it is most likely that this entrance was visible above ground level. Of note is the fact that the entrance was facing the south part of the ringfort, which appears to have been the main area of occupation within the enclosure. The construction cut [C44] for Gallery 1 measured 4.40m in length x 2m in width, with a maximum depth of 0.75m, giving a rough volume of 6.60m³.

Gallery 2 (Figures 12 and 13)

Gallery 2 extended south from the centre of Gallery 1 for a distance of 11.50m. It was 0.85m high at the northern end, deepening to 2m high at southern end. The north end of Gallery 2 was 0.90m wide, with little evidence of corbelling of the walls [C33]. This suggests that the northern end of Gallery 2 may have been roofed with something other than capstones. It is known that this part of Gallery 2 was roofed as a lighting alcove measuring 0.74m long x 0.84m high x 0.48m deep was in the east wall of the north end of Gallery 2. Gallery 2 was built in a very neat style using roughly coursed quarried stone (average dimensions 0.20m in length x 0.04m high x 0.12m deep) placed horizontally on larger 'foundation' boulders (average dimensions 0.40m in length x 0.20m width x 0.20m height).

To the south of the lighting alcove the passage narrows and there is evidence for a door, seen by a vertical stone slab door jamb (on the east side) and a probable wooden door-jamb and posthole [C315] (on the west side) (see subgroup {1057}). This made a door of 1.40m high x 0.90m wide dimensions. Internal (to the south) of the door jambs were opposing, internal bolt-holes, c.0.15m x 0.15m x 0.30m deep (Lower one 0.50m above floor, upper one 0.90m above floor) into which cross-braces could be placed. Recovered from this area in the backfill was an iron object, possibly a bolt. As the door could only be secured from the inside, it would strongly suggest that one of the functions of this souterrain was to serve as a refuge.

To the south of the door, the gallery widened to 1.70m at the floor and 1m wide at the roof. The floor of the passage dropped steeply, resulting in the passage being almost 2m high. It is suggested that Gallery 2 was built this way either to act as a (third) chamber and facilitate more people in times of refuge, or in order to provide an advantage to defenders against attackers – defenders could stand upright, while attackers coming through the doorway would be crouched.

The construction cut [C44] measured 3.10m long x 2.10m wide x 1.03m deep at the northern end of Gallery 2 and 8.20m long x 3.20m wide x 2m deep at the southern end, giving a rough volume of 59.19m³ of soil having to be excavated to facilitate the construction of Gallery 2.

Gallery 3 (Figure 14)

Gallery 3 was the first intact gallery of the souterrain and was entered via a creep near the southern end of Gallery 2. Gallery 3 led westwards and ended in an alcove. Gallery 3 measured 5.70m in length and was 0.87m wide at the base, 0.60m wide at the top and 0.96m high. The walls [C33] of gallery 3 comprised roughly coursed quarried stones (average dimensions 0.25m x 0.10m x 0.12m) placed on larger 'foundation' boulders (average dimensions 0.40m x 0.30m x 0.25m). 12 capstones [C301] were required to cover the passageway, with average dimensions of these capstones being 0.80m in length x 0.40m in width x 0.20 m thick. The gaps between the capstones were filled from above by small packing stones [C303], of average dimensions 0.20m x 0.12m x 0.10m. The construction cut [C44] in Gallery 3 measured 6.10m in length x 1.80m in width x 1.83m deep (below PGL), giving a rough volume of 20.09m³ of material to be removed prior to construction of Gallery 3.

The Recess/Alcove at the end of Gallery 3 measured 0.60m wide x 0.50m high x 0.65m deep internally and resembled a lighting alcove in size but was completely stone lined and deeper than the thickness of the wall (all other alcoves were within the thickness of the wall and unfaced at the back). This would suggest that the function of the Recess/Alcove may have been more than simply lighting.

From the location of Alcove 2 a strong light, if present, could have been thrown down Gallery 3 to highlight the grooved decoration on the prehistoric decorated stone [03E0115:301:1], which was re-used as the third capstone from the entrance to Gallery 3.

The Stone [03E0115:293:1], which was not complete, measured 0.65m x 0.61m x 0.16m thick and had clear elements of Megalithic (Late Neolithic – Early Bronze Age) Art with 'spiral' and 'trumpet' scored motifs, as well as areas of concentrated pecking. However, a 'tear drop' or lentoid pattern could be attributed to the Iron Age. The art extends from the main face to one of the sides and all the decorated surfaces are heavily weathered (see O Connor, Appendix 2.4).

The decoration on the sides appears to respect the current thickness of the stone so it appears at this stage that the slab-like stone recovered was not split off from a more substantial piece (this needs further work to determine). The weathering indicates that the stone was exposed to the elements for a considerable period and a kerbstone to a megalithic tomb is a possible function (i.e. placed vertically). However, it has been suggested that the slab-like stone could also have been some sort of 'cist capstone' or horizontally placed (Appendix 2.2).

Such a horizontal placing would be more in common with most of the known rock art in the Louth Archaeological Survey (in fact there is a suggestion that much of the rock art on standing stones in Co. Louth has been cut from its original position on rock outcrops). Of note is that all the rock art in the survey lies between the Fane and Castletown Rivers. This distribution coincides with the present example. The nearest known piece of rock art to Site 114, Newtownbalregan 6 is on a horizontal outcrop at Tankardsrock (LH007:102, Survey 230), c.1.4km to the south-west.

Gallery 4 (Figure 15)

Gallery 4 was quite short, just 2.50m in length x 0.97m wide at the base, 0.63m wide at the roof x 1.09m high and was accessed from Gallery 3 by a turn to the south just before Alcove 2. Alcove 3 (measuring 0.45m in length x 0.62m in height x 0.20m in depth) was situated at the southern end of Gallery 4. The roof [C301] of Gallery 3 comprised 3 capstones, with average dimensions of 0.85m in length x 0.35m in width x 0.20m thick. As with the other galleries, packing stones [C303] (avg. dimensions 0.20m x 0.15m x 0.10m) were used to fill gaps between the capstones prior to the

backfilling of the construction cut. The average dimensions of the basal stones in the wall [C33] of gallery 4 were 0.35m x 0.25m x 0.20m thick, while the average dimensions of the quarried stones were 0.30m in length x 0.12m in width x 0.15m thick. The construction cut [C44] of gallery 4 measured 3.50m in length x 2.20m in width x 1.96m in depth (below PGL), giving a volume of 15.09m³ to the construction cut in Gallery 4.

Gallery 5 (Figure 16)

Gallery 5 led westwards from Gallery 4 and measured 5.40m long x 1.14m wide at the base, 0.50m wide at the roof and 1.02m high, and entered Chamber 1. 10 capstones [C301] were used to cover Gallery 5 (avg. dimensions 0.90m x 0.40m x 0.15m thick), with the westernmost capstone being incorporated into the wall of Chamber 1. The packing stones [C303] (avg. dimensions 0.30m x 0.20m x 0.18m) were placed from above to seal the gaps between the capstones prior to the backfilling of the construction cut. The walls of Gallery 5 [C33] were built by placing roughly coursed quarried stones (average dimensions 0.20m x 0.10m x 0.10m) on top of large 'foundation' boulders (average dimensions 0.35m x 0.28 x 0.18m). The construction cut [C44] of Gallery 5 measured 5.40m x 1.90m x 2.17m deep (below PGL). This gives a rough volume of 22.26m³ of material to be removed from [C44] before Gallery 5 could be constructed.

Chamber 1 (Figures 17 and 18)

Chamber 1 measured 1.33m at the base, 0.80m at the roof x 2.10m (at the base), 1.50m at the roof x 1.18m high internally, and was constructed in a similar method of roughly coursed quarried stones to Galleries 2 – 5, and incorporated an air vent [C296] (see subgroup {1058}). The walls [C33] were built by placing roughly coursed quarried stone (average dimensions 0.28m x 0.08m x 0.10m) on larger 'foundation' boulders (average dimensions 0.35m x 0.15m x 0.20m). The chamber held 4 capstones [C301], of average dimensions 0.85m x 0.40m x 0.20m. The gaps between the capstones were filled from above by packing stones [C303] (average dimensions 0.18m x 0.15m x 0.15m).

A second piece of decorated stone [03E0115:300:1], with decoration similar in style to the capstone in Gallery 3 was discovered in Chamber 1, used simply as a building stone. Chamber 1 also contained a flag stone floor surface [C305] under which was a possible drain [C319]. In the south-east corner of the chamber, a drop hole (0.50m x 0.30m x 0.70m deep) led to Gallery 6. The large lintel that carried the Chamber wall over this drop had been soot-blackened by open flame torches.

The construction cut [C44] of Chamber 1 measured 2.60m x 2.40m x 2.17m deep (below PGL), which gives a rough volume of 13.54m³ of material to be removed prior to the construction of Chamber 1.

4.5.2 SUBGROUP {1050}: Souterrain Construction Gallery 6 and Chamber 2

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
310	Gall 6	C44	-	Foundation fill	Pale yellow brown sticky clay, mottled w/ traces of C309, prob redeposited natural, fills cavity behind E wall of pass 6+prob also W wall
311	Chamber 2	C44	-	Stone floor surface	Stone flagged floor, similar to C305, but more uneven, poss simply a sub-flooring layer, flagging is mostly on W side of chamber, circular holes in SW+NE corners of chamber
312	Chamber 2	C44	-	Poss floor surface	Red brown very compact clay, freq smallish stones, lies around + over stones of C311,

					poss to even out the surface
363	Gall 6, Ch 2	C44	-	Wall	Wall of gallery 6 and chamber 2

Finds:

None

Interpretation:**Gallery 6 (Figures 19 and 20)**

Gallery 6 followed the drop of the hillside and sloped down to the south from Chamber 1 for a distance of 15.40m (it drops 0.79m over the length of the passage). The walls of Gallery 6 [C363] were different to the other galleries in that they were constructed using field stones (average dimensions: 'foundation' stones 0.45m x 0.35m x 0.20m; upper stones 0.25m x 0.15m x 0.15m) rather than quarried stones. It was also higher and wider than the other galleries, measuring 1.00m wide at the base, 0.70m wide at the roof and 1.20m high. A single capstone in the middle of Gallery 6 had broken and collapsed into the gallery, along with a small quantity of earth. However, as the upper level of Gallery 6 was approximately 1m – 1.60m below ground level, the collapse did not reach the surface. Gallery 6 was covered by 28 capstones [C301], of average dimensions 0.90m x 0.45m x 0.20m. As with the other galleries, the gaps between the capstones were filled from above by packing stones [C303] (average dimensions 0.20m x 0.15m x 0.10m) prior to the backfilling of the construction cut. The construction cut of gallery 6 [C44] measured 15.40m x 2.30m x 2.11m below PGL, giving a rough volume of 74.74m³ of material had to be removed prior to the construction of Gallery 6.

Chamber 2 (Figures 21 and 22)

At the southern end of Gallery 6 was Chamber 2. It measured 3.50m x 2.00m and was 1.50m high (internally). As with Gallery 6 Chamber 2 was built using rough fieldstones (average dimensions: 'foundation' stones 0.35m x 0.35m x 0.25m; upper stones 0.25m x 0.20m x 0.15m). Like Chamber 1, it incorporated an air vent [C297] in the western wall, which extended westwards for c. 3m (see subgroup {1059}). Unlike Chamber 1, no floor surface was discovered in Chamber 2, other than compacted subsoil (C312) and a possible sub-floor [C311]. 4 large capstones [C301] of average dimensions 1.20m x 0.35m x 0.20m were used to cover chamber 2. As with the other capstones, the gaps were sealed from above using packing stones [C303], of average dimensions 0.20m x 0.10m x 0.10m. The construction cut [C44] for Chamber 2 measured 4.40m x 3.40m x 2.48m deep (below PGL), meaning a rough volume of 37.10m³ had to be removed prior to the construction of Chamber 2.

4.5.3 SUBGROUP {1051}: Air vent 1**Contexts:**

C	Area	Fill of	Filled by	Interpretation	Description
296	Air vent 1	C44	-	Capstones	Comprises 8+10 stones, ranging from 0.60 x 0.50 x 0.07 to 0.20 x 0.16 x 0.04, some are stepped on account of the slope of air vent 1
320	Air vent 1	C340	-	Nat silting	Med yellow brown, loose fine silt + occ coarse sand patches, rare ch fl, mod s ang+ platey pebbles + rare m sub-ang water rolled
340	Ch 1	C44	C320	Air vent 1	Elongated shape in plan, sides slightly convex, base flat, slopes down from SW-NE, 0.3dx2.45lx0.86w

Finds:

None

Interpretation:

The air vent [C296] in subgroup {1051} took the form of a drystone built, drain-like construction 2.70m in length x 0.50m wide (0.20m wide internally) that lay in a straight line from the exterior of the west wall of Chamber 1. Air Vent [C296] was mostly built of field stones and sloped up gently from Chamber 1. The west end of the air vent [C296] had been truncated by a modern field drain. It had silted up naturally with (C320). The air vent [C296] entered Chamber 1 0.50m above the floor.

4.5.4 SUBGROUP {1052}: Air vent 2

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
297	Air vent 2	C44	-	Capstones of air vent	Comprises 9 stones ranging from 0.70 x 0.60 x 0.08 to 0.38 x 0.08 x 0.06 in size, largest stones at outer end of air vent
338	Air vent 2	C339	-	Nat silting	Mid orange brown, loose sandy silt, occ ch, mod s animal bones, twigs + tiny snail shells,
339	Ch 2	C44	C338	Air vent 2	Linear in plan, sides vert, base slopes down from W to ch 2, 0.29h x 2.4l x 0.75w, E-W

Finds:

None

Interpretation:

The air vent [C297] in subgroup {1052} took the form of a drystone built, drain-like construction 2.40m in length x 0.75m wide x 0.29m high that extended westwards from the south-west corner of Chamber 2. The air vent [C297] was built mostly of field stones and sloped gently up from Chamber 2. It had silted up naturally with (C338). The air vent [C297] entered Chamber 2 1.40m above ground level.

4.5.5 SUBGROUP {1053}: Floor surface and drain, Chamber 1

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
305	Ch 1	-	-	Stone floor surface	Sub-ang + sub-rou cobbles, ranging from 0.2 x 0.2- 0.4 x 0.3, spaced 0.02-0.06 apart, surface roughly flat, in the main part of the chamber
306	Ch 1, gall 5	-	-	Dirt + mortar between stones	Mid-brown sandy silt with freq. Pebble incl and mod ch flecks
319	Ch1, gall 6	-	C321, C323.	Stone lined drain	Runs along wall on S side of ch 1, then makes a right-angle turn along the wall into the chamber, gradually sloping into a hole leading to gall 6, lined with ang stones on their edges + capped with flat ang stones
321	Ch 1	C319	-	Nat silting	Med brown, lightly compacted gravelly silt, mod ch, mod sm pebbles
323	Ch 1	C319	-	Nat silting	Lt grey brown tightly compacted silty clay, mod s sub-rou

Finds:

None

Interpretation:

Chamber 1 in subgroup {1053}, contained a stone-flagged floor [C305] composed of evenly spaced, flat sub-angular and sub-rounded stones. The gap between the stones was filled by sandy silt (C306). Beneath [C305], in the south-east part of

Chamber 1 was a stone-lined drain [C319] that appears to have channelled water from Gallery 5 into Gallery 6 allowing Chamber 1 to remain dry.

4.5.6 SUBGROUP {1054}: Backfilling of construction cut

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
224	G2-5, Ch 1	C44	-	Redeposited natural	Mid-greyish brown silty clay, moderate incl of sm sub-ang pebbles
257	G 6, Ch2	C44	-	Redeposited natural	Mid-brown yellowish silty clay, with mottled greenish grey inclusions and decayed stone incl.

Finds:

None

Interpretation:

When the construction of the souterrain had been completed, the construction cut [C44] was backfilled with redeposited natural subsoil. (C224) covered Galleries 2 – 5 and Chamber 1, while (C257) sealed Gallery 6 and Chamber 2.

4.5.7 SUBGROUP {1055}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
326	Ch 2	C330	-	Nat silting	Yellow beige, smooth silty clay, mod ch frags, occ s stones
329	Ch 2	C330	-	Nat silting	Coarse silty clay, 1 ch frag, mod s stones
330	Ch 2	-	C326, C329	Pit	Oval in plan, sides straight except in S, base tapered point, 0.24d x 0.41l x 0.33, N-S

Finds:

None

Interpretation:

The pit [C330] in subgroup {1055} was located in the south-west corner of Chamber 2. It had naturally silted with (C326) and (C329). It is not known what the function of this pit was, but it has been suggested that it functioned as a sump. It is probably too shallow to function as a useful sump and therefore may have functioned as a storage pit.

4.5.8 SUBGROUP {1056}: Pit

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
324	Ch 2	C331	-	Nat silting	Very smooth, silty clay, mod ch frags, around edges of ch 2
331	Ch 2	-	C324	Pit	Oval in plan, sides concave, base flat, 0.22d x 0.50l x 0.42w E-W

Finds:

None

Interpretation:

The pit [C331] in subgroup {1056} was located on the eastern side of Chamber 2. It was partially filled by (C324), which is a layer of silt build-up that covered the entire

floor of Chamber 2. No function was determined for [C331], but it may have been used as a storage pit.

4.5.9 SUBGROUP {1057}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
314	Pass 2b	C315	-	Natural silting	Dk grey brown sandy silt, mod ch fl, rare shell frag v freq tiny pebbles, occ l
315	Pass 2b	-	C314	Pit or large posthole	Sub-oval in plan, sides convex in N, concave in S+E, located in W side of N end of gall 2b, 0.31d x 0.51l x 0.38w

Finds:

None

Interpretation:

The posthole [C315] in subgroup {1057} was located on the western side of Gallery 2, to the south of where Gallery 2 narrows. It was located opposite the vertical stone slab door-jamb and probably represents the remains of a wooden door-jamb. The post had been removed, probably on the abandonment of the souterrain and [C315] was subsequently filled by natural silting (C314).

4.5.10 SUBGROUP {1058}: Posthole

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
316	Gall 2b	C317	-	Nat silting	Dk grey brown, soft sandy silt, mod ch fl, freq s pebbles
317	Gall 2b	-	C316	Posthole	Sub-circular in plan, sides convex in S, straight otherwise, base rounded

Finds:

None

Interpretation:

The posthole [C317] in subgroup {1058} was located immediately south of the posthole [C315] in subgroup {1057} and may have functioned as a support post for [C315]. It was filled by natural silting (C316).

4.5.11 SUBGROUP {1059}: Stakeholes

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
276	Souterrain	C281	-	Nat silting	Dk brown, very soft silty clay, freq grit
277	Souterrain	C282	-	Nat silting	Dk brown crumbly sandy silty clay, mod s stones
278	Souterrain	C283	-	Nat silting	Med-dk brown, mod loose silty clay, occ s stones
279	Souterrain	C284	-	Nat silting	Dk brown loose silty clay, occ ch fl, occ stones
280	Souterrain	C285	-	Nat silting	Med brown silty clay.
281	Souterrain	-	C276	Stakehole	Oval in plan, deep, U-shaped in profile 0.28d x 0.125l x 0.70w, NE-SW
282	Souterrain	-	C277	Stakehole	Circular in plan, sides near vert, base flat, 0.16d x 0.1 dia
283	Souterrain	-	C278	Stakehole	Circular in plan at top, square in plan further down, U-shaped in profile, 0.17d x 0.07 dia
284	Souterrain	-	C279	Stakehole	Sub-circular in plan, sides near vert, base pointed, 0.27d x 0.10l x 0.08w, N-S

285	Souterrain	-	C280	Stakehole	Sub-circular in plan, sides steep, base pointed, 0.2d x 0.09l x 0.06w, NE-SW
289	10/0	C290	-	Nat silting	Med red brown, sandy silty clay, ch fl, freq grit-stones+occ s stones
290	Souterrain	-	C289	Stakehole	Roughly circular in plan, shallow, sides mod steep, base narrow, 0.07d x 0.06dia

Finds:

None

Interpretation:

Six stakeholes [C281], [C282], [C283], [C284], [C285] and [C290] in subgroup {1059} were located at the eastern end of Gallery 1. They were aligned north-south and appear to have formed a grille across the end of the Gallery. This grille may have been used to keep animals in / out of the souterrain rather than being a defensive feature, as it does not appear to have been a particularly sturdy construction. Each stakehole silted naturally.

GROUP 5 DISCUSSION: Construction and Use of Souterrain

Group	Subgroup	Interpretation	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
5	1049	Souterrain Construction, Galleries 1 – 5 and Chamber 1	UND	Early Medieval	Souterrain construction and use
5	1050	Souterrain Construction Gallery 6 and Chamber 2.	UND	Early Medieval	Souterrain construction and use
5	1051	Air vent 1	UND	Early Medieval	Souterrain construction and use
5	1052	Air vent 2	UND	Early Medieval	Souterrain construction and use
5	1053	Floor surface and drain, Chamber 1	UND	Early Medieval	Souterrain construction and use
5	1054	Backfilling of construction cut	UND	Early Medieval	Souterrain construction and use
5	1055	Pit	UND	Early Medieval	Souterrain construction and use
5	1056	Pit	UND	Early Medieval	Souterrain construction and use
5	1057	Posthole	UND	Early Medieval	Souterrain construction and use
5	1058	Posthole	UND	Early Medieval	Souterrain construction and use
5	1059	Stakeholes	UND	Early Medieval	Souterrain construction and use

Element	Length	Height	Orientation	Comments
Gallery 1	4.4m	0.75m	E - W	Evidence for a door or grille visible on the eastern side. The floor sloped down to the junction with Gallery 2. Unroofed when found
Gallery 2	11.50m	2m max.	N - S	A lighting alcove was located on the east side. To the south of the alcove, the passage narrowed, with evidence for a door and two boltholes in the walls. To the south of the door, the floor of the gallery dropped steeply, resulting in the passage being almost 2m high. Unroofed when found.
Gallery 3	5.7m	0.96m	E - W	From the southern end of Gallery 2, Gallery 3 led westwards and ended in a well built, stone lined alcove/recess measuring 0.65m deep x 0.60m wide x 0.50m high. The third capstone from Gallery 2 was the re-used possible megalithic art.
Gallery 4	2.5m	1.09m	N - S	A short length of corridor accessed from Gallery 3 just before the well built alcove. A second lighting alcove was located at the southern end of Gallery 4.
Gallery 5	5.5m	1.02m	E - W	Gallery 5 ended in corbelled Chamber 1

Corbelled Chamber 1	2m x 2m	1.18m	Square	The chamber incorporated a stone flag floor under which a small drain took any water from Gallery 5 and diverted it down a drop hole (which measured 0.5m x 0.3m x 0.7m deep) located on the south side of the chamber leading to Gallery 6. Externally there was an air shaft 2.7m in length
Gallery 6	15m	1.20m	N - S	Accessed through the drop hole in corbelled Chamber 1, both floor and ceiling sloped downwards with the hillside.
Corbelled Chamber 2	3.5m x 2m	1.50m internal	E - W	This large chamber was part flooded when found and incorporated an external air shaft 3m in length.

Gallery 1:

Gallery 1 was visible directly below topsoil and may have been upstanding when constructed. It was oriented east-west and measured 4.40m in length, 0.75m in surviving height, and was 0.70m in width. The surviving walls [C33] appear to have been constructed by placing large sub-rectangular stones on their long end, with average dimensions of 0.60m x 0.35m x 0.25m. The walls of Gallery 1 were not corbelled and as such may not have been roofed with capstones. The floor sloped down to the junction of Gallery 2 and there was evidence for a door or grille, on the east side. This entrance was formed by six stakeholes {1059} [C281], [C282], [C283], [C284], [C285] and [C290] were located at the eastern end of Gallery 1. They were aligned north-south and appear to have formed a grille across the end of the Gallery. This grille may have been used to keep animals in / out of the souterrain rather than being a defensive feature, as it does not appear to have been a particularly sturdy construction. Each stakehole silted naturally. Given the shallowness of Gallery 1, it is most likely that this entrance was visible above ground level. Of note is the fact that the entrance was facing the south part of the ringfort, which appears to have been the main area of occupation within the enclosure. The construction cut [C44] for Gallery 1 measured 4.40m in length x 2m in width, with a maximum depth of 0.75m, giving a rough volume of 6.60m³.

Gallery 2

Gallery 2 extended south from the centre of Gallery 1 for a distance of 11.50m. It was 0.85m high at the northern end, deepening to 2m high at the southern end. The northern end of Gallery 2 was 0.90m wide, with little evidence of corbelling of the walls [C33]. This suggests that the northern end of Gallery 2 may have been roofed with something other than capstones. It is known that this part of Gallery 2 was roofed as a lighting alcove measuring 0.74m long x 0.84m high x 0.48m deep was in the east wall of the northern end of gallery 2. Gallery 2 was built in a very neat style using roughly coursed quarried stone (average dimensions 0.20m in length x 0.04m high x 0.12m deep) placed horizontally on larger 'foundation' boulders (average dimensions 0.40m in length x 0.20m width x 0.20m height).

To the south of the lighting alcove the passage narrows and there is evidence for a door, seen by a vertical stone slab door jamb (on the eastern side) and a probable wooden door-jamb and posthole [C315] (on the western side). Posthole [C315] in subgroup {1057} was located opposite the vertical stone slab door-jamb and probably represents the remains of a wooden door-jamb. The post had been removed, probably on the abandonment of the souterrain and [C315] was subsequently filled by natural silting (C314). A second posthole [C317] in subgroup {1058} was located immediately south of posthole [C315] in subgroup {1057} and may have functioned as a support post for [C315]. It was filled by natural silting (C316).

This arrangement made a door of 1.40m high x 0.90m wide dimensions. Internal (to the south) of the door jambs were opposing, internal bolt-holes, c.0.15m x 0.15m x 0.30m deep (Lower one 0.50m above floor, upper one 0.90m above floor) into which cross-braces could be placed. Recovered from this area in the backfill was an iron

object, possibly a bolt. As the door could only be secured from the inside, it would strongly suggest that one of the functions of this souterrain was to serve as a refuge.

To the south of the door, the Gallery widened to 1.70m at the floor and 1m wide at the roof. The floor of the passage dropped steeply, resulting in the passage being almost 2m high. It is suggested that Gallery 2 was built this way either to act as a (third) chamber and facilitate more people in times of refuge, or in order to provide an advantage to defenders against attackers – defenders could stand upright, while attackers coming through the doorway would be crouched.

The construction cut [C44] measured 3.10m long x 2.10m wide x 1.03m deep at the northern end of Gallery 2 and 8.20m long x 3.20m wide x 2m deep at the southern end, giving a rough volume of 59.19 m³ of soil having to be excavated to facilitate the construction of Gallery 2.

Gallery 3

Gallery 3 was the first intact gallery of the souterrain and was entered via a creep near the southern end of Gallery 2. Gallery 3 led westwards and ended in an alcove. Gallery 3 measured 5.70m in length and was 0.87m wide at the base, 0.60m wide at the top and 0.96m high. The walls [C33] of gallery 3 comprised roughly coursed quarried stones (average dimensions 0.25m x 0.10m x 0.12m) placed on larger 'foundation' boulders (average dimensions 0.40m x 0.30m x 0.25m). 12 capstones [C301] were required to cover the passageway, with average dimensions of these capstones being 0.80m in length x 0.40m in width x 0.20 m thick. The gaps between the capstones were filled from above by small packing stones [C303], of average dimensions 0.20m x 0.12m x 0.10m. The construction cut [C44] in Gallery 3 measured 6.10m in length x 1.80m in width x 1.83m deep (below PGL), giving a rough volume of 20.09m³ of material to be removed prior to construction of gallery 3.

The Recess/Alcove at the end of Gallery 3 measured 0.60m wide x 0.50m high x 0.65m deep internally and resembled a lighting alcove in size but was completely stone lined and deeper than the thickness of the wall (all other alcoves were within the thickness of the wall and unfaced at the back). This would suggest that the function of the Recess/Alcove may have been more than simply lighting.

From the location of Alcove 2 a strong light, if present, could have been thrown down Gallery 3 to highlight the grooved decoration on the prehistoric decorated stone [03E0115:301:1], which was re-used as the third capstone from the entrance to Gallery 3. However, there was no evidence to support the theory of a strong light, such as a large fire, being present in the alcove. There was no evidence of soot on the capstone in the alcove, or any other evidence of a fire having been lit in the alcove.

Stone [03E0115:301:1], which is not complete, measures 0.65m x 0.61m x 0.16m thick and has clear elements of Megalithic (Late Neolithic – Early Bronze Age) Art with 'spiral' and 'trumpet' scored motifs, as well as areas of concentrated pecking. However, a 'tear drop' or lentoid pattern could be attributed to the Iron Age. The art extends from the main face to one of the sides and all the decorated surfaces are heavily weathered.

The decoration on the sides appears to respect the current thickness of the stone so it appears at this stage that the slab-like stone recovered was not split off from a more substantial piece (this needs further work to determine). The weathering indicates that the stone was exposed to the elements for a considerable period and a kerbstone to a megalithic tomb is a likely function (i.e. placed vertically). However, it

has been suggested that the slab-like stone could also have been some sort of 'cist capstone' or horizontally placed (Appendix 2.4).

Such a horizontal placing would be more in common with most of the known rock art in the Louth Archaeological Survey (in fact there is a suggestion that much of the rock art on standing stones in Co. Louth has been cut from its original position on rock outcrops). Of note is that all the rock art in the survey lies between the Fane and Castletown Rivers. This distribution coincides with the present example. The nearest known piece of rock art to Site 114, Newtownbalregan 6 is on a horizontal outcrop at Tankardsrock (LH007:102, Survey 230), c.1.4km to the south-west.

Gallery 4

Gallery 4 was quite short, just 2.50m in length x 0.97m wide at the base, 0.63m wide at the roof x 1.09m high and was accessed from Gallery 3 by a turn to the south just before Alcove 2. Alcove 3 (measuring 0.45m in length x 0.62m in height x 0.20m in depth) was situated at the southern end of Gallery 4. The roof [C301] of Gallery 3 comprised 3 capstones, with average dimensions of 0.85m in length x 0.35m in width x 0.20m thick. As with the other galleries, packing stones [C303] (avg. dimensions 0.20m x 0.15m x 0.10m) were used to fill gaps between the capstones prior to the backfilling of the construction cut. The average dimensions of the basal stones in the wall [C33] of Gallery 4 were 0.35m x 0.25m x 0.20m thick, while the average dimensions of the quarried stones were 0.30m in length x 0.12m in width x 0.15m thick. The construction cut [C44] of gallery 4 measured 3.50m in length x 2.20m in width x 1.96m in depth (below PGL), giving a volume of 15.09m³ to the construction cut in Gallery 4.

Gallery 5

Gallery 5 led westwards from Gallery 4 and measured 5.40m long x 1.14m wide at the base, 0.50m wide at the roof and 1.02m high, and entered Chamber 1. 10 capstones [C301] were used to cover Gallery 5 (avg. dimensions 0.90m x 0.40m x 0.15m thick), with the westernmost capstone being incorporated into the wall of Chamber 1. The packing stones [C303] (avg. dimensions 0.30m x 0.20m x 0.18m) were placed from above to seal the gaps between the capstones prior to the backfilling of the construction cut. The walls of Gallery 5 [C33] were built by placing roughly coursed quarried stones (average dimensions 0.20m x 0.10m x 0.10m) on top of large 'foundation' boulders (average dimensions 0.35m x 0.28 x 0.18m). The construction cut [C44] of Gallery 5 measured 5.40m x 1.90m x 2.17m deep (below PGL). This gives a rough volume of 22.26m³ of material to be removed from [C44] before Gallery 5 could be constructed.

Chamber 1

Chamber 1 measured 1.33m at the base, 0.80m at the roof x 2.10m (at the base), 1.50m at the roof x 1.18m high internally, and was constructed in a similar method of roughly coursed quarried stones to Galleries 2 – 5, and incorporated an air vent [C296] (see subgroup {1058}). The walls [C33] were built by placing roughly coursed quarried stone (average dimensions 0.28m x 0.08m x 0.10m) on larger 'foundation' boulders (average dimensions 0.35m x 0.15m x 0.20m). The Chamber held 4 capstones [C301], of average dimensions 0.85m x 0.40m x 0.20m. The gaps between the capstones were filled from above by packing stones [C303] (average dimensions 0.18m x 0.15m x 0.15m).

A second piece of decorated stone [03E0115:300:1], with decoration similar in style to the capstone in Gallery 3 was discovered in Chamber 1, used simply as a building stone. Chamber 1 also contained a flag stone floor surface [C305] in subgroup {1053} under which was a possible drain. Floor [C305] in subgroup {1053} comprised

evenly spaced, flat sub-angular and sub-rounded stones. The gap between the stones was filled by a sandy silt (C306). Beneath the floor surface, in the south-eastern part of Chamber 1 was a stone-lined drain [C319] in subgroup {1053} that appears to have channelled water from Gallery 5 into Gallery 6 allowing Chamber 1 to remain dry.

In the south-east corner of the chamber, a drop hole (0.50m x 0.30m x 0.70m deep) led to Gallery 6. The large lintel that carried the Chamber wall over this drop had been soot-blackened by open flame torches.

The construction cut [C44] of Chamber 1 measured 2.60m x 2.40m x 2.17m deep (below PGL), which gives a rough volume of 13.54m³ of material to be removed prior to the construction of Chamber 1.

The air vent [C296] in subgroup {1051} took the form of a drystone built, drain-like construction 2.70m in length x 0.50m wide (0.20m wide internally) that lay in a straight line from the exterior of the western wall of Chamber 1. The air vent [C296] was mostly built of field stones and sloped up gently from Chamber 1. The western end of the air vent [C296] had been truncated by a modern field drain. It had silted naturally with (C320). The air vent [C296] entered Chamber 1 0.50m above the floor.

Gallery 6

Gallery 6 followed the drop of the hillside and sloped down to the south from Chamber 1 for a distance of 15.40m (it drops 0.79m over the length of the passage). The walls of Gallery 6 [C363] were different to the other galleries in that it was constructed using field stones (average dimensions: 'foundation' stones 0.45m x 0.35m x 0.20m; upper stones 0.25m x 0.15m x 0.15m) rather than quarried stones. It was also higher and wider than the other galleries, measuring 1.00m wide at the base, 0.70m at the roof and 1.20m high. A single capstone in the middle of Gallery 6 had broken and collapsed into the Gallery, along with a small quantity of earth. However, as the upper level of Gallery 6 was approximately 1m – 1.60m below ground level, the collapse did not reach the surface. Gallery 6 was covered by 28 capstones [C301], of average dimensions 0.90m x 0.45m x 0.20m. As with the other galleries, the gaps between the capstones were filled from above by packing stones [C303] (average dimensions 0.20m x 0.15m x 0.10m) prior to the backfilling of the construction cut. The construction cut of Gallery 6 [C44] measured 15.40m x 2.30m x 2.11m below PGL, giving a rough volume of 74.74m³ of material had to be removed prior to the construction of Gallery 6.

Chamber 2

At the southern end of Gallery 6 was Chamber 2. It measured 3.50m x 2.00m and was 1.50m high (internally). As with Gallery 6 Chamber 2 was built using rough fieldstones (average dimensions: 'foundation' stones 0.35m x 0.35m x 0.25m; upper stones 0.25m x 0.20m x 0.15m). Like Chamber 1, it incorporated an air vent [C297] in the west wall, which extended westwards for c. 3m (see subgroup {1059}). Unlike Chamber 1, no floor surface was discovered in Chamber 2, other than compacted subsoil (C312) and a possible sub-floor [C311]. A total of 4 large capstones [C301] of average dimensions 1.20m x 0.35m x 0.20m were used to cover chamber 2. As with the other capstones, the gaps were sealed from above using packing stones [C303], of average dimensions 0.20m x 0.10m x 0.10m. The construction cut [C44] for Chamber 2 measured 4.40m x 3.40m x 2.48m deep (below PGL), meaning a rough volume of 37.10m³ had to be removed prior to the construction of Chamber 2.

The pit [C330] in subgroup {1055} was located in the south-west corner of Chamber 2. It had naturally silted with (C326) and (C329). It is not known what the function of

this pit was, but it has been suggested that it functioned as a sump. It is probably too shallow to function as a useful sump and may have functioned as a storage pit.

The pit [C331] in subgroup {1055} was located on the east side of Chamber 2. It was partially filled by (C324), which is a layer of silt build-up that covered the entire floor of Chamber 2. No function was determined for [C331], but it may have been used as a storage pit.

The air vent [C297] in subgroup {1052} took the form of a drystone built, drain-like construction 2.40m in length x 0.75m wide x 0.29m high that extended westwards from the south-west corner of Chamber 2. The air vent [C297] was built mostly of field stones and sloped gently up from Chamber 2. It had silted up naturally with (C338). The air vent [C297] entered Chamber 2 1.40m above ground level.

When the construction of the souterrain had been completed, the construction cut [C44] was backfilled by redeposited natural subsoil. The deposit (C224) covered Galleries 2 – 5 and Chamber 1, while (C257) sealed Gallery 6 and Chamber 2. The total volume of construction cut [C44] was approximately 248.61m³.

4.6 GROUP 6: Abandonment and Backfilling/ Silting of Souterrain

4.6.1 SUBGROUP {1060}: Filling of Gallery 1

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
118	Souterrain	C44	-	Collapsed stone	Dumped layer of stones, generally sub-ang, avg size 0.10 x 0.25m
275	Souterrain	C44	-	Natural silt	Shallow layer of med orange brown clay + coarse silt, occ ch fl, mod s stones+ occ grit

Finds:

Context	Find Number	Material	Period	Description
275	1	Flint		Unworked

Interpretation:

(C118) in subgroup {1060} was a dumped layer of stones located at the southern side of Gallery 1 immediately west of the junction with Gallery 2. Nothing to indicate when these stones were dumped was recovered, but it is believed that most of the deliberate backfilling occurred during the medieval period. The stone dump (C118) was not deposited on the floor of the souterrain but overlay a thin layer of natural silting (C275).

4.6.2 SUBGROUP {1061}: Silting of Souterrain

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
304	Souterrain	-	-	Natural calcite layer	Formed in 2 layers-underside, pale beige, quite porous, containing grit + stones, + upper layer, creamy white, crust-like, more compact, 4-10mm d x 31.5 m l x 1.2m w
318	Gal 4	C44	-	Natural silting	Dk brown, mod ch, occ s stones
332	Gal 3 – 5, Ch 1	C44	-	Natural silting	Med brown sticky silty clay, occ ch fl, occ s
333	Gal 6	C44	-	Natural silting	Lt brown sandy clay, occ s sub-ang,

Finds:

None

Interpretation:

During the usage and abandonment of the souterrain, three layers of natural silting/trample built up in all the galleries and chambers. When the souterrain was abandoned, a layer of calcite (C304) built up over time.

4.6.2 SUBGROUP {1062}: Lower Backfills of Galleries 1 and 2

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
45	Souterrain	C44	-	Poss meat smoking debris	Shallow, ch-rich spread running l of passage, bird bone, animal bone
46	Souterrain	C44	-	Dumped material	Red orange brown, freq l rocks
47	Souterrain	C44	-	Dumped material	Layer of large ang-rou stones, in a matrix of yellow clay
83	Souterrain	C44	-	Poss souterrain roof collapse	M-l ang + sub-ang stones
102	Souterrain	C44	-	Charcoal spread	Loose spread, 80% ch, Thin, but stretching across width of passage, 0.10d x 1.30l x 3.25w

107	Souterrain	C44	-	Dumped layer	Orange brown sandy silt, l ch fl
108	Souterrain	C44	-	Dumped layer	Dk brown, ch-rich silty, stony clay.
186	Souterrain	C44	-	Dumped layer	Dk brown, ch-rich, stony, silty clay.

Finds:

Context	Find Number	Material	Period	Description
45	1	Ceramic		Souterrain Ware
45	2-4	Flint		Unworked
45	5-8	Ceramic		Souterrain Ware
45	9-11	Iron		Nail
47	1-4	Ceramic		Souterrain Ware
47	5-7	Iron		Nail 47:5 are 5 nail fragments
47	8-9	Flint		Unworked
47	10-11	Metal		Flake debitage
47	12-32	Flint		Unworked
47	33	Ceramic		Souterrain Ware
47	34-35	Flint		Flake debitage
47	36-37	Flint		Unworked
47	38-39	Ceramic		Souterrain Ware
102	1	Ceramic		Souterrain Ware

Interpretation:

The basal layer of the backfill at the southern end of Gallery 2, (C83), consisted of a number of large stones, which were the original capstones of Gallery 2. As the corbelled walls of Gallery 2 were still in an excellent state of preservation, it is safe to assume that the capstones were deliberately removed and dumped on the floor of the passage. The layers that sealed these collapsed capstones, (C46), (C47), (C102), (C107), (C108) and (C186) were all layers of dumped material, mostly consisting of stones and clay.

The exception to this is the basal layer in Gallery 1 and the north end of Gallery 2, (C45), which comprises a layer of charcoal. It is believed that this layer relates to the re-use of Gallery 1 as a smoking house or a dump for fire debris from pit [C34] described in subgroup {1071} below.

Finds from the backfilled Gallery 2 consisted of 6 sherds of unclassified medieval pottery, 6 sherds of souterrain ware representing 2 vessels were recovered from the fills (C47, C102), various pieces of struck flint and slag like lumps. This is the only occurrence of medieval pottery on the site and may date the demolition of the souterrain.

4.6.3 SUBGROUP {1063}: Upper Backfills of Galleries 1 and 2**Contexts:**

C	Area	Fill of	Filled by	Interpretation	Description
31	Souterrain	C44	-	Natural silting	Med brown, soft silty clay, ch fl, most of the collapsed stones of the souterrain are sealed by this fill
66	Souterrain	C44	-	Slump material	Black brown, loose ch-rich sandy silt, freq s stones
85	Souterrain	C44	-	Stone dump	Round stony feature w/in 44, made up of large flat angular stones
89	Souterrain	C44	-	Burnt spread	Brown black, loose sandy peaty clay, freq ch,
97	Souterrain	C44	-	Natural silting	Med brown, firm clayey sand, occ s ang
100	Souterrain	C44	-	Deliberate deposit	Grey black silty clay

Finds:

Context	Find Number	Material	Period	Description
31	1	Iron		Undiagnostic lump
31	2–4	Flint		Unworked
31	5	Iron		Undiagnostic lump
31	6–7	Ceramic		Post medieval pottery
31	8	Iron		Undiagnostic lump
31	9–11	Flint		Unworked
31	12	Glass		Sherd of clear glass
31	13	Iron		Undiagnostic lump
31	14–30	Flint		Unworked
66	1	Ceramic		Post medieval earthenware
66	2	Flint		Unworked
66	3	Flint		Flake debitage
66	4	Flint		Unworked
66	5	Flint		Angular shatter
97	1	Ceramic		Unclassified
97	2	Iron		Undiagnostic lump
100	1–2	Ceramic		Post medieval pottery

Interpretation:

The upper layers of backfill of Galleries 1 and 2 appear to be a mix of dumped material and natural silting. (C85), (C89), (C97) and (C100) all appear to be layers of dumped material, while (C66) and (C31), the uppermost layer in the souterrain, both appear to have been formed through natural silting. As with {1069}, the datable evidence recovered from the fill may suggest that backfilling occurred during the medieval period after the partial re-use of Gallery 1 {1064}.

4.6.4 SUBGROUP {1064}: Pit / Reuse of Gallery 1**Contexts:**

C	Area	Fill of	Filled by	Interpretation	Description
34	10/10	-	C184, C188, C213, C235, C236	Pit	Sub-rectangular in plan, sides vert+ undercut by 0.20m in SE corner, base tapered blunt point, 0.60d x 1.60l x 1.20w, N-S, posthole in each corner
180	10/10	C34	-	<i>In situ</i> burning	Dk brown black, loose clayey silt+ ash + burnt clay, v freq ch, occ ang bs
188	10/10	C34	-	<i>In situ</i> burning	Red burnt clay, mod ch
198	10/10	-	C199	Stakehole	Circular in plan, sides vert, flat base, 0.10l x 0.12w
199	10/10	C198	-	Burnt post	Dk brown black, loose clayey silt + ash + burnt clay, mod ch,
200	10/10	-	C201	Stakehole	Circular in plan, sides vert, base flat, 0.13l x 0.15w
201	10/10	C200	-	Burnt post	Dk brown black, loose clayey silt + ash + burnt clay, freq ch,
204	10/10	-	C205	Posthole	Circular in plan, sides concave, base tapered rounded point, 0.42d x 0.20l x 0.18w
205	10/10	C204	-	Poss burnt stake	Dk brown black, loose sand + ash + burnt clay, mod ch, occ ang
213	10/10	C34	-	<i>In situ</i> burning	V dark brown black, loose clayey sand, v freq ch, occ flat ang
233	10/10	-	C250	Posthole	Sub-circular in plan
235	10/10	C34	-	Poss <i>in situ</i> burning	Dk brown black, loose clayey sand, v freq ch, occ flat ang bs,
236	10/10	C34	-	Nat silting	Med orange brown, loose sandy silt, occ ch, mod flat ang, fill extends about 1m S of

					C34+about 3m into the souterrain
242	10/10	-	C243	Posthole	Circular in plan, U-shaped in profile
243	10/10	C242	-	Poss burnt stake	Dk brown black, loose sand + ash + burnt clay, mod ch, occ ang
247	10/10		C248	Posthole	Circular in plan, sides concave, base tapered, rounded point, 0.53d x 0.23l x 0.25
248	10/10	C247	-	Poss burnt post	Med-dk brown, loose clayey silt, mod ch, occ sm pebbles, 2 pieces of wood
250	10/10	C233	-	Burnt post	Dk brown black, loose clayey silt + ash + burnt clay, mod ch

Finds:

Context	Find Number	Material	Period	Description
180	1-3	Iron		Undiagnostic lump
180	4	Ceramic		Souterrain Ware
180	5	Iron		Undiagnostic lump
235	1	Ceramic		Souterrain Ware

Interpretation:

The pit [C34] in subgroup {1064} was a timber-lined pit where extensive *in situ* burning took place. Four postholes, [C204], [C233], [C242], and [C247] were located in the corners, with two stakeholes [C198] and [C200] also cutting through the base of [C34]. The basal fill (C213) appears to be a layer of burnt timbers that were used as lining on the floor. This surface then appears to have been clay lined, as (C188) represents a layer of fire reddened clay that seals the timbers. Above was a layer of *in situ* burning (C180) which contained pottery, ash, burnt bone, grasses and hazelnut shell.

The two uppermost layers in [C34], (C235) and (C236), were charcoal-rich silty clays. A narrow channel linked [C34] to the northwest corner of Gallery 1 of the souterrain. It is believed that pit [C34] may have been linked to the souterrain in order to use Gallery 1 as a smokehouse for fish or meat. Alternatively, Gallery 1 may have been used as a dump for fire debris from [C34].

GROUP 6 DISCUSSION: Abandonment and Silting of Souterrain

Group	Subgroup	Interpretation	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
6	1060	Filling of gallery 1	UND	MD - PM	Abandonment and backfilling/silting of souterrain
6	1061	Silting of Souterrain	UND	MD - PM	Abandonment and backfilling/silting of souterrain
6	1062	Backfill of galleries 1 and 2	MD	MD - PM	Abandonment and backfilling/silting of souterrain
6	1063	Backfilling of Galleries 1 and 2	MD - PM	MD - PM	Abandonment and backfilling/silting of souterrain
6	1064	Pit / Reuse of Gallery 1	MD - PM	MD - PM	Abandonment and backfilling/silting of souterrain

After the souterrain was abandoned, Gallery 1 was re-used as a possible malting or smoke house. The clay and timber-lined pit in subgroup {1064} was built c.0.50m to the north of the souterrain, with a narrow channel linking it to Gallery 1. Alder charcoal from this pit (*Alnus glutinosa*) has been dated to 1163±33 BP, Wk 18556 (2 Sigma calibration of AD 790 – 940). It would have been suitable for use in a smokehouse because of its quick burning properties and its excellent charcoal (see O Carroll, Appendix 2.2). As this layer of charcoal was at the base of Gallery 1, it

shows that this re-use of Gallery 1 pre-dated the deliberate backfilling of the souterrain.

As the corbelled walls of Gallery 2 were still in excellent condition, it is most likely that the capstones were deliberately pulled down prior to the backfilling. It is believed that the sherds of medieval pottery found amongst the backfill layers may date the backfilling of the souterrain.

4.7 GROUP 7: Post-Medieval Activity

4.7.1 SUBGROUP {1065}: Structure

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
207	0/60	-	C226-C231, C238, C239	Poss stock enclosure	Penannular in plan, opening in NW, sides mostly straight + steep, base very irreg, ditch width variable due to it being quite T'd except in SE, overall outer dia c.9m, ditch dimensions: 0.48d x 21.20l x 1.12w
226	0/60	C207	-	Natural silting	Med grey brown, mod loose fine clayey silt, rare ch fl, rare fine gravel + rou pebbles, occ s sub-ang
227	0/60	C207	-	Re-deposited natural	Lt-med yellow brown, mod loose gritty gravelly stony silty clay, occ ch fl stones mostly s-m
228	0/60	C207	-	Natural silting	Grey, mod soft stony silty clay, mottled w/ decayed stone + natural, mod s ch frags, rare bb, s flat ang
229	0/60	C207	-	Foundation layer	Med-dk orange brown, mod soft silty clay, occ ch fl, freq m stones+ several very l stones
230	0/60	C207	-	Ash/charcoal dump	Grey black, mod loose very ch-rich silty clay w/ occ orange flecks, freq fire-cracked m ang+sub-ang
231	0/60	C207	-	Natural silting	Med grey brown, mod soft clayey silt, mod ch fl, freq decayed stone, freq s sub-ang
238	0/60	C207	-	Re-deposited natural	Yellow brown mod soft silty clay, occ ch fl, freq s pebbles + mod s sub-ang
239	0/60	C207	-	Re-deposited natural	Med grey brown, mod loose clayey silt w/ orange fl + decayed stone, occ ch fl, freq pebbles+mod m sub-ang
249	10/60	C272, C273	-	Deliberate deposit	Black grey, loose sandy silt mottled w orange bs fl, mod s ang
272	10/60	-	C249	Shallow pit	Sub-oval in plan, shallow, sides slightly convex except in W, base irreg, stakehole cut into base, 0.18d x 0.96l x 0.62w, N-S
273	10/60	-	C249	Stakehole	Circular in plan, sides steep+ slightly concave, base rounded, within C272, 0.06d x 0.70l x 0.65w

Finds:

Context	Find Number	Material	Period	Description
226	1	Ceramic		Post medieval pottery
228	1-3	Flint		Unworked
230	1-14	Flint		Unworked
235	1	Ceramic		Souterrain Ware
239	1-2	Flint		Unworked

Interpretation:

The cut [C207] in subgroup {1065} represents a circular structure that was located to the northwest of the ringfort ditch [C5]. It measured 5m in internal diameter, with an entrance facing to the north-west. It was originally believed to be related to the ringfort, but only post-medieval finds were recovered from the fills during the

excavation. Fill (C229) was a layer of large stones that probably acted as a keystone foundation for the walls of the structure. The other fills were mostly packing material and natural silting on the interior. It is believed that [C207] may have been some form of stock enclosure. On the exterior of [C207], was a shallow pit [C272], which contained a stakehole [C273] at the base. Both were filled by (C249), which was a deliberate deposit. Nothing to indicate a function was recovered from the fill.

4.7.2 SUBGROUP: {1066} Field Boundaries and land drains

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
350		C351	-	Nat silting	Med-lt brown friable sandy silt, occ m sub-ang-rou.
351		-	C350	Land drain	Linear in plan, sides shallow + concave, base irreg, deeper in E side, Prob T'd, 0.13d
352		C353	-	Nat silting	Med-lt, brown v friable +gritty sandy silt, mod m sub-ang+rou. Poss same as C350
353		-	C352	Mod field boundary	Linear in plan, shallow, sides concave, base irreg, Prob T'd 0.11d x 1.85m

Finds:

None

Interpretation:

[C351] in subgroup {1066} was the cut of a drain that crossed the entire site, extending from the north-eastern corner of the site to the south-western part. It truncated the air vents [C339] and [C340] to the west of the souterrain. It was filled by (C350) which comprised small sub-angular stones and a layer of naturally deposited silt. Cut [C353] represents the remains of an old ploughed out field boundary that was recorded to the west of the site. It was filled by (C352), a layer of natural silting.

GROUP 7 DISCUSSION: Post-Medieval Activity

Group	Subgroup	Interpretation	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
7	1065	Structure	PM	PM	POST-MEDIEVAL ACTIVITY
7	1066	Field Boundaries and land drains	PM	PM	POST-MEDIEVAL ACTIVITY
7	1067	Topsoil	PM	PM	POST-MEDIEVAL ACTIVITY

Post-medieval activity on site was represented by three features – the probable stock enclosure [C207], the field boundary [C353] and the land drain [C351]. All three features are the result of agricultural practices and efforts to improve the land. The depth of the topsoil at 0.30m shows that the land has been subjected to deep ploughing, and the results of this can be seen in the large-scale truncation of the northern part of ringfort ditch [C5] and most of the interior of the ringfort.

4.8 GROUP 8: Topsoil

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
1	Site	-	-	Topsoil	Mid brown sandy clay, mod firm, freq s, m, lg mixed, mod ch fls & frags

Finds:

Context	Find Number	Material	Period	Description
1	1	Flint		Unworked
1	2	Ceramic		Modern
1	3–13	Flint		Unworked
1	14–22	Flint		Flake debitage
1	23–43	Flint		Unworked
1	44	Flint		Core
1	45–80	Flint		Unworked
1	81	Flint		Scraper
1	82–235	Flint		Unworked
1	236–252	Flint		Flake debitage
1	253	Iron		Modern iron fragment
1	254	Iron		Horse shoe
1	255	Stone		Unworked
1	256–281	Ceramic		Post medieval pottery
1	282–285	Ceramic		Clay pipe
1	286	Lignite		Not archaeological
1	287–293	Flint		Unworked
1	294–298	Ceramic		Post medieval pottery
1	299–303	Flint		Unworked
1	304	Glass		Glass bead
1	305–306	Ceramic		Post medieval pottery
1	307	Flint		Unworked
1	308	Iron		Modern fragment
1	309	Flint		Flake debitage
1	310	Iron		Modern fragment
1	311	Glass		Glass waste drop
1	312	Ceramic		Post medieval pottery

Interpretation:

The topsoil was fairly uniform loam across the site.

5 SYNTHESIS

5.1 Group 1: Natural geology and topography

The M1 Dundalk Western Bypass 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 Dinavian limestone.

The main focus of the site is situated on a well drained plateau made up of glacially mixed gravels and is located approximately 30m OD. The hill is steeply sloped on the south and the north, and has commanding views over the surrounding landscape.

The site overlooks Site 113, Newtownbalregan 5 (excavated by David Bayley 03E0114), which lies downslope to the south. Newtownbalregan 5 shows no evidence for any use that is contemporary with the Newtownbalregan 6 site. Topsoil over the site generally varied from 200mm-500mm but was up to 1.20m downslope to the south on Site 114.

South to North profile across the area of the site before topsoil stripping:

Chainage point (from south to north)	Level (m OD)	General area of ringfort + souterrain	Specific focus of ringfort
21.220	25.06		
21.320	33.87	*	
21.360	36.99	*	
21.380	37.27	*	*
21.400	36.75	*	*
21.440	34.42		
21.560	25.61		
21.760	14.71		

Landscape

The ringfort is pitched so it is viewing to west, north and east, overlooking the 2 - 4km wide Castletown / Kilcurry River valley, Dundalk harbour and Bay and with views all along the southern side of the Cooley mountains and peninsular (up to 10km).

To the south of the ridge there are limited views across a dry valley (occupied by the N53, Castleblayney Road) for a maximum distance of c.1km. The souterrain is on the south-facing slope and this may have been deliberate as it is thus hidden from the main areas of visibility to the north.

5.2 Group 2, Enclosure 1

Group 2 comprised a circular ringfort 46m in internal diameter with a causewayed ditch [C5] in subgroup {1001} open to the east (Dundalk Bay and DunDealgan). It is presumed that this entrance was secured by a gate. As the entrance was almost 5m wide, it is reasonable to suggest that a double gate may have been required. A minor/secondary crossing point was visible by a patch of hard gravels in a shallow area of the ditch on the northern side. At the base of the ditch was also a pit [C232] and a stakehole [C356], which may be related to the construction of the ditch. It is presumed that the enclosure had an internal bank, approximately 2 -3m wide and up to 2m high. This would give an internal area of approximately 1385m². Without the bank, the internal area of the enclosure is approximately 1661m².

The ditch [C5] in subgroup {1001} had three phases of filling: natural silting at the base, occupational layers in the middle, followed by a deliberate backfilling of the ditch. The presence of all the occupational material in the middle of the ditch could reflect a clearance of the internal areas of the ringfort in order to change the use of the enclosure, such as a change from high status, domestic occupation/farming to a less dynamic and poorer land use, such as using the ringfort as a stock enclosure. The distribution pattern of finds recovered from the ditch may suggest the different functions carried out in various parts of the ringfort. The animal bone recovered from the ditch fills was concentrated to the north-western part of the ditch, which suggests that slaughtering or hide preparation may have been carried out in this area. Unfortunately the flint distribution was too random to confirm this. The high quality finds such as the brooch, glass beads and stick-pin were all recovered from the south central part of the ringfort, which suggests that this may have been the main living area.

The pits [C214] and [C365] in subgroup {1006} that cut through the upper fills of the ditch show that the ringfort was abandoned and the ditch backfilled during or at the end of the early medieval period as they contained finds dating to that period. The reason for this apparent destruction is not known, but it would appear that the ringfort was rendered undefendable at this time.

Finds from enclosure ditch Group 2

Flint:

Enclosure Ditch [C5]: although a large number of flint items were recovered from site very few were diagnostic or worked.

Metal:

Apart from two stick pins and the Penannular brooch, there was a remarkable lack of metal objects on the site. The Penannular brooch contained widened and flattened angular terminals, which were decorated in relief with curvilinear designs, similar in style to La Tène type motifs but typical of a 6th – 7th C AD date. The length of the pin was 56.3mm, with the outer diameter of the brooch being 42.8mm. The stick pin recovered from the same context as the brooch has been referred to as a 'finger' pin, due to the presence of three 'knuckles' on the pin head. The diameter of the head of the pin was 5.7mm and the length was 50.5mm. The second ring pin recovered from C215, was made from iron and was badly corroded. It measured 102.5mm in length, while the ring at the top of the pin had a diameter of 13mm.

Glass:

The three glass beads from layer/fill [C37] of the ringfort ditch are of superb quality. One is a blue base with a design in white on it, the yellow glass bead is opaque and plain, and the translucent bead has a series of connected spirals in yellow impressed into it.

5.3 Group 3, Activity on interior of enclosure

Considerable truncation of the interior of the enclosure meant that little of identifiable form survived. Most of the features were located in the southern part of the enclosure and consisted of simple pits and postholes.

The most notable features were the postholes [C115], [C124] and [C156] in subgroup {1017} that may have formed the corner of a structure (Structure 1) 3.10m x 1m, and

the linear arrangement of postholes in {1032} that may have formed one side of another structure (Structure 2), c. 3.50m in length.

There were two irregular shaped pits in the southern half of the enclosure. The southeast of the enclosure contained a large, irregular shaped pit in subgroup {1016} with a rough, uneven base. It appears that this pit {1016} was a series of shallow, intercutting 'hollows' that were all open at the same time. The basal fill of the pit {1016} was orange brown silt [C158] but the uppermost fill was a layer of randomly laid and loosely consolidated field stones. From between the stones eight sherds of coarse fabric pottery ('souterrain' ware) were recovered. It is not known what the function of this pit was, or the function of the stone fill [C43]. The stones could have been a simple consolidation layer filling in the hollow of the pit, or it could have formed some sort of construction like a foundation to a surface. A second smaller, but similar feature in subgroup {1025} was recorded in the southern part of the enclosure. Unlike pit {1016}, where the intercutting hollows all appear to have been open at one time; three separate phases were recorded in pit {1025}. After pit {1025} had silted up, pit {1026} was re-cut through the upper fills [C169] and [C183]. Pit [C168] was in turn cut by [C184]. All the fills of these pits were sterile silts, with a stone packing layer [C237] sealing them. No finds were recovered.

The domestic area and areas of pitting covered approximately 50% of the internal area of the enclosure.

OPEN AREA 3, GROUP 3

The northern part of the enclosure was mostly devoid of features. It is believed that this area of the enclosure may have been used as a stock enclosure. The strongest concentration of animal bone recovered from the site was recovered from the north-western part of the ditch, which suggests that this area of the enclosure may have also been used for butchering of animals.

While the boundary between the stock enclosure and the living area of the ringfort is indistinct, it is estimated that the stock area would have accounted for approximately 25% of the internal area. This does not include an open area in front of the entrance, which would presumably be left open to allow for access.

5.4 Group 4, Activity on exterior of enclosure

On the exterior of the enclosure [C5], most of the features recorded were located to the north-west of the site, and consisted of a small number of isolated, shallow, pits (often containing burnt material) and postholes, as well as two small hearths. No significant finds were recovered from any of these features so it cannot be stated that they were absolutely contemporary with the ringfort. The 'hearths' may have been starter pits for charcoal clamps or firepits for cooking.

5.5 Group 5, Souterrain

Element	Length	Height	Orien- tation	Comments
Gallery 1	4.4m	0.75m	E - W	Evidence for a door or grille visible on the eastern side. The floor sloped down to the junction with Gallery 2. Unroofed when found.
Gallery 2	11.50m	2m max.	N - S	A lighting alcove was located on the eastern side. To the south of the alcove, the passage narrowed, with evidence for a door and two boltholes in the walls. To the south of the door, the floor of the gallery dropped steeply, resulting in the passage being almost 2m high. Unroofed when found.

Gallery 3	5.7m	0.96m	E - W	From the southern end of Gallery 2, Gallery 3 led westwards and ended in a well built, stone lined alcove/recess measuring 0.65m deep x 0.60m wide x 0.50m high. The third capstone from Gallery 2 was the re-used possible megalithic art.
Gallery 4	2.5m	1.09m	N - S	A short length of corridor accessed from Gallery 3 just before the well built alcove. A second lighting alcove was located at the southern end of Gallery 4.
Gallery 5	5.5m	1.02m	E - W	Gallery 5 ended in Corbelled Chamber 1
Corbelled Chamber 1	2m x 2m	1.18m	Square	The chamber incorporated a stone flag floor under which a small drain took any water from Gallery 5 and diverted it down a drop hole (which measured 0.5m x 0.3m x 0.7m deep) located on the southern side of the chamber leading to Gallery 6. Externally there was an air shaft 2.7m in length
Gallery 6	15m	1.20m	N - S	Accessed through the drop hole in Corbelled Chamber 1, both floor and ceiling sloped downwards with the hillside.
Corbelled Chamber 2	3.5m x 2m	1.50m internal	E - W	This large chamber was part flooded when found and incorporated an external air shaft 3m in length.

Gallery 1:

Gallery 1 was visible directly below topsoil and may have been upstanding when constructed. It was oriented east-west and measured 4.40m in length, 0.75m in surviving height, and was 0.70m in width. The surviving walls [C33] appear to have been constructed by placing large sub-rectangular stones on their long end, with average dimensions of 0.60m x 0.35m x 0.25m. The walls of Gallery 1 were not corbelled and as such may not have been roofed with capstones. The floor sloped down to the junction of Gallery 2 and there was evidence for a door or grille, on the eastern side. This entrance was formed by six stakeholes in subgroup {1059} [C281], [C282], [C283], [C284], [C285] and [C290] were located at the eastern end of Gallery 1. They were aligned north-south and appear to have formed a grille across the end of the Gallery. This grille may have been used to keep animals in / out of the souterrain rather than being a defensive feature, as it does not appear to have been a particularly sturdy construction. Each stakehole silted naturally. Given the shallowness of Gallery 1, it is most likely that this entrance was visible above ground level. Of note is the fact that the entrance was facing the southern part of the ringfort, which appears to have been the main area of occupation within the enclosure. The construction cut [C44] for gallery 1 measured 4.40m in length x 2m in width, with a maximum depth of 0.75m, giving a rough volume of 6.60m³.

Gallery 2

Gallery 2 extended south from the centre of Gallery 1 for a distance of 11.50m. It was 0.85m high at northern end, deepening to 2m high at southern end. The northern end of Gallery 2 was 0.90m wide, with little evidence of corbelling of the walls [C33]. This suggests that the northern end of Gallery 2 may have been roofed with something other than capstones. It is known that this part of Gallery 2 was roofed as a lighting alcove measuring 0.74m long x 0.84m high x 0.48m deep was in the eastern wall of the northern end of Gallery 2. Gallery 2 was built in a very neat style using roughly coursed quarried stone (average dimensions 0.20m in length x 0.04m high x 0.12m deep) placed horizontally on larger 'foundation' boulders (average dimensions 0.40m in length x 0.20m width x 0.20m height).

To the south of the lighting alcove the passage narrows and there is evidence for a door, seen by a vertical stone slab door jamb (on the eastern side) and a probable wooden door-jamb and posthole [C315] (on the western side). Posthole [C315] in

subgroup {1057} was located opposite the vertical stone slab door-jamb and probably represents the remains of a wooden door-jamb. The post had been removed, probably on the abandonment of the souterrain and [C315] was subsequently filled by natural silting (C314). A second posthole [C317] in subgroup {1058} was located immediately south of posthole [C315] in {1057} and may have functioned as a support post for [C315]. It was filled by natural silting (C316).

This arrangement made a door of 1.40m high x 0.90m wide dimensions. Internal (to the south) of the door jambs were opposing, internal bolt-holes, c.0.15m x 0.15m x 0.30m deep (Lower one 0.50m above floor, upper one 0.90m above floor) into which cross-braces could be placed. Recovered from this area in the backfill was an iron object, possibly a bolt. As the door could only be secured from the inside, it would strongly suggest that one of the functions of this souterrain was to serve as a refuge.

To the south of the door, the gallery widened to 1.70m at the floor and 1m wide at the roof. The floor of the passage dropped steeply, resulting in the passage being almost 2m high. It is suggested that Gallery 2 was built this way either to act as a (third) chamber and facilitate more people in times of refuge, or in order to provide an advantage to defenders against attackers – defenders could stand upright, while attackers coming through the doorway would be crouched.

The construction cut [C44] measured 3.10m long x 2.10m wide x 1.03m deep at the northern end of Gallery 2 and 8.20m long x 3.20m wide x 2m deep at the southern end, giving a rough volume of 59.19m³ of soil having to be excavated to facilitate the construction of Gallery 2.

Gallery 3

Gallery 3 was the first intact gallery of the souterrain and was entered via a creep near the southern end of Gallery 2. Gallery 3 led westwards and ended in an alcove. Gallery 3 measured 5.70m in length and was 0.87m wide at the base, 0.60m wide at the top and 0.96m high. The walls [C33] of Gallery 3 comprised roughly coursed quarried stones (average dimensions 0.25m x 0.10m x 0.12m) placed on larger 'foundation' boulders (average dimensions 0.40m x 0.30m x 0.25m). 12 capstones [C301] were required to cover the passageway, with average dimensions of these capstones being 0.80m in length x 0.40m in width x 0.20 m thick. The gaps between the capstones were filled from above by small packing stones [C303], of average dimensions 0.20m x 0.12m x 0.10m. The construction cut [C44] in Gallery 3 measured 6.10m in length x 1.80m in width x 1.83m deep (below PGL), giving a rough volume of 20.09m³ of material to be removed prior to construction of Gallery 3.

The Recess/Alcove at the end of gallery 3 measured 0.60m wide x 0.50m high x 0.65m deep internally and resembled a lighting alcove in size but was completely stone lined and deeper than the thickness of the wall (all other alcoves were within the thickness of the wall and unfaced at the back). This would suggest that the function of the Recess/Alcove may have been more than simply 'lighting'.

From the location of Alcove 2 a strong light, if present, could have been thrown down Gallery 3 to highlight the grooved decoration on the prehistoric decorated stone [03E0115: 301:1], which was re-used as the third capstone from the entrance to Gallery 3.

Stone [03E0115: 301:1], which is not complete, measures 0.65m x 0.61m x 0.16m thick and has clear elements of Megalithic (Late Neolithic – Early Bronze Age) Art with 'spiral' and 'trumpet' scored motifs, as well as areas of concentrated pecking. However, a 'tear drop' or lentoid pattern could be attributed to the Iron Age (for a full

discussion please see O Connor, Appendix 2.4). The art extends from the main face to one of the sides and all the decorated surfaces are heavily weathered.

The decoration on the sides appears to respect the current thickness of the stone so it appears at this stage that the slab-like stone recovered was not split off from a more substantial piece (this needs further work to determine). The weathering indicates that the stone was exposed to the elements for a considerable period and a kerbstone to a megalithic tomb is a likely function (i.e. placed vertically). However, it has been remarked (Blaze O'Connor, pers. comm.) that the slab-like stone could also have been some sort of 'cist capstone' or horizontally placed.

Such a horizontal placing would be more in common with most of the known rock art in the Louth Archaeological Survey (in fact there is a suggestion that much of the rock art on standing stones in Louth has been cut from its original position on rock outcrops). Of note is that all the rock art in the survey lies between the Fane and Castletown Rivers. This distribution coincides with the present example. The nearest known piece of rock art to Site 114, Newtownbalregan 6 is on a horizontal outcrop at Tankardsrock (LH007: 102, Survey 230), c.1.4km to the south-west.

According to Clinton (2001, 66) there are at least six examples of decorated stones featuring Bronze Age concentric motifs in Ireland and a possible seventh at Drumlohan, Co. Waterford. Examples included a slab decorated with Early Bronze Age concentric motifs was used as an obstructive jamb in one the souterrains in the enclosed complex at Ballybarrack, Co. Louth. In Co. Donegal the souterrains at Glenamakee (Lacy, 1983, 234) and at Creggan (Ryan 1972), contained roofing lintels which featured cup-marks. The rock-cut souterrain at Gortdromagh, Co. Cork (D. Power 1992, 234) contained a displaced roofing slab decorated with eight cup marks.

Clinton (2001, 67) suggests that the use of decorated stones by the souterrain-builders was probably just opportunistic and it is unlikely that they were incorporated for any potential talismanic qualities. It is probable that the slabs may have held some aesthetic appeal for the souterrain-builders.

Gallery 4

Gallery 4 was quite short, just 2.50m in length x 0.97m wide at the base, 0.63m wide at the roof x 1.09m high and was accessed from Gallery 3 by a turn to the south just before Alcove 2. Alcove 3 (measuring 0.45m in length x 0.62m in height x 0.20m in depth) was situated at the southern end of Gallery 4. The roof [C301] of Gallery 3 comprised 3 capstones, with average dimensions of 0.85m in length x 0.35m in width x 0.20m thick. As with the other galleries, packing stones [C303] (avg. dimensions 0.20m x 0.15m x 0.10m) were used to fill gaps between the capstones prior to the backfilling of the construction cut. The average dimensions of the basal stones in the wall [C33] of Gallery 4 were 0.35m x 0.25m x 0.20m thick, while the average dimensions of the quarried stones were 0.30m in length x 0.12m in width x 0.15m thick. The construction cut [C44] of Gallery 4 measured 3.50m in length x 2.20m in width x 1.96m in depth (below PGL), giving a volume of 15.09m³ to the construction cut in Gallery 4.

Gallery 5

Gallery 5 led westwards from Gallery 4 and measured 5.40m long x 1.14m wide at the base, 0.50m wide at the roof and 1.02m high, and entered Chamber 1. 10 capstones [C301] were used to cover gallery 5 (avg. dimensions 0.90m x 0.40m x 0.15m thick), with the westernmost capstone being incorporated into the wall of Chamber 1. The packing stones [C303] (avg. dimensions 0.30m x 0.20m x 0.18m) were placed from above to seal the gaps between the capstones prior to the

backfilling of the construction cut. The walls of Gallery 5 [C33] were built by placing roughly coursed quarried stones (average dimensions 0.20m x 0.10m x 0.10m) on top of large 'foundation' boulders (average dimensions 0.35m x 0.28 x 0.18m). The construction cut [C44] of Gallery 5 measured 5.40m x 1.90m x 2.17m deep (below PGL). This gives a rough volume of 22.26m³ of material to be removed from [C44] before Gallery 5 could be constructed.

Chamber 1

Chamber 1 measured 1.33m at the base, 0.80m at the roof x 2.10m (at the base), 1.50m at the roof x 1.18m high internally, and was constructed in a similar method of roughly coursed quarried stones to Galleries 2 – 5, and incorporated an Air Vent [C296] (see subgroup {1058}). The walls [C33] were built by placing roughly coursed quarried stone (average dimensions 0.28m x 0.08m x 0.10m) on larger 'foundation' boulders (average dimensions 0.35m x 0.15m x 0.20m). The Chamber held 4 capstones [C301], of average dimensions 0.85m x 0.40m x 0.20m. The gaps between the capstones were filled from above by packing stones [C303] (average dimensions 0.18m x 0.15m x 0.15m).

A second piece of decorated stone [03E0115:300:1], with decoration similar in style to the capstone in Gallery 3 was discovered in Chamber 1, used simply as a building stone. Chamber 1 also contained a flag stone floor surface [C305] {1053} under which was a possible drain. Floor [C305] {1053} comprised evenly spaced, flat sub-angular and sub-rounded stones. The gap between the stones was filled by a sandy silt (C306). Beneath the floor surface, in the south-eastern part of Chamber 1 was a stone-lined drain [C319] {1053} that appears to have channelled water from Gallery 5 into Gallery 6 allowing Chamber 1 to remain dry.

In the south-east corner of the Chamber, a drop hole (0.50m x 0.30m x 0.70m deep) led to Gallery 6. The large lintel that carried the Chamber wall over this drop had been soot-blackened by open flame torches.

The construction cut [C44] of Chamber 1 measured 2.60m x 2.40m x 2.17m deep (below PGL), which gives a rough volume of 13.54m³ of material to be removed prior to the construction of Chamber 1.

Air Vent [C296] {1051} took the form of a drystone built, drain-like construction 2.70m in length x 0.50m wide (0.20m wide internally) that lay in a straight line from the exterior of the western wall of Chamber 1. Air Vent [C296] was mostly built of field stones and sloped up gently from Chamber 1. The western end of Air Vent [C296] had been truncated by a modern field drain. It had silted naturally with (C320). Air Vent [C296] entered Chamber 1 0.50m above the floor.

Gallery 6

Gallery 6 followed the drop of the hillside and sloped down to the south from Chamber 1 for a distance of 15.40m (it drops 0.79m over the length of the passage). The walls of Gallery 6 [C363] were different to the other galleries in that it was constructed using field stones (average dimensions: 'foundation' stones 0.45m x 0.35m x 0.20m; upper stones 0.25m x 0.15m x 0.15m) rather than quarried stones. It was also higher and wider than the other galleries, measuring 1.00m wide at the base, 0.70m at the roof and 1.20m high. A single capstone in the middle of Gallery 6 had broken and collapsed into the Gallery, along with a small quantity of earth. However, as the upper level of Gallery 6 was approximately 1m – 1.60m below ground level, the collapse did not reach the surface. Gallery 6 was covered by 28 capstones [C301], of average dimensions 0.90m x 0.45m x 0.20m. As with the other galleries, the gaps between the capstones were filled from above by packing stones

[C303] (average dimensions 0.20m x 0.15m x 0.10m) prior to the backfilling of the construction cut. The construction cut of Gallery 6 [44] measured 15.40m x 2.30m x 2.11m below PGL, giving a rough volume of 74.74m³ of material had to be removed prior to the construction of Gallery 6.

Chamber 2

At the southern end of Gallery 6 was Chamber 2. It measured 3.50m x 2.00m and was 1.50m high (internally). As with Gallery 6 Chamber 2 was built using rough fieldstones (average dimensions: 'foundation' stones 0.35m x 0.35m x 0.25m; upper stones 0.25m x 0.20m x 0.15m). Like Chamber 1, it incorporated an air vent [C297] in the western wall, which extended westwards for c. 3m (see subgroup {1059}). Unlike Chamber 1, no floor surface was discovered in Chamber 2, other than compacted subsoil (C312) and a possible sub-floor [C311]. 4 large capstones [C301] of average dimensions 1.20m x 0.35m x 0.20m were used to cover Chamber 2. As with the other capstones, the gaps were sealed from above using packing stones [C303], of average dimensions 0.20m x 0.10m x 0.10m. The construction cut [C44] for Chamber 2 measured 4.40m x 3.40m x 2.48m deep (below PGL), meaning a rough volume of 37.10m³ had to be removed prior to the construction of Chamber 2.

Pit [C330] {1055} was located in the south-western corner of Chamber 2. It had naturally silted with (C326) and (C329). It is not known what the function of this pit was, but it has been suggested that it functioned as a sump, but it is probably too shallow to function as a useful sump. It may have functioned as a storage pit.

Pit [C331] {1055} was located on the eastern side of Chamber 2. It was partially filled by (C324), which is a layer of silt build-up that covered the entire floor of Chamber 2. No function was determined for [C331], but it may have been used as a storage pit.

Air Vent [C297] {1052} took the form of a drystone built, drain-like construction 2.40m in length x 0.75m wide x 0.29m high that extended westwards from the south western corner of Chamber 2. Air Vent [C297] was built mostly of field stones and sloped gently up from Chamber 2. It had silted naturally with (C338). Air Vent [C297] entered Chamber 2 1.40m above ground level.

When the souterrain had been completed, the construction cut [C44] was backfilled by redeposited natural subsoil. (C224) covered Galleries 2 – 5 and Chamber 1, while (C257) sealed Gallery 6 and Chamber 2.

5.6 Group 1 and Group 6, Abandonment and Destruction of enclosure

Open Area 6 represents the abandonment and deliberate backfilling of the ring fort ditch. The reason for this apparent destruction is not known, but it would appear that the ringfort was rendered undefendable at this time. It has been suggested that the ringfort may have been destroyed, around the 12th century, by the Anglo-Normans as they sought to demonstrate their power, and possibly needed to destroy a defensible site that was situated too close to Dun Dealgan Motte.

Although the ringfort ditch was backfilled, it is known that the site was not completely abandoned at this time. The pits [C214] and [C365] {1006}, which cut through the upper fills of the ditch, show continued occupation after the backfilling episodes. The features discussed in Open Area 4 may also post-date the backfilling of the structure, but this cannot be confirmed at this stage.

After the souterrain was abandoned, Gallery 1 was re-used as a possible malting or smoke house. Clay and timber lined pit {1064} was built c.0.50m to the north of the souterrain, with a narrow channel linking it to Gallery 1. Both pit {1064} and Gallery 1

were filled by large amounts of charcoal and burnt seeds. As this layer of charcoal was at the base of Gallery 1, it shows that this re-use of Gallery 1 pre-dated the deliberate backfilling of the souterrain.

5.7 GROUP 6

Open Area 7 represents the final demolition and backfilling of the souterrain during the medieval period, and the abandonment of the site. As the corbelled walls of Gallery 2 were still in excellent condition, it is safe to assume that the capstones were deliberately pulled down prior to the backfilling. It is believed that the sherds of medieval pottery found amongst the backfill layers date the backfilling of the souterrain. It is believed that the Anglo-Normans may have been responsible for the demolition of the souterrain, possibly as a result of it being a (potentially rebel) defensible site too close to the motte at Dun Dealgan.

5.8 GROUP 7

Post-medieval activity on site was represented by three features, the probable stock enclosure [C207] {1065}, the field boundary [C353] {1066} and the land drain [C351] {1066}. All three features are the result of agricultural practices and efforts to improve the land, and appear to date from c.1700 onwards. The depth of the topsoil {1067} at 0.30m shows that the land has been subjected to deep ploughing, and the results of this can be seen in the large-scale truncation of the northern part of ringfort ditch [C5] and most of the interior of the ringfort.

The rectilinear field boundaries may be the result of land confiscation and re-allocation during the Anglo-Norman occupation, with later removal of boundaries to enlarge fields. The Anglo-Norman occupation and land re-allocation may also have had some influence on the naming of the townland Newtownbalregan, as the area around Dundalk has many derivatives of this name, such as Balregan and Balriggan.

6 DISCUSSION

6.1 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 each of the excavations in the Balriggan townland and Responses (**R**) based on preliminary assessment of the site data.

Site 114, Newtownbalregan 6

ORQ 1: *What is the full nature of the site at Newtownbalregan 6? Are there buildings present, if so what were the construction methods and are there different phases of construction and use? If there are no buildings what was the site used for?*

R: The scale of activity at Newtownbalregan 6 exceeded all expectations. The results of the testing programme had suggested that fewer than 20 features would be revealed in the excavation area. However, after initial stripping a curvilinear ditch was identified in the south-east corner of the site. This led to additional stripping which revealed an early medieval circular enclosure 46m in diameter. The northern part of the enclosure and most of the interior were severely truncated, most likely as a result of agricultural practices. This resulted in the enclosure ditch being as little as 0.10m deep in places, as opposed to 1.20m deep and 2m wide on the southern part. The ditch was interrupted by a causewayed entrance on the eastern side which overlooked Dundalk Bay.

The truncation meant that very little of identifiable form survived on the interior of the enclosure. Structures were implied rather than exposed. The ringfort ditch produced high status finds and it is likely that the main domestic buildings were on the south-central part of the enclosure. The north-western part of the ringfort may have been used for animal related activities (butchering/skinning). Metalworking does not appear to have been a strong aspect of the site. There was little evidence for activity on the exterior of the enclosure, with only a hearth and a small number of shallow pits uncovered.

The main building on site was a drystone built souterrain situated 5m to the south-west of the ringfort. The souterrain was 46m in length, of which 33m comprised intact tunnels and two chambers. The most notable features of this souterrain were an internal door with boltholes in the walls on the interior of the door, two air vents incorporated into the chambers, a drop hole and a capstone with Megalithic art. It seems reasonable to suggest that a souterrain of this size could not have been practically built inside the ringfort, once the interior was occupied. Thus the placing of the souterrain on the outside could imply it was not part of the original ringfort construction. The quality of souterrain construction appears to indicate a high status structure. Evidence from the excavation suggests that the entrance to Gallery 1 may have been partly above ground, rather than being completely hidden. Certain features within the souterrain (e.g. internal door) ensured its security.

Immediately north of the souterrain was a pit that contained evidence of *in situ* burning. This pit had a channel that connected with the uppermost gallery of the

souterrain, which suggests that the souterrain was re-used as a smoke or malt house at some stage after it had been abandoned.

To the north-west of the enclosure, was a circular structure c. 5m in diameter. At first it was believed that this structure was contemporary with the enclosure, but the only finds recovered from this structure were post-medieval pottery sherds and a clay pipe stem.

ORQ 2: *What are the dates of occupation and how does the site change through time?*

R: The site dates to the early medieval period. All the finds from secure contexts date to this period, including four glass beads, two stick pins and a Penannular brooch, as well as a number of sherds of early medieval coarse ware pottery (souterrain ware). Most of these finds appear to date 7th – 10th centuries AD. The date of souterrain construction and use is not known. The degree of disturbance of the site makes it difficult to comment on any possible changes in the nature or function of the site through time. It was not possible to determine if the ringfort was used as a stock enclosure with the occupants dwelling on the exterior, or if they resided on the interior. Although no domestic structures were identified on site, the scale of the souterrain would suggest that the site was extensively occupied for a long period of time.

It was shown through stratigraphy that after the ringfort ditch had been backfilled; a large pit was cut through the backfilled material. This pit yielded a ring pin, which also dates to the early medieval period, which may show that the enclosure was occupied, possibly abandoned, and re-used all within a relatively short period of time. The only other definite change in function on site can be identified in the souterrain, which was re-used as a smoke or malt house after it fell into disuse. Alder (*Alnus glutinosa*) charcoal from this smoke or malt house has been dated to 1163±33 BP, Wk 18556 (2 Sigma calibration of AD 790 – 940) (Appendix 2.1).

ORQ 3: *Are there areas where different activities were undertaken?*

R: The level of disturbance on the site has made it difficult to identify any specific areas where different activities took place. No evidence of industrial activity was identified on the site, so at this stage, it appears as though the site had a domestic function only. Fragments of undiagnostic ferrous material may be slag associated with small scale industry however all evidence for this came from disturbed contexts.

From the finds and animal bone distribution it could be implied that the domestic dwelling area was located in the south-central part of the ringfort and animal related activities were being undertaken on the north-western area. The souterrain (and whatever related activities this implies) was located externally to the ringfort ditch on the south-facing hill slope. The south-facing hill slope is more 'secluded' than the panoramic views available to and from the north-facing hill slope.

ORQ 4: *What is the nature of the finds and environmental evidence? What type of evidence is present here and do they give indications for specific activities?*

R: The finds from the site indicate domestic settlement activity. The glass beads, stick pins and the brooch are all typical finds from an early medieval settlement site but are all noticeably 'higher status' than any of the finds from, for example other contemporary sites on the project e.g. Site 121 Balriggan 1 and Site 124, Carn More 1. A thorough analysis of the assemblage of pottery sherds could perhaps indicate a functional use, although some pot sherds were sooted indicating use for cooking.

A very small 'slag' assemblage indicates metalworking was not a major activity on the site.

The souterrain was very well built (compared for example, to souterrain at Site 124, Carn More 1). This structure showed security aspects but possibly also a desire to show off wealth.

The site was well drained and no waterlogged deposits were recovered. Most contexts were sampled (from the enclosure ditch), but will require sorting with a view to discard/processing. Charcoal-rich features were bulk sampled; especially the hearth and charcoal rich deposits in the ditch fill. Analysis of the samples taken from the irregular shaped feature could help determine a function.

ORQ 5: *Is there any evidence for burial or ritual activity?*

R: No evidence for burial or ritual activity was uncovered on site. However one fragment of human cranium was identified from the ditch fill. It is unknown how this was deposited there.

ORQ 6: *Is there evidence that there was once a more substantial occupation here and that modern agricultural activities (or other) have seriously truncated this hilltop?*

R: As mentioned in Question 1, the scale of activity on site exceeded all expectations. Results from the testing programme suggested that there would be fewer than 20 features in the excavation area. Despite this, there is definite evidence to show that the hilltop was severely truncated by agricultural activities (or other) and that as a result of this, our knowledge and understanding of this site is lessened.

6.2 General discussion of potential

Stratigraphy

The site as it stands is a good example of a large scale early medieval settlement. However, there are few stratigraphic relationships that show how the site has expanded and contracted over time.

In terms of stratigraphic detail, the records have been thoroughly checked and it is clear that the site falls into broad archaeological phases rather than incorporating complex detail of associated archaeological remains (as may be found on an untruncated site). Therefore, the sites' main potential lies in the form of identifying wider issues such as:

- Settlement/occupation pattern, type and status
- Accurate dates for occupation, use and abandonment
- Activity/functional areas across the site
- The function of such a large scale site in the landscape.

Pottery

The Early Medieval pottery has potential for the study of souterrain ware but there is little possibility that a typological and chronological sequence can be developed from this small assemblage (see Zajac, Appendix 2.5).

Flint

The struck flint assemblage appears to indicate that it was perhaps worked during the early medieval period. The flint, though split and occasionally burnt is undiagnostic and in most cases unworked (see Nelis, Appendix 2.3).

Worked Stone

The decorated stones re-used in the construction of the souterrain have limited potential for analysis of activity on site. The decorated capstone may have been deliberately placed and may indicate the high status nature of the souterrain, but the main area of potential of the stones is in analysis of the type and form of the decoration, which should be able to show when the stone was decorated. It would be very difficult to trace the origins of the stone, since it appears to be of a higher degree of decoration and quality than almost all the other examples in the region (see O'Connor, Appendix 2.4).

Metal finds

Almost half of the metal finds appear to be slag or slag-like material. This has a limited potential for further analysis. The Penannular brooch and the copper alloy pins have a potential to illustrate dress/status. The overall impression is of a few high status metal artefacts but a dearth of more general metal finds and an estimate must be made as to why this is so and whether this lack of objects reflects the status (or any other aspect) to the site (see Scully, Appendix 2.6).

Glass

The potential, beyond comparative analysis, for further study on the glass beads is low. The glass beads are the highest quality beads discovered on the M1 Dundalk Western Bypass project (see Scully, Appendix 2.6).

Animal bone

The bone material at Newtownbalregan 6 contained bones from seven animal species along with a human skull fragment. The animals identified were: cattle, pig, sheep/goat, dog, horse, deer and cat. Domesticated meat-producing animals such as cattle, pig and sheep/goat totally dominated the material but there were also a range of other domesticated animals e.g. dog, horse and cat. Wild animals were only represented by one deer antler fragment which may have been a trade item. The assemblage is typical for the early medieval period (see Lofqvist, Appendix 2.7).

Soil samples

A number of key features were identified to have the most potential to be well dated and uncontaminated. However, the general acid soil conditions and lack of waterlogging meant that once processed the environmental remains were of little use.

6.3 Significance of the Data

The results from this excavation add to the existing body of data concerning early medieval period (EM) settlement sites locally and nationally. Early medieval period sites including ringforts and ecclesiastical sites are probably the most numerous obvious archaeological sites within the landscape. It is significant that a site on the scale of Site 114, Newtownbalregan 6 was lost. It illustrates how the change in land use and management can never be totally underestimated. The identification of Site 114, Newtownbalregan 6 allows us to fit the site into the larger landscape locally. This landscape is already well defined by enclosures from the same period in the immediate vicinity.

The site represents a high status ringfort with an externally built, high status souterrain. Animal related and domestic activity inside the ringfort is implied. Very limited metalworking activity could be suggested by a small amount of slag recovered from across the site.

Circular enclosures are the most visibly preserved field monuments in Ireland, with estimates of over 40,000 countrywide. Ringforts, *cashels* and *raths* and early

ecclesiastical sites all fall into this loose category and are often associated with wetland settlement and *crannógs*. Although the site was previously unknown it falls into this site type. Souterrains are amongst the most common known monuments in County Louth (151 being listed in the Louth Archaeological Survey). Souterrains built to the high quality of that at Newtownbalregan 6 are probably rarer. It is very rare a souterrain 46m long, with 33m of intact galleries, is fully excavated archaeologically.

The scale of the excavation has revealed an important archaeological site primarily dating from the early medieval period. Traditionally archaeological investigation of early medieval enclosures has tended to focus on their interiors, however with the scope of the current works, external (and internal) investigation and excavation has been feasible. However, this was tempered by the severe truncation of much of the site area. Taken with total and near total excavations of similar sites through other road schemes over the last decade Site 114, Newtownbalregan 6 has the potential to be of national significance comparatively. Although the site was heavily truncated and, other than the souterrain, the archaeological remains were poorly preserved the site is of regional importance from the pure scale of the area excavated.

7 BIBLIOGRAPHY

- Barrett, G F and Graham, B J 1975 'Some considerations concerning the dating and distribution of ringforts in Ireland', *Ulster Journal of Archaeology* 38, 33–47
- Barry, T 1987 *The archaeology of medieval Ireland*. Dublin
- Clinton, M 2001 *The souterrains of Ireland*. Wordwell, Wicklow
- Comber, M 2008 *The Economy of the Ringfort and Contemporary Settlement in Early Medieval Ireland*. BAR International Series 1773. Oxford. Archaeopress.
- Cooney, G 2000, *Landscapes of Neolithic Ireland*. London, Routledge.
- Davin, A 1982, "Tower Houses of the Pale", unpublished M. Litt. Thesis, UCD.
- Edwards, N 1990 *The Archaeology of Early Medieval Ireland*. Batsford. London.
- Fahy, E 1969 'Early settlement in the Skibbereen area', *Journal of the Cork Historical and Archaeological Society* 75, 147–56.
- Gosling, P 1993, *From Dún Delca to Dundalk: the Topography and Archaeology of a Medieval Frontier Town*. Dundalk: Co Louth Archaeological and Historical Society.
- Kelly, F 1997 *Early Irish Farming*. Dublin. Dublin Institute for Advanced Studies.
- Kerr, T 2007 *Early Christian Settlement in North-West Ulster*. BAR British Series 430. Oxford. Archaeopress.
- Kinsella, J 2007 Fact or Fiction: A New Irish Early Medieval Site Type? Exploring the 'Recent?' Archaeological Evidence for Non-Circular Enclosed Settlement and Burial Sites. Unpublished report prepared for Archaeological Consultancy Services Ltd.
- Kinsella, J 2008 'New discoveries and fresh insights: researching the early medieval archaeology of the M3, Co. Meath', J O'Sullivan and M Stanley (eds) *Roads, Rediscovery and Research*, 95–107, Dublin, National Roads Authority, Wordwell.
- Limbert, D 1996 'Irish ringforts: a review of their origin', *Archaeological Journal* **153**, 243–89.
- Lynn, C J 1988 Civil engineering in the early Christian period: Big Glebe, Co. Derry', A Hamlin and C Lynn (eds) *Pieces of the Past: Archaeological Excavations by the Department of the Environment for Northern Ireland 1970–1986*, 41–4. Belfast. Her Majesty's Stationery Office.
- Mallory, J P and McNeill, T E 1991 *The Archaeology of Ulster: From Colonisation to Plantation*, 181–248, Belfast, The Institute of Irish Studies, Queen's University of Belfast.
- Mitchell, G.F & Ryan, M 1997, *Reading the Irish Landscape*. Dublin: Town House.

Monk, M 1998 'Early medieval secular and ecclesiastical settlement in Munster', M Monk and J Sheehan (eds) *Early Medieval Munster: Archaeology, History and Society* 33–52, Cork, Cork University Press.

Mytum, H 1992 *The Origins of Early Christian Ireland*. London, Routledge.

Ó'Ríordáin, S P 1942 'The excavation of a large earthen ringfort at Garranes, Co. Cork', *Proceedings of the Royal Irish Academy* 47C, 77–150.

Proudfoot, V B 1961 'The economy of the Irish rath', *Medieval Archaeology* 5, 94–122.

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

Stout M 1991 'Ringforts in the South-West Midlands of Ireland', *Proceedings of the Royal Irish Academy* 91C, 200–43.

Waddell, J., 1998, *The Prehistoric Archaeology of Ireland*. Galway. Galway University Press.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ó Donnachada, B., (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.

Roycroft, N. 2002. 'Dundalk western bypass: Specification for archaeological rescue excavation and other outstanding work on known sites'. NRDO, Navan.

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'.

APPENDIX 1: Catalogue of primary data

APPENDIX 1.1: CONTEXT INDEX

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
1					Topsoil	Mid-brown silty stony clay, generally 0.30m deep.
2					Natural subsoil	Orangey brown silty clay.
3					3 = 206	SAME AS 206
4					4 = 219	SAME AS 219
5		46.2	3.60	1.07	Ringfort ditch	Penannular in plan, entry gap in NE, sides vary from concave-convex, base is flat generally, depth varies from 0.19 -1.07m, width at top ranges from 1.7-3.6m, width at base ranges from 0.74-1.72m dia at outer edge 46.2 E-W+ 45 N-S
6					Non archaeological	
7					Non archaeological	
8					Non archaeological	
9					Non archaeological	
10					Non archaeological	
11	5				Deliberate deposit	Dk reddish grey brown, soft silty clay, occ ch fl, mod s pebbles+ occ m sub-ang Poss same as c.55
12	5				Deliberate deposit	Dk brown, soft silty clay, occ ch fl, mod s -m sub-ang
13	5				Deliberate deposit	Med brown, soft sandy clay, rare ch fl, freq m sub-ang+occ s ang
14	5				Deliberate deposit	Med orange brown, soft sandy clay, occ s-m sub-ang
15	5				Natural silting	Lt brown, loose sandy clay, occ m ang
16	5				Natural silting	Med brown, hard sandy clay, freq ang
17	5				Natural silting	Med brown, hard sandy clay, occ stones
18	5				Natural silting	Med brown soft sandy clay, occ ch fl, freq sub-ang,
19	5				Deliberate deposit	Dk brown, loose silty clay, freq ch, occ s pebbles
20	5				Natural silting	Med brown, soft silty clay, occ ch frags, mod s-m sub-ang
21	5				Natural silting	Lt brown, loose sandy clay, mos s stones
22					Non archaeological	
23	5				Occupational layer	Dk brown, loose silty clay, mod ch fl, occ sub-ang
24	5				Natural silting	Med brown, loose silty clay, occ s-m ang
25	5				Natural silting	Lt yellow brown, loose silty clay, occ m sub-ang
26	5				Natural silting	Lt grey brown, soft silty clay, rare ch fl, rare ang
27	5				Natural silting	Lt brown, soft silty clay, rare ang
28	5				Occupational layer	Med orange brown firm sandy clay, rare s stones
29	5				Natural silting	Lt yellow brown, soft silty clay, rare ch fl, rare s ang
30	5				Occupational layer	Med brown, mod compact silty clay, rare ch, occ l+frags-m stones
31	C44				Natural silting	Med brown, soft silty clay, ch fl, most of the collapsed stones of the souterrain are w/in this fill

32	C5				Natural silting	Med orange brown, soft silty clay, rare ch fl, occ s ang
33	C44				Wall, Gall 1-5, ch1	Mostly comprised roughly coursed, small, ang quarried stone.
34	n/a				Pit	Sub-rectangular in plan, sides vert+ undercut by 0.20m in SE corner, base tapered blunt point, 0.60d x 1.60l x 1.20w, N-S, posthole in each corner
35					Non archaeological	
36	C5				Redeposited natural	Yellow brown, mod compact clay freq s sub-ang
37	C5				Occupational layer	Med greyish brown, soft silty clay, occ ch fl, occ ang
38					Non Archaeological	
39	C5				Occupational layer	Med brown, soft silty clay, occ ch fl, animal tooth, burnt flint
40	C5				Natural silting	Med yellow brown, firm sandy clay, occ s pebbles
41	C5				Occupational layer	Med orange brown, mod compact sandy clay, occ ch fl, occ s ang. Poss same as 55
42	C5				Occupational layer	Med-dk brown firm silty clay, freq ch, occ s sub-ang
43	C60				Deliberate fill	Lt-med red brown, soft sandy clay, rare ch fl, occ s sub-ang
44					Souterrain foundation cut	Linear in plan, walls corbelled, base generally flat. Comprised 6 galleries and two chambers. See sheets for details
45					Poss meat smoking debris	Shallow, ch-rich spread running l of passage, bird bone, animal bone
46	C44				Dumped material	Red orange brown, freq l rocks
47	C44				Dumped material	Layer of large ang-rou stones, in a matrix of yellow clay
48	C5				Occupational layer	Lt-med grey brown, mod compacted ch-rich silty clay, occ s sub-ang.
49	C5				Occupational layer	Lt-med brown, compact silty clay, occ ch fl, occ s sub-ang
50	C5				Occupational layer	Lt-med brown, loose silty clay, occ ch fl, freq s sub-ang
51	C5				Natural silting	Dk brown, loose silty clay, rare ch fl, rare s-m sub-ang
52	C5				Redeposited natural	Med grey brown loose clayey silt+fine sand, occ decayed stone
53	C5				Natural silting	Med grey brown, mod soft clayey silt w/ purple brown+ yellow mottling, gravel +s pebbles
54	C5				Redeposited natural	Green yellow, mod loose clayey silt, freq decayed stone, occ s sub-ang+s pebbles
55	C5				Deliberate deposit	Med brown, soft silty clay, rare ch fl, occ ang. Poss same as C41
56	C5				Deliberate deposit	Dk brown loose silty clay, freq ch fl, occ s ang.
57	C5				Natural silting	Med-dk grey brown loose clayey silt, mod tiny gravel+occ s pebbles
58	C5				Natural silting	Lt yellow brown grey, mod loose silty clay, mod m+s sub-ang
59	C5				Natural silting	Med brown, soft sandy clay, freq decayed stone, occ s-m sub-ang
60	n/a				Pit	Irreg curvilinear in plan, sides + base irreg, 0.25d x 0.2.65w, NE-SW
61	C60				Natural silting	Med yellow brown, friable silty clay, occ s pebbles + sub-ang
62	C5				Natural silting	Pink grey brown, soft clay
63	C5				Redeposited natural	Med yellow brown, loose silty clay mottled coarse sand+ decayed stone, mod s pebbles
64					Non Archaeological	
65					Non Archaeological	
66	C44				Slump material/ collapse	Black brown, loose ch-rich sandy silt, freq s stones
67	C60				Natural silting	Med grey brown, soft silty clay, freq s-l sub-ang
68	n/a				Poss furrow	Linear in plan, sides mod steep, base concave, NE-SW

69	C68					Med-dk brown, friable silty clay, occ ch, occ s ang
70	C73				Poss decayed post	Dk rich brown, mod loose silty clay, freq ch fl, occ s sub-ang
71	C72				In situ burning	Dk brown, mod loose silty clay, freq ch fl, freq s-m sub-ang
72	n/a				Pit	Sub-circular in plan, sides + base concave, 0.23d x 0.75l x 0.70w
73	n/a				Posthole	Sub-circular in plan sides steeply sloped + somewhat irreg, base slightly rounded, 0.30d x 0.43l x 0.38w
74	C73				Poss post packing	Med grey brown, mod loose silty clay, mod ch fl, occ s-m stones
75	C73				Redeposited natural used as post packing	Lt yellow brown, firm fine sandy silt, occ ch fl, occ s-m sub-ang+fine gravel
76	C73				Poss nat silting	Med yellow grey brown, mod loose clay silt, occ ch fl, mod s sub-ang.
77	n/a				Pit	Oval in plan, smooth steep sides generally, base rounded, T'd in N by C73+in W by C86, 0.18d x 0.73l, E-W
78	C77				Poss nat silting	Med yellow grey brown, mod loose silty clay, occ ch fl at top, mod gravel+s sub-ang
79	n/a				Pit or poss posthole	Circular in plan, shallow, sides steep, base slightly concave, 0.60d x 0.20 dia
80	C79				Deliberate backfill	Med brown, mod compact silty clay, freq ch
81					Non archaeological	
82					Non archaeological	
83	C44				Poss souterrain roof collapse	M-l ang+sub-ang stones
84	C86				Nat silting	Med yellow brown, mod loose silty clay, occ ch frags, occ s sub-ang
85	C44				Stone dump	Round stony feature w/in 44, made up of large flat angular stones
86	n/a				Posthole	Sub-circular in plan, sides regular +steeply sloping to a tapered point at base, axis of inclination is to the NE, 0.26d x 0.17dia
87					Non archaeological	
88					Non archaeological	
89	C44				Burnt spread	Brown black, loose sandy peaty clay, freq ch
90	C175				Natural silting	Med orange brown, mod compact silty clay, freq ch, freq s-m sub-ang+occ l
91					Non archaeological	
92	C101				Deliberate deposit	Dk grey, ch-rich silty clay, bb+freq bs, freq m sub-ang+sub-ang pebbles,
93	C96				Refuse material	Med grey brown, mod loose silty clay, freq ch fl+frags, occ bb fl+frags, mod s-m sub-ang
94	C96				Refuse material	Dk grey brown, mod loose silty clay, freq ch fl+frags, occ bb, mod heat shattered stone, occ s sub-ang
95	C96				Natural silting	Mid grey brown, mod loose silty clay, occ ch fl, occ s sub-ang
96	n/a				Refuse pit	Sub-rectangular in plan, sides irreg+slightly concave, base flat, 0.24d x 0.68l x 0.58w, E-W
97	C44				Natural silting	Med brown, firm clayey sand, occ s ang
98	n/a				Posthole	Oval in plan, Sides regular+mod steep, base flat, 0.32d x 0.52l x 0.39w, E-W
99	C98				Post packing	Med-dk brown grey loose clayey silt, freq ch, freq s pebbles+m sub-ang between fill+ natural
100	C44				Deliberate deposit	Grey black silty clay
101	n/a				Recut posthole	Recut of c.98. Roughly circular in plan, sides smooth +steep, base flat, 0.16d x 0.29l x 0.34w
102	44				Charcoal spread	Loose spread, 80% ch, Thin, but stretching across width of passage, 0.10d x

					1.30l x 3.25w
103	n/a			T'd posthole	Circular in plan, very shallow, sides nearly vert, base flat, 0.09d x 0.28dia
104	C103			Nat silting	Med brown, silty clay, occ ch
105				Non archaeological	
106				Non archaeological	
107	C44			Dumped layer	Orange brown sandy silt, l ch fl
108	C44			Dumped layer	Dk brown, ch-rich silty clay
109	n/a			Pit	Oval in plan, slope gradual on E+NE sides, very slight on W, cut by C129 on W side+C244 on S side, base concave, 0.30d x 1.37l x 0.61w, E-W
110	C117			Refuse/ ash dump	Med-dk brown, mod loose silt, mod ch fl, occ m fire-cracked stones, mod m-l sub-ang
111	n/a			Posthole	Subcircular in plan, sides convex, base tapered rounded point, 0.08d x 0.37l x 0.56w, N-S
112	C111			Nat silting	Med dk brown, mod loose silty clay, rare ch, freq s stones
113	n/a			Posthole	Sub-circular in plan, sides straight in E, otherwise convex, base undulating
114				Non Archaeological	
115	n/a			Posthole	Sub-circular in plan, U-shaped in profile, 0.42d x 0.50l x 0.40w, E-W
116	C113			Natural silting	Dk brown clayey silt, occ ch fl, mod m-l sub-ang
117	n/a			Refuse pit	Oval in plan, sides slightly concave, poss T'd, base slightly rounded, 0.15d x 0.51l x 0.46w, N-S
118	C44			Collapsed stone	Dumped layer of stones, generally sub-ang, avg size 0.10 x 0.25m
119	C121			In situ burnt post	Med dk brown, loose silty clay+orange burnt clay, freq ch frags, fire-cracked stone, mod m sub-ang
120	C115			Poss in situ burnt post	Med orange brown mod compact silty clay, mod ch, mod m sub-ang+ang+subrou
121	n/a			Posthole	Circular in plan, sides irreg, base flat, 0.10d x 0.20l x 19w
122	C117			Refuse/ash dump	Med yellow grey brown, mod loose fine silt, occ ch fl, rare bb, rare fire-cracked stone,
123				Non Archaeological	
124	n/a			Posthole	Oval in plan, sides vert, base flat, 0.35d x 0.35l x 0.25w, NE-SW
125	C124			Natural silting	Lt-med brown, firm sandy silt, occ ch fl, mods sub-rou
126				Non Archaeological	
127	C109			Deliberate backfill	Dk red brown, mod compact silty clay, freq ch fl+frags, occ s-l ang+sub-ang+sub-rou
128	C244			Burnt in situ post	Med orange brown sandy clay, occ ch, occ m sub-ang+ang, mainly around edges of cut
129	n/a			Posthole	Posthole cut into C127. V-shaped in sect, 0.22d x 0.24 diam
130	C129			Post packing	Med yellow brown, compact sandy clay, occ ch fl, mod m-l ang+sub-ang
131	C129			Natural silting	Dk red brown, loose silty clay, freq ch fl+frags, occ s ang+sub-ang
132				Non Archaeological	
133	C135			Post packing+silting	Med yellow brown, mod loose silty clay, occ ch fl+rare frags, rare m sub-ang conc in centre
134	C142			Natural silting	Dk brown soft silty clay, freq ch fl, freq m sub-ang

135	n/a				Posthole	Oval in plan, sides steep+irreg, base flat generally, 0.15d x 0.28l x 0.25w, N-S
136	n/a				Stakehole	Circular in plan, sides near vertical, base narrow U shape, 0.23d x 0.07 dia
137	C126				Stakehole	Circular in plan, sides steeply sloped, base slightly rounded, 0.11d x 0.09 dia
138	n/a				Natural silting	Med yellow brown, mod loose silt, rare ch fl, rare fine gravel+sm sub-ang conc towards bottom
139	C138				Natural silting	Med yellow brown, mod loose silt, rare ch fl, rare fine gravel+sm sub-ang conc towards bottom
140	n/a				Possible refuse pit	Irregular-shaped in plan, sides concave, shallower in E, base irreg, 0.37d x 2.80l x 0.80w, E-W
141	C140				Deliberate dumped material	Red brown sandy silt, rare ch, many fist sized stones
142	n/a				Posthole	Oval in plan, sides near vert, base irreg, 0.29d x 0.42l x 0.30w, N-S
143	C149				Deliberate backfill	Dk red brown, friable clay, mod ch, freq m sub-ang+sub-rou
144	n/a				Pit	Wedge-shaped in plan, sides straight-concave, base flat, 0.19d x 1.47l x 0.69w, ENE-WSW
145	C144				Deliberate fill	Brown black silty clay, occ ch, occ s sub-rou, some large stones near the surface
146	n/a				Posthole	Oval in plan, sides +base concave, 0.25d x 0.54l x 0.38w,
147	n/a				Pit	Irreg sub-oval in plan, E side slopes gently, other sides more steep, base concave, 0.77d x 0.37l x 0.27w
148	C142				Post packing	M-l sub-ang stones lining feature cut
149	n/a				Pit	Circular in plan, steep sloping sides, irreg concave base, 0.22d x 1.00dia
150					Same as 47	
151	C5				Deliberate deposit	Red brown, mod compact clayey sand, occ ch fl, very freq s sub-ang+sub-rou
152	C5				Natural silting	Red brown, loose clayey silt, freq gravel+m flat ang
153	C5				Natural silting	Lt brown, densely compacted sandy silt, freq gravel, mod sub-rou
154	C5				Natural silting	Lt grey brown, mod compact silty clay, mod s sub-rou. May be same as C16.
155	C5				Natural silting	Lt brown densely compacted silty clay, mod s-m sub-rou. Probably same as C153
156	C157				Posthole	Oval in plan, sides steep-vert, uneven base, 0.45d x 0.50l x 0.38w, NW-SE
157	n/a				Deliberate backfill	Lt-med brown mod compact sandy silt, occ ch fl, many sub-ang+sub-rou+freq pebbles
158	C60				Natural silting	Med red grey, thin layer above natural
159–166					Non archaeological	
167	C168				Deposit	Med dk brown, mod compact sandy clay, freq m-l sub-ang+sub-rou+ ang
168	n/a				Re-cut of C170	L-shaped in plan, sides near vert in S, very steep elsewhere, base flat, 0.35d
169	C170				Natural silting	Mid orange brown, quite compacted sandy clay, mod m sub-rou+occ s-l sub-ang+sub-rou
170	n/a					L-shaped in plan, sides steep+uneven, base flat+ slightly undulating, 0.35 d
171–174					Non archaeological	
175	n/a				Pit	Irreg in plan, sides sloping, base irreg, T'd by C72+77, 0.27d x 1.22l x 1.30w, N-S
176–179					Non archaeological	
180	C34				In situ burning	Dk brown black, loose clayey silt+ ash+burnt clay, v freq ch, occ ang bs

181	C182				Nat silting	Med grey brown, mod loose silty clay, occ ch fl+frag, occ s sub-ang, some decayed stone
182	n/a				Posthole	Sub-circular (almost D-shaped) in plan, straighter side slopes gradually, rounder sides steeper base slopes down to N, 0.14d x 0.20 dia
183	C170				Natural silting	Lt orange brown, very compacted sandy clay, mod s-l ang+sub-ang,
184	n/a				Linear pit	Cut by c.168+170, so original shape in plan unclear, sides steep, base flat, 0.12d x 0.60l x 0.50w, E-W
185	C170				Natural silting	Lt grey orange brown, sandy clay, mod s-l sub-ang+sub-rou
186	C44				Dumped layer	Dk brown, ch-rich, stony, silty clay.
187	C190				Deliberate backfill	Med Dk brown, mod loose silty clay, freq s pebbles _occ m sub-ang
188	C34				In situ burning	Red burnt clay, mod ch
189	C191				Prob nat silting	Lt yellow brown, compact silty clay, occ pebbles
190	n/a				Poss posthole	Oval in plan, sides straight +regular, base flat, 0.22d x 0.68l x 0.38w
191	n/a				Posthole	Sub-circular in plan, sides vert except SW which is sloping+SE which is undercut, base uneven+stepped, 0.36d x 0.51l x 0.43w, NW-SE
192	C190				Natural silting	Friable silty clay, freq pebbles+m sub-ang
193	n/a				Posthole	Circular in plan, sides steep except in NNW, base flat + sloping to the E, 0.15d x 0.24 dia
194	C193				Deliberate backfill	Dk brown, loose ch, occ s ang pebbles
195	C193				Natural silting	Lt-med brown, quite loose silt, freq s pebbles
196	C210				Natural silting	Lt-med brown, quite loose silt, freq s pebbles
197					Non Archaeological	
198	n/a				Stakehole	Circular in plan, sides vert, flat base, 0.10l x 0.12w
199	C198				Burnt post	Dk brown black, loose clayey silt+ash+burnt clay, mod ch,
200	n/a				Stakehole	Circular in plan, sides vert, base flat, 0.13l x 0.15w
201	C200				Burnt post	Dk brown black, loose clayey silt+ash+burnt clay, freq ch,
202	C214				In situ burning	Black brown, ch-rich silty clay mottled w/orange+grery ashes, burnt branches+wood, occ bb fl, charred seeds, mod l ang+sub-ang
203	C191				Prob post packing	Med grey brown, mod compact silty clay, freq s-l pebbles (all types)
204	n/a				Stakehole	Circular in plan, sides concave, base tapered rounded point, 0.42d x 0.20l x 0.18w
205	C204				Poss burnt stake	Dk brown black, loose sand+ash+burnt clay, mod ch, occ ang
206	n/a				Poss hearth	Circular in plan, sides slightly concave, base flat or slightly concave, 0.13d x 0.76l x 0.75w
207	n/a				Poss stock enclosure	Penannular in plan, opening in NW, sides mostly straight + steep, base very irreg, ditch width variable due to it being quite T'd except in SE, overall outer dia c.9m, ditch dimensions: 0.48d x 21.20l x 1.12w
208					Non archaeological	
209					Non archaeological	
210	n/a				Stakehole	Oval in plan, sides steep, except in N, Base rounded+sloped to the W, abutted/ T'd by C193 in SSE, 0.12d x 0.20l x 0.11w, NW-SE
211	n/a				Stakehole	Sub-circular in plan, E side irreg, W side convex, base slightly concave, 0.20d x 0.11l x 0.12w

212					Non Archaeological	
213	C34				In situ burning	V dark brown black, loose clayey sand, v freq ch, occ flat ang
214	n/a				Pit	U-shaped in profile, sides quite steep, breaking into concave base. 1.10 l x 0.96 w x 0.65 d
215	C214				Prob firebase	Dk grey brown, soft silty clay, freq ch frags, occ bb, mod m-l ang+ sub-ang+sub-rou, cluster of l cobbles in NW quadrant of base
216	C214				In situ burning	Red orange, ash + ch, mod bb fl,
217	C214				Fire reddened clay	Red brown, mod compact clay, built up around the cluster of l stones, occ ch fl, very freq pebbles
218					SAME AS 206	
219	C206				Ash/charcoal layer	Grey black, clayey ch+ash, occ s rou pebbles
220	C206				Ash layer	Yellow clayey silt+ash, occ ch fl
221	C206				Fire reddened clay	Med red oxidised silty clay
222	C211				Nat silting	Lt-med grey brown, loose sandy silt, occ s sub-ang
223	C211				Nat silting	Med pink grey brown, mod loose sand, occ s stony grains
224	C44				Redeposited natural	Mid-greyish brown silty clay, moderate incl of sm sub-ang pebbles
225	C232				Burnt spread	Dk black brown, ch-rich loose silty clay, occ bb, occ burnt twigs, mod s-m sub-ang
226	C207				Natural silting	Med grey brown, mod loose fine clayey silt, rare ch fl, rare fine gravel+rou pebbles, occ s sub-ang
227	C207				Redeposited natural	Lt-med yellow brown, mod loose gritty gravelly stony silty clay, occ ch fl stones mostly s-m
228	C207				Natural silting	grey, mod soft stony silty clay, mottled w/ decayed stone+natural, mod s ch frags, rare bb, s flat ang
229	C207				Foundation layer	Med-dk orange brown, mod soft silty clay, occ ch fl, freq m stones+ several very l stones
230	C207				Ash/charcoal dump	Grey black, mod loose very ch-rich silty clay w/ occ orange flecks, freq fire-cracked m ang+sub-ang
231	C207				Natural silting	Med grey brown, mod soft clayey silt, mod ch fl, freq decayed stone, freq s sub-ang
232	n/a				Pit	Circular in plan, shallow, base rounded, within C18, 0.08d x 0.80 l x 0.72w
233	n/a				Posthole in C34	Sub-circular in plan,
234	C214				Prob firebase	Dk grey brown, soft silty clay, freq ch frags, occ bb, mod m-l ang+ sub-ang+sub-round
235	C34				Poss in situ burning	Dk brown black, loose clayey sand, v freq ch, occ flat ang bs,
236	C34				Natural silting	Med orange brown, loose sandy silt, occ ch, mod flat ang, fill extends about 1m S of C34+about 3m into the souterrain
237	C184				Natural silting	Med-dk brown, quite compacted sandy silty clay, occ s sub-rou
238	C207				Redeposited natural	Yellow brown mod soft silty clay, occ ch fl, freq s pebbles + mod s sub-ang
239	C207				Redeposited natural	Med grey brown, mod loose clayey silt w/ orange fl + decayed stone, occ ch fl, freq pebbles+mod m sub-ang
240					Non Archaeological	
241					Non Archaeological	

242	n/a				Posthole	Circular in plan, U-shaped in profile
243	C242				Poss burnt stake	Dk brown black, loose sand + ash + burnt clay, mod ch, occ ang
244	n/a				Posthole	Circular in plan, V-shaped in section, 0.29d x 0.54 dia
245	C214				In situ burning	Black brown, ch-rich silty clay mottled w/orange+grey ashes, burnt branches+wood, occ bb fl, charred seeds, mod l ang+sub-ang
246					Non Archaeological	
247	n/a				Stakehole	Circular in plan, sides concave, base tapered, rounded point, 0.53d x 0.23l x 0.25
248	C247				Poss burnt post	Med-dk brown, loose clayey silt, mod ch, occ sm pebbles, 2 pieces of wood
249	C272, C273				In situ burning	Black grey, loose sandy silt mottled w orange bs fl, mod s ang
250	C233				Burnt post	Dk brown black, loose clayey silt + ash + burnt clay, mod ch
251	C252				In situ burning	Med red brown, loose very fine crumbly silt, mod ch, occ bb, mod s-m stones, some poss burnt
252	n/a				Burning event	Oval in plan, shallow, sides slope gently, base uneven+stony, 0.09d x 0.87l x 0.48w, E-W
253	C261				Fire debris	Dk brown silty clay, freq ch fl, mod pebbles
254	C259				Nat silting	Dk brown clayey silt, rare ch fl, freq pebbles
255					Non Archaeological	
256	C260				Nat silting	Dk brown, clayey silt, rare ch fl, v freq pebbles+mod s stones
257	C44				Redeposited natural	Mid-brown yellowish silty clay, with mottled greenish grey inclusions and decayed stone incl.
258					Same as 301	
259	n/a				Posthole	Sub-oval in plan, sides slightly concave, base sloped down towards SE, 0.13d x 0.21l x 0.15w, NW-SE
260	n/a				Posthole	Sub-oval in plan, sides concave generally, base flat, 0.10d x 0.26l x 0.15w, NW-SE
261	n/a				Poss nat depression	Sub-oval in plan (very), Sides irreg, base has no defined shape
262					Same as 33	
263					Same as 268	
264					Same as 268	
265					Same as 268	
266					Same as 268	
267					Same as 268	
268	C270				Fire debris	Mid brown, loose crumbly ch-rich sandy silt, freq ch in centre+occ around sides, freq m-l sub-rou+sub-ang
269	C271				Nat silting	Lt brown, loose sandy silt, mod ch
270	n/a				Pit	Irreg shaped cut, sides steeply sloped into concave base. 0.35 d x 1.25 l x 0.71 w.
271	n/a				Posthole	Oval in plan, E side steep, others more gentle, base flat, 0.08d x 0.38l x 0.20w, E-W
272	n/a				Shallow pit	Sub-oval in plan, shallow, sides slightly convex except in W, base irreg, stakehole cut into base, 0.18d x 0.96l x 0.62w, N-S
273	n/a				Stakehole	Circular in plan, sides steep+ slightly concave, base rounded, within C272,

						0.06d x 0.70l x 0.65w
274	C291				Fire debris	Dk brown ch-rich silty clay, occ bb, mod m sub-ang.
275	C44				Nat silting	Shallow layer of med orange brown clay+coarse silt, occ ch fl, mod s stones+occ grit
276	C281				Nat silting	Dk brown, very soft silty clay, freq grit
277	C282				Nat silting	Dk brown crumbly sandy silty clay, mod s stones
278	C283				Nat silting	Med-dk brown, mod loose silty clay, occ s stones
279	C284				Nat silting	Dk brown loose silty clay, occ ch fl, occ stones
280	C285				Nat silting	Med brown silty clay
281	n/a				Stakehole	Oval in plan, deep, U-shaped in profile 0.28d x 0.125l x 0.7w, NE-SW
282	n/a				Stakehole	Circular in plan, sides near vert, base flat, 0.16d x 0.1 dia
283	n/a				Stakehole	Circular in plan at top, square in plan further down, U-shaped in profile, 0.17d x 0.07 dia
284	n/a				Stakehole	Sub-circular in plan, sides near vert, base pointed, 0.27d x 0.10l x 0.08w, N-S
285	n/a				Stakehole	Sub-circular in plan, sides steep, base pointed, 0.2d x 0.09l x 0.06w, NE-SW
286	C288				Refuse material	Med brown, loose crumbly silty clay, mod ch, occ m sub-ang
287					Non Archaeological	
288	n/a				Poss nat depression	Sub-circular in plan, very shallow, sides+base irreg, 0.05d x 0.53l x 0.48w, E-W
289	C290				Nat silting	Med red brown, sandy silty clay, ch fl, freq grit-stones+occ s stones
290	C289				Stakehole	Roughly circular in plan, shallow, sides mod steep, base narrow, 0.07d x 0.06dia
291	n/a				Pit	Sub-circular in plan, sides concave except in S, base irreg, 0.36d x 1.00l x 1.00w
292	C291				Fire reddened clay	Red brown, stiff clay, rare ch fl, rare bb, mod s-m stone
293					Same as 301	
294					Same as 301	
295					Same as 301	
296	C340				Capstones	Comprises 8+10 stones, ranging from 0.60 x 0.50 x 0.07 to 0.20 x 0.16 x 0.04, some are stepped on account of the slope of air vent 1
297	C44				Capstones of air vent	Comprises 9 stones ranging from 0.70 x 0.60 x 0.08 to 0.38 x 0.08 x 0.06 in size, largest stones at outer end of air vent
298					Same as 33	
299					Same as 33	
300					Same as 33	
301	C44				Capstones	30 stones ranging from 1.14 x 0.44 x 0.25 to 0.68 x 0.38 x 0.06 in size, most S capstone of Gall 6 also acts as a lintel for the entrance to ch2
302					Non Archaeological	
303	C44				Sealing stones	S-m stones of various shapes used to seal gaps between the capstones throughout the souterrain
304	n/a				Natural calcite layer	Formed in 2 layers-underside, pale beige, quite porous, containing grit + stones, + upper layer, creamy white, crust-like, more compact, 4-10mm d x 31.5 m l x 1.2m w

305	n/a				Stone floor surface	Sub-ang+sub-rou cobbles, ranging from 0.2 x 0.2- 0.4 x 0.3, spaced 0.02-0.06 apart, surface roughly flat, in the main part of the chamber
306	n/a				Dirt + mortar between stones	Mid-brown sandy silt with freq. Pebble incl and mod ch flecks
307	n/a				Poss posthole	Sub-circular in plan, sides slope mod, except in NW, which is more steep, 0.20d x 0.50l x 0.40w E-W
308	C307				Dk mod loose silty clay, occ ch+burnt clay, s-m stones	
309	C44				Red brown, crumbly clay w/ coarse silt, freq stones ranging from very s-l	
310	C44				Pale yellow brown sticky clay, mottled w/ traces of C309, prob redeposited natural, fills cavity behind E wall of pass 6+prob also W wall	
311	n/a				Stone flagged floor, similar to C305, but more uneven, poss simply a subflooring layer, flagging is mostly on W side of chamber, circular holes in SW+NE corners of chamber	
312	n/a				Poss floor surface	Red brown very compact clay, freq smallish stones, lies around + over stones of C311, poss to even out the surface
313	C44				Foundation fill	Med brown gritty clay silt, mottled w/ sand + patches of nat, calcium granules, freq tiny grit stones, occ-mod s stones, fills foundation cavity behind pass 2b+3 walls
314	C315				Natural silting	Dk grey brown sandy silt, mod ch fl, rare shell frag v freq tiny pebbles, occ l
315	n/a				Pit or large posthole	Sub-oval in plan, sides convex in N, concave in S+E, located in W side of N end of pass 2b, 0.31d x 0.51l x 0.38w
316	C317				Nat silting	Dk grey brown, soft sandy silt, mod ch fl, freq s pebbles
317	n/a				Posthole	Sub-circular in plan, sides convex in S, straight otherwise, base rounded
318	C44				Natural silting	Dk brown, mod ch, occ s stones
319	n/a				Stone lined drain	Runs along wall on S side of ch 1, then makes a right-angle turn along the wall into the chamber, gradually sloping into a s hole leading to gall 6, lined with ang stones on their edges + capped with flat ang stones
320	Air vent 1				Nat silting	Med yellow brown, loose fine silt+occ coarse sand patches, rare ch fl, mod s ang+ platey pebbles+rare m sub-ang water rolled
321	C319				Nat silting	Med brown, lightly compacted gravelly silt, mod ch, mod sm pebbles
322					Non Archaeological	
323	C319				Nat silting	Lt grey brown tightly compacted silty clay, mod s sub-rou
324	C331				Nat silting	Very smooth silty clay, mod ch frags, around edges of ch 2
325					Non Archaeological	
326	C330				Nat silting	Yellow beige, smooth silty clay, mod ch frags, occ s stones
327	C44				floor surface	Metalled stone surface directly above natural in Gall 2a+2b, stones range from s- quite l, + rou-platey, stones embedded in redeposited natural
328					Same as 44	

329	C330				Natural silting	Coarse silty clay, l ch frag, mod s stones
330	n/a				Pit	Oval in plan, sides straight except in S, base tapered point, 0.24d x 0.41l x 0.33, N-S
331	n/a				Pit	Oval in plan, sides concave, base flat, 0.22d x 0.50l x 0.42w E-W
332	C44				Nat silting	Med brown sticky silty clay, occ ch fl, occ s
333	C44				Nat silting	Lt brown sandy clay, occ s sub-ang,
334	C346				Fire debris	Med brown grey, soft silt, mod ch
335	C347				Fire debris	Grey black, chunks of ch
336	C44				Upper foundation fill	Mid orange brown mod loose clayey silt w freq sand patches, occ m sub-ang+rou, rare l sub-ang
337					Non archaeological	
338	C339				Nat silting	Mid orange brown, loose sandy silt, occ ch, mod s animal bones, twigs+tiny snail shells
339	n/a				Air vent 2	Linear in plan, sides vert, base slopes down from W to ch 2, 0.29h x 2.4l x 0.75w, E-W
340	n/a				Air vent 1	Elongated shape in plan, sides slightly convex, base flat, slopes down from SW-NE, 0.3dx2.45lx0.86w
341	C343				In situ burning	Med-dk black brown, loose smooth clay silt, freq ch fl+frags+ burnt clay fl, mod s sub-ang, occ heat-cracked stone,
342					Non archaeological	
343	n/a					Sub-circular in plan, edges concave generally, except in N which is steep and straight, base concave +slopes down from E-W, poss T'd in the W+S, 0.22d x 0.66l x 0.54, NW-SE
344	C347					Med brown grey, soft silt, occ ch frags, freq tiny pebbles+mod s sub-ang
345	C347				In situ burning	Orange brown soft silty clay, v occ ch fl, mod tiny pebbles,
346	n/a				Pit	Sub-circular in plan, sides convex, rounded base, 0.14d x 0.65l x 0.73w
347	n/a				Hearth	Circular in plan, sides concave, base stepped 0.16d x 0.91l x 0.81w
348	C343				redeposited natural	Med yellow brown, mod loose slightly gritty clayey silt, mod ch fl+occ frags, mod s ang+platey, +occ m sub-ang
349					Non Archaeological	
350	C351				Nat silting	Med-lt brown friable sandy silt, occ s-m sub-ang-rou. Poss same as C352
351	n/a				Poss field boundary	Linear in plan, sides shallow + concave, base irreg, deeper in E side, Prob T'd, 0.13d x 2.00l
352	C353				Nat silting	Med-lt, brown v friable +gritty sandy silt, mod m sub-ang+rou. Poss same as C350
353	n/a				Mod field boundary	Linear in plan, shallow, sides concave, base irreg, Prob T'd 0.11d x 1.85m
354					Same as C33	
355					Non archaeological	
356	n/a				Stakehole	Circular in plan, sides steep+slightly concave, base concave, 0.14d x 0.09l x 0.08
357					Non Archaeological	
358	C146				Burnt post	Black, v loose charcoal+ some burnt clay, l stones at base where 358 meets 359

359	C146				Post packing	Black, loose clay, minimal inclusions
360	C147				Deliberate fill	Blackish fill, ch + burnt clay, some m-l stones
361	C147				Deliberate fill	Black fill, ch + burnt clay, some m-l stones
362	C356				Deliberate deposit	Med greyish, friable clayey silt with occ ang + sub-ang. Occ ch fl.
363	C44				Wall of Gall 6 & Ch 2.	Souterrain walls – gallery 6 and chamber 2 – see C33 for description
364	n/a				Posthole	U-shaped profile, sides quite steep breaking into flat base. 0.20 d x 0.30 l x 0.20 w
365	n/a				Pit	U-shaped in profile, sides gently sloped, into flat concave base. 0.75l x 0.5w x 0.27d

APPENDIX 1.2: FINDS REGISTER

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
03E0115:1:1	1	1	Flint				Unworked
03E0115:1:2	1	2	Ceramic				Post medieval pottery
03E0115:1:3	1	3	Flint				Unworked
03E0115:1:4	1	4	Flint				Unworked
03E0115:1:5	1	5	Flint				Unworked
03E0115:1:6	1	6	Flint				Unworked
03E0115:1:7	1	7	Flint				Unworked
03E0115:1:8	1	8	Flint				Unworked
03E0115:1:9	1	9	Flint				Unworked
03E0115:1:10	1	10	Flint				Unworked
03E0115:1:11	1	11	Flint				Unworked
03E0115:1:12	1	12	Flint				Unworked
03E0115:1:13	1	13	Flint				Unworked
03E0115:1:14	1	14	Flint				Flake debitage
03E0115:1:15	1	15	Flint				Flake debitage
03E0115:1:16	1	16	Flint				Flake debitage
03E0115:1:17	1	17	Flint				Flake debitage
03E0115:1:18	1	18	Flint				Flake debitage
03E0115:1:19	1	19	Flint				Flake debitage
03E0115:1:20	1	20	Flint				Flake debitage
03E0115:1:21	1	21	Flint				Flake debitage
03E0115:1:22	1	22	Flint				Flake debitage
03E0115:1:23	1	23	Flint				Unworked
03E0115:1:24	1	24	Flint				
03E0115:1:25	1	25	Flint				Unworked
03E0115:1:26	1	26	Flint				Unworked
03E0115:1:27	1	27	Flint				Unworked
03E0115:1:28	1	28	Flint				
03E0115:1:29	1	29	Flint				Unworked
03E0115:1:30	1	30	Flint				
03E0115:1:31	1	31	Flint				Unworked
03E0115:1:32	1	32	Flint				
03E0115:1:33	1	33	Flint				Unworked
03E0115:1:34	1	34	Flint				Unworked
03E0115:1:35	1	35	Flint				Unworked
03E0115:1:36	1	36	Flint				Unworked
03E0115:1:37	1	37	Flint				Unworked
03E0115:1:38	1	38	Flint				Unworked
03E0115:1:39	1	39	Flint				Unworked
03E0115:1:40	1	40	Flint				Unworked

03E0115:1:41	1	41	Flint				Unworked
03E0115:1:42	1	42	Flint				Unworked
03E0115:1:43	1	43	Flint				Unworked
03E0115:1:44	1	44	Flint				Core
03E0115:1:45	1	45	Flint				Unworked
03E0115:1:46	1	46	Flint				Unworked
03E0115:1:47	1	47	Flint				Unworked
03E0115:1:48	1	48	Flint				Unworked
03E0115:1:49	1	49	Flint				Unworked
03E0115:1:50	1	50	Flint				Unworked
03E0115:1:51	1	51	Flint				Unworked
03E0115:1:52	1	52	Flint				Unworked
03E0115:1:53	1	53	Flint				Unworked
03E0115:1:54	1	54	Flint				Unworked
03E0115:1:55	1	55	Flint				Unworked
03E0115:1:56	1	56	Flint				Unworked
03E0115:1:57	1	57	Flint				Unworked
03E0115:1:58	1	58	Flint				Unworked
03E0115:1:59	1	59	Flint				Unworked
03E0115:1:60	1	60	Flint				Unworked
03E0115:1:61	1	61	Flint				
03E0115:1:62	1	62	Flint				Unworked
03E0115:1:63	1	63	Flint				Unworked
03E0115:1:64	1	64	Flint				Unworked
03E0115:1:65	1	65	Flint				Unworked
03E0115:1:66	1	66	Flint				Unworked
03E0115:1:67	1	67	Flint				Unworked
03E0115:1:68	1	68	Flint				Unworked
03E0115:1:69	1	69	Flint				Unworked
03E0115:1:70	1	70	Flint				Unworked
03E0115:1:71	1	71	Flint				Unworked
03E0115:1:72	1	72	Flint				Unworked
03E0115:1:73	1	73	Flint				Unworked
03E0115:1:74	1	74	Flint				Unworked
03E0115:1:75	1	75	Flint				Unworked
03E0115:1:76	1	76	Flint				Unworked
03E0115:1:77	1	77	Flint				Unworked
03E0115:1:78	1	78	Flint				Unworked
03E0115:1:79	1	79	Flint				Unworked
03E0115:1:80	1	80	Flint				Unworked
03E0115:1:81	1	81	Flint				Scraper
03E0115:1:82	1	82	Flint				Unworked

03E0115:1:83	1	83	Flint				Unworked
03E0115:1:84	1	84	Flint				Unworked
03E0115:1:85	1	85	Flint				Unworked
03E0115:1:86	1	86	Flint				Unworked
03E0115:1:87	1	87	Flint				Unworked
03E0115:1:88	1	88	Flint				Unworked
03E0115:1:89	1	89	Flint				Unworked
03E0115:1:90	1	90	Flint				Unworked
03E0115:1:91	1	91	Flint				Unworked
03E0115:1:92	1	92	Flint				Unworked
03E0115:1:93	1	93	Flint				Unworked
03E0115:1:94	1	94	Flint				Unworked
03E0115:1:95	1	95	Flint				Unworked
03E0115:1:96	1	96	Flint				Unworked
03E0115:1:97	1	97	Flint				Unworked
03E0115:1:98	1	98	Flint				Unworked
03E0115:1:99	1	99	Flint				Unworked
03E0115:1:100	1	100	Flint				Unworked
03E0115:1:101	1	101	Flint				Unworked
03E0115:1:102	1	102	Flint				Unworked
03E0115:1:103	1	103	Flint				Unworked
03E0115:1:104	1	104	Flint				Unworked
03E0115:1:105	1	105	Flint				Unworked
03E0115:1:106	1	106	Flint				Unworked
03E0115:1:107	1	107	Flint				Unworked
03E0115:1:108	1	108	Flint				Unworked
03E0115:1:109	1	109	Flint				Unworked
03E0115:1:110	1	110	Flint				Unworked
03E0115:1:111	1	111	Flint				Unworked
03E0115:1:112	1	112	Flint				Unworked
03E0115:1:113	1	113	Flint				Unworked
03E0115:1:114	1	114	Flint				Unworked
03E0115:1:115	1	115	Flint				Unworked
03E0115:1:116	1	116	Flint				Unworked
03E0115:1:117	1	117	Flint				Unworked
03E0115:1:118	1	118	Flint				Unworked
03E0115:1:119	1	119	Flint				Unworked
03E0115:1:120	1	120	Flint				Unworked
03E0115:1:121	1	121	Flint				Unworked
03E0115:1:122	1	122	Flint				Unworked
03E0115:1:123	1	123	Flint				Unworked
03E0115:1:124	1	124	Flint				Unworked

03E0115:1:125	1	125	Flint				Unworked
03E0115:1:126	1	126	Flint				Unworked
03E0115:1:127	1	127	Flint				Unworked
03E0115:1:128	1	128	Flint				Unworked
03E0115:1:129	1	129	Flint				Unworked
03E0115:1:130	1	130	Flint				Unworked
03E0115:1:131	1	131	Flint				Unworked
03E0115:1:132	1	132	Flint				Unworked
03E0115:1:133	1	133	Flint				Unworked
03E0115:1:134	1	134	Flint				Unworked
03E0115:1:135	1	135	Flint				Unworked
03E0115:1:136	1	136	Flint				Unworked
03E0115:1:137	1	137	Flint				Unworked
03E0115:1:138	1	138	Flint				Unworked
03E0115:1:139	1	139	Flint				Unworked
03E0115:1:140	1	140	Flint				Unworked
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03E0115:1:142	1	142	Flint				Unworked
03E0115:1:143	1	143	Flint				Unworked
03E0115:1:144	1	144	Flint				Unworked
03E0115:1:145	1	145	Flint				Unworked
03E0115:1:146	1	146	Flint				Unworked
03E0115:1:147	1	147	Flint				Unworked
03E0115:1:148	1	148	Flint				Unworked
03E0115:1:149	1	149	Flint				Unworked
03E0115:1:150	1	150	Flint				Unworked
03E0115:1:151	1	151	Flint				Unworked
03E0115:1:152	1	152	Flint				Unworked
03E0115:1:153	1	153	Flint				Unworked
03E0115:1:154	1	154	Flint				Unworked
03E0115:1:155	1	155	Flint				Unworked
03E0115:1:156	1	156	Flint				Unworked
03E0115:1:157	1	157	Flint				Unworked
03E0115:1:158	1	158	Flint				Unworked
03E0115:1:159	1	159	Flint				Unworked
03E0115:1:160	1	160	Flint				Unworked
03E0115:1:161	1	161	Flint				Unworked
03E0115:1:162	1	162	Flint				Unworked
03E0115:1:163	1	163	Flint				Unworked
03E0115:1:164	1	164	Flint				Unworked
03E0115:1:165	1	165	Flint				Unworked
03E0115:1:166	1	166	Flint				Unworked

03E0115:1:167	1	167	Flint			Unworked
03E0115:1:168	1	168	Flint			Unworked
03E0115:1:169	1	169	Flint			Unworked
03E0115:1:170	1	170	Flint			Unworked
03E0115:1:171	1	171	Flint			Unworked
03E0115:1:172	1	172	Flint			Unworked
03E0115:1:173	1	173	Flint			Unworked
03E0115:1:174	1	174	Flint			Unworked
03E0115:1:175	1	175	Flint			Unworked
03E0115:1:176	1	176	Flint			Unworked
03E0115:1:177	1	177	Flint			Unworked
03E0115:1:178	1	178	Flint			Unworked
03E0115:1:179	1	179	Flint			Unworked
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03E0115:1:182	1	182	Flint			Unworked
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03E0115:1:184	1	184	Flint			Unworked
03E0115:1:185	1	185	Flint			Unworked
03E0115:1:186	1	186	Flint			Unworked
03E0115:1:187	1	187	Flint			Unworked
03E0115:1:188	1	188	Flint			Unworked
03E0115:1:189	1	189	Flint			Unworked
03E0115:1:190	1	190	Flint			Unworked
03E0115:1:191	1	191	Flint			Unworked
03E0115:1:192	1	192	Flint			Unworked
03E0115:1:193	1	193	Flint			Unworked
03E0115:1:194	1	194	Flint			Unworked
03E0115:1:195	1	195	Flint			Unworked
03E0115:1:196	1	196	Flint			Unworked
03E0115:1:197	1	197	Flint			Unworked
03E0115:1:198	1	198	Flint			Unworked
03E0115:1:199	1	199	Flint			Unworked
03E0115:1:200	1	200	Flint			Unworked
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03E0115:1:202	1	202	Flint			Unworked
03E0115:1:203	1	203	Flint			Unworked
03E0115:1:204	1	204	Flint			Unworked
03E0115:1:205	1	205	Flint			Unworked
03E0115:1:206	1	206	Flint			Unworked
03E0115:1:207	1	207	Flint			Unworked
03E0115:1:208	1	208	Flint			Unworked

03E0115:1:209	1	209	Flint			Unworked
03E0115:1:210	1	210	Flint			Unworked
03E0115:1:211	1	211	Flint			Unworked
03E0115:1:212	1	212	Flint			Unworked
03E0115:1:213	1	213	Flint			Unworked
03E0115:1:214	1	214	Flint			Unworked
03E0115:1:215	1	215	Flint			Unworked
03E0115:1:216	1	216	Flint			Unworked
03E0115:1:217	1	217	Flint			Unworked
03E0115:1:218	1	218	Flint			Unworked
03E0115:1:219	1	219	Flint			Unworked
03E0115:1:220	1	220	Flint			Unworked
03E0115:1:221	1	221	Flint			Unworked
03E0115:1:222	1	222	Flint			Unworked
03E0115:1:223	1	223	Flint			Unworked
03E0115:1:224	1	224	Flint			Unworked
03E0115:1:225	1	225	Flint			Unworked
03E0115:1:226	1	226	Flint			Unworked
03E0115:1:227	1	227	Flint			Unworked
03E0115:1:228	1	228	Flint			Unworked
03E0115:1:229	1	229	Flint			Unworked
03E0115:1:230	1	230	Flint			Unworked
03E0115:1:231	1	231	Flint			Unworked
03E0115:1:232	1	232	Flint			Unworked
03E0115:1:233	1	233	Flint			Unworked
03E0115:1:234	1	234	Flint			Unworked
03E0115:1:235	1	235	Flint			Unworked
03E0115:1:236	1	236	Flint			Flake debitage
03E0115:1:237	1	237	Flint			Unworked
03E0115:1:238	1	238	Flint			Unworked
03E0115:1:239	1	239	Flint			Unworked
03E0115:1:240	1	240	Flint			Unworked
03E0115:1:241	1	241	Flint			Unworked
03E0115:1:242	1	242	Flint			Unworked
03E0115:1:243	1	243	Flint			Unworked
03E0115:1:244	1	244	Flint			Unworked
03E0115:1:245	1	245	Flint			Unworked
03E0115:1:246	1	246	Flint			Unworked
03E0115:1:247	1	247	Flint			Unworked
03E0115:1:248	1	248	Flint			Unworked
03E0115:1:249	1	249	Flint			Unworked
03E0115:1:250	1	250	Flint			Unworked

03E0115:1:251	1	251	Flint			Unworked
03E0115:1:252	1	252	Flint			Unworked
03E0115:1:253	1	253	Iron			Modern iron fragment
03E0115:1:254	1	254	Iron			Modern iron fragment
03E0115:1:255	1	255	Stone			Unworked
03E0115:1:256	1	256	Ceramic			Black glazed ware
03E0115:1:257	1	257	Ceramic			Black glazed ware
03E0115:1:258	1	258	Ceramic			Black glazed ware
03E0115:1:259	1	259	Ceramic			Black glazed ware
03E0115:1:260	1	260	Ceramic			Black glazed ware
03E0115:1:261	1	261	Ceramic			Black glazed ware
03E0115:1:262	1	262	Ceramic			Black glazed ware
03E0115:1:263	1	263	Ceramic			Black glazed ware
03E0115:1:264	1	264	Ceramic			Black glazed ware
03E0115:1:265	1	265	Ceramic			Black glazed ware
03E0115:1:266	1	266	Ceramic			Black glazed ware
03E0115:1:267	1	267	Ceramic			Glazed red earthen ware
03E0115:1:268	1	268	Ceramic			Glazed red earthen ware
03E0115:1:269	1	269	Ceramic			Glazed red earthen ware
03E0115:1:270	1	270	Ceramic			Glazed red earthen ware
03E0115:1:271	1	271	Ceramic			Glazed red earthen ware
03E0115:1:272	1	272	Ceramic			Glazed red earthen ware
03E0115:1:273	1	273	Ceramic			Glazed red earthen ware, slip coated
03E0115:1:274	1	274	Ceramic			Glazed red earthen ware, slip coated
03E0115:1:275	1	275	Ceramic			Glazed red earthen ware, slip coated
03E0115:1:276	1	276	Ceramic			Pearl ware
03E0115:1:277	1	277	Ceramic			Pearl ware
03E0115:1:278	1	278	Ceramic			Stone ware
03E0115:1:279	1	279	Ceramic			Stone ware
03E0115:1:280	1	280	Ceramic			Unglazed red earthenware
03E0115:1:281	1	281	Ceramic			Spongeware
03E0115:1:282	1	282	Clay pipe			Clay pipe
03E0115:1:283	1	283	Clay pipe			Clay pipe
03E0115:1:284	1	284	Clay pipe			Clay pipe
03E0115:1:285	1	285	Clay pipe			Clay pipe
03E0115:1:286	1	286	Lignite			Lignite
03E0115:1:287	1	287	Flint			Unworked
03E0115:1:288	1	288	Flint			Unworked
03E0115:1:289	1	289	Flint			Unworked
03E0115:1:290	1	290	Flint			Unworked
03E0115:1:291	1	291	Flint			Unworked
03E0115:1:292	1	292	Flint			Unworked

03E0115:1:293	1	293	Flint			Unworked
03E0115:1:294	1	294	Ceramic			Post medieval pottery
03E0115:1:295	1	295	Ceramic			Post medieval pottery
03E0115:1:296	1	296	Ceramic			Post medieval pottery
03E0115:1:297	1	297	Ceramic			Post medieval pottery
03E0115:1:298	1	298	Ceramic			Post medieval pottery
03E0115:1:299	1	299	Flint			Unworked
03E0115:1:300	1	300	Flint			Unworked
03E0115:1:301	1	301	Flint			Unworked
03E0115:1:302	1	302	Flint			Unworked
03E0115:1:303	1	303	Flint			Unworked
03E0115:1:304	1	304	Glass			Dark blue glass bead
03E0115:1:305	1	305	Ceramic			Unglazed red earthenware
03E0115:1:306	1	306	Ceramic			Black glazed ware
03E0115:1:307	1	307	Flint			Unworked
03E0115:1:308	1	308	Iron			Modern fragment
03E0115:1:309	1	309	Flint			Flake debitage
03E0115:1:310	1	310	Iron			Modern fragment
03E0115:1:311	1	311	Glass			Glass waste. Tear-shaped drop. 'Black' glass
03E0115:1:312	1	312	Ceramic			Frechen Jug (17th century)
03E0115:2:1	2	1	Flint			Unworked
03E0115:2:2	2	2	Flint			Unworked
03E0115:2:3	2	3	Flint			Unworked
03E0115:2:4	2	4	Flint			Unworked
03E0115:2:5	2	5	Flint			Unworked
03E0115:2:6	2	6	Flint			Unworked
03E0115:2:7	2	7	Flint			Unworked
03E0115:2:8	2	8	Flint			Unworked
03E0115:2:9	2	9	Flint			Unworked
03E0115:2:10	2	10	Flint			Unworked
03E0115:2:11	2	11	Flint			Unworked
03E0115:2:12	2	12	Flint			Unworked
03E0115:2:13	2	13	Flint			Unworked
03E0115:2:14	2	14	Flint			Unworked
03E0115:2:15	2	15	Flint			Unworked
03E0115:2:16	2	16	Flint			Unworked
03E0115:2:17	2	17	Flint			Unworked
03E0115:2:18	2	18	Flint			Unworked
03E0115:2:19	2	19	Flint			Unworked
03E0115:2:20	2	20	Flint			Unworked
03E0115:2:21	2	21	Flint			Unworked
03E0115:2:22	2	22	Flint			Unworked

03E0115:2:23	2	23	Flint			Unworked
03E0115:2:24	2	24	Flint			Unworked
03E0115:2:25	2	25	Flint			Unworked
03E0115:2:26	2	26	Flint			Unworked
03E0115:2:27	2	27	Flint			Unworked
03E0115:2:28	2	28	Flint			Unworked
03E0115:2:29	2	29	Flint			Unworked
03E0115:2:30	2	30	Flint			Unworked
03E0115:2:31	2	31	Flint			Unworked
03E0115:2:32	2	32	Flint			Unworked
03E0115:2:33	2	33	Flint			Unworked
03E0115:2:34	2	34	Flint			Unworked
03E0115:2:35	2	35	Flint			Unworked
03E0115:2:36	2	36	Flint			Unworked
03E0115:2:37	2	37	Flint			Unworked
03E0115:2:38	2	38	Flint			Angular shatter
03E0115:2:39	2	39	Flint			Unworked
03E0115:2:40	2	40	Flint			Unworked
03E0115:2:41	2	41	Flint			Unworked
03E0115:2:42	2	42	Flint			Unworked
03E0115:2:43	2	43	Flint			Unworked
03E0115:2:44	2	44	Flint			Unworked
03E0115:2:45	2	45	Flint			Unworked
03E0115:2:46	2	46	Flint			Unworked
03E0115:2:47	2	47	Flint			Unworked
03E0115:2:48	2	48	Flint			Unworked
03E0115:2:49	2	49	Flint			Unworked
03E0115:2:50	2	50	Flint			Unworked
03E0115:2:51	2	51	Flint			Unworked
03E0115:2:52	2	52	Flint			Unworked
03E0115:2:53	2	53	Flint			Unworked
03E0115:2:54	2	54	Flint			Unworked
03E0115:2:55	2	55	Flint			Unworked
03E0115:2:56	2	56	Flint			Unworked
03E0115:2:57	2	57	Flint			Unworked
03E0115:2:58	2	58	Flint			Unworked
03E0115:2:59	2	59	Flint			Unworked
03E0115:2:60	2	60	Flint			Unworked
03E0115:2:61	2	61	Flint			Unworked
03E0115:11:1	11	1	Iron			Non diagnostic lump
03E0115:12:1	12	1	Flint			Flake debitage
03E0115:13:1	13	1	Teeth			Unworked

03E0115:13:2	13	2	Flint			Unworked
03E0115:13:3	13	3	Flint			Unworked
03E0115:13:4	13	4	Bone			Unworked
03E0115:13:5	13	5	Flint			Unworked
03E0115:13:6	13	6	Antler			Unworked
03E0115:13:7	13	7	Antler			Unworked
03E0115:13:8	13	8	Flint			Unworked
03E0115:13:9	13	9	Flint			Unworked
03E0115:13:10	13	10	Flint			Unworked
03E0115:13:11	13	11	Flint			Unworked
03E0115:13:12	13	12	Flint			Unworked
03E0115:13:13	13	13	Flint			Unworked
03E0115:14:1	14	1	Bone			Unworked
03E0115:17:1	17	1	Flint			Flake debitage
03E0115:17:2	17	2	Flint			Unworked
03E0115:17:3	17	3	Flint			Unworked
03E0115:17:4	17	4	Flint			Unworked
03E0115:17:5	17	5	Flint			Unworked
03E0115:17:6	17	6	Flint			Unworked
03E0115:17:7	17	7	Flint			Scraper
03E0115:17:8	17	8	Flint			Unworked
03E0115:17:9	17	9	Flint			Unworked
03E0115:17:10	17	10	Flint			Unworked
03E0115:17:11	17	11	Flint			Angular shatter
03E0115:17:12	17	12	Flint			Angular shatter
03E0115:17:13	17	13	Flint			Unworked
03E0115:17:14	17	14	Flint			Unworked
03E0115:17:15	17	15	Flint			Unworked
03E0115:17:16	17	16	Flint			Unworked
03E0115:17:17	17	17	Flint			Unworked
03E0115:17:18	17	18	Flint			Unworked
03E0115:17:19	17	19	Flint			Unworked
03E0115:17:20	17	20	Flint			Unworked
03E0115:17:21	17	21	Flint			Unworked
03E0115:17:22	17	22	Flint			Unworked
03E0115:17:23	17	23	Flint			Unworked
03E0115:17:24	17	24	Flint			Core
03E0115:17:25	17	25	Flint			Unworked
03E0115:17:26	17	26	Iron			Blade
03E0115:17:27	17	27	Flint			Unworked
03E0115:17:28	17	28	Flint			Unworked
03E0115:17:29	17	29	Flint			Unworked

03E0115:17:30	17	30	Flint			Unworked
03E0115:17:31	17	31	Flint			Unworked
03E0115:17:32	17	32	Flint			Unworked
03E0115:17:33	17	33	Flint			Unworked
03E0115:17:34	17	34	Flint			Unworked
03E0115:17:35	17	35	Flint			Unworked
03E0115:17:36	17	36	Flint			Unworked
03E0115:17:37	17	37	Flint			Unworked
03E0115:17:38	17	38	Flint			Unworked
03E0115:17:39	17	39	Flint			Unworked
03E0115:17:40	17	40	Flint			Unworked
03E0115:17:41	17	41	Flint			Unworked
03E0115:17:42	17	42	Not used			
03E0115:17:43	17	43	Flint			Unworked
03E0115:17:44	17	44	Flint			Unworked
03E0115:17:45	17	45	Flint			Angular shatter
03E0115:17:46	17	46	Flint			Unworked
03E0115:18:1	18	1	Flint			Unworked
03E0115:18:2	18	2	Flint			Unworked
03E0115:18:3	18	3	Flint			Unworked
03E0115:18:4	18	4	Flint			Unworked
03E0115:18:5	18	5	Flint			Unworked
03E0115:18:6	18	6	Flint			Angular shatter
03E0115:18:7	18	7	Flint			Unworked
03E0115:18:8	18	8	Flint			Unworked
03E0115:18:9	18	9	Flint			Unworked
03E0115:18:10	18	10	Flint			Unworked
03E0115:18:11	18	11				
03E0115:18:12	18	12	Flint			Unworked
03E0115:18:13	18	13	Flint			Unworked
03E0115:18:14	18	14	Flint			Unworked
03E0115:18:15	18	15	Flint			Unworked
03E0115:18:16	18	16	Flint			Unworked
03E0115:18:17	18	17	Flint			Unworked
03E0115:18:18	18	18	Flint			Unworked
03E0115:18:19	18	19	Flint			Unworked
03E0115:18:20	18	20	Flint			Core
03E0115:18:21	18	21	Flint			Unworked
03E0115:18:22	18	22	Flint			Unworked
03E0115:18:23	18	23	Flint			Unworked
03E0115:18:24	18	24	Flint			Unworked
03E0115:18:25	18	25	Flint			Unworked

03E0115:18:26	18	26	Flint			Unworked
03E0115:18:27	18	27	Flint			Unworked
03E0115:18:28	18	28	Flint			Unworked
03E0115:18:29	18	29	Flint			Unworked
03E0115:18:30	18	30	Flint			Unworked
03E0115:18:31	18	31	Flint			Unworked
03E0115:18:32	18	32	Flint			Unworked
03E0115:18:33	18	33	Flint			Unworked
03E0115:18:34	18	34	Flint			Core
03E0115:18:35	18	35	Flint			Unworked
03E0115:20:1	20	1	Flint			Unworked
03E0115:23:1	23	1	Flint			Unworked
03E0115:23:2	23	2	Flint			Unworked
03E0115:23:3	23	3	Flint			Core
03E0115:23:4	23	4	Flint			Unworked
03E0115:23:5	23	5	Flint			Unworked
03E0115:23:6	23	6	Flint			Unworked
03E0115:23:7	23	7	Flint			Unworked
03E0115:23:8	23	8	Iron			Undiagnostic lump
03E0115:23:9	23	9	Flint			Unworked
03E0115:24:1	24	1	Flint			Unworked
03E0115:24:2	24	2	Flint			Angular shatter
03E0115:24:3	24	3	Flint			Unworked
03E0115:24:4	24	4	Flint			Unworked
03E0115:24:5	24	5	Flint			Unworked
03E0115:24:6	24	6	Flint			Unworked
03E0115:24:7	24	7	Flint			Unworked
03E0115:26:1	26	1	Flint			Modified
03E0115:26:2	26	2	Flint			Unworked
03E0115:26:3	26	3	Flint			Flake debitage
03E0115:26:4	26	4	Bone			Unworked
03E0115:27:1	27	1	Flint			Unworked
03E0115:27:2	27	2	Flint			Unworked
03E0115:27:3	27	3	Flint			Flake debitage
03E0115:27:4	27	4	Flint			Unworked
03E0115:27:5	27	5	Flint			Unworked
03E0115:27:6	27	6	Flint			Unworked
03E0115:27:7	27	7	Flint			Unworked
03E0115:27:8	27	8	Flint			Unworked
03E0115:27:9	27	9	Flint			Unworked
03E0115:28:1	28	1	Flint			Unworked
03E0115:28:2	28	2	Flint			Unworked

03E0115:28:3	28	3	Flint			Flake debitage
03E0115:31:1	31	1	Iron			Undiagnostic lump
03E0115:31:2	31	2	Flint			Unworked
03E0115:31:3	31	3	Flint			Unworked
03E0115:31:4	31	4	Flint			Unworked
03E0115:31:5	31	5	Iron			Undiagnostic lump
03E0115:31:6	31	6	Ceramic			Post medieval pottery
03E0115:31:7	31	7	Ceramic			Post medieval pottery
03E0115:31:8	31	8	Iron			Undiagnostic lump
03E0115:31:9	31	9	Flint			Unworked
03E0115:31:10	31	10	Flint			Unworked
03E0115:31:11	31	11	Flint			Unworked
03E0115:31:12	31	12	Glass			Sherd of clear glass. L19th/20th Century
03E0115:31:13	31	13	Iron			Undiagnostic lump
03E0115:31:14	31	14	Flint			Unworked
03E0115:31:15	31	15	Flint			Unworked
03E0115:31:16	31	16	Flint			Unworked
03E0115:31:17	31	17	Flint			Unworked
03E0115:31:18	31	18	Flint			Unworked
03E0115:31:19	31	19	Flint			Unworked
03E0115:31:20	31	20	Flint			Unworked
03E0115:31:21	31	21	Flint			Unworked
03E0115:31:22	31	22	Flint			Unworked
03E0115:31:23	31	23	Flint			Unworked
03E0115:31:24	31	24	Flint			Unworked
03E0115:31:25	31	25	Flint			Unworked
03E0115:31:26	31	26	Flint			Unworked
03E0115:31:27	31	27	Flint			Unworked
03E0115:31:28	31	28	Flint			Unworked
03E0115:31:29	31	29	Flint			Unworked
03E0115:31:30	31	30	Flint			Unworked
03E0115:37:1	37	1	Glass	Bead		Black glass bead with white ring-less eyes,
03E0115:37:2	37	2	Copper Alloy	Stick pin		Stick pin
03E0115:37:3	37	3	Copper Alloy	Penannular ring brooch		Penannular ring brooch
03E0115:37:4	37	4	Glass	Bead		Yellow glass bead
03E0115:37:5	37	5	Glass	Bead		Meare spiral' glass bead
03E0115:37:6	37	6	Flint			Gun flint
03E0115:37:7	37	7	Flint			Unworked
03E0115:37:8	37	8	Flint			Unworked
03E0115:37:9	37	9	Flint			Unworked
03E0115:37:10	37	10	Flint			Unworked
03E0115:37:11	37	11	Flint			Unworked

03E0115:39:1	39	1	Flint			Scraper
03E0115:39:2	39	2	Ceramic	Body sherd		Unclassified
03E0115:40:1	40	1	Flint			Unworked
03E0115:40:2	40	2	Flint			Unworked
03E0115:40:3	40	3	Flint			Unworked
03E0115:40:4	40	4	Flint			Unworked
03E0115:40:5	40	5	Flint			Core
03E0115:41:1	41	1	Flint			Unworked
03E0115:41:2	41	2	Flint			Unworked
03E0115:41:3	41	3	Flint			Unworked
03E0115:41:4	41	4	Flint			Unworked
03E0115:41:5	41	5	Flint			Unworked
03E0115:41:6	41	6	Flint			Unworked
03E0115:41:7	41	7	Flint			Unworked
03E0115:41:8	41	8	Flint			Unworked
03E0115:41:9	41	9	Flint			Core
03E0115:41:10	41	10	Flint			Unworked
03E0115:41:11	41	11	Flint			Unworked
03E0115:42:1	42	1	Ceramic			Unclassified
03E0115:43:1	43	1	Ceramic	Rim		Souterrain Ware
03E0115:43:2	43	2	Ceramic	Body		Souterrain Ware
03E0115:43:3	43	3	Ceramic	Body		Souterrain Ware
03E0115:43:4	43	4	Ceramic	Rim		Souterrain Ware
03E0115:43:5	43	5	Ceramic	Body		Souterrain Ware
03E0115:43:6	43	6	Ceramic	Body		Souterrain Ware
03E0115:43:7	43	7	Ceramic	Body		Souterrain Ware
03E0115:43:8	43	8	Ceramic	Body		Souterrain Ware
03E0115:43:9	43	9	Flint			Unworked
03E0115:43:10	43	10	Flint			Unworked
03E0115:43:11	43	11	Flint			Unworked
03E0115:43:12	43	12	Flint			Unworked
03E0115:43:13	43	13	Flint			Unworked
03E0115:43:14	43	14	Flint			Unworked
03E0115:43:15	43	15	Flint			Unworked
03E0115:43:16	43	16	Flint			Unworked
03E0115:43:17	43	17	Flint			Unworked
03E0115:43:18	43	18	Flint			Unworked
03E0115:43:19	43	19	Flint			Unworked
03E0115:43:20	43	20	Flint			Unworked
03E0115:43:21	43	21	Flint			Unworked
03E0115:43:22	43	22	Flint			Unworked
03E0115:43:23	43	23	Flint			Unworked

03E0115:43:24	43	24	Flint			Unworked
03E0115:43:25	43	25	Flint			Unworked
03E0115:43:26	43	26	Flint			Unworked
03E0115:43:27	43	27	Flint			Unworked
03E0115:43:28	43	28	Flint			Unworked
03E0115:43:29	43	29	Flint			Unworked
03E0115:43:30	43	30	Flint			Unworked
03E0115:43:31	43	31	Flint			Unworked
03E0115:45:1	45	1	Ceramic	Base angle		Souterrain Ware
03E0115:45:2	45	2	Flint			Unworked
03E0115:45:3	45	3	Flint			Unworked
03E0115:45:4	45	4	Flint			Unworked
03E0115:45:5	45	5	Ceramic	Base angle		Souterrain Ware
03E0115:45:6	45	6	Ceramic	Fired clay		Fired clay
03E0115:45:7	45	7	Ceramic	Fired clay		Fired clay
03E0115:45:8	45	8	Ceramic	Fragments		Souterrain Ware
03E0115:45:9	45	9	Iron	Nail		Nail
03E0115:45:10	45	10	Iron	Nail		Nail
03E0115:45:11	45	11	Iron	Nail		Nail
03E0115:47:1	47	1	Ceramic	Fragments		Souterrain Ware
03E0115:47:2	47	2	Ceramic	Fragments		Souterrain Ware
03E0115:47:3	47	3	Ceramic	Body sherd		Souterrain Ware
03E0115:47:4	47	4	Ceramic	Fragments		Souterrain Ware
03E0115:47:5	47	5	Metal	Nail		Nail, 5 nail fragments
03E0115:47:6	47	6	Metal	Nail		Nail
03E0115:47:7	47	7	Metal	Nail		Nail
03E0115:47:8	47	8	Flint			Unworked
03E0115:47:9	47	9	Flint			Unworked
03E0115:47:10	47	10	Flint			Flake debitage
03E0115:47:11	47	11	Flint			Flake debitage
03E0115:47:12	47	12	Flint			Unworked
03E0115:47:13	47	13	Flint			Unworked
03E0115:47:14	47	14	Flint			Unworked
03E0115:47:15	47	15	Flint			Unworked
03E0115:47:16	47	16	Flint			Unworked
03E0115:47:17	47	17	Flint			Unworked
03E0115:47:18	47	18	Flint			Unworked
03E0115:47:19	47	19	Flint			Unworked
03E0115:47:20	47	20	Flint			Unworked
03E0115:47:21	47	21	Flint			Unworked
03E0115:47:22	47	22	Flint			Unworked
03E0115:47:23	47	23	Flint			Unworked

03E0115:47:24	47	24	Flint			Unworked
03E0115:47:25	47	25	Flint			Unworked
03E0115:47:26	47	26	Flint			Unworked
03E0115:47:27	47	27	Flint			Unworked
03E0115:47:28	47	28	Flint			Unworked
03E0115:47:29	47	29	Flint			Unworked
03E0115:47:30	47	30	Flint			Unworked
03E0115:47:31	47	31	Flint			Unworked
03E0115:47:32	47	32	Flint			Unworked
03E0115:47:33	47	33	Ceramic	Body sherd		Souterrain Ware
03E0115:47:34	47	34	Flint			Flake debitage
03E0115:47:35	47	35	Flint			Flake debitage
03E0115:47:36	47	36	Flint			Unworked
03E0115:47:37	47	37	Flint			Unworked
03E0115:47:38	47	38	Ceramic	Body sherd		Souterrain Ware
03E0115:47:39	47	39	Ceramic	Body sherd		Souterrain Ware
03E0115:48:1	48	1	Flint			Flake debitage
03E0115:48:2	48	2	Flint			Unworked
03E0115:48:3	48	3	Flint			Unworked
03E0115:48:4	48	4	Flint			Unworked
03E0115:48:5	48	5	Iron			Undiagnostic lump
03E0115:49:1	49	1	Flint			Flake debitage
03E0115:49:2	49	2	Flint			Unworked
03E0115:51:1	51	1	Flint			Unworked
03E0115:56:1	56	1	Flint			Flake debitage
03E0115:56:2	56	2	Flint			Unworked
03E0115:56:3	56	3	Flint			Unworked
03E0115:56:4	56	4	Flint			Unworked
03E0115:56:5	56	5	Flint			Unworked
03E0115:56:6	56	6				
03E0115:56:7	56	7				
03E0115:56:8	56	8	Flint			Unworked
03E0115:56:9	56	9	Flint			Unworked
03E0115:56:10	56	10	Bone			
03E0115:56:11	56	11	Flint			Modified tool, edge retouch
03E0115:56:12	56	12	Iron			
03E0115:56:13	56	13	Bone			
03E0115:56:14	56	14	Flint			Unworked
03E0115:56:15	56	15	Flint			Unworked
03E0115:56:16	56	16	Flint			Unworked
03E0115:66:1	66	1	Ceramic	Body sherd		Post medieval earthenware
03E0115:66:2	66	2	Flint			Unworked

03E0115:66:3	66	3	Flint			Flake debitage
03E0115:66:4	66	4	Flint			Unworked
03E0115:66:5	66	5	Flint			Angular shatter
03E0115:81:1	81	1	Flint			Unworked
03E0115:84:1	84	1	Ceramic	Fragments		Unclassified
03E0115:97:1	97	1	Ceramic	Fragment		Unclassified
03E0115:97:2	97	2	Iron			Undiagnostic lump
03E0115:100:1	100	1	Ceramic	Body sherd		Post medieval pottery
03E0115:100:2	100	2	Ceramic	Body sherd		Post medieval pottery
03E0115:102:1	102	1	Ceramic	Fragments		Souterrain Ware
03E0115:112:1	102	1	Flint			Flake debitage
03E0115:112:2	112	2	Flint			Unworked
03E0115:120:1	120	1	Flint			Unworked
03E0115:128:1	128	1	Flint			Angular shatter
03E0115:130:1	130	1	Flint			Unworked
03E0115:131:1	131	1	Flint			Flake debitage
03E0115:153:1	153	1	Iron			Undiagnostic lump
03E0115:158:1	158	1	Flint			Unworked
03E0115:158:2	158	2	Flint			Unworked
03E0115:158:3	158	3	Flint			Unworked
03E0115:158:4	158	4	Flint			Unworked
03E0115:158:5	158	5	Flint			Unworked
03E0115:158:6	158	6	Flint			Unworked
03E0115:158:7	158	7	Flint			Unworked
03E0115:158:8	158	8	Flint			Unworked
03E0115:158:9	158	9	Flint			Unworked
03E0115:158:10	158	10	Flint			Unworked
03E0115:158:11	158	11	Flint			Unworked
03E0115:158:12	158	12	Flint			Unworked
03E0115:158:13	158	13	Flint			Unworked
03E0115:158:14	158	14	Flint			Unworked
03E0115:158:15	158	15	Flint			Unworked
03E0115:158:16	158	16	Flint			Unworked
03E0115:158:17	158	17	Flint			Unworked
03E0115:180:1	180	1	Iron			Undiagnostic lump
03E0115:180:2	180	2	Iron			Undiagnostic lump
03E0115:180:3	180	3	Iron			Undiagnostic lump
03E0115:180:4	180	4	Ceramic	Body sherd		Souterrain Ware
03E0115:180:5	180	5	Iron			Undiagnostic lump
03E0115:202:1	202	1	Ceramic	Body sherd		Souterrain Ware
03E0115:202:2	202	2	Ceramic	Body sherd		Souterrain Ware
03E0115:202:3	202	3	Ceramic	Body sherd		Souterrain Ware

03E0115:202:4	202	4	Ceramic	Body sherd			Souterrain Ware
03E0115:202:5	202	5	Ceramic	Body sherd			Souterrain Ware
03E0115:213:1	213	1	Ceramic	Fired clay			Fired clay
03E0115:215:1	215	1	Ceramic	Rim			Souterrain Ware
03E0115:215:2	215	2	Ceramic	Body sherd			Souterrain Ware
03E0115:215:3	215	3	Ceramic	Body sherd			Souterrain Ware
03E0115:215:4	215	4	Ceramic	Body sherd			Souterrain Ware
03E0115:215:5	215	5	Ceramic	Body sherd			Souterrain Ware
03E0115:215:6	215	6	Ceramic	Fragment			Souterrain Ware
03E0115:215:7	215	7	Ceramic	Fragment			Souterrain Ware
03E0115:215:8	215	8	Ceramic	Fragment			Souterrain Ware
03E0115:215:9	215	9	Ceramic	Fragment			Souterrain Ware
03E0115:215:10	215	10	Metal	Ring pin			Ring pin
03E0115:215:11	215	11	Metal	Sheet metal			Sheet metal
03E0115:215:12	215	12	Flint				
03E0115:226:1	226	1	Ceramic	Body sherd			Post medieval pottery
03E0115:228:1	228	1	Flint				Unworked
03E0115:228:2	228	2	Flint				Unworked
03E0115:228:3	228	3	Flint				Unworked
03E0115:230:1	230	1	Flint				Unworked
03E0115:230:2	230	2	Flint				Unworked
03E0115:230:3	230	3	Flint				Unworked
03E0115:230:4	230	4	Flint				Unworked
03E0115:230:5	230	5	Flint				Unworked
03E0115:230:6	230	6	Flint				Unworked
03E0115:230:7	230	7	Flint				Unworked
03E0115:230:8	230	8	Flint				Unworked
03E0115:230:9	230	9	Flint				Unworked
03E0115:230:10	230	10	Flint				Unworked
03E0115:230:11	230	11	Flint				Unworked
03E0115:230:12	230	12	Flint				Unworked
03E0115:230:13	230	13	Flint				Unworked
03E0115:230:14	230	14	Flint				Unworked
03E0115:235:1	235	1	Ceramic	Body sherd			Souterrain Ware
03E0115:239:1	239	1	Flint				Unworked
03E0115:239:2	239	2	Flint				Unworked
03E0115:275:1	275	1	Flint				Unworked
03E0115:293:1	293	1	Stone				Decorated stone reused as capstone in souterrain (passage 3)
03E0115:300:1	300	1	Stone				Decorated stone in wall of souterrain (passage 5 / chamber 1)
03E0115:306:1	306	1	Flint				Unworked

03E0115:306:2	306	2	Flint				Unworked
03E0115:306:3	306	3	Flint				Unworked
03E0115:306:4	306	4	Flint				Flake debitage
03E0115:306:5	306	5	Flint				Unworked
03E0115:306:6	306	6	Flint				Unworked
03E0115:341:1	341	1	Flint				Unworked
03E0115:341:2	341	2	Ceramic	Rim			Souterrain Ware
03E0115:341:3	341	3	Ceramic	Body sherd			Souterrain Ware

APPENDIX 2 SPECIALISTS REPORTS

APPENDIX 2.1 RADIOCARBON DATING REPORT

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 email c14@waikato.ac.nz
 Head: Dr Alan Hogg

Report on Radiocarbon Age Determination for Wk- 18556

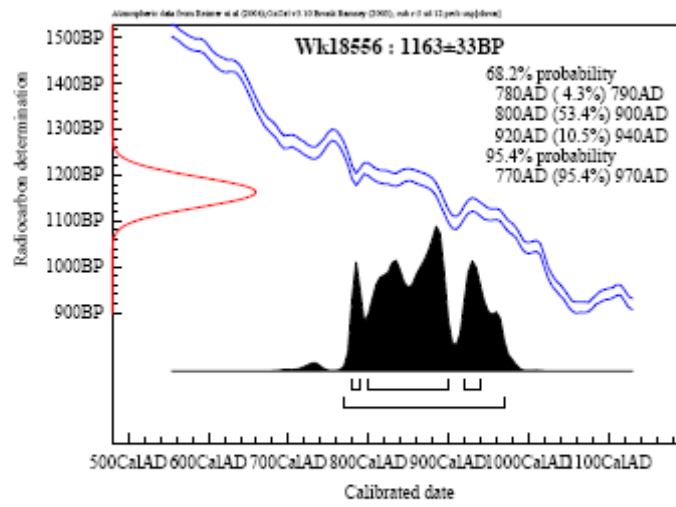
Submitter	Ii Johnston
Submitter's Code	Newtownbalregan 6/208/66
Site & Location	Dundalk Western Bypass, Ireland
Sample Material	Alnus glutinosa
Physical Pretreatment	Possible contaminants were removed. Washed in ultrasonic bath.
Chemical Pretreatment	Sample washed in hot 10% HCl, rinsed and treated with hot 0.5% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

$\delta^{14}\text{C}$	-140.0 \pm 3.5	‰
$\delta^{13}\text{C}$	-28.1 \pm 0.2	‰
D^{14}C	-134.7 \pm 3.5	‰
% Modern	86.5 \pm 0.4	%
Result	1163 \pm 33 BP	

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 SPECIES IDENTIFICATION OF CHARCOAL SAMPLES

SPECIES IDENTIFICATION OF CHARCOAL SAMPLES FROM NEWTOWNBALREGAN 6 (03E0115), CO LOUTH

ELLEN OCARROLL

APRIL 2008

1. Introduction

Nine charcoal samples were submitted for analysis from Newtownbalregan 6, Dundalk by-pass. Newtownbalregan 6 is located 1 km west of Dundalk town. The site comprised a circular ringfort c.46m in internal diameter (c.50m-52m external) with a 5m wide causewayed entrance facing east towards Dundalk Harbour. A souterrain located 5m to the south-west of the ringfort ditch was also excavated during this series of excavations. There was no trace of a bank on the ringfort as the hilltop had been terraced fairly recently. The ringfort ditch was U-shaped, between 2m and 4m wide and varied from 1.50m to 0.10m deep. Internally there was a concentration of features in the southern half of the area. These features consisted of shallow, irregular, sometimes inter-cutting, pits and postholes from which a definite structural form could not be identified. High status finds were recovered in the southern part of the enclosure ditch comprising of a copper alloy Penannular brooch, two stick pins, three decorated glass beads and a possible knife. The posthole area appears to represent the remains of the main domestic quarters. Most of the animal bone recovered from the enclosure ditch was found on the western side of the ringfort, possibly indicating that this was near where butchering/stock activities were carried out. A total of 32 pieces of Early Medieval souterrain ware pottery fragments were recovered from stratified contexts. A large collection of struck flint (226 pieces) illustrates Early Medieval flint use. The finds are consistent with an occupation phase of 7th – 10th centuries AD.

The charcoal samples received for analysis from the above excavations were retrieved from the fill of the souterrain (C45), the smokehouse (C258), the fill of the ringfort ditch (C37), the fill of hearths (C335, C215), the fill of two pits (C94 & C145) and the fill of a posthole (C70).

The charcoal was sent for species identification prior to 14C 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 such as posts for postholes, pyre material for cremations, firewood collected and other structural requirements.

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 that 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 are 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.

One hundred and seventy two fragments were identified from 9 samples. Three of the samples were identified prior to dating while six were identified primarily for environmental re-construction and use of taxa type for a particular function.

3. Quantification/Results

Table 1: Results from charcoal identifications

Site no.	Context No and type	Sample No	Identification	Weight and comment
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Newtownbalregan 6, 03E0115	C45, Fill of souterrain	211	Ash (<i>Fraxinus excelsior</i>)	Dating sample
Newtownbalregan 6, 03E0115	C258, Smokehouse	213	Alder (<i>Alnus glutinosa</i>)	Dating sample
Newtownbalregan 6, 03E0115	C37, fill of ditch C5	47	Blackthorn/Cherry (<i>Prunus spinosa</i> , <i>Prunus avium</i>), Alder (<i>Alnus glutinosa</i>), Ash (<i>Fraxinus excelsior</i>) and hazel (<i>Corylus avellana</i>)	Dating sample Blackthorn (5 fragments), Alder (2 fragments), Ash (10 fragments) and hazel (10 fragments)
Newtownbalregan 6, 03E0115	C37, fill of ditch	47	Alder (<i>Alnus glutinosa</i>), Ash (<i>Fraxinus excelsior</i>) and hazel (<i>Corylus avellana</i>), Pomoideae (apple type) Oak (<i>Quercus</i> sp)	Oak (1.2g, 15 fragments) Alder (0.1g, 1 fragment) Ash (1 g, 11 fragments) Pomoideae (0.2g, 2 fragments) Hazel (0.3g, 10 fragments)
Newtownbalregan 6, 03E0115	C215, fire base	211	Holly (<i>Ilex aquilifolium</i>), Hazel & Pomoideae	Holly (0.2g, 4 fragments) Hazel (0.4g, 3 fragments) Pomoideae (0.05g, 1 fragments)
Newtownbalregan 6, 03E0115	C335, fill of hearth	350	Pomoideae (apple type), Ash, Hazel, Holly, oak and Hazelnut shells Vitrified wood	Pomoideae (0.1g, 4 fragments) Ash (0.8g, 8 fragments) Hazel (0.2g, 4 fragments) Holly (2.5g, 32 fragments), Oak (0.1g, 1 fragment)
Newtownbalregan 6, 03E0115	C145, fill of pit	102	Prunus twigs (cherry/Blackthorn), Oak, Alder & hazel	Prunus (10 fragments, 0.5g) Oak (1 fragment, 0.01g) Alder (2 fragments, 0.1g) Hazel (3 fragments, 0.1g)
Newtownbalregan 6, 03E0115	C70, decayed post	59	Oak	Oak (1.2 g, 5 fragments, moderate growth)
Newtownbalregan 6, 03E0115	C94, fill of refuse pit	74	Hazel & alder	Hazel (10 fragments, 1.1g), Alder (2 fragments, 0.2g)

Figure 1: Taxa identified from the analysis

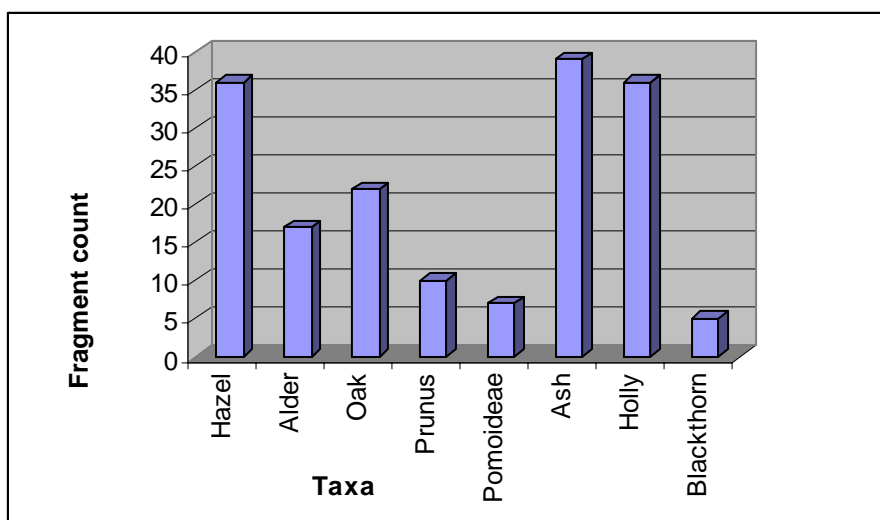
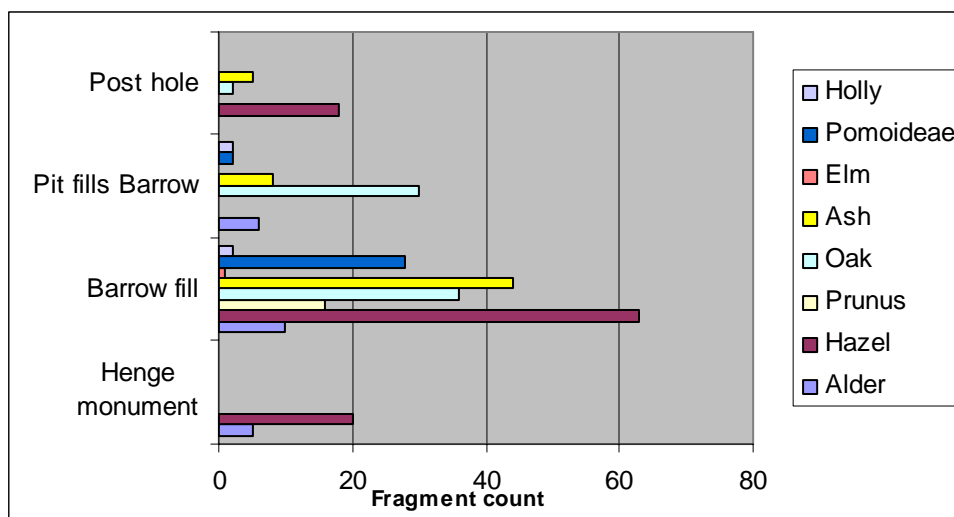


Figure 2: Taxa identified from each feature type



4. Provenance

The samples received for analysis from the excavations at Newtownbalregan 6 were retrieved from the fill of a souterrain C45, a smokehouse C258, the fill of a ditch C37, the fill of hearths C335 & C215, the fill of pits C145 & C94 and the fill of a post hole C70. The identified samples from the smokehouse C258 indicate that the alder was selected from fallen trees or branches as the charcoal remains show insect infestation. Dates returned for the site show that the site was in use between AD 770 – AD 970.

Site 114, Newtownbalregan 6 is located 60m to the north of Site 113, Newtownbalregan 5 (Ch21.260, 26m OD), which is an Early Bronze Age hut site and a modified fulacht fiadh with multiple troughs. Newtownbalregan 6 (Site 114) is located within a landscape of rectilinear fields that originate from the N53 Castleblayney Road and it is reasonable to suggest that this system was laid out around the 17th – 18th century. The field system ignores Newtownbalregan 6.

Souterrain fill

Small amounts of ash charcoal were identified from the souterrain fill C45 associated with the ringfort and dating to the Early Medieval period. Ash is a native species preferring lime-rich freely draining soils. It is not a very durable timber in waterlogged conditions but has a strong elastic nature. It is easily worked and lends itself well to a range of different requirements like the turning of wooden bowls. Its use within the souterrain fill is unknown. The ash wood may simply represent firewood used at the site.

The smokehouse

Alder was identified from the fill of the smokehouse C258. It would have been suitable for use in a smokehouse because of its quick burning properties and its excellent charcoal. Alder (*Alnus glutinosa*) is a widespread native tree and occurs in wet habitats along streams and riverbanks. Alder also grows frequently on fen peat. It is an easily worked and split timber and does not tear when worked. Alder is commonly identified from wood remains associated with wet/boggy areas.

Ditch fill

Seven taxa were identified from the ditch fill associated with the Early Medieval ringfort. These were oak, hazel, alder, ash, pomoideae and Prunus (blackthorn/cherry). Oak, hazel and ash which are dryland taxa were the most commonly represented taxa while smaller amounts of pomoideae, alder and

blackthorn/cherry were also present. A woodland area may have been present close to the site as evidenced by the presence of primary woodland trees such as oak and ash. The hazel may have grown as understory associated with the oak woods.

Oak has unique properties of great durability and strength. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native and common in Ireland. The wood of these species cannot be differentiated based on its microstructure. Pendunculate oak is found on heavy clays and loams particularly where the soil is of alkaline pH. Sessile oak is found on acid soils often in pure stands and although it thrives on well-drained soils it is also tolerant of flooding (Beckett 1979, 40-41). Both species of oak grow to be very large trees (30-40m) and can live to an age of about 400 years. The oak could have been selected from mixed woodlands nearby.

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.

The genus *Prunus* spp. includes *Prunus spinosa* (Blackthorn), *Prunus avium* (Wild cherry) and *Prunus padus* (Bird cherry). Wood of the genus *Prunus* can be difficult to differentiate microscopically. Blackthorn is a very durable wood and is as strong as oak. It is a thorny shrub found in woods and scrub on all soil types. In a woodland situation it is more likely to occur in clearings and at the woodland edges. Wild cherry and blackthorn are more common in Ireland than bird cherry. There is very little archaeological evidence for the use of cherry wood in Ireland although the wild cherry tree is commonly found in many hedgerows (Nelson 1993, 167). It is a very durable wood and is as strong as oak.

Pomoideae includes apple, pear, hawthorn and mountain ash. It is impossible to distinguish these wood species anatomically but as wild pear is not native and crab apple is a rare native species in Ireland it is likely that the species identified from the site from Newtownbalregan 6 are hawthorn or mountain ash (rowan) (Nelson 194-200, 1993). Hawthorn (*Crataegus monogyna*) is a native species, and is found in many hedgerows throughout Ireland. Mountain ash (*Sorbus aucuparia*) is also a common tree in Ireland growing particularly well in rocky and hilly mountainous places.

Hearth fills

Five taxa were identified from the hearth fills. These were ash, oak, holly, hazel and pomoideae. Interestingly holly was very prevalent in the identifications from the hearth material C335. The fact that it was present in both hearths may indicate similar functions and similar collection zones for the material used at each hearth.

Holly is a shrub found quite commonly in hedgerows alongside blackthorn and furze, and as an understory in oak woods. The Bretha Comaithchesa (Laws of neighbourhood) which are listed in the ancient Irish law tracts records holly as one of the five nobles of the wood namely for its use in the construction of cart-shafts and its leaves were valuable as cattle fodder during the winter months (Nelson 1993, 43).

Pit fill

Four taxa were identified from the pit fills. These were *Prunus* twigs, hazel, alder and oak. As the function of these pits remain enigmatic the charcoal can not be attributed to a typical structure type and is most likely representative of firewood used at the site.

Post hole

One taxa was identified from the post hole C70. Oak was obviously being selected for use as post material at the time of use of the site.

5. Conservation

Sample 213 from the smokehouse and sample no. 47 from the fill of the ditch are both suitable for conventional 14C dating. The sample from the souterrain fill no. 28 is too small for a conventional date and will require AMS treatment and dating.

6. Comparative Material

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 identified from the fill of the souterrain C45, the fill of the ditch C37 and the fill of the pits C145 & C94 is not related to any specific functional features therefore it is difficult to suggest a use for the charcoal and interpret any preferences for one species over another. The charcoal may simply represent firewood collected and used at the time of use of the site. The charcoal analysed from C215 and C335, from the hearths, is evidently kindle used at the site.

For the most part though the range of taxa compares well to other settlement sites rather than sporadic encampments or *fulacht fiadh*. The identified wood types are mainly associated with a dryland environment with some tall woodland trees (oak, ash) as well as some light demanding trees (blackthorn, ash, mountain ash) as well as some understory scrub like trees (holly, hazel, mountain ash/hawthorn) trees. Alder was the only wetland tree identified from the assemblage.

The charcoal uncovered from the ditch material may have fallen into the ditch during the period of use of the site, as there was a variety of species identified from the ditch. The fact that there was a variety of species identified from the charcoal excavated from the ditch is indicative of a range of activities and formation processes rather than one deliberate backfilling episode.

The alder identified from the smokehouse C258 would have been suitable for use in a smokehouse because of its quick burning properties and its excellent charcoal. Oak was used as post material at C70 Newtownbalregan 6. The use of oak as structural wood is well attested in the archaeological record.

There is very little comparative material analysed from the surrounding area as the majority of the excavated sites surrounding Newtownbalregan 6 have been shown to be earlier pre-historic in date. Site 114, Newtownbalregan 6 is located 60m to the north of Site 113, Newtownbalregan 5 (Ch21.260, 26m OD), which are an Early Bronze Age hut site and a modified fulacht fiadh with multiple troughs. A series of samples were identified from Balriggeran 1 (02E1325), an Early Medieval settlement enclosed by a series of ditches and associated corn drying kilns and industrial areas. The charcoal from Balriggeran 1, which was located 2km north of Newtownbalregan 6, was identified as oak and ash. The fact that there was a wider variety of species identified from Newtownbalregan 6 may indicate that there this site functioned more as a habitation area rather than an industrial or kiln activity site as seen at Balriggeran 1. Forthill (02E1236) which has been dated to the later Medieval period approximately 700 years later than Newtownbalregan 6 also produced blackthorn and ash charcoal from the fill of a ditch.

7. Discussion & Conclusions

Seven taxa or wood types were identified from the Newtownbalregan material. The main taxa identified were ash, hazel, oak and surprisingly holly. Alder, pomoideae, blackthorn/cherry were also identified albeit in smaller quantities. The hazel, oak and ash identified could have originated from mixed woodlands nearby while the alder suggests a slightly wetter environment. The blackthorn and pomoideae identified from the excavations is indicative of a species, which may have grown locally in hedges. Hazel and holly are also sometimes found as understory trees in some woodland habitats.

The function of the wood species identified from the souterrain, pits and the ditch is unknown therefore any further analysis on determining selection of species for certain functions is futile. The charcoal may simply be representative of firewood collected nearby to the site. The alder from the smokehouse may have been selected because of its quick burning properties and its excellent charcoal. The oak identified from the posthole indicates that oak was being used as post material at the site. Firewood identified from the hearth material shows that holly, ash, pomoideae, oak and hazel were selected for such requirements. These taxa are more indicative of a dryland primary woodland area rather than a wetland environment.

8. References

- Beckett, J.K., 1979, Planting Native Trees and Shrubs. Jarrold & Sons Ltd, Norwich.
- Pilcher, J & Hall, V. 2001. Flora Hibernica, The Collins press, Wilton, Cork
- Irish Archaeological Wetland Unit, 1993, Excavations at Clonfinlough, County Offaly. Transactions 2. Dublin
- Gowen, M, O'Neill, J and Phillips, M. (2005), The Lisheen Mine Archaeological Project 1996-8. Wordwell, Co. Wicklow.
- Nelson E.C., 1993 Trees of Ireland. The Lilliput Press, Dublin.
- Warner, R.B., 1987, "A proposed adjustment for the « Old-Wood Effect »", in Mook, W. & Waterbolk, H. (eds) Proc. 2nd Symp of 14C & Archaeology, Groningen 1987, 29, 159-172.
- Webb, D.A., 1977, An Irish Flora. Dundalgan Press Ltd, Dundalk.
- O'Carroll, E. 2004. The analysis of charcoal remains from Kilgobbin, Co. Dublin. Unpublished specialist report for Margaret Gowen and Company
- O'Carroll, E. 2004. The analysis of charcoal remains from Beaverstown, Co. Dublin. Unpublished specialist report for Margaret Gowen and Company
- O'Carroll, E. 2005. The analysis of charcoal remains from Monanny 1, Co. Monaghan. Unpublished specialist report for IAC
- O' Sullivan, A., 1987, "Wood in Archaeology", Archaeology Ireland 4, 69-73.
- O' Sullivan, A., 1994, "The use of Trees and Woodland in early medieval Ireland", Irish Forestry 51, 80-94.
- O' Sullivan, A., 1996, Neolithic, Bronze Age and Iron Age wood working techniques, in Raftery B, Trackway excavations in the Mountdillon Bogs, Co. Longford, 291-342.
- Rackham, O., 1976, Trees and Woodlands in the British Landscape. Weidenfeld & Nicholson, London.
- Rackham, O., 1980, Ancient Woodland: its history, vegetation and uses in England. Edward Arnold, London.
- Schweingruber, F.H. 1990. Microscopic Wood Anatomy. 3rd edition. Birmensdorf: Swiss Federal Institute for Forest, Snow and Landscape Research

APPENDIX 2.3: LITHICS REPORT

Report by Eimear Nelis

NEWTOWNBALREGAN 6: (03E0115) CHIPPED FLINT AND NON-FLINT ASSEMBLAGE

Introduction

In total, an assemblage of 599 lithic artefacts was recovered during excavations at Newtownbalregan 6, (Table 14.1) where archaeological remains included an Early Medieval ringfort, and associated activity (D. Bayley 2005d). No archaeological features were found which were thought to relate to prehistoric activity.

Context No	Description	Unworked	Core	Flake Debitage	Angular shatter	Modified	TOTAL
2	Group 1: Subgroup 1000: Natural geology	59	-	-	1	-	60
18	Group 2: Subgroup 1001: Fill of ringfort ditch C5	30	2	-	1	-	33
24	Group 2: Subgroup 1001: Fill of ringfort ditch C5	6	-	-	1	-	7
51	Group 2: Subgroup 1001: Fill of ringfort ditch C5	1	-	-	-	-	1
17	Group 2: Subgroup 1004: Silting fill of C5	36	1	1	3	1	42
20	Group 2: Subgroup 1004: Silting fill of C5	1	-	-	-	-	1
23	Group 2: Subgroup 1004: Occupation fill of C5	6	1	-	-	-	7
26	Group 2: Subgroup 1004: Silting fill of C5	1	-	1	-	1	3
27	Group 2: Subgroup 1004: Silting fill of C5	8	-	1	-	-	9
28	Group 2: Subgroup 1004: Occupation fill of C5	2	-	1	-	-	3
37	Group 2: Subgroup 1004: Occupation fill of C5	5	-	-	-	1	6
39	Group 2: Subgroup 1004: Occupation fill of C5	-	-	-	-	1	1
40	Group 2: Subgroup 1004: Silting fill of C5	4	1	-	-	-	5
41	Group 2: Subgroup 1004: Occupation fill of C5	10	1	-	-	-	11
48	Group 2: Subgroup 1004: Occupation fill of C5	3	-	1	-	-	4
49	Group 2: Subgroup 1004: Occupation fill of C5	1	-	1	-	-	2
12	Group 2: Subgroup 1005: Backfilling of C5	-	-	1	-	-	1
13	Group 2: Subgroup 1005: Backfilling of C5	11	-	-	-	-	11
56	Group 2: Subgroup 1005: Backfilling of C5	9	-	1	-	1	11
215	Group 2: Subgroup 1008: Fill of pit C214	-	-	1	-	-	1
43	Group 3: Subgroup 1016: Fill of pit C60	18	-	-	-	-	18
112	Group 3: Subgroup 1008: Fill of pit C111	1	-	1	-	-	2
120	Group 3: Subgroup 1017: Fill of posthole C115	1	-	-	-	-	1
128	Group 3: Subgroup 1034: Fill of posthole C244	-	-	-	1	-	1
130	Group 3: Subgroup 1035: Fill of posthole C129	1	-	-	-	-	1
158	Group 3: Subgroup 1016: Fill of pit C60	16	-	-	-	-	16
181	Group 3: Subgroup 1038: Fill of posthole C182	-	-	1	-	-	1
306	Group 5: Subgroup 1053: Souterrain floor	5	-	1	-	-	6
275	Group 6: Subgroup 1060: Souterrain backfill	1	-	-	-	-	1
45	Group 6: Subgroup 1062: Souterrain backfill	3	-	-	-	-	3
47	Group 6: Subgroup 1062: Souterrain backfill	23	-	4	-	-	27
31	Group 6: Subgroup 1063: Souterrain backfill	23	-	-	-	-	23
66	Group 6: Subgroup 1063: Souterrain backfill	1	-	1	1	-	3
228	Group 7: Subgroup 1065: Fill of structural enclosure C207	3	-	-	-	-	3
230	Group 7: Subgroup 1065: Fill of structural enclosure C207	14	-	-	-	-	14
239	Group 7: Subgroup 1065: Fill of structural enclosure C207	2	-	-	-	-	2
1	Group 7: Subgroup 1067: Topsoil	239	1	15	-	1	256
81	Non-archaeological	1	-	-	-	-	1
341	Group unspecified: Fill of pit C343	1	-	-	-	-	1
Total		546	7	32	8	6	599

Unique No	Context	Basic Character	Classification	Condition	Cortex	Fragment (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
03E0115:1:1	1	Unworked	Thermal flake	Abraded	Tertiary	-	31	24	14	13.22
03E0115:1:3	1	Unworked	Thermally split pebble	Abraded	Secondary	-	45	42	26	49.68
03E0115:1:4	1	Unworked	Thermal flake	Abraded	Secondary	-	54	38	21	49.49
03E0115:1:5	1	Unworked	Angular shatter - thermal	Patinated	Tertiary	-	32	25	14	13.31
03E0115:1:6	1	Unworked	Angular shatter - thermal	Abraded	Secondary	-	33	25	13	17.49
03E0115:1:7	1	Unworked	Angular shatter - thermal	Fresh	Tertiary	-	26	19	14	6.66
03E0115:1:8	1	Unworked	Thermal flake	Abraded	Secondary	-	31	24	10	8.03
03E0115:1:9	1	Unworked	Thermal flake	Abraded	Secondary	-	30	21	10	6.51
03E0115:1:10	1	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	24	21	11	7.85
03E0115:1:11	1	Unworked	Thermal flake	Abraded	Secondary	-	27	25	13	7.74
03E0115:1:12	1	Unworked	Angular shatter - thermal	Abraded	Secondary	-	24	20	13	4.77
03E0115:1:13	1	Unworked	Abraded lump	Abraded	Secondary	-	31	14	10	4.51
03E0115:1:14	1	Flake debitage	Regular	Fresh	Tertiary	-	30	25	5	4.44
03E0115:1:15	1	Flake debitage	Flake shatter medial	Fresh	Primary	10	-	28	5	3.08
03E0115:1:16	1	Flake debitage	Regular	Fresh	Secondary	-	28	18	3	3.01
03E0115:1:17	1	Flake debitage	Flake shatter distal	Patinated	Tertiary	20	-	21	6	3.46
03E0115:1:18	1	Flake debitage	Flake shatter distal	Patinated	Tertiary	18	-	17	8	2.72
03E0115:1:19	1	Flake debitage	Bladelet	Fresh	Tertiary	-	41	15	4	2.46
03E0115:1:20	1	Flake debitage	Core trimming	Patinated	Secondary	-	15	21	5	2.15
03E0115:1:21	1	Flake debitage	Flake shatter distal	Patinated	Tertiary	15	-	18	7	1.83
03E0115:1:22	1	Flake debitage	Core trimming	Patinated	Secondary	-	12	22	5	.94
03E0115:1:23	1	Unworked	Thermal flake	Patinated	Tertiary	-	17	11	4	1.10
03E0115:1:24	1	Flake debitage	Flake shatter distal	Patinated	Tertiary	12	-	21	3	1.15
03E0115:1:25	1	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	14	14	8	1.52
03E0115:1:26	1	Unworked	Thermal flake	Patinated	Secondary	-	14	10	5	.99
03E0115:1:27	1	Unworked	Thermal flake	Patinated	Tertiary	-	12	13	3	.58
03E0115:1:28	1	Flake debitage	Flake shatter distal	Patinated	Tertiary	-	10	15	5	.54
03E0115:1:29	1	Unworked	Thermal flake	Abraded	Secondary	-	11	6	3	.36
03E0115:1:30	1	Flake debitage	Blade shatter proximal	Patinated	Tertiary	-	11	8	3	.35
03E0115:1:31	1	Unworked	Thermal flake	Abraded	Tertiary	-	12	7	3	.33
03E0115:1:32	1	Unworked	Thermal flake	Abraded	Tertiary	-	10	8	4	.37
03E0115:1:33	1	Unworked	Thermal flake	Abraded	Tertiary	-	8	5	3	.20
03E0115:1:34	1	Unworked	Abraded lump	Abraded	Secondary	-	30	17	14	12.86
03E0115:1:35	1	Unworked	Abraded lump	Abraded	Secondary	-	17	18	17	7.60
03E0115:1:36	1	Unworked	Abraded lump	Abraded	Secondary	-	24	21	13	9.12
03E0115:1:37	1	Unworked	Abraded lump	Abraded	Secondary	-	27	22	11	7.51
03E0115:1:38	1	Unworked	Abraded lump	Abraded	Secondary	-	24	20	13	8.27
03E0115:1:39	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	10	9	2.03
03E0115:1:40	1	Unworked	Abraded lump	Abraded	Tertiary	-	28	17	11	5.29
03E0115:1:41	1	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	12	10	7	.86
03E0115:1:42	1	Unworked	Angular shatter - thermal	Abraded	Secondary	-	19	19	11	3.99
03E0115:1:43	1	Unworked	Angular shatter - thermal	Abraded	Secondary	-	17	13	9	2.53
03E0115:1:44	1	Core	Flaked pebble	Abraded	Secondary	-	49	28	17	32.44

03E0115:1:45	1	Unworked	Abraded lump	Abraded	Secondary	-	45	32	25	40.90
03E0115:1:46	1	Unworked	Abraded lump	Abraded	Secondary	-	36	32	24	36.72
03E0115:1:47	1	Unworked	Abraded lump	Abraded	Secondary	-	30	30	15	17.57
03E0115:1:48	1	Unworked	Abraded lump	Abraded	Secondary	-	50	31	24	38.57
03E0115:1:49	1	Unworked	Abraded lump	Abraded	Secondary	-	32	28	17	21.08
03E0115:1:50	1	Unworked	Abraded lump	Abraded	Secondary	-	36	31	18	23.14
03E0115:1:51	1	Unworked	Abraded lump	Abraded	Secondary	-	38	35	17	28.04
03E0115:1:52	1	Unworked	Abraded lump	Abraded	Secondary	-	39	24	14	14.64
03E0115:1:53	1	Unworked	Abraded lump	Abraded	Secondary	-	36	28	17	21.36
03E0115:1:54	1	Unworked	Abraded lump	Abraded	Secondary	-	32	30	22	24.25
03E0115:1:55	1	Unworked	Abraded lump	Abraded	Secondary	-	32	38	19	24.59
03E0115:1:56	1	Unworked	Abraded lump	Abraded	Secondary	-	32	36	18	20.98
03E0115:1:57	1	Unworked	Abraded lump	Abraded	Secondary	-	31	28	13	13.37
03E0115:1:58	1	Unworked	Abraded lump	Abraded	Secondary	-	28	24	15	13.94
03E0115:1:59	1	Unworked	Abraded lump	Abraded	Secondary	-	32	30	20	16.47
03E0115:1:60	1	Unworked	Abraded lump	Abraded	Secondary	-	25	22	11	7.97
03E0115:1:61	1	Flake debitage	Core trimming	Abraded	Secondary	-	25	28	17	12.46
03E0115:1:62	1	Unworked	Abraded lump	Abraded	Secondary	-	35	26	15	13.77
03E0115:1:63	1	Unworked	Abraded lump	Abraded	Secondary	-	25	24	17	10.47
03E0115:1:64	1	Unworked	Abraded lump	Abraded	Secondary	-	25	20	17	12.78
03E0115:1:65	1	Unworked	Abraded lump	Abraded	Secondary	-	30	15	10	6.33
03E0115:1:66	1	Unworked	Abraded lump	Abraded	Secondary	-	35	20	17	11.48
03E0115:1:67	1	Unworked	Abraded lump	Abraded	Secondary	-	25	17	10	5.07
03E0115:1:68	1	Unworked	Abraded lump	Abraded	Tertiary	-	21	20	12	5.72
03E0115:1:69	1	Unworked	Abraded lump	Abraded	Secondary	-	19	19	10	4.62
03E0115:1:70	1	Unworked	Abraded lump	Abraded	Secondary	-	25	18	10	4.99
03E0115:1:71	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	17	12	4.80
03E0115:1:72	1	Unworked	Abraded lump	Abraded	Secondary	-	20	18	12	5.17
03E0115:1:73	1	Unworked	Abraded lump	Abraded	Tertiary	-	18	17	14	4.17
03E0115:1:74	1	Unworked	Abraded lump	Abraded	Secondary	-	18	17	9	3.26
03E0115:1:75	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	18	12	4.58
03E0115:1:76	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	14	9	3.26
03E0115:1:77	1	Unworked	Abraded lump	Abraded	Tertiary	-	16	14	9	2.41
03E0115:1:78	1	Unworked	Abraded lump	Abraded	Tertiary	-	16	13	12	3.53
03E0115:1:79	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	10	8	.99
03E0115:1:80	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	10	6	.98
03E0115:1:81	1	Modified	Scraper	Abraded	Secondary	-	19	16	8	3.03
03E0115:1:82	1	Unworked	Thermally split pebble	Abraded	Secondary	-	42	38	38	77.92
03E0115:1:83	1	Unworked	Thermal flake	Abraded	Secondary	-	39	38	20	42.43
03E0115:1:84	1	Unworked	Thermal flake	Abraded	Secondary	-	35	28	15	18.48
03E0115:1:85	1	Unworked	Angular shatter - thermal	Abraded	Secondary	-	32	25	17	16.11
03E0115:1:86	1	Unworked	Thermal flake	Abraded	Secondary	-	45	32	15	32.01
03E0115:1:87	1	Unworked	Abraded lump	Abraded	Secondary	-	62	42	35	141.36
03E0115:1:88	1	Unworked	Abraded lump	Abraded	Secondary	-	41	32	21	49.11
03E0115:1:89	1	Unworked	Abraded lump	Abraded	Secondary	-	38	20	18	15.38
03E0115:1:90	1	Unworked	Abraded lump	Abraded	Secondary	-	30	27	22	23.45
03E0115:1:91	1	Unworked	Abraded lump	Abraded	Secondary	-	30	25	17	16.37
03E0115:1:92	1	Unworked	Abraded lump	Abraded	Secondary	-	36	33	16	27.12
03E0115:1:93	1	Unworked	Abraded lump	Abraded	Secondary	-	34	28	19	26.00
03E0115:1:94	1	Unworked	Abraded lump	Abraded	Secondary	-	32	28	16	17.60
03E0115:1:95	1	Unworked	Abraded lump	Abraded	Secondary	-	30	22	12	9.82
03E0115:1:96	1	Unworked	Abraded lump	Abraded	Secondary	-	30	22	19	17.93
03E0115:1:97	1	Unworked	Abraded lump	Abraded	Secondary	-	28	25	15	12.82
03E0115:1:98	1	Unworked	Abraded lump	Abraded	Secondary	-	28	22	12	10.10
03E0115:1:99	1	Unworked	Abraded lump	Abraded	Secondary	-	30	22	18	12.81
03E0115:1:100	1	Unworked	Abraded lump	Abraded	Tertiary	-	36	28	14	16.22
03E0115:1:101	1	Unworked	Abraded lump	Abraded	Secondary	-	31	17	13	9.41
03E0115:1:102	1	Unworked	Abraded lump	Abraded	Secondary	-	24	17	12	7.18
03E0115:1:103	1	Unworked	Abraded lump	Abraded	Secondary	-	26	18	17	9.37
03E0115:1:104	1	Unworked	Abraded lump	Abraded	Tertiary	-	19	15	13	5.34
03E0115:1:105	1	Unworked	Abraded lump	Abraded	Secondary	-	25	17	12	5.17
03E0115:1:106	1	Unworked	Abraded lump	Abraded	Tertiary	-	21	17	11	5.77
03E0115:1:107	1	Unworked	Abraded lump	Abraded	Tertiary	-	19	16	12	5.80
03E0115:1:108	1	Unworked	Abraded lump	Abraded	Secondary	-	25	16	14	7.32
03E0115:1:109	1	Unworked	Abraded lump	Abraded	Secondary	-	16	15	12	3.67
03E0115:1:110	1	Unworked	Abraded lump	Abraded	Secondary	-	17	17	12	4.55

03E0115:1:111	1	Unworked	Abraded lump	Abraded	Secondary	-	17	14	10	2.89
03E0115:1:112	1	Unworked	Abraded lump	Abraded	Secondary	-	22	16	10	4.65
03E0115:1:113	1	Unworked	Abraded lump	Abraded	Secondary	-	16	15	12	4.24
03E0115:1:114	1	Unworked	Abraded lump	Abraded	Secondary	-	19	13	14	4.67
03E0115:1:115	1	Unworked	Abraded lump	Abraded	Secondary	-	15	10	8	2.44
03E0115:1:116	1	Unworked	Abraded lump	Abraded	Secondary	-	17	10	8	1.77
03E0115:1:117	1	Unworked	Abraded lump	Abraded	Secondary	-	15	16	10	3.83
03E0115:1:118	1	Unworked	Abraded lump	Abraded	Secondary	-	20	16	11	4.48
03E0115:1:119	1	Unworked	Abraded lump	Abraded	Secondary	-	19	16	11	4.17
03E0115:1:120	1	Unworked	Abraded lump	Abraded	Secondary	-	20	12	13	3.45
03E0115:1:121	1	Unworked	Abraded lump	Abraded	Secondary	-	17	16	9	3.27
03E0115:1:122	1	Unworked	Abraded lump	Abraded	Secondary	-	15	15	13	2.42
03E0115:1:123	1	Unworked	Abraded lump	Abraded	Secondary	-	22	12	11	4.63
03E0115:1:124	1	Unworked	Abraded lump	Abraded	Secondary	-	15	15	6	1.10
03E0115:1:125	1	Unworked	Abraded lump	Abraded	Secondary	-	16	8	5	1.02
03E0115:1:126	1	Unworked	Abraded lump	Abraded	Secondary	-	21	12	10	2.64
03E0115:1:127	1	Unworked	Abraded lump	Abraded	Secondary	-	16	14	5	1.75
03E0115:1:128	1	Unworked	Abraded lump	Abraded	Secondary	-	16	9	8	1.93
03E0115:1:129	1	Unworked	Abraded lump	Abraded	Secondary	-	11	10	9	1.71
03E0115:1:130	1	Unworked	Abraded lump	Abraded	Secondary	-	10	10	7	.94
03E0115:1:131	1	Unworked	Abraded lump	Abraded	Secondary	-	13	10	5	.83
03E0115:1:134	1	Unworked	Abraded lump	Abraded	Secondary	-	50	35	24	56.10
03E0115:1:135	1	Unworked	Abraded lump	Abraded	Secondary	-	44	38	28	49.75
03E0115:1:136	1	Unworked	Abraded lump	Abraded	Secondary	-	32	31	17	24.94
03E0115:1:137	1	Unworked	Abraded lump	Abraded	Secondary	-	35	31	19	23.22
03E0115:1:138	1	Unworked	Abraded lump	Abraded	Secondary	-	26	17	11	9.81
03E0115:1:139	1	Unworked	Abraded lump	Abraded	Secondary	-	25	17	14	9.80
03E0115:1:140	1	Unworked	Abraded lump	Abraded	Secondary	-	23	22	15	8.88
03E0115:1:141	1	Unworked	Abraded lump	Abraded	Secondary	-	20	15	14	4.07
03E0115:1:142	1	Unworked	Abraded lump	Abraded	Tertiary	-	22	19	14	8.12
03E0115:1:143	1	Unworked	Abraded lump	Abraded	Tertiary	-	15	14	13	3.60
03E0115:1:144	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	17	13	5.28
03E0115:1:145	1	Unworked	Abraded lump	Abraded	Secondary	-	20	15	13	4.98
03E0115:1:146	1	Unworked	Abraded lump	Abraded	Secondary	-	22	16	13	2.91
03E0115:1:147	1	Unworked	Abraded lump	Abraded	Tertiary	-	23	16	12	5.20
03E0115:1:148	1	Unworked	Abraded lump	Abraded	Tertiary	-	22	19	2	5.04
03E0115:1:149	1	Unworked	Abraded lump	Abraded	Secondary	-	24	21	10	6.22
03E0115:1:150	1	Unworked	Abraded lump	Abraded	Secondary	-	18	14	11	3.05
03E0115:1:151	1	Unworked	Abraded lump	Abraded	Tertiary	-	23	15	11	4.03
03E0115:1:152	1	Unworked	Abraded lump	Abraded	Tertiary	-	22	19	8	5.30
03E0115:1:153	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	13	10	2.76
03E0115:1:154	1	Unworked	Abraded lump	Abraded	Secondary	-	17	14	13	3.93
03E0115:1:155	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	16	10	3.49
03E0115:1:156	1	Unworked	Abraded lump	Abraded	Secondary	-	18	14	9	2.15
03E0115:1:157	1	Unworked	Abraded lump	Abraded	Secondary	-	21	14	12	5.06
03E0115:1:158	1	Unworked	Abraded lump	Abraded	Secondary	-	23	17	14	6.78
03E0115:1:159	1	Unworked	Abraded lump	Abraded	Tertiary	-	14	16	8	2.58
03E0115:1:160	1	Unworked	Abraded lump	Abraded	Secondary	-	20	12	8	2.20
03E0115:1:161	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	11	8	2.08
03E0115:1:162	1	Unworked	Abraded lump	Abraded	Secondary	-	20	13	11	3.29
03E0115:1:163	1	Unworked	Abraded lump	Abraded	Tertiary	-	21	15	13	3.76
03E0115:1:164	1	Unworked	Abraded lump	Abraded	Secondary	-	23	13	10	3.89
03E0115:1:165	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	13	9	3.00
03E0115:1:166	1	Unworked	Abraded lump	Abraded	Tertiary	-	15	13	10	2.79
03E0115:1:167	1	Unworked	Abraded lump	Abraded	Tertiary	-	13	10	8	1.39
03E0115:1:168	1	Unworked	Abraded lump	Abraded	Tertiary	-	13	10	7	1.46
03E0115:1:169	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	8	6	.85
03E0115:1:170	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	8	8	1.30
03E0115:1:171	1	Unworked	Abraded lump	Abraded	Secondary	-	14	14	6	2.33
03E0115:1:172	1	Unworked	Abraded lump	Abraded	Secondary	-	14	9	5	1.02
03E0115:1:173	1	Unworked	Abraded lump	Abraded	Secondary	-	10	10	8	1.27
03E0115:1:174	1	Unworked	Abraded lump	Abraded	Tertiary	-	16	12	6	1.28
03E0115:1:175	1	Unworked	Abraded lump	Abraded	Secondary	-	11	8	6	1.03
03E0115:1:176	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	10	6	1.41
03E0115:1:177	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	9	6	.96
03E0115:1:178	1	Unworked	Abraded lump	Abraded	Tertiary	-	16	10	8	1.53

03E0115:1:179	1	Unworked	Abraded lump	Abraded	Tertiary	-	14	12	10	2.69
03E0115:1:180	1	Unworked	Thermal flake	Abraded	Secondary	-	28	28	10	11.05
03E0115:1:181	1	Unworked	Thermal flake	Abraded	Secondary	-	24	18	12	5.25
03E0115:1:182	1	Unworked	Thermal flake	Abraded	Secondary	-	20	18	10	4.21
03E0115:1:183	1	Unworked	Thermal flake	Abraded	Secondary	-	30	20	14	9.81
03E0115:1:184	1	Unworked	Abraded lump	Abraded	Secondary	-	44	28	21	21.56
03E0115:1:185	1	Unworked	Abraded lump	Abraded	Secondary	-	39	38	21	46.71
03E0115:1:186	1	Unworked	Abraded lump	Abraded	Secondary	-	38	35	34	37.04
03E0115:1:187	1	Unworked	Abraded lump	Abraded	Secondary	-	31	22	17	12.04
03E0115:1:188	1	Unworked	Abraded lump	Abraded	Secondary	-	31	26	20	22.16
03E0115:1:189	1	Unworked	Abraded lump	Abraded	Secondary	-	25	19	12	7.24
03E0115:1:190	1	Unworked	Abraded lump	Abraded	Tertiary	-	21	17	15	4.91
03E0115:1:191	1	Unworked	Abraded lump	Abraded	Secondary	-	28	20	15	8.96
03E0115:1:192	1	Unworked	Abraded lump	Abraded	Secondary	-	26	22	11	7.56
03E0115:1:193	1	Unworked	Abraded lump	Abraded	Secondary	-	28	22	15	9.44
03E0115:1:194	1	Unworked	Abraded lump	Abraded	Secondary	-	24	22	19	12.36
03E0115:1:195	1	Unworked	Abraded lump	Abraded	Secondary	-	22	14	14	4.39
03E0115:1:196	1	Unworked	Abraded lump	Abraded	Secondary	-	35	17	15	9.07
03E0115:1:197	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	12	10	2.46
03E0115:1:198	1	Unworked	Abraded lump	Abraded	Tertiary	-	22	19	12	6.05
03E0115:1:199	1	Unworked	Abraded lump	Abraded	Tertiary	-	15	15	6	1.49
03E0115:1:200	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	9	5	.85
03E0115:1:201	1	Unworked	Abraded lump	Abraded	Tertiary	-	19	9	7	1.84
03E0115:1:202	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	8	7	1.09
03E0115:1:203	1	Unworked	Abraded lump	Abraded	Tertiary	-	11	8	7	1.06
03E0115:1:204	1	Unworked	Abraded lump	Abraded	Tertiary	-	14	12	9	1.78
03E0115:1:205	1	Unworked	Abraded lump	Abraded	Secondary	-	18	14	8	2.31
03E0115:1:206	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	10	8	1.33
03E0115:1:207	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	18	8	3.35
03E0115:1:208	1	Unworked	Abraded lump	Abraded	Tertiary	-	11	8	4	.69
03E0115:1:209	1	Unworked	Abraded lump	Abraded	Tertiary	-	14	12	8	1.45
03E0115:1:210	1	Unworked	Abraded lump	Abraded	Tertiary	-	8	6	5	.44
03E0115:1:211	1	Unworked	Abraded lump	Abraded	Tertiary	-	8	6	4	.47
03E0115:1:212	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	6	5	.56
03E0115:1:213	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	8	4	.51
03E0115:1:214	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	8	5	.69
03E0115:1:215	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	6	3	.46
03E0115:1:216	1	Unworked	Abraded lump	Abraded	Tertiary	-	14	13	10	1.58
03E0115:1:217	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	6	5	.76
03E0115:1:218	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	9	3	.46
03E0115:1:219	1	Unworked	Abraded lump	Abraded	Tertiary	-	8	6	3	.34
03E0115:1:220	1	Unworked	Abraded lump	Abraded	Tertiary	-	11	6	5	.78
03E0115:1:221	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	8	6	.71
03E0115:1:222	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	10	6	1.01
03E0115:1:223	1	Unworked	Abraded lump	Abraded	Tertiary	-	13	12	5	1.19
03E0115:1:224	1	Unworked	Abraded lump	Abraded	Secondary	-	7	6	3	.42
03E0115:1:225	1	Unworked	Abraded lump	Abraded	99	-	18	8	8	1.25
03E0115:1:226	1	Unworked	Abraded lump	Abraded	Secondary	-	11	8	6	.88
03E0115:1:227	1	Unworked	Abraded lump	Abraded	Tertiary	-	9	8	5	.52
03E0115:1:228	1	Unworked	Abraded lump	Abraded	Tertiary	-	7	7	3	.55
03E0115:1:229	1	Unworked	Abraded lump	Abraded	Tertiary	-	8	6	3	.42
03E0115:1:230	1	Unworked	Abraded lump	Abraded	Tertiary	-	8	5	3	.21
03E0115:1:231	1	Unworked	Abraded lump	Abraded	Tertiary	-	6	5	3	.24
03E0115:1:232	1	Unworked	Abraded lump	Abraded	Tertiary	-	6	6	2	.11
03E0115:1:233	1	Unworked	Abraded lump	Abraded	Tertiary	-	5	3	2	.11
03E0115:1:234	1	Unworked	Abraded lump	Abraded	Tertiary	-	17	14	8	2.24
03E0115:1:235	1	Unworked	Abraded lump	Abraded	Tertiary	-	8	8	7	.46
03E0115:1:236	1	Flake debitage	Regular	Abraded	Tertiary	-	12	14	5	.85
03E0115:1:237	1	Unworked	Abraded lump	Abraded	Secondary	-	14	14	8	2.10
03E0115:1:238	1	Unworked	Abraded lump	Abraded	Secondary	-	14	12	5	.81
03E0115:1:239	1	Unworked	Abraded lump	Abraded	Tertiary	-	20	6	5	.85
03E0115:1:240	1	Unworked	Abraded lump	Abraded	Tertiary	-	16	11	4	1.19
03E0115:1:241	1	Unworked	Abraded lump	Abraded	Tertiary	-	14	9	6	.96
03E0115:1:242	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	10	9	1.84
03E0115:1:243	1	Unworked	Abraded lump	Abraded	Secondary	-	10	8	4	.63
03E0115:1:244	1	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	11	10	6	.73

03E0115:1:245	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	8	6	.62
03E0115:1:246	1	Unworked	Abraded lump	Abraded	Tertiary	-	15	14	8	1.93
03E0115:1:247	1	Unworked	Abraded lump	Abraded	Secondary	-	12	8	6	.79
03E0115:1:248	1	Unworked	Abraded lump	Abraded	Tertiary	-	15	7	10	2.04
03E0115:1:249	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	8	4	.58
03E0115:1:250	1	Unworked	Abraded lump	Abraded	Tertiary	-	15	7	8	1.26
03E0115:1:251	1	Unworked	Abraded lump	Abraded	Tertiary	-	12	11	8	1.43
03E0115:1:252	1	Unworked	Abraded lump	Abraded	Tertiary	-	10	8	6	1.01
03E0115:1:299	1	Unworked	Abraded lump	Abraded	Secondary	-	48	35	24	34.54
03E0115:1:300	1	Unworked	Abraded lump	Abraded	Secondary	-	35	25	24	24.26
03E0115:1:301	1	Unworked	Abraded lump	Abraded	Secondary	-	17	16	11	3.54
03E0115:1:302	1	Unworked	Abraded lump	Abraded	Secondary	-	8	6	3	.25
03E0115:1:303	1	Unworked	Abraded lump	Abraded	Tertiary	-	6	5	4	.21
03E0115:1:307	1	Unworked	pseudolith	Abraded	Secondary	-	25	24	15	10.55
03E0115:1:309	1	Flake debitage	Regular	Patinated	Secondary	-	25	20	8	3.90
03E0115:2:1	2	Unworked	Abraded lump	Abraded	Secondary	-	35	14	10	5.70
03E0115:2:2	2	Unworked	Abraded lump	Abraded	Secondary	-	65	45	30	143.16
03E0115:2:3	2	Unworked	Abraded lump	Abraded	Secondary	-	36	35	26	53.33
03E0115:2:4	2	Unworked	Abraded lump	Abraded	Secondary	-	41	38	22	33.13
03E0115:2:5	2	Unworked	Abraded lump	Abraded	Secondary	-	35	18	18	13.01
03E0115:2:6	2	Unworked	Abraded lump	Abraded	Secondary	-	25	18	15	7.30
03E0115:2:7	2	Unworked	Abraded lump	Abraded	Tertiary	-	15	12	10	2.27
03E0115:2:8	2	Unworked	Abraded lump	Abraded	Secondary	-	17	12	6	1.45
03E0115:2:9	2	Unworked	Abraded lump	Abraded	Secondary	-	10	9	5	.90
03E0115:2:10	2	Unworked	Abraded lump	Abraded	Secondary	-	15	11	8	1.92
03E0115:2:11	2	Unworked	Thermal flake	Abraded	Secondary	-	20	17	8	3.24
03E0115:2:12	2	Unworked	Thermal flake	Abraded	Tertiary	-	14	11	6	1.28
03E0115:2:13	2	Unworked	Abraded lump	Abraded	Secondary	-	54	35	35	107.43
03E0115:2:14	2	Unworked	Abraded lump	Abraded	Secondary	-	52	35	34	72.30
03E0115:2:15	2	Unworked	Abraded lump	Abraded	Secondary	-	39	32	26	42.26
03E0115:2:16	2	Unworked	Abraded lump	Abraded	Secondary	-	55	38	27	71.17
03E0115:2:17	2	Unworked	Thermally split pebble	Abraded	Primary	-	35	28	24	30.02
03E0115:2:18	2	Unworked	Abraded lump	Abraded	Secondary	-	38	29	24	32.07
03E0115:2:19	2	Unworked	Abraded lump	Abraded	Secondary	-	35	42	31	37.19
03E0115:2:20	2	Unworked	Abraded lump	Abraded	Secondary	-	36	24	14	18.89
03E0115:2:21	2	Unworked	Abraded lump	Abraded	Secondary	-	28	20	14	9.77
03E0115:2:22	2	Unworked	Abraded lump	Abraded	Secondary	-	37	28	24	22.79
03E0115:2:23	2	Unworked	Thermal flake	Abraded	Secondary	-	44	34	20	31.24
03E0115:2:24	2	Unworked	Abraded lump	Abraded	Tertiary	-	35	22	14	8.77
03E0115:2:25	2	Unworked	Abraded lump	Abraded	Secondary	-	28	22	17	15.28
03E0115:2:26	2	Unworked	Abraded lump	Abraded	Secondary	-	25	20	15	7.47
03E0115:2:27	2	Unworked	Abraded lump	Abraded	Secondary	-	26	16	13	7.73
03E0115:2:28	2	Unworked	Abraded lump	Abraded	Secondary	-	31	21	20	14.05
03E0115:2:29	2	Unworked	Abraded lump	Abraded	Secondary	-	27	21	18	13.33
03E0115:2:30	2	Unworked	Abraded lump	Abraded	Secondary	-	28	22	12	9.15
03E0115:2:31	2	Unworked	Abraded lump	Abraded	Secondary	-	20	16	13	5.17
03E0115:2:32	2	Unworked	Abraded lump	Abraded	Secondary	-	20	17	12	4.76
03E0115:2:33	2	Unworked	Abraded lump	Abraded	Secondary	-	24	23	14	8.86
03E0115:2:34	2	Unworked	Abraded lump	Abraded	Secondary	-	20	16	14	5.82
03E0115:2:35	2	Unworked	Abraded lump	Abraded	Secondary	-	24	18	14	6.37
03E0115:2:36	2	Unworked	Abraded lump	Abraded	Secondary	-	22	16	14	6.19
03E0115:2:37	2	Unworked	Thermally split pebble	Abraded	Secondary	-	25	22	17	4.89
03E0115:2:38	2	Angular shatter	Angular shatter - bipolar	Abraded	Secondary	-	31	24	12	7.71
03E0115:2:39	2	Unworked	Abraded lump	Abraded	Secondary	-	21	20	10	4.19
03E0115:2:40	2	Unworked	Abraded lump	Abraded	Tertiary	-	18	14	12	4.30
03E0115:2:41	2	Unworked	Abraded lump	Abraded	Tertiary	-	16	14	12	3.25
03E0115:2:42	2	Unworked	Abraded lump	Abraded	Secondary	-	21	14	11	4.18
03E0115:2:43	2	Unworked	Abraded lump	Abraded	Secondary	-	24	18	14	6.89
03E0115:2:44	2	Unworked	Abraded lump	Abraded	Tertiary	-	20	14	9	2.78
03E0115:2:45	2	Unworked	Abraded lump	Abraded	Tertiary	-	20	12	8	1.76
03E0115:2:46	2	Unworked	Abraded lump	Abraded	Tertiary	-	18	14	11	2.77
03E0115:2:47	2	Unworked	Abraded lump	Abraded	Secondary	-	18	14	11	3.12
03E0115:2:48	2	Unworked	Abraded lump	Abraded	Secondary	-	22	16	10	3.91
03E0115:2:49	2	Unworked	Abraded lump	Abraded	Tertiary	-	20	18	17	7.18
03E0115:2:50	2	Unworked	Abraded lump	Abraded	Secondary	-	18	15	13	4.26
03E0115:2:51	2	Unworked	Abraded lump	Abraded	Secondary	-	22	19	10	5.32

03E0115:2:52	2	Unworked	Abraded lump	Abraded	Secondary	-	20	11	10	3.09
03E0115:2:53	2	Unworked	Abraded lump	Abraded	Secondary	-	22	18	8	3.75
03E0115:2:54	2	Unworked	Abraded lump	Abraded	Tertiary	-	15	15	8	2.18
03E0115:2:55	2	Unworked	Thermal flake	Abraded	Secondary	-	22	17	8	3.78
03E0115:2:56	2	Unworked	Abraded lump	Abraded	Secondary	-	16	15	9	2.32
03E0115:2:57	2	Unworked	Thermal flake	Abraded	Secondary	-	19	17	8	1.94
03E0115:2:58	2	Unworked	Abraded lump	Abraded	Secondary	-	16	15	9	2.33
03E0115:2:59	2	Unworked	Abraded lump	Abraded	Secondary	-	15	9	6	1.01
03E0115:2:60	2	Unworked	Abraded lump	Abraded	Secondary	-	12	12	9	1.82
03E0115:12:1	12	Flake debitage	Indeterminate shatter flake	Abraded	Secondary	16	-	-	-	.83
03E0115:13:2	13	Unworked	Thermally split pebble	Abraded	Secondary	-	58	38	32	25.42
03E0115:13:3	13	Unworked	Thermal flake	Abraded	Secondary	-	35	30	10	13.88
03E0115:13:5	13	Unworked	Abraded lump	Abraded	Secondary	-	25	17	25	8.19
03E0115:13:8	13	Unworked	Abraded lump	Abraded	Secondary	-	20	20	14	8.50
03E0115:13:9	13	Unworked	Abraded lump	Abraded	Secondary	-	16	17	11	5.05
03E0115:13:10	13	Unworked	Abraded lump	Abraded	Secondary	-	25	18	16	9.55
03E0115:13:11	13	Unworked	Abraded lump	Abraded	Secondary	-	21	13	7	2.13
03E0115:13:12	13	Unworked	Abraded lump	Abraded	Secondary	-	11	12	6	1.10
03E0115:13:13	13	Unworked	Abraded lump	Abraded	Secondary	-	20	14	6	3.09
03E0115:17:1	17	Flake debitage	Regular	Abraded	Secondary	-	10	18	6	1.79
03E0115:17:2	17	Unworked	Angular shatter - bipolar	Abraded	Secondary	-	18	12	8	2.78
03E0115:17:3	17	Unworked	Abraded lump	Abraded	Secondary	-	12	11	8	1.69
03E0115:17:4	17	Unworked	Thermal flake	Abraded	Secondary	-	16	15	6	1.53
03E0115:17:5	17	Unworked	Abraded lump	Abraded	Secondary	-	18	12	10	2.95
03E0115:17:6	17	Unworked	Abraded lump	Abraded	Secondary	-	14	11	6	1.13
03E0115:17:7	17	Modified	Scraper	Abraded	Secondary	-	25	24	8	7.30
03E0115:17:8	17	Unworked	Abraded lump	Abraded	Secondary	-	33	18	15	11.01
03E0115:17:9	17	Unworked	Abraded lump	Abraded	Secondary	-	39	25	20	18.44
03E0115:17:10	17	Unworked	Abraded lump	Abraded	Secondary	-	20	15	10	4.46
03E0115:17:11	17	Angular shatter	Angular shatter - thermal	Abraded	Secondary	-	46	32	30	24.00
03E0115:17:12	17	Angular shatter	Angular shatter - thermal	Abraded	Tertiary	-	18	11	9	1.76
03E0115:17:13	17	Unworked	Abraded lump	Abraded	Secondary	-	20	14	9	2.64
03E0115:17:14	17	Unworked	Angular shatter - thermal	Patinated	Tertiary	-	17	12	8	1.21
03E0115:17:15	17	Unworked	Abraded lump	Patinated	Secondary	-	42	41	35	71.37
03E0115:17:16	17	Unworked	Abraded lump	Abraded	Secondary	-	25	20	15	9.09
03E0115:17:17	17	Unworked	Thermal flake	Patinated	Secondary	-	25	23	14	12.23
03E0115:17:18	17	Unworked	Angular shatter - thermal	Water rolled	Primary	-	68	25	32	104.47
03E0115:17:19	17	Unworked	Abraded lump	Water rolled	Secondary	-	28	22	11	5.17
03E0115:17:20	17	Unworked	Angular shatter - thermal	Water rolled	Secondary	-	22	18	13	6.09
03E0115:17:21	17	Unworked	Abraded lump	Water rolled	Secondary	-	18	12	10	2.52
03E0115:17:22	17	Unworked	Abraded lump	Abraded	Tertiary	-	16	14	9	1.41
03E0115:17:23	17	Unworked	Abraded lump	Abraded	Tertiary	-	15	8	4	1.02
03E0115:17:24	17	Core	Multi-platform core	Abraded	Secondary	-	58	41	24	108.55
03E0115:17:26	17	Unworked	Angular shatter - thermal	Patinated	Secondary	-	18	12	11	2.44
03E0115:17:27	17	Unworked	Abraded lump	Abraded	Secondary	-	28	24	14	9.58
03E0115:17:28	17	Unworked	Abraded lump	Abraded	Secondary	-	32	16	11	8.15
03E0115:17:29	17	Unworked	Thermal flake	Abraded	Secondary	-	30	15	7	3.42
03E0115:17:30	17	Unworked	Abraded lump	Abraded	Secondary	-	18	12	7	2.18
03E0115:17:31	17	Unworked	Abraded lump	Water rolled	Secondary	-	35	21	16	15.30
03E0115:17:32	17	Unworked	Abraded lump	Abraded	Secondary	-	28	25	20	23.89
03E0115:17:33	17	Unworked	Thermal flake	Abraded	Secondary	-	35	25	14	10.73
03E0115:17:34	17	Unworked	Abraded lump	Abraded	Secondary	-	20	16	13	6.70
03E0115:17:35	17	Unworked	Abraded lump	Abraded	Tertiary	-	20	15	8	3.55
03E0115:17:36	17	Unworked	Abraded lump	Abraded	Tertiary	-	15	11	6	1.27
03E0115:17:37	17	Unworked	Abraded lump	Abraded	Secondary	-	16	10	8	2.78
03E0115:17:38	17	Unworked	Abraded lump	Abraded	Tertiary	-	16	18	11	4.68
03E0115:17:39	17	Unworked	Abraded lump	Abraded	Secondary	-	20	12	10	3.01
03E0115:17:40	17	Unworked	Thermal flake	Abraded	Tertiary	-	21	12	6	1.28
03E0115:17:41	17	Unworked	Abraded lump	Abraded	Tertiary	-	18	15	12	4.32
03E0115:17:43	17	Unworked	Abraded lump	Abraded	Tertiary	-	20	12	8	2.85
03E0115:17:44	17	Unworked	Abraded lump	Abraded	Tertiary	-	20	13	11	3.55
03E0115:17:45	17	Angular shatter	Angular shatter - burnt	Patinated	Secondary	-	32	25	14	11.17
03E0115:17:46	17	Unworked	Abraded lump	Patinated	Tertiary	-	28	14	6	3.03
03E0115:18:1	18	Unworked	Angular shatter - thermal	Patinated	Tertiary	-	11	9	5	.54
03E0115:18:2	18	Unworked	Abraded lump	Patinated	Secondary	-	20	11	7	2.25
03E0115:18:3	18	Unworked	Thermal flake	Patinated	Secondary	-	14	11	6	1.03

03E0115:18:4	18	Unworked	Abraded lump	Burnt	Secondary	-	20	12	7	2.28
03E0115:18:5	18	Unworked	Abraded lump	Abraded	Secondary	-	17	11	10	1.23
03E0115:18:6	18	Angular shatter	Angular shatter - bipolar	Patinated	Tertiary	-	17	15	11	4.68
03E0115:18:7	18	Unworked	Abraded lump	Abraded	Secondary	-	28	30	16	18.81
03E0115:18:8	18	Unworked	Angular shatter - thermal	Abraded	Secondary	-	35	20	12	6.23
03E0115:18:9	18	Unworked	Thermal flake	Patinated	Tertiary	-	12	10	2	.34
03E0115:18:10	18	Unworked	Abraded lump	Abraded	Tertiary	-	10	6	4	.88
03E0115:18:12	18	Unworked	Abraded lump	Abraded	Secondary	-	30	25	22	18.66
03E0115:18:13	18	Unworked	Abraded lump	Abraded	Secondary	-	30	29	20	18.92
03E0115:18:14	18	Unworked	Abraded lump	Abraded	Secondary	-	31	30	24	36.01
03E0115:18:15	18	Unworked	Abraded lump	Abraded	Secondary	-	30	22	20	15.83
03E0115:18:16	18	Unworked	Thermal flake	Abraded	Secondary	-	21	14	8	3.96
03E0115:18:17	18	Unworked	Abraded lump	Abraded	Tertiary	-	15	12	8	1.55
03E0115:18:18	18	Unworked	Abraded lump	Abraded	Secondary	-	23	14	11	4.15
03E0115:18:19	18	Unworked	Abraded lump	Abraded	Secondary	-	35	28	16	25.04
03E0115:18:20	18	Core	Bipolar	Abraded	Secondary	-	31	38	14	24.77
03E0115:18:21	18	Unworked	Abraded lump	Abraded	Secondary	-	22	18	13	9.71
03E0115:18:22	18	Unworked	Abraded lump	Abraded	Tertiary	-	22	14	12	6.30
03E0115:18:23	18	Unworked	Angular shatter - thermal	Abraded	Secondary	-	21	20	14	6.84
03E0115:18:24	18	Unworked	Abraded lump	Patinated	Tertiary	-	20	11	6	1.85
03E0115:18:25	18	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	15	9	8	1.48
03E0115:18:26	18	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	15	10	6	1.11
03E0115:18:27	18	Unworked	Abraded lump	Abraded	Secondary	-	12	8	6	.89
03E0115:18:28	18	Unworked	Thermal flake	Abraded	Secondary	-	25	16	14	6.80
03E0115:18:29	18	Unworked	Abraded lump	Patinated	Tertiary	-	12	7	2	.35
03E0115:18:30	18	Unworked	Abraded lump	Patinated	Tertiary	-	10	7	6	.63
03E0115:18:31	18	Unworked	Abraded lump	Abraded	Tertiary	-	11	8	5	.62
03E0115:18:32	18	Unworked	Abraded lump	Abraded	Tertiary	-	24	20	23	13.53
03E0115:18:33	18	Unworked	Abraded lump	Abraded	Tertiary	-	25	16	16	5.11
03E0115:18:34	18	Core	Unworked pebble	Abraded	Secondary	-	28	19	18	11.00
03E0115:20:1	20	Unworked	Abraded lump	Abraded	Tertiary	-	23	15	8	3.33
03E0115:23:1	23	Unworked	Thermal flake	Abraded	Secondary	-	41	30	22	38.45
03E0115:23:2	23	Unworked	Thermal flake	Abraded	Secondary	-	21	20	14	5.99
03E0115:23:3	23	Core	Bipolar	Fresh	Secondary	-	35	26	26	36.26
03E0115:23:4	23	Unworked	Angular shatter - thermal	Abraded	Secondary	-	28	17	15	7.57
03E0115:23:5	23	Unworked	Abraded lump	Abraded	Secondary	-	26	23	15	12.18
03E0115:23:6	23	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	20	14	9	2.22
03E0115:23:7	23	Unworked	Abraded lump	Abraded	Tertiary	-	18	16	13	4.18
03E0115:24:1	24	Unworked	Abraded lump	Abraded	Secondary	-	52	42	26	7.52
03E0115:24:2	24	Angular shatter	Angular shatter	Fresh	Tertiary	-	17	13	9	2.64
03E0115:24:3	24	Unworked	Abraded lump	Abraded	Secondary	-	39	38	25	55.12
03E0115:24:4	24	Unworked	Thermal flake	Abraded	Secondary	-	41	27	21	20.57
03E0115:24:5	24	Unworked	Angular shatter - thermal	Abraded	Secondary	-	38	39	25	39.73
03E0115:24:6	24	Unworked	Thermal flake	Abraded	Tertiary	-	13	10	8	1.18
03E0115:24:7	24	Unworked	Abraded lump	Abraded	Tertiary	-	16	14	5	1.88
03E0115:26:1	26	Modified	similar to hs	Fresh	Secondary	-	25	29	6	4.96
03E0115:26:2	26	Unworked	Thermal flake	Patinated	Secondary	-	28	20	4	3.97
03E0115:26:3	26	Flake debitage	Blade shatter distal	Burnt	Secondary	35	0	21	6	4.87
03E0115:27:1	27	Unworked	Thermal flake	Abraded	Tertiary	-	12	11	6	.63
03E0115:27:2	27	Unworked	Abraded lump	Abraded	Tertiary	-	15	12	10	2.49
03E0115:27:3	27	Flake debitage	Regular	Abraded	Secondary	-	31	16	10	6.26
03E0115:27:4	27	Unworked	Thermal flake	Abraded	Tertiary	-	22	17	11	4.69
03E0115:27:5	27	Unworked	Abraded lump	Abraded	Tertiary	-	10	8	6	.42
03E0115:27:6	27	Unworked	Abraded lump	Abraded	Tertiary	-	20	17	14	5.46
03E0115:27:7	27	Unworked	Abraded lump	Abraded	Tertiary	-	20	14	6	2.31
03E0115:27:8	27	Unworked	Abraded lump	Abraded	Secondary	-	32	25	15	13.52
03E0115:27:9	27	Unworked	Abraded lump	Abraded	Tertiary	-	15	12	10	1.99
03E0115:28:1	28	Unworked	Abraded lump	Abraded	Secondary	-	38	34	17	28.92
03E0115:28:2	28	Unworked	Abraded lump	Abraded	Secondary	-	31	26	14	15.61
03E0115:28:3	28	Flake debitage	Regular	Abraded	Secondary	-	22	22	8	3.45
03E0115:31:2	31	Unworked	Abraded lump	Abraded	Secondary	-	44	38	28	58.63
03E0115:31:3	31	Unworked	Abraded lump	Abraded	Secondary	-	30	29	20	20.83
03E0115:31:4	31	Unworked	Thermal flake	Burnt	Secondary	-	24	14	6	2.21
03E0115:31:5	31	Unworked	Abraded lump	Abraded	Secondary	-	25	24	14	10.46
03E0115:31:9	31	Unworked	Abraded lump	Abraded	Secondary	-	48	24	12	19.46
03E0115:31:10	31	Unworked	Thermal flake	Abraded	Secondary	-	28	25	12	9.21

03E0115:31:14	31	Unworked	Abraded lump	Abraded	Secondary	-	25	15	14	6.10
03E0115:31:15	31	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	22	18	12	3.41
03E0115:31:16	31	Unworked	Abraded lump	Abraded	Secondary	-	15	10	7	11.20
03E0115:31:17	31	Unworked	Abraded lump	Abraded	Secondary	-	32	25	18	13.97
03E0115:31:18	31	Unworked	Abraded lump	Abraded	Secondary	-	35	36	17	31.70
03E0115:31:19	31	Unworked	Thermally split pebble	Abraded	Secondary	-	31	18	12	6.24
03E0115:31:20	31	Unworked	Abraded lump	Abraded	Secondary	-	28	24	14	1.85
03E0115:31:21	31	Unworked	Thermally split pebble	Abraded	Secondary	-	28	22	18	53.57
03E0115:31:22	31	Unworked	Abraded lump	Abraded	Secondary	-	41	40	31	7.09
03E0115:31:23	31	Unworked	Abraded lump	Abraded	Tertiary	-	25	18	12	2.53
03E0115:31:24	31	Unworked	Abraded lump	Abraded	Tertiary	-	19	15	5	2.31
03E0115:31:25	31	Unworked	Abraded lump	Abraded	Secondary	-	18	14	10	1.75
03E0115:31:26	31	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	22	18	12	3.21
03E0115:31:27	31	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	22	15	8	2.01
03E0115:31:28	31	Unworked	Abraded lump	Abraded	Secondary	-	20	10	8	2.31
03E0115:31:29	31	Unworked	Abraded lump	Abraded	Secondary	-	17	15	8	1.75
03E0115:31:30	31	Unworked	Abraded lump	Abraded	Tertiary	-	18	15	11	3.21
03E0115:37:6	37	Modified	Gunflint	Fresh	Tertiary	-	22	28	8	2.01
03E0115:37:7	37	Unworked	Abraded lump	Abraded	Secondary	-	17	18	8	2.31
03E0115:37:8	37	Unworked	Abraded lump	Abraded	Tertiary	-	8	8	8	.83
03E0115:37:9	37	Unworked	Abraded lump	Abraded	Tertiary	-	12	10	8	1.01
03E0115:37:10	37	Unworked	Abraded lump	Abraded	Tertiary	-	8	5	3	.20
03E0115:37:11	37	Unworked	Abraded lump	Abraded	Tertiary	-	8	5	2	.12
03E0115:39:2	39	Modified	Scraper	Burnt	Secondary	25	0	17	5	2.30
03E0115:40:1	40	Unworked	Thermal flake	Abraded	Secondary	-	15	14	6	2.31
03E0115:40:2	40	Unworked	Abraded lump	Abraded	Secondary	-	35	25	20	17.00
03E0115:40:3	40	Unworked	Abraded lump	Abraded	Secondary	-	28	22	16	11.42
03E0115:40:4	40	Unworked	Thermally split pebble	Abraded	Secondary	-	42	25	22	29.44
03E0115:40:5	40	Core	Split pebble bipolar	Fresh	Secondary	-	42	28	44	63.14
03E0115:41:1	41	Unworked	Abraded lump	Water rolled	Secondary	-	25	14	10	3.29
03E0115:41:2	41	Unworked	Thermal flake	Abraded	Tertiary	-	25	25	10	6.78
03E0115:41:3	41	Unworked	Thermally split pebble	Abraded	Secondary	-	35	14	11	3.92
03E0115:41:4	41	Unworked	Abraded lump	Abraded	Secondary	-	25	22	16	12.81
03E0115:41:5	41	Unworked	Abraded lump	Abraded	Secondary	-	45	38	24	46.64
03E0115:41:6	41	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	18	15	12	4.28
03E0115:41:7	41	Unworked	Abraded lump	Abraded	Secondary	-	35	29	22	24.59
03E0115:41:8	41	Unworked	Abraded lump	Abraded	Secondary	-	85	55	35	141.50
03E0115:41:9	41	Core	Flaked chunk	Abraded	Secondary	-	28	18	14	8.11
03E0115:41:10	41	Unworked	Thermal flake	Abraded	Secondary	-	44	38	38	56.93
03E0115:41:11	41	Unworked	Abraded lump	Abraded	Tertiary	-	12	10	6	.95
03E0115:43:9	43	Unworked	Abraded lump	Abraded	Secondary	-	54	44	21	60.38
03E0115:43:10	43	Unworked	Abraded lump	Abraded	Secondary	-	47	42	17	39.33
03E0115:43:11	43	Unworked	Abraded lump	Abraded	Secondary	-	31	28	20	26.83
03E0115:43:12	43	Unworked	Abraded lump	Abraded	Secondary	-	24	17	12	7.32
03E0115:43:13	43	Unworked	Abraded lump	Abraded	Secondary	-	30	10	7	3.35
03E0115:43:14	43	Unworked	Abraded lump	Abraded	Secondary	-	54	35	22	47.96
03E0115:43:15	43	Unworked	Abraded lump	Abraded	Secondary	-	25	14	12	5.19
03E0115:43:16	43	Unworked	Abraded lump	Abraded	Secondary	-	20	16	14	4.80
03E0115:43:17	43	Unworked	Abraded lump	Abraded	Secondary	-	18	14	12	5.16
03E0115:43:18	43	Unworked	Thermal flake	Abraded	Secondary	-	20	15	7	2.55
03E0115:43:19	43	Unworked	Thermal flake	Abraded	Secondary	-	20	14	8	2.09
03E0115:43:20	43	Unworked	Abraded lump	Abraded	Secondary	-	18	12	9	3.17
03E0115:43:21	43	Unworked	Abraded lump	Abraded	Secondary	-	14	12	9	1.57
03E0115:43:22	43	Unworked	Abraded lump	Abraded	Secondary	-	14	15	8	2.01
03E0115:43:23	43	Unworked	Abraded lump	Abraded	Secondary	-	15	11	10	1.94
03E0115:43:24	43	Unworked	Thermal flake	Abraded	Secondary	-	12	12	6	.96
03E0115:43:25	43	Unworked	Abraded lump	Abraded	Secondary	-	10	7	8	.46
03E0115:43:26	43	Unworked	Abraded lump	Abraded	Secondary	-	17	10	8	1.12
03E0115:45:2	45	Unworked	Abraded lump	Abraded	Secondary	-	39	32	18	30.82
03E0115:45:3	45	Unworked	Abraded lump	Abraded	Secondary	-	58	31	26	56.53
03E0115:45:4	45	Unworked	Abraded lump	Abraded	Secondary	-	35	28	21	19.30
03E0115:47:8	47	Unworked	Angular shatter - thermal	Abraded	Secondary	-	28	28	18	18.86
03E0115:47:9	47	Unworked	Abraded lump	Abraded	Secondary	-	25	19	11	6.00
03E0115:47:10	47	Flake debitage	Bipolar	Fresh	Secondary	-	37	18	8	6.06
03E0115:47:11	47	Flake debitage	Flake shatter distal	Abraded	Secondary	25	-	18	12	4.98
03E0115:47:12	47	Unworked	Abraded lump	Abraded	Secondary	-	25	22	17	11.30

03E0115:47:13	47	Unworked	Abraded lump	Abraded	Secondary	-	28	15	13	5.55
03E0115:47:14	47	Unworked	Abraded lump	Abraded	Secondary	-	28	22	16	9.96
03E0115:47:15	47	Unworked	Thermal flake	Abraded	Tertiary	-	22	18	11	7.12
03E0115:47:16	47	Unworked	Abraded lump	Abraded	Secondary	-	25	14	11	4.49
03E0115:47:17	47	Unworked	Abraded lump	Abraded	Secondary	-	30	18	12	8.34
03E0115:47:18	47	Unworked	Abraded lump	Abraded	Secondary	-	38	30	22	25.89
03E0115:47:19	47	Unworked	Abraded lump	Abraded	Secondary	-	25	20	16	10.09
03E0115:47:20	47	Unworked	Abraded lump	Abraded	Secondary	-	18	12	11	3.09
03E0115:47:21	47	Unworked	Abraded lump	Abraded	Tertiary	-	15	12	8	1.53
03E0115:47:22	47	Unworked	Abraded lump	Abraded	Secondary	-	15	11	6	1.25
03E0115:47:23	47	Unworked	Abraded lump	Abraded	Tertiary	-	15	10	10	1.91
03E0115:47:24	47	Unworked	Abraded lump	Abraded	Secondary	-	18	17	10	3.34
03E0115:47:25	47	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	18	15	10	2.82
03E0115:47:26	47	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	15	11	6	1.23
03E0115:47:27	47	Unworked	Angular shatter - thermal	Fresh	Tertiary	-	18	13	10	3.06
03E0115:47:28	47	Unworked	Angular shatter - thermal	Abraded	Secondary	-	18	12	8	1.70
03E0115:47:29	47	Unworked	Thermal flake	Abraded	Secondary	-	10	9	4	.18
03E0115:47:30	47	Unworked	Thermal flake	Abraded	Tertiary	-	8	8	2	.20
03E0115:47:34	47	Flake debitage	Bipolar	Abraded	Secondary	-	22	16	12	4.63
03E0115:47:35	47	Flake debitage	Bipolar	Abraded	Secondary	-	18	17	12	4.07
03E0115:47:36	47	Unworked	Abraded lump	Abraded	Secondary	-	18	18	11	6.17
03E0115:47:37	47	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	19	16	12	5.37
03E0115:48:1	48	Flake debitage	Blade shatter medial	Patinated	Tertiary	17	0	12	5	1.01
03E0115:48:2	48	Unworked	Thermal flake	Abraded	Secondary	-	24	21	9	7.96
03E0115:48:3	48	Unworked	Abraded lump	Abraded	Secondary	-	17	12	8	1.51
03E0115:48:4	48	Unworked	Abraded lump	Abraded	Secondary	-	15	12	8	1.65
03E0115:48:1	49	Flake debitage	Core trimming	Abraded	Secondary	-	15	25	5	2.26
03E0115:49:2	49	Unworked	Pseudolith	Abraded	Secondary	-	54	44	34	98.76
03E0115:51:1	51	Unworked	Angular shatter - thermal	Abraded	Secondary	-	12	9	6	.65
03E0115:51:1	81	Unworked	Thermal flake	Abraded	Tertiary	-	11	7	2	.30
03E0115:56:1	56	Flake debitage	Regular	Fresh	Primary	-	25	15	5	2.20
03E0115:56:2	56	Unworked	Abraded lump	Abraded	Tertiary	-	31	20	14	9.17
03E0115:56:3	56	Unworked	Abraded lump	Abraded	Secondary	-	20	18	11	4.93
03E0115:56:5	56	Unworked	Abraded lump	Abraded	Tertiary	-	15	16	8	2.44
03E0115:56:4	56	Unworked	Abraded lump	Abraded	Secondary	-	21	18	14	6.54
03E0115:56:8	56	Unworked	Angular shatter - thermal	Abraded	Secondary	-	20	15	11	3.25
03E0115:56:9	56	Unworked	Abraded lump	Abraded	Tertiary	-	32	17	11	6.99
03E0115:56:11	56	Modified	Edge retouched	Burnt	Secondary	19	0	24	6	3.01
03E0115:56:14	56	Unworked	Abraded lump	Abraded	Tertiary	-	22	19	10	4.74
03E0115:56:15	56	Unworked	Abraded lump	Abraded	Secondary	-	30	24	18	15.58
03E0115:56:16	56	Unworked	Abraded lump	Abraded	Secondary	-	28	22	17	13.15
03E0115:56:2	56	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	35	27	15	16.40
03E0115:56:3	56	Flake debitage	Blade	Patinated	Tertiary	-	25	10	2	.60
03E0115:56:5	56	Angular shatter	Angular shatter - burnt	Burnt	Secondary	-	18	12	8	2.33
03E0115:112:1	112	Flake debitage	Core trimming	Patinated	Secondary	-	21	15	8	3.04
03E0115:112:2	112	Unworked	Thermal flake	Abraded	Secondary	-	19	12	8	2.18
03E0115:120:1	120	Unworked	Abraded lump	Abraded	Secondary	-	11	7	6	.78
03E0115:128:1	128	Angular shatter	Angular shatter - burnt	Burnt	Secondary	-	11	6	3	.27
03E0115:130:1	130	Unworked	Abraded lump	Abraded	Secondary	-	6	6	4	.27
03E0115:181:1	181	Flake debitage	Flake shatter distal	Abraded	Secondary	17	0	14	4	.70
03E0115:158:1	158	Unworked	Thermally split pebble	Abraded	Secondary	-	57	28	21	30.67
03E0115:158:2	158	Unworked	Abraded lump	Abraded	Secondary	-	28	31	17	19.32
03E0115:158:3	158	Unworked	Angular shatter - thermal	Abraded	Secondary	-	30	17	11	6.58
03E0115:158:4	158	Unworked	Abraded lump	Abraded	Secondary	-	26	25	18	13.89
03E0115:158:5	158	Unworked	Abraded lump	Abraded	Secondary	-	31	22	11	8.90
03E0115:158:6	158	Unworked	Angular shatter - thermal	Abraded	Secondary	-	25	22	12	5.15
03E0115:158:7	158	Unworked	Angular shatter - thermal	Abraded	Secondary	-	25	17	8	2.56
03E0115:158:8	158	Unworked	Angular shatter - thermal	Abraded	Secondary	-	25	14	10	3.66
03E0115:158:9	158	Unworked	Thermal flake	Abraded	Secondary	-	21	14	6	2.19
03E0115:158:10	158	Unworked	Thermal flake	Abraded	Secondary	-	17	10	5	.88
03E0115:158:11	158	Unworked	Abraded lump	Abraded	Secondary	-	22	17	9	4.45
03E0115:158:12	158	Unworked	Abraded lump	Abraded	Secondary	-	15	10	7	1.60
03E0115:158:13	158	Unworked	Abraded lump	Abraded	Tertiary	-	12	11	4	.79
03E0115:158:14	158	Unworked	Abraded lump	Abraded	Secondary	-	12	8	3	.42
03E0115:158:15	158	Unworked	Abraded lump	Abraded	Tertiary	-	6	6	3	.25
03E0115:158:16	158	Unworked	Thermal flake	Abraded	Tertiary	-	3	5	1	.02

03E0115:215:11	215	Flake debitage	Regular	Fresh	Secondary	-	28	25	12	13.36
03E0115:228:1	228	Unworked	Abraded lump	Abraded	Secondary	-	24	24	6	19.98
03E0115:228:2	228	Unworked	Abraded lump	Abraded	Secondary	-	17	17	11	3.94
03E0115:228:3	228	Unworked	Thermal flake	Abraded	Secondary	-	13	11	5	.75
03E0115:230:1	230	Unworked	Abraded lump	Abraded	Tertiary	-	32	17	14	8.28
03E0115:230:2	230	Unworked	Abraded lump	Abraded	Secondary	-	26	25	14	12.41
03E0115:230:3	230	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	29	17	14	9.96
03E0115:230:4	230	Unworked	Abraded lump	Abraded	Secondary	-	17	18	12	5.83
03E0115:230:5	230	Unworked	Abraded lump	Abraded	Secondary	-	24	15	10	3.60
03E0115:230:6	230	Unworked	Abraded lump	Abraded	Secondary	-	17	15	10	3.76
03E0115:230:7	230	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	12	11	9	1.62
03E0115:230:8	230	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	16	10	8	1.87
03E0115:230:9	230	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	17	8	5	1.09
03E0115:230:10	230	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	17	12	8	2.01
03E0115:230:11	230	Unworked	Angular shatter - thermal	Abraded	Tertiary	-	8	8	4	.45
03E0115:230:12	230	Unworked	Abraded lump	Abraded	Tertiary	-	12	10	6	1.19
03E0115:230:13	230	Unworked	Abraded lump	Abraded	Tertiary	-	8	8	6	.64
03E0115:230:14	230	Unworked	Abraded lump	Abraded	Tertiary	-	6	4	1	.19
03E0115:239:1	239	Unworked	Angular shatter - thermal	Abraded	Secondary	-	17	17	10	3.31
03E0115:239:2	239	Unworked	Thermal flake	Abraded	Tertiary	-	12	11	3	.35
03E0115:275:1	275	Unworked	Angular shatter - thermal	Abraded	Secondary	-	28	30	22	16.79
03E0115:306:1	306	Unworked	Thermal flake	Abraded	Tertiary	-	8	6	1	.22
03E0115:306:2	306	Unworked	Abraded lump	Abraded	Secondary	-	54	42	26	71.68
03E0115:306:3	306	Unworked	Abraded lump	Abraded	Tertiary	-	38	31	21	42.61
03E0115:306:4	306	Flake debitage	Regular	Abraded	Secondary	-	17	15	8	1.84
03E0115:306:5	306	Unworked	Abraded lump	Abraded	Secondary	-	10	10	2	.34
03E0115:306:6	306	Unworked	Abraded lump	Abraded	Tertiary	-	5	3	1	.05
03E0115:341:1	341	Unworked	Abraded lump	Abraded	Secondary	-	25	28	14	10.22

Table 14.1: Dundalk Western Bypass: Newtownbalregan 6 (03E0115): showing basic composition of the total assemblage (italics denotes non-flint).

The assemblage was dominated by worked and unworked flint (596 pieces), with single examples of unworked quartzite (03E0115:47:12), chert (03E0115:306:1) and sandstone (03E0115:47:23) being recovered. The overwhelming majority of the assemblage was unworked flint (546/599 pieces), accounting for over 90% of the total assemblage. The majority of the remainder were flake debitage (32 pieces), with a small quantity of cores (7 pieces) and angular shatter (8 pieces) being found. The assemblage also included a small number of modified tools (6 pieces), which accounted for less than 1% of the total assemblage. The bulk of the assemblage seemed to be naturally available within the local geology and soils, with only a small number of flint artefacts being derived from a beach or water-rolled source (13 pieces). However, despite being few in number, more than one-half had been worked (7/13 pieces), including cores (3 pieces) and flake debitage (4 pieces); the remainder being unworked pebbles (6 pieces). This indicates that, where flint was worked, the locally available material was overlooked in favour of sourced and curated beach or water-rolled material.

Condition	Fresh	Patinated	Abraded	Water rolled	Burnt	TOTAL
Basic type						
Unworked	2	17	519	6	2	546
Core	2	-	5	-	-	7
Flake debitage	7	12	12	-	1	32
Angular shatter	1	2	3	-	2	8
Modified	2	-	2	-	2	6
Total	14	31	541	6	7	599

Table 14.2: Dundalk Western Bypass: Newtownbalregan 6 (03E0115): showing basic composition of the total assemblage, in relation to condition.

The majority of the assemblage was in an abraded condition (541 pieces), and this included most of the unworked assemblage, as well as around one-half of the worked assemblage (Table 14.2); in addition, the water-rolled material accounts for the unworked material sourced from a beach or water-rolled source. Most of the remaining artefacts were in a patinated (31 pieces) or fresh (14 pieces) condition, with a small number of burnt artefacts being recovered (7 pieces). The majority of these were worked (5 pieces), and included flake debitage (1 piece), angular shatter (2 pieces) and modified tools (2 pieces).

Assemblage summary: NEWTOWNBALREGAN 6 (03E0115)

Unworked

The unworked assemblage, which constituted over 90% of the total assemblage, was largely comprised of small-scale abraded lumps of flint (519/546 pieces) (Table 14.2). A considerable proportion of these were damaged as a result of thermal action, resulting in thermally produced flakes (62 pieces), lumps (48 pieces) and split pebbles (10 pieces). The unworked assemblage ranged in size from just 3mm to 68mm, with the overwhelming majority measuring less than 40mm in length (>90%) (Fig 14.1). The unworked assemblage was mainly derived from topsoil (239/546 pieces), but was recovered from most contexts which yielded lithic artefacts (Table 14.3).

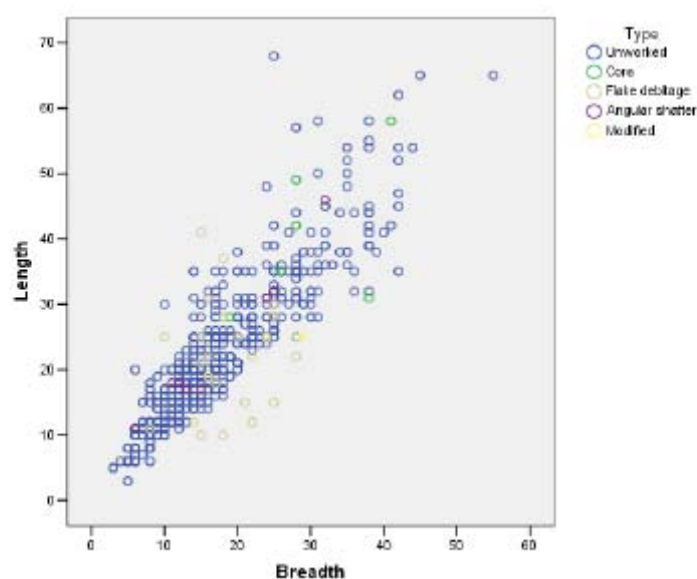


Fig 14.1: Dundalk Western Bypass: Newtownbalregan 6 (03E0115): Length by breadth (mm) of complete artefacts.

Cores

A small number of cores were recovered (7 pieces), almost one-half of which were formed on beach or water-rolled pebbles. The cores were mainly comprised of bipolar examples (3 pieces: 03E0115:18:20: Plate 14.1; 03E0115:23:3; 03E0115:40:5), of which two were based on beach pebbles (C18 and C23). Most of the remaining cores had been randomly flaked, without the preparation of a platform (3 pieces): these included two randomly flaked abraded lumps (03E0115:18:34; 03E0115:41:9) and a randomly flaked beach pebble (03E0115:1:44). Only one core exhibited evidence of platform preparation (03E0115:17:24: Plate 14.2): this was a multi-platform core which appears to have been fully exhausted, and shows signs of both platform and bipolar reduction.

The cores constitute an assemblage of diminutive artefacts, mostly measuring between 28-49mm in maximum length, and having a mass of between 8.1g and 63.1g; the platform core, however, is considerably larger and heavier than the remaining cores, measuring 58mm in length, and with a mass of 106.5g. The cores were recovered from numerous contexts, but with the exception of a single piece found in topsoil, they were all found in relation to Group 2 activity (6 pieces: 2 pieces from C18, with single examples from C17, C23, C40, C41).

Flake debitage

Most of the remaining artefacts were flake debitage (32 pieces). The majority of these were derived from platform reduction (21 pieces), with the remainder being bipolar derived (11 pieces). Complete flake debitage ranged in length from just 10-41mm, with the majority measuring less than 25mm in length (>75%). It is notable that there was a slightly increased tendency for water-rolled flint to be found within the bipolar flake debitage assemblage (3 pieces) than in the platform flake debitage material (1 piece). The platform flake debitage assemblage included complete examples (13 pieces: 10 flakes, 3 blades), as well as those which had been broken (7 pieces). The complete platform removals included non-specific flakes (5 pieces) and blades (3 pieces), as well as a number of core trimming flakes (5 pieces), related to core shaping and preparation. The broken platform debitage assemblage (8 pieces) included broken flakes (5 pieces: 1 medial, 4 distal) and blades (2 pieces: 1 medial, 1 distal), as well as indeterminate shatter (1 piece). Where platforms had survived, they tended to be simply produced, mainly comprising cortical or simple planar striking surfaces. The complete platform debitage ranged in length from 10-35mm, but only one piece was greater than 18mm in length. Platform debitage tended to be found in topsoil (C1: 9 pieces), but single examples were recovered from following features: Group 2 (C12, C17, C26, C27, C28, C48, C49, C215), Group 3 (C112, C181), Group 5 (C306) and Group 6 (C66). The bipolar debitage included complete (7 pieces: 5 flakes, 2 blades) and fragmentary (4 pieces) examples, with the complete pieces ranging in length from 11-41mm, and most measuring between 18-35mm (75%). Most of the bipolar assemblage was derived from topsoil (C1: 6 pieces) or Group 6 (C47: 4 pieces), with a single piece being found in relation to Group 2 activity (C56). While the material from C47 represents the greatest concentration of flake debitage within an excavated assemblage at Newtownbalregan 6, none of the material could be conjoined and it did not seem to derive from a single knapping episode.

Angular shatter

A small assemblage of angular shatter was found, all of which is thought to be derived from the knapping process (8 pieces). A number of these had suffered subsequent thermal damage (2 pieces), and some had been subject to intensive burning (3 pieces); the angular shatter assemblage also included a number of artefacts which may be the product of bipolar reduction (2 pieces). The angular shatter assemblage ranges in length from 11-46mm, but mostly measures between 18-32mm (76%). It was recovered from a range of deposits, including Group 1 (C2: 1 piece), Group 2 (C17: 3 pieces; C18: 1 piece; C24: 1 piece), Group 3 (C128: 1 piece) and Group 6 (C66: 1 piece).

Modified tools

A small number of modified tools were found (5 pieces), which included a number of small scrapers (3 pieces: 03E0115:1:81L Plate 14.4; 03E0115:17:7: Plate 14.3; 03E0115:39:2), at least one of which (found in C1) may be a thumbnail scraper, and was formed on a bipolar flake, and one of which (C39) was burnt. The assemblage also included a possible hollow scraper blank, which may have been utilised without

retouch as a cutting tool (03E0115:26:1: Plate 14.5), as well as the burnt medial fragment of a possible cutting tool (03E0115:56:11). In addition, a possible gunflint was found (03E0115:37:6: Plate 14.6), recovered from a Group 2 occupation fill of the ringfort (C37). This piece is slightly irregular, but may be an example of an early wedge type or 'gunspall', found during the 16th/17th centuries (de Lotbiniere 1984); it is part of a distal fragment of a flake or blade, formed on very good quality, honeycoloured flint, with some steep, fine retouch along the 'heel' of the piece (Plate 14.6).

General provenance of assemblage

The assemblage was recovered from numerous contexts across the site, with the majority being found in topsoil (C1: 256 pieces) and other modern deposits (Group 7) (Table 14.2). Within archaeological contexts, the main concentration was found in association with Group 2 Early Medieval activity (159 pieces) (Table 14.3); Group 3 related to occupation remains within the interior of the ringfort and yielded smaller quantities of artefacts (40 pieces), as did Group 6 which related to the backfilling and abandonment of the souterrain (57 pieces). Occasional artefacts were found in association with the use of the souterrain (Group 5: 6 pieces).

Context No	Description	Unworked	Core	Flake Debitage	Angular shatter	Modified	TOTAL
2	Group 1: Subgroup 1000: Natural geology	59	-	-	1	-	60
18	Group 2: Subgroup 1001: Fill of ringfort ditch C5	30	2	-	1	-	33
24	Group 2: Subgroup 1001: Fill of ringfort ditch C5	6	-	-	1	-	7
51	Group 2: Subgroup 1001: Fill of ringfort ditch C5	1	-	-	-	-	1
17	Group 2: Subgroup 1004: Silting fill of C5	36	1	1	3	1	42
20	Group 2: Subgroup 1004: Silting fill of C5	1	-	-	-	-	1
23	Group 2: Subgroup 1004: Occupation fill of C5	6	1	-	-	-	7
26	Group 2: Subgroup 1004: Silting fill of C5	1	-	1	-	1	3
27	Group 2: Subgroup 1004: Silting fill of C5	8	-	1	-	-	9
28	Group 2: Subgroup 1004: Occupation fill of C5	2	-	1	-	-	3
37	Group 2: Subgroup 1004: Occupation fill of C5	5	-	-	-	1	6
39	Group 2: Subgroup 1004: Occupation fill of C5	-	-	-	-	1	1
40	Group 2: Subgroup 1004: Silting fill of C5	4	1	-	-	-	5
41	Group 2: Subgroup 1004: Occupation fill of C5	10	1	-	-	-	11
48	Group 2: Subgroup 1004: Occupation fill of C5	3	-	1	-	-	4
49	Group 2: Subgroup 1004: Occupation fill of C5	1	-	1	-	-	2
12	Group 2: Subgroup 1005: Backfilling of C5	-	-	1	-	-	1
13	Group 2: Subgroup 1005: Backfilling of C5	11	-	-	-	-	11
56	Group 2: Subgroup 1005: Backfilling of C5	9	-	1	-	1	11
215	Group 2: Subgroup 1006: Fill of pit C214	-	-	1	-	-	1
43	Group 3: Subgroup 1016: Fill of pit C60	18	-	-	-	-	18
112	Group 3: Subgroup 1008: Fill of pit C111	1	-	1	-	-	2
120	Group 3: Subgroup 1017: Fill of posthole C115	1	-	-	-	-	1
128	Group 3: Subgroup 1034: Fill of posthole C244	-	-	-	1	-	1
130	Group 3: Subgroup 1035: Fill of posthole C129	1	-	-	-	-	1
158	Group 3: Subgroup 1016: Fill of pit C60	16	-	-	-	-	16
181	Group 3: Subgroup 1038: Fill of posthole C182	-	-	1	-	-	1
306	Group 5: Subgroup 1053: Souterrain floor	5	-	1	-	-	6
275	Group 6: Subgroup 1060: Souterrain backfill	1	-	-	-	-	1
45	Group 6: Subgroup 1062: Souterrain backfill	3	-	-	-	-	3
47	Group 6: Subgroup 1062: Souterrain backfill	23	-	4	-	-	27
31	Group 6: Subgroup 1063: Souterrain backfill	23	-	-	-	-	23
66	Group 6: Subgroup 1063: Souterrain backfill	1	-	1	1	-	3
228	Group 7: Subgroup 1065: Fill of structural enclosure C207	3	-	-	-	-	3
230	Group 7: Subgroup 1065: Fill of structural enclosure C207	14	-	-	-	-	14
239	Group 7: Subgroup 1065: Fill of structural enclosure C207	2	-	-	-	-	2
1	Group 7: Subgroup 1067: Topsoil	239	1	15	-	1	256
81	Non-archaeological	1	-	-	-	-	1
341	Group unspecified: Fill of pit C343	1	-	-	-	-	1
Total		546	7	32	8	6	599

Table 14.3: Dundalk Western Bypass: Newtownbalregan 6 (03E0115): showing basic composition of the flint assemblage, in relation to distribution.

The majority of finds from all contexts were unworked and naturally occurring within the drift geology, and were therefore archaeologically insignificant. The greatest concentration of artefacts was recovered from topsoil (C1) and this included almost one half of the unworked assemblage and the flake debitage (Table 14.3). Most of the cores (6/7 pieces) were found in association with Group 2 remains, and these included all types of cores, including bipolar (Plate 14.1), randomly flaked pieces, and the combined multi-platform/bipolar core (Plate 14.2) (Table 14.1). Group 2 contexts also yielded a quantity of flake debitage (9/32 pieces), which mainly included platform debitage (8 pieces). In addition, with the exception of a single tool found in topsoil

(the thumbnail scraper: 03E0115:1:81), all remaining modified tools were found in relation to Group 2 activity (5 pieces); these include two scrapers (03E0115:17:7; 03E0115:39:2), a hollow scraper blank (possibly used as a cutting tool: 03E0115:26:1), a possible gunflint (03E0115:37:6) and a burnt fragment of a cutting tool (03E0115:56:11). The remainder of artefacts were scattered throughout numerous contexts (Table 14.3), with occasional concentrations: the single exception to this was a small number of bipolar flakes found in C47 (4 pieces), a Group 6 backfill of the souterrain; none of these pieces could be refitted, and did not seem to derive from the same knapping episode.

Discussion: Newtownbalregan 6 (03E0115)

A large assemblage of worked and unworked flint was recovered during excavations at Newtownbalregan (596 pieces), in addition to a small number of chert, sandstone and quartzite pieces (1 of each material). Despite the quantity recovered, however, only a small proportion of the assemblage exhibited signs of working. These were mainly comprised of flake debitage (32 pieces), but also included a proportion of cores (7 pieces) and modified tools (6 pieces).

The core and flake assemblages were comprised of platform and bipolar-derived knapping debris, with platform debitage being more evident within the flake assemblage than within the core assemblage; indeed, only one core exhibited signs of platform reduction (the multi-platform core, which also showed signs of bipolar reduction: Plate 14.2). Such apparent disparity of techniques between flake debitage and cores are not unusual, and are usually indicative of an assemblage which has been subject to complex curation, rather than an assemblage (resulting from one or more knapping episodes) which has retained its compositional integrity. As such, it is probable that the core and flake debitage recovered from Newtownbalregan represents partial elements of numerous knapping episodes, potentially over a protracted period of time. This element of the assemblage is particularly unhelpful in suggesting a chronological framework for the production of the assemblage, since bipolar working results in limited diagnostic attributes, and (as a means of reduced flint expediently and without necessarily requiring great skill) is found throughout the Neolithic and Bronze Age periods in Ireland, and probably thereafter and throughout the Early Medieval/Medieval periods. This lack of dating within the bipolar assemblage is echoed within the platform debitage assemblage: while platform debitage can exhibit more complex attributes and consequently suggest a more specific dating framework, the material found at Newtownbalregan 6 is quite simplistic in form, and (like the bipolar assemblage) offers little assistance in terms of establishing a chronological framework for the assemblage.

The modified assemblage includes a small quantity of artefacts (6 pieces), and suggests a limited requirement for the use of flint tools at Newtownbalregan 6. The tools which are present include scrapers (3 pieces) and cutting tools (2 pieces: a burnt medial fragment and a reused hollow scraper blank). It is possible that the scrapers relate to tool production during the Neolithic and/or Bronze Age, and the putative thumbnail scraper in particular suggests production during the Final Neolithic/Early Bronze Age (Nelis 2003). The possible hollow scraper blank indicates that the flake was produced during the late Early to Middle Neolithic, but its reuse as a cutting tool may date to that period, or may be evidence of the opportunistic reuse of existing material at any point thereafter (including during the Early Medieval/Medieval period). The possible gunflint is slightly irregular, and may be unfinished, but may be an early wedge or gunspall type, relating to later 16th/17th century activity (de Lotbiniere 1984); its identification may be further thrown into

doubt, however, by its context of deposition, which may relate to significantly earlier activity, during the later Early Medieval period, and it may simply be the fragment of a larger edge retouched tool, which has been coincidentally broken into a shape reminiscent of gunflint. Its problematic identification also highlights the limited extent to which gunflint (as well as their predecessors, 'strike-a-lights') are understood in an Irish context.

The assemblage from Newtownbalregan 6, therefore, includes only a small quantity of worked material, which points to the reduction of raw material and production of tools, but offers a limited insight into the periods during which this activity took place. The bipolar and platform flake debitage and cores suggest that this working involved the expedient and simplistic reduction of raw material, and the modified tool assemblage indicates that a limited range of functions were served by the flint assemblage, amounting to simple scraping and cutting activities.

APPENDIX 2.4: REPORT ON CARVED STONES

Site 114 Newtownbalregan 6, Co. Louth M1 Dundalk Western Bypass

Chainage 21.320-21.420, NGR 302156 / 308928

By Blaze O'Connor

With illustrations by Ursula Mattenberger

**For
Irish Archaeological Consultancy Ltd
On behalf of the National Roads Authority**

October 2005

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**Scoil na Seandálaíochta UCD
An Coláiste Ollscoile, Baile Átha Cliath**

Table of Contents

Abstract	3
1 Introduction	4
1.1 General Description, Provenance and Period	4
1.2 Contribution to Research Questions	5
2 Methodology	7
2.1 Recording Methods	7
2.2 Reference Sources	8
3 Description	8
3.1 General Information	8
3.2 Stone 293	8
3.3 Stone 33	10
4 Provenance	20
4.1 Dating the Carvings	20
4.2 Find Context	20
4.3 Significance	22
5 Discussion and Comparative Material	22
5.1 Assigning the Motifs to an Artistic Tradition	22
5.2 The Reuse of Decorated Stones in Souterrains	25
5.3 Comparative Material from the Local Area	25
5.4 Contribution to Research Questions and Significance of the Assemblage	28
6 Conservation	30
6.1 Condition	30
6.2 Recommendations	30
7 References	31
Appendix A Finds Index	33
Appendix B CD of Digital Files and Images	34

List of Illustrations

Figures

- Figure 1 Location of the prehistoric carved stones in Counties Louth and Monaghan.
- Figure 2 Illustration of Stone 293 showing main decorated face and four side faces (Drawing: Ursula Mattenberger).
- Figure 3 Illustration of Stone 300 (Drawing: Ursula Mattenberger).
- Figure 4 Rubbing of the Killin Hill stone (source: Evans 1939).
- Plates [All photographs are by Blaze O'Connor © unless otherwise stated]
- Plate (i) View of Stone 293 *in situ* (scale: 10cm).
- Plate 1 Oblique aerial photograph of the site facing west with the souterrain to the top left (Photo: Studiolab).
- Plate 2 View of the souterrain facing east with Passage No. 3 and Chamber No. 1 in the mid-ground of the photograph (Photo: Studiolab).
- Plate 3 Stone 293 (with scale) *in situ* along the souterrain passage facing WNW (scale: 50cm).
- Plate 4 Stone 293 *in situ* facing ESE (scale: 50cm).
- Plate 5 Stone 293 viewed from inside the souterrain passage facing WNW (10cm scale just visible to left).
- Plate 6 View of Stone 293 *in situ* (10cm scale just visible to left).
- Plate 7 View of Stone 293 *in situ* (scale: 10cm).
- Plate 8 The main decorated face of Stone 293 (scale: 50cm & 10cm).
- Plate 9 Detail of the roughly pecked oval motif at the centre of the composition (scale: 10cm).
- Plate 10 Truncated motifs on Stone 293, highlighted on the right edge of the panel (scale: 50cm & 10cm).
- Plate 11 Detail of the truncated arc motif on the main face of Stone 293 (scale: 10cm).
- Plate 12 Dispersed pecking on Face 4 of Stone 293 (scale: 10cm).
- Plate 13 Scallop motifs on Face 5 of Stone 293 (scale: 10cm).
- Plate 14 Dispersed and dense pecking on Face 6 – note oval area of pecking at centre (scale: 10cm).
- Plate 15 Natural solution hollows (at base), dispersed pecking and cup mark (at top) on Face 7 (scale: 10cm).
- Plate 16 Stone 300 *in situ* with decorated surface hidden within souterrain wall (scale: 10cm).
- Plate 17 Stone 300 *in situ* - just behind scale - facing NE (scale: 50cm).
- Plate 18 Stone 300 with arc, cup and dispersed pecking - note truncated ends of arc (scale: 10cm).
- Plate 19 The Carrickrobin panel, now on display in Dundalk Museum (50cm scale) (Photo: O'Connor).
- Plate 20 The Tateetra capstone positioned as found in the souterrain (scale: 50cm) (Photo: O'Connor).

Abstract

This report describes two carved stones recovered from a souterrain in the townland of Newtownbalregan, west of Dundalk, County Louth. The stones are fragments from 'megalithic art' or 'passage tomb art' panels, and have been reused as a souterrain capstone and souterrain wall material respectively. The stones feature shallow pecked motifs, probably executed with a stone tool. One stone features pecked motifs across its main face and four narrow side faces. The second stone features decoration across one face. Motifs on both stones are truncated indicating that the fragments are from formerly larger compositions. The designs on both stones are comparable to a range of megalithic art motifs dating to the Later Neolithic, including arcs, cup marks, dispersed and dense pecking, pecked ovals or rings, and scallops. Aspects of the motifs on the main face of the larger stone, in particular the 'tendrils' and 'three-sided void' elements, are comparable to *La Tène* decorative forms of the Iron Age, most commonly seen in metal work. However they are also analogous to select designs from Neolithic passage tombs. The lack of directly comparable Iron Age material, and the similarities to Neolithic panels in terms of the overall form of the stone, technique of carving, and composition, support the proposal that the stones are best identified as megalithic art. Several megalithic panels from destroyed or undiscovered megalithic monuments are known from the immediate area. This may suggest that the area once featured a small complex of decorated megalithic monuments.

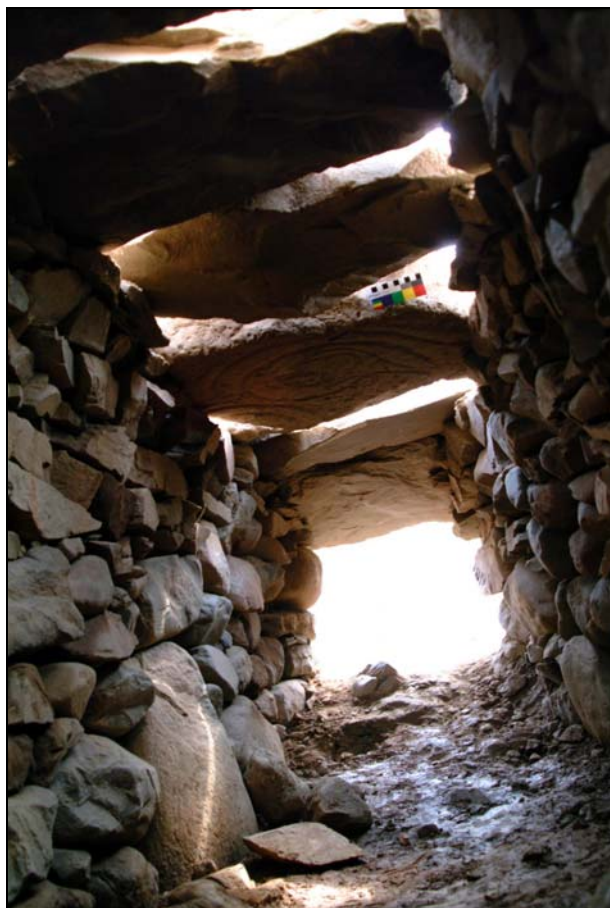


Plate 1 View of stone 293 in situ (scale: 10cm)

1 Introduction

1.1 General Description, Provenance and Period

This report describes two carved stones that were identified during the excavation of the souterrain at Newtownbalregan 6 (Site 114, Chainage 21.320-21.420, NGR 302156 / 308928). These stones are fragments from formerly larger compositions on panel(s) that probably formed part of a megalithic monument dating to the Later Neolithic. One stone [293] features pecked motifs across its main face and four narrow side faces. The second stone [300] features decoration across one face.

The motifs on both stones are comparable to a range of megalithic art motifs dating to the Later Neolithic, including arcs, cup marks, dispersed and dense pecking, pecked ovals or rings, and scallops. Aspects of the motifs on the main face of the larger stone, in particular the tendril and three sided void elements, are comparable to *La Tène* decorative forms of the Iron Age most commonly seen in metal work. However they are also analogous to select designs from Neolithic passage tombs. The lack of directly comparable Iron Age material, and similarities to Neolithic panels in terms of the overall form of the stone, technique of carving and composition, support the proposal that the stones are best identified as megalithic art.

The site was discovered during M1 Dundalk Western Bypass test trenching in 2002, and excavated in advance of the construction of the 8.5km M1 Dundalk Western Bypass (main chainage 17.100 –25.600) under the direction of David Bayley (Licence No. 03E0115). Resolution excavations were completed between April and September 2003 (Licence 03E0115) with an average of 20 staff. The townland of Newtownbalregan is located c. 2km west of Dundalk (1km west of Dún Dealgan). The stones were recovered during the deconstruction of the souterrain and stored in Drumskin before being deposited at the Dundalk Museum.

The site is situated on top of an east-west oriented ridgeline with commanding views over the surrounding countryside, and overlooking the Castletown-Kilcurry River valley and Dundalk Bay. The main focus of the site is situated on a well-drained plateau made up of glacially mixed gravels and is located approximately 30m OD. The hill is steeply sloped on the south and the north. The local bedrock consists of Silurian siltstones, mudstones and sandstones, and locally Dinurian limestone. Outcropping sandstone (turbidite, a graded sandstone commonly referred to as greywacke) is common in the area and it is likely that the stones were originally quarried from local outcrop formations for use in a megalithic monument.

The souterrain lay to the southwest of a circular ringfort featuring high status finds that indicate an occupation period between the 7th – 10th centuries AD (see Plate 1). The structure measured 46m in length and comprised 33m of intact tunnels (see Plate 2). The larger of the decorated stones was reused as a capstone in Passage No. 3. The smaller stone was used in the wall material at the junction of Passage No. 5 and Chamber No. 1.

The stones form part of a wider cluster of prehistoric carved panels distributed across Counties Louth and Monaghan as shown in Figure 1. These include numerous outcrop rock art panels, decorated cist slabs (Crumlin: see Lynch 2002), a possible carved standing stone (Edenakill: LH 003-11), carved stones from a cairn and a boulder burial (Carn More: O'Connor 2005), and a series of panels featuring megalithic art (Killin, Carrickrobin, and Tateetra: see below). The stones also add to the two other stones that feature prehistoric decoration from souterrains at

Ballybarrack (LH 007-203) and Tateetra (Avril Hayes, AEGIS, pers.comm.), County Louth.

This report discusses the stones' relationship to classic outcrop rock art, other megalithic art panels, and carved cist slabs from Counties Louth and Monaghan, as well as further afield, and assesses the stone's relationship to Iron Age sculpture and the La Tène tradition.

1.2 Contribution to Research Questions

The stones are able to contribute to both site specific research questions, particularly in terms of the nature and antiquity of human activity in the immediate area, and to wider research questions in terms of the study of prehistoric art in County Louth, across the island of Ireland, and further afield. These aspects are discussed in section 5.4 below.

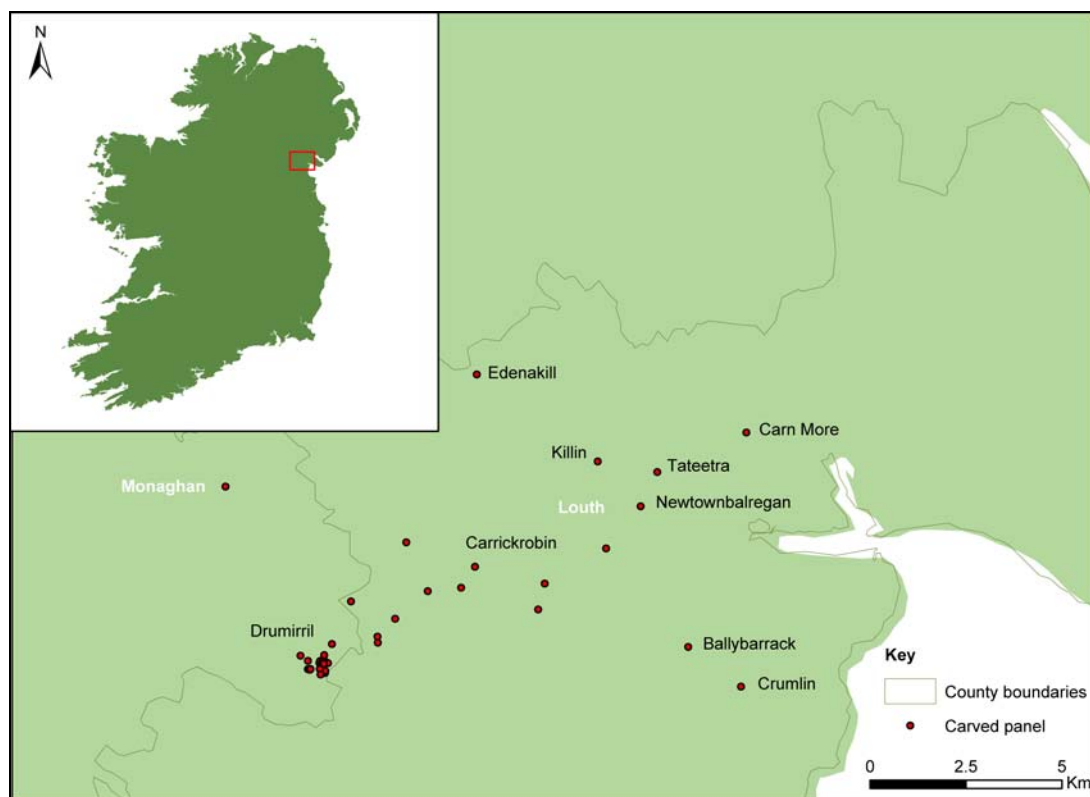


Figure 1 Location of the prehistoric carved stones in Counties Louth and Monaghan.



Plate 1 Oblique aerial photograph of the site facing west with the souterrain to the top left (Photo: Studiolab).



Plate 2 View of the souterrain facing east with Passage No. 3 and Chamber No. 1 in the mid-ground of the photograph (Photo: Studiolab).

2 Methodology

2.1 Recording Methods

This report presents the results of three visits. The first two were made to photograph the stones *in situ* within the souterrain passage (see Plates 3-7 and 16-17). After this the stones were removed to storage where they were recorded and traced. The motifs and compositions were recorded using a tracing technique (Twohig 1988; Loendorf 2001) whereby the motifs and any natural or modern damage, weathering or other markings are gently outlined onto clear cellophane sheets using fine permanent markers. This is a low-contact method that avoids placing pressure on the stone surface, and avoids materials that may leave residues that might alter the chemical composition of the stone surface or negate the use of future scientific dating methods. Both on site and in the storage context, the stones were photographed using a portable halogen light source to provide oblique or 'grazing' lighting that would enhance the visibility of the motifs.

2.2 Reference Sources

The stones were documented using specially designed recording forms based on recording guidelines from European and American handbooks (e.g. Seglie 2001, Whitley 2001). The chronology of the carvings was discussed with several specialists including Dr Elizabeth Shee Twohig (University College Cork), Dr Muiris O'Sullivan and Professor Barry Raftery (both University College Dublin).

The stone was noted to be of the same geology as other decorated stones in the Louth / Monaghan area. Geological Survey of Ireland map data identifies this rock as Inniskeen Formation (IN) turbidite, commonly referred to as greywacke, a sandstone characterised by fine-to-coarse graded bedding (see also Whittow 1984).

3 Description

3.1 General Information

Both stones consist of quarried sandstone (turbidite or greywacke) slabs, and feature pecked decoration that was probably executed using a stone tool. The decoration is characterised by shallow pecked motifs, some flat in cross section, others slightly 'V'-shaped. The shallow depth and relatively flat cross section of these motifs is in keeping with the megalithic art tradition, where the depth of pecking and cross sections contrast with those characteristic of outcrop rock art, where the carvings are deeper and more 'U' shaped (Johnston 1993). The smooth finish of the grooves that comprise the Newtownbalregan motifs suggests that the pecked carvings were finished using a polishing or grinding technique. Motifs on both stones are truncated indicating that the fragments are from formerly larger compositions. The two stones cannot be directly refitted either on the basis of motifs, or overall form, and so it is not possible to determine whether they are from a single former panel. The decorated faces are moderately weathered, whilst the broken side edges are fresh and unpatinated.

3.2 Stone 293

The larger of the two slabs [293] features a complex composition covering its main surface, and designs on four side faces (see Plates 8-9, 12-15, and Figure 2). The motifs on the main decorated face (which measures 0.89 x 0.68 x 0.17m) include concentric arcs, a 'tendrill' or 'comma leaf', a 'trumpet' or 'three-sided void', a roughly pecked oval or ring, dispersed and dense pecking, a linear groove, and several irregular grooves. The grooves comprising the main trumpet and tendrill motif are

slightly V-shaped, probably due to the use of a grinding technique. Four of the narrow side faces of Stone 293 also feature pecked designs or markings. Face 4 (measuring 0.295 x 0.115m) features moderate dispersed and dense pecking distributed irregularly over its narrow surface. Face 5 (measuring 0.345 x 0.12m) exhibits a 'scallop' motif with irregular grooves running across it, and occasional dispersed pecking. Face 6 (measuring 0.467 x 0.157m) is more heavily marked with dispersed pecking, and features two areas of dense but light surface pecking forming a rough oval and rectangle, and an irregular groove that continues over on to the main decorated face. On Face 7 (which measures 0.235 x 0.145m) a small cup lies at the edge adjoining the main decorated face, and this is associated with occasional dispersed pecking. Face 7 also features three natural solution hollows and an area of surface damage or 'bruising' (probably unintentional). The former indicate that this face probably once formed the exposed horizontal or sloping surface of an outcrop, as similar hollows are common in the exposed sandstone outcrop surfaces of the surrounding region.

The composition of the motifs responds to the shape of the stone, with each of the side faces exhibiting different types of motifs or decorative effects. Decorated kerbstones, orthostats and corbel stones, for example those at Newgrange and Loughcrew, are known to feature carvings on their narrow side faces as well as their main faces, sometimes 'wrapping' around from one face to the other as seen in Stone 293 (see O'Kelly 1982 and Shee Twohig 1981). The attention paid to the scallop design on Face 5 may indicate that this face was intended to be relatively highly visible in comparison to, for example, Face 7 which features only a single cup and dispersed pecking.

The rough surface pecking technique used to produce the central oval or ring differs from the more highly finished, deeper and smoother grooves comprising the other motifs (see Plate 9). This might suggest that two carving phases occurred in the creation of the final composition. Multiple phases of carving occur frequently in megalithic art and sometimes relate to the reuse of decorated stones in more than one megalithic context (e.g. Eogan 1997).

Stone 293 features freshly exposed surfaces on the back and three sides. The quarried back surface is very slightly weathered, probably indicating that the breakage that exposed the side faces post-dated the original quarrying of the slab (see Plate 4). The decorated faces are moderately weathered and take advantage of what were probably exposed outcrop surfaces that have weathered to a relatively smooth finish. In some cases the motifs have been truncated by the broken edges (see Plates 10 and 11). The broken Faces 1, 2 and 3 are relatively fresh in appearance and it seems likely that the souterrain builders reworked the stone into a preferred size or form for use as the capstone, and in so doing truncated the arcs on the main face and slightly damaged the scallop motif on Face 5 (see Plates 10-11, 13). However, it also remains a possibility that the breakage occurred during an earlier phase. The scalloped decoration on Face 5 appears to largely respect the current depth of Stone 293, with one of the scallop forms only slightly truncated. This suggests that the depth of the stone was determined by the carvers and probable builders of the megalithic monument that housed the stone rather than by the souterrain builders. The carvings themselves have also undergone moderate weathering (see below).

3.3 Stone 300

The smaller stone [300] is a thin and roughly triangular flake-like slab measuring 0.373 x 0.21 x 0.073m. Its main face features an arc, a shallow cup, randomly

arranged dispersed pecking and some natural surface pitting (see Plate 18 and Figure 3). The stone is a fragment broken from a larger piece of stone, with the non-decorated face exhibiting a freshly broken surface. It is similar in form to the other pieces of quarried building material used to build some of the souterrain passages (Bayley 2005). The arc motif on the smaller stone has been truncated by breakage that seems to have occurred during the working or procurement of the slab, and which therefore predates this activity. This indicates that the motifs originally formed part of a larger composition. The wide breadth of the arc suggests that it may have been part of a curvilinear design related in formal terms to the arcs on Stone 293, as opposed to the smaller circular or curvilinear forms typical of the Boyne and Loughcrew traditions. The decorated face and motifs are moderately weathered (see below).



Plate 3 Stone 293 (with scale) *in situ* along the souterrain passage facing WNW (scale: 50cm).



Plate 4 Stone 293 *in situ* facing ESE (scale: 50cm).



Plate 5 Stone 293 viewed from inside the souterrain passage facing WNW (10cm scale just visible to left).



Plate 6 View of Stone 293 *in situ* (10cm scale just visible to left).



Plate 7 View of Stone 293 *in situ* (scale: 10cm).



Plate 8 The main decorated face of Stone 293 (scale: 50cm & 10cm).



Plate 9 Detail of the roughly pecked oval motif at the centre of the composition (scale: 10cm).

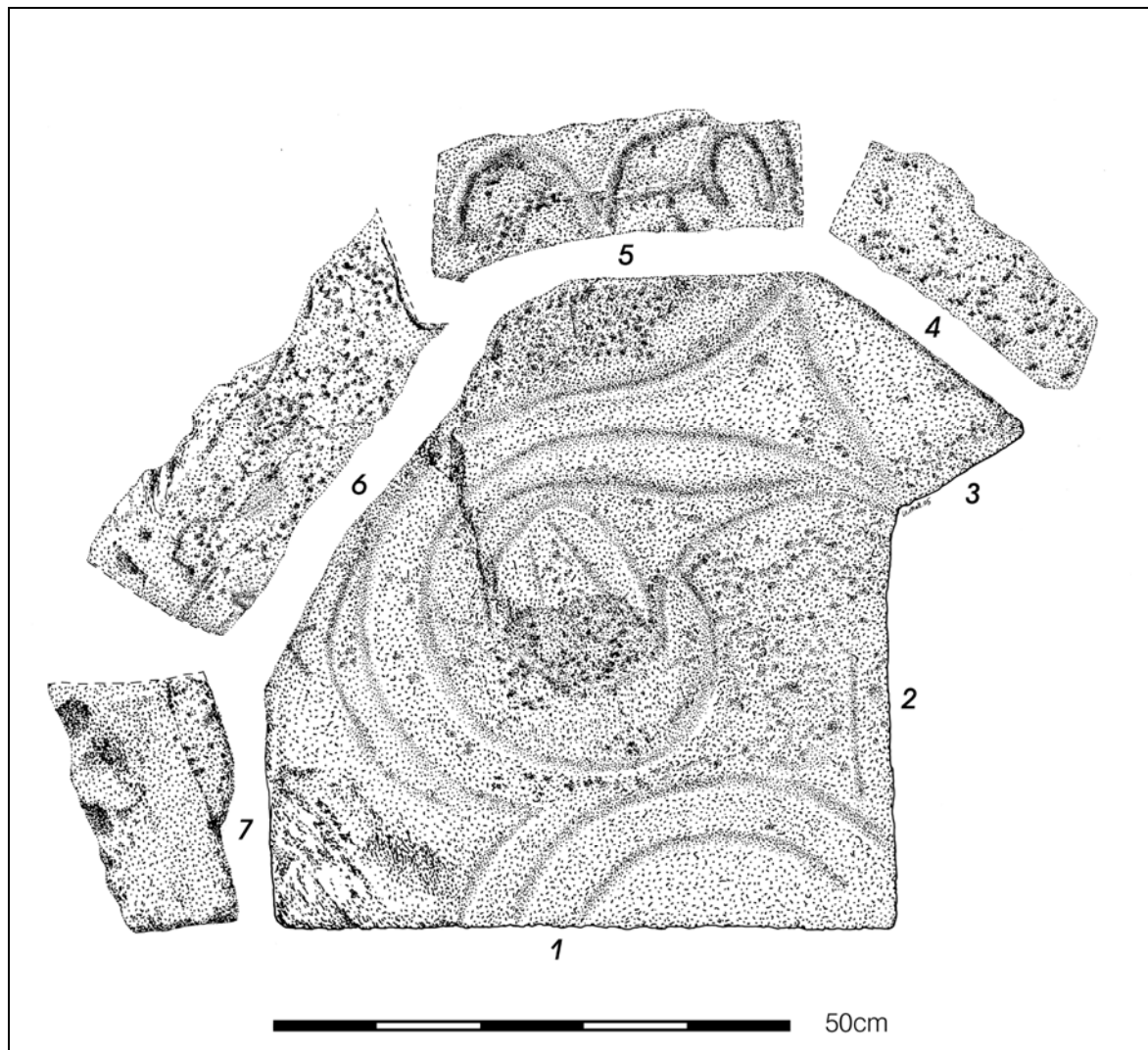


Figure 2 Illustration of Stone 293 showing main decorated face and four side faces (Drawing: Ursula Mattenberger).



Plate 10 Truncated motifs on Stone 293, highlighted on the right edge of the panel (scale: 50cm & 10cm).



Plate 11 Detail of the truncated arc motif on the main face of Stone 293 (scale: 10cm).



Plate 12 Dispersed pecking on Face 4 of Stone 293 (scale: 10cm).



Plate 13 Scallop motifs on Face 5 of Stone 293 (scale: 10cm).



Plate 14 Dispersed and dense pecking on Face 6 – note oval area of pecking at centre (scale: 10cm).



Plate 15 Natural solution hollows (at base), dispersed pecking and cup mark (at top) on Face 7 (scale: 10cm).



Plate 16 Stone 300 *in situ* with decorated surface formerly hidden within souterrain wall (scale: 10cm).



Plate 17 Stone 300 *in situ* - just behind scale - facing NW (scale: 50cm).



Plate 18 Stone 300 with arc, cup and dispersed pecking - note truncated ends of arc (scale: 10cm).

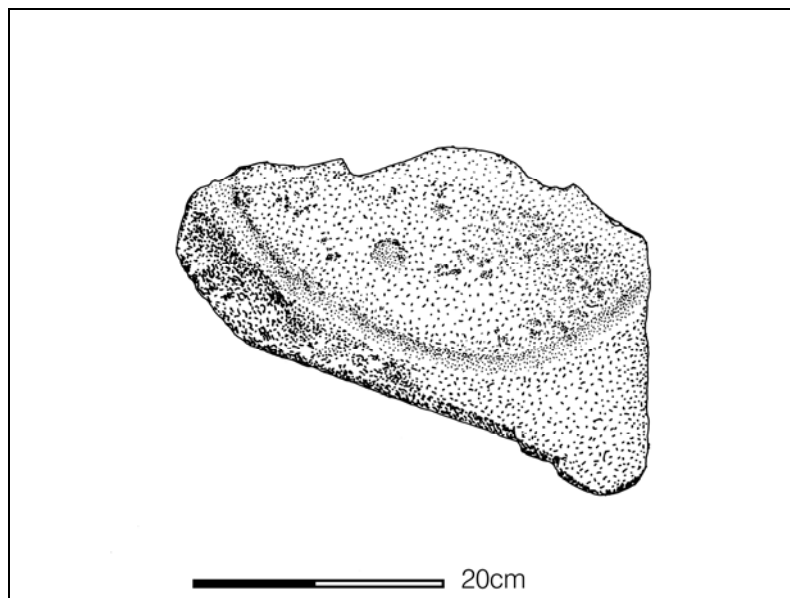


Figure 3 Illustration of Stone 300 (Drawing: Ursula Mattenberger).

4 Provenance

4.1 Dating the Carvings

There are rare examples of carved panels associated with megalithic complexes dating to the Early Neolithic, such as that at Listoghil, Carrowmore (Curran-Mulligan 1994). However, dating programmes have demonstrated that the majority of passage tombs date to the Middle to Late Neolithic (Herity 1974: 151-3; O'Kelly et al 1978; Shee Twohig 1981: 103-6; O'Kelly 1982; O'Kelly and O'Kelly 1983; ApSimon 1985-6: 8-11; Grogan 1991; O'Sullivan 1999: 302-3). This places the origin of passage tomb art at least as far back as the Middle Neolithic, with continued use into the Late Neolithic. This offers a very broad approximation of c.3600-2500BC (see Cooney 2000:16-18) for the date of the carvings on Stones 293 and 33.

4.2 Find Context

The stones were in (at least) a secondary context within the souterrain, having been used by the builders as a capstone and as wall material. The larger of the decorated stones [293] was reused as the third capstone in from the ESE entrance into Passage No. 3, with its main carved face visible. This gallery measured 5.7m long, 0.87m wide at the base and 0.96m high, and lead westwards to a well constructed stone-lined alcove or recess (0.65m deep x 0.60m wide x 0.50m high). The smaller stone [300] was used in the wall material at the junction of Passage No. 5 and Chamber No. 1, and its decoration, though facing upwards, would have been entirely obscured within the wall structure (see Plates 16-17). For the precise locations of the two stones refer to Bayley (2005: Figure 5).

The motifs on both stones are relatively well preserved with many individual peck marks clearly visible, and appear to have been subject to moderate rather than aggressive weathering prior to their incorporation into the souterrain. This is in keeping with the proposal that they may originally have been used as kerbstones, orthostats or capstones in a megalithic tomb context, as such a position would have afforded a degree of protection from the elements compared to horizontal panels in open air contexts on which water tends to accumulate. Having said that, the moderate but even weathering on each of the decorated faces indicates that the stones were exposed to weathering for a period of time and may therefore support the idea that Stone 293 functioned as a kerbstone within the proposed megalithic tomb, with its main face facing outwards and its side faces exposed along the top and sides. An internal chamber or passage position would have been more likely to attract differential weathering and polishing caused by the movement and actions of people passing through the monument. Some of the pockmarks across the decorated surfaces may be the result of natural weathering rather than artificial pecking. The faint linear striations visible across the main face of Stone 293, probably due to natural weathering, were not aligned along the souterrain passage, and they therefore seem to predate its use as a capstone.

The even weathering, pitted surface marks (some natural others created by dispersed pecking), the identical technique and depth (8.5mm maximum) of the carved forms, and similar arc motifs, all suggest that the two stones originate from the same site. It is possible that they also derive from the same stone and carver, though this cannot be verified.

It is unclear whether the souterrain builders intentionally selected the stones for their decorative features, however it seems likely that they were at least aware of the capstone motifs in particular, as those on Stone 293 were so clearly visible in terms

of their placement and effect. The effect of oblique light produced by torches or lamps would have enhanced the visual impact of the carvings should these have been used to pass through the souterrain. It also seems possible that the stone was deliberately placed and lit by a stone-lined lighting alcove (Alcove 3) at the north-west junction of Passages No. 3 and No. 4, though the alcove is actually more practically placed to light the entrance to Passage No. 4 and most of Passage No. 5 (Bayley 2005).

Bayley (2005) describes the ringfort finds from the south of the enclosure ditch, including a copper alloy penannular brooch, two stick pins, three decorated glass beads and a possible knife, as indicative of the high status of the ringfort occupants, and proposes that the deliberate reuse of a decorated stone may have served to enhance the high status nature of the souterrain. The labour expended on procuring the quarried stone, including the megalithic panels, which were probably further re-shaped prior to their incorporation within the souterrain, is certainly in keeping with this idea.

The site is located towards the southeastern end of a gentle NW-SE oriented ridgeline, in pasture. Though it is likely that the monument from which it is proposed these stones originated was not far from the souterrain site, the gentle ridgeline itself would make a comparatively modest site for a decorated passage tomb. The former tomb at nearby Killin Hill (LH 006-01502) was sited on a more localised prominence and similar topographical features are present in Carrickrobin (LH 006-03302), where a megalithic art panel was found. It should be remembered though that much of the farmland in the area has been subject to aggressive improvement and the large-scale removal of outcropping bedrock, and so the ridgeline may once have been more topographically distinctive. Reconstruction of past outcrop distribution using Geological Survey of Ireland historical mapping dating to the 1870s, prior to much modern land improvement, indicates that large sandstone outcrops were located within c.470m of Newtownbalregan 6 (O'Connor forthcoming).

Assuming that the proposal that the stones were originally used in a nearby monument is correct, the siting of the Newtownbalregan stones is interesting in landscape terms. The sites of Killin Hill, Tateetra and Newtownbalregan flank the banks of the Castletown River, on a distinctive bend, as it approaches the confluence with the Kilcurry River. This possible cluster of megalithic tombs, now destroyed, lies just west of the Balregan and Carn More monument complexes that have also been identified as part of the M1 Dundalk Western Bypass excavations. The Castletown River may well have acted as an important routeway into the area from the regions further west, and the tombs would have been in visually distinctive locations in terms of the local topography, particularly into the Later Neolithic, by which time pollen evidence indicates that clearance associated with cereal cultivation had begun. Their close spatial relationship with Neolithic and Bronze Age 'ritual' activity at Balregan and Carn More makes this a particularly significant locale.

It is also of interest that locally quarried sandstone was employed in the construction of the proposed megalithic monument. The Killin stone is also sandstone, in spite of its original location atop a localised area of limestone. As McCabe and Nevin (in Eogan 1986: 113-4) have demonstrated, the large structural stones of turbidite or greywacke used in the building of the Brugh na Bóinne passage tombs are likely to have come from the Longford / Down Lower Palaeozoic Silurian zone, which extends down through the Louth / Monaghan area to within a few kilometres north and east of the valley. The excellent carving qualities of this material appear to have made it particularly attractive to the builders of decorated megaliths. Again, the fact that this

material was used fits in with the idea that the Newtownbalregan stones originate from a megalithic monument.

4.3 Significance

These stones are of significant research value. In particular, Stone 293 represents a particularly sophisticated and highly decorated example of prehistoric stone carving. The relative rarity of comparable carvings lends Stone 293 additional significance.

5 Discussion and Comparative Material

5.1 Assigning the Motifs to an Artistic Tradition

Four main prehistoric stone carving traditions that are relevant to this discussion can be defined. These include Later Neolithic megalithic or passage tomb art, Later Neolithic to Early Bronze Age rock art on outcrops, Early Bronze Age funerary carvings, and Iron Age sculpture. All but the latter feature surface pecking on flat surfaces as the primary technique employed, as is also seen on the Newtownbalregan stones. Including destroyed and buried sites, there are currently 64 known rock art panels in the Louth / Monaghan group, with the majority located in the townland of Drumirril (Clarke 1982; Van Hoek 1997; O'Connor 2003 and forthcoming). The nearest is situated at Tankards Rock (LH 007-102) just over 1km to the south. However, Stone 293 bears little similarity to classic 'cup-and-ring' rock art in terms of its motifs.

In comparison to Britain, there are notably few Early Bronze Age funerary carvings in Ireland, with only two sites, Crumlin cist (Lynch 2002) and Carn More boulder burial (O'Connor 2005), known from County Louth to date. The cup marked stone from a cairn at Carn More appears to be a reused rock art panel (see O'Connor 2005). The scalloped design on Face 5 of Stone 293 shares broad formal similarities with a design on a cist capstone from Moylough, County Sligo (Morris 1929: 114-4, Plate iv). However, these Bronze Age panels seldom feature large integrated compositions or sophisticated motifs such as those on Stone 293. Though the fragmentary nature of Stone 33 makes it more readily comparable to both the rock art and Bronze Age cist traditions, its association with Stone 293 suggests that it is unlikely to fall into either category.

This leaves us with megalithic art and Iron Age sculpture. The relationship between these categories is currently a subject of debate by megalithic art specialists (Shee Twohig pers.comm. and 1981, O'Sullivan pers.comm. and 1994). This is due to the identification of a series of panels from more northerly locations in Ireland that are broadly in keeping with the megalithic tradition but feature distinctive motifs bearing formal similarities to the Iron Age *La Tène* tradition.

For example, the decorated stones at Cloghanmore court tomb of Malin More, Donegal, and at the Clover Hill megalith in Sligo, are considered by Shee Twohig (1981: 235) to be Iron Age in date. This is based on the nature of the motifs, which include unusual designs reminiscent of the *La Tène* style associated with Iron Age decorative traditions, such as tendril-like forms resembling the *La Tène* 'comma leaf'. The Cloverhill motifs share similarities with those at Listoghil, Carrowmore (Curran-Mulligan 1994; O'Sullivan 1994), and *La Tène*-like designs and double arcs are featured on stone C(i) at the Calderstones, Liverpool (Shee Twohig 1981: Fig 263). As a group the stones feature swirling and top-and-tailing tendril forms akin to the 'comma leaf', 'birds head', 'three-sided voids' and 'trumpet curves' of *La Tène* style

carving and metalwork (Duignan 1976). These stones are not from secure or sealed Neolithic contexts and so their dating remains problematic. Similar (Iron Age) chronological implications have been proposed for Stone 293 from Newtownbalregan (Shee Twohig pers.comm.).

Problematically however, whilst the basis of the motif designs is broadly similar, there are notably few parallels for pecked designs on stone panels from secure Iron Age contexts. In contrast, the rare examples of decorated stones from the period represent altogether different approaches to stone sculpture, including sophisticated three-dimensional compositions such as that of the Turoe Stone from County Galway, the Corleck head from County Cavan (Waddell 2000: 361-365), and the decorated 'beehive' quern stones from Ticooly-O'Kelly, Galway, and Clonmacnoise, Offaly (Raftery 1994: 244-6; Waddell 2000: 321). These stones make use of false relief and what amounts to a kind of *trompe-l'œil* whereby the viewer is challenged to determine whether the forms are continuous through space or made up of separate parts. The techniques used also tend to be more refined than surface pecking.

What challenges the Iron Age proposal further is that some designs from secure Neolithic megalithic contexts also exhibit examples of 'La Tène-style' motifs. At Knockmany, County Tyrone, there is a motif on Stone C11 that exhibits broadly similar morphological characteristics to the *La Tène* forms described above (Shee Twohig 1981: Fig 212). It corresponds to the 'comma leaf' form and doubles back on itself, both characteristic features of *La Tène*-style design. Secondly, at Pierowall passage grave, Orkney (Davidson and Henshall 1989), a multiple spiral motif bearing strong resemblance to those in other Late Neolithic contexts (Temple Wood stone circle, Achnabreck's rock art panels, the Knowth macehead and Barrow Hills grooved ware) features both the 'tendrill' or 'comma leaf', and 'trumpet curve' or 'three-sided void' forms (see Bradley 1997: Figure 7.3). A further example is a little cited stone from the unusual Late Neolithic to Early Bronze Age burial monument at Millin Bay, County Down (Collins and Waterman 1955: 30, 33). Stone 38 comes from an oval setting of orthostats that defines the inner extent of a shingle retaining bank, and surrounds a central 'long cist' that was covered by a mound. The stone features a series of pecked arcs and curvilinear designs that also bear some resemblance to the 'three-sided void' motif. Triangular motifs similar to three-sided voids are also featured in the Clover Hill compositions (Shee Twohig 1981: Fig 282). These are admittedly relatively rare examples, but nevertheless they are cases that prove the point that stylistic similarities do not necessarily equate to chronological equivalence.

As with the other 'Iron Age' candidates, in technical and morphological terms, the Newtownbalregan stone is much more in line with the megalithic decorative tradition, though it is a particularly complex and sophisticated example. These feature simple (in terms of technique) pecked designs, the forms of the motifs outlined in regular grooves, and the focus is primarily on a single flat face with moderate use of associated side panels. As is so common in megalithic art, combinations of techniques on single surfaces can be seen in the varying degrees of 'finish' evident on the Newtownbalregan stone. As O'Sullivan (1994; pers.comm.) has noted, these unusual designs may point towards a possible 'northern tradition' of megalithic art within the island of Ireland, which varies in stylistic terms from the better known passage tomb art of the more southerly regions.

The scallop motifs along one of the side faces (Face 5) of Stone 293 strongly resemble the design on Tomb 51 at Carrowmore, County Sligo in both form and location (Curran-Mulligan 1994: 15). Double scallops are known in County Meath on stone C4 in Cairn V at Loughcrew, and at Fourknocks B (Shee Twohig 1981: Fig 242

and 247). Double arcs, similar to the arcs on the main face of Stone 293 are also seen on the nearby stone at Killin (ibid: Fig 253), on Stone Co1 in Cairn 'T' at Loughcrew, County Meath (ibid: Plate 35), on the West Stone at Kiltierney, County Fermanagh (ibid: Fig 252), and on Stone C10 at Knockmany, County Tyrone (ibid: Fig 212). Cup marks are frequent in the megalithic art tradition (Shee Twohig 1982; O'Kelly 1982; Eogan 1986; O'Sullivan 1987).

5.2 The Reuse of Decorated Stones in Souterrains

In some cases the reuse of prehistoric carved stones in later built structures of the Late Neolithic through to the Late Bronze Age can be demonstrated to be sensitive and responsive to the presence of the motifs (O'Connor forthcoming; Bradley 1997: 141-2). Bearing in mind the continued significance of cup marks into the later Bronze Age such intentionality is not unexpected. Whether we can extend this response to include the use of decorated stone in much later structures such as souterrains is less clear, though some cases do seem to point towards intentionality in their placement.

At Ballybarrack (LH 007-203), County Louth, just a few kilometres southeast of Newtownbalregan, a souterrain featured a reused rock art panel as a doorjamb (Buckley and Sweetman 1991: 82). At Ballybarrack the clearly visible decoration would have been apparent to those entering the souterrain. Clinton has noted that examples where the decoration is hidden on the back face remain infrequent (2001: 67), though this might arguably be a function of the use of the flattest face along the inner surfaces of the souterrains passages, as Burgess (1990) has argued for the EBA cist panels. The newly uncovered stone at the neighbouring townland of Tateetra is an example of an obvious cluster of motifs being hidden within the structure of the souterrain. However, it would seem likely that in general the presence of the motifs was not lost on the souterrain builders. This need not imply that some manner of ideological significance was still attached to such motifs, though this is possible, even if only in the broad sense of significance attached to 'the past' and 'things ancient'.

5.3 Comparative Material from the Local Area

The Newtownbalregan stones add to a small assemblage of accepted and possible decorated megalithic panels from the wider Dundalk area. By far the majority of megalithic monuments from the county are entirely undecorated according to existing records. The stones also highlight the importance of the local area as a focus for these Neolithic 'ritual' monuments, as decorated stones are known from two neighbouring townlands, Killin, and Tateetra.

The Killin Hill stone (LH 006-01502) is a 'cigar-shaped' sandstone boulder with one face (1.45 x 0.45m) featuring a series of pecked designs including nested arcs, broadly similar to those at Newtownbalregan, and an area of short parallel lines. These are thought to fall within the megalithic art tradition of the Irish Neolithic, owing to historical records and antiquarian publications detailing the stone's association with a megalithic structure (Evans 1939). As such this stone is the only example of a decorated stone from Co. Louth from a documented megalithic site. The site lies on the northern banks of the Castletown River, opposite Newtownbalregan 6.

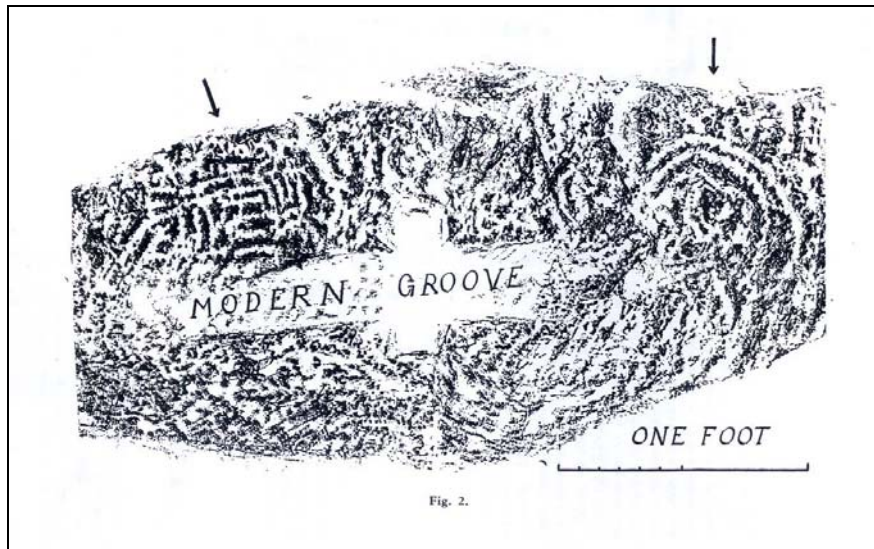


Figure 4 Rubbing of the Killin Hill stone (source: Evans 1939).



Plate 19 The Carrickrobin panel, now on display in Dundalk Museum (50cm scale) (Photo: O'Connor).

A further possible candidate is the Carrickrobin panel (LH 006-03302) (Plate 19). This was recovered during ploughing (Tempest 1931) activity about 4km to the southwest of Newtownbalregan. Its main face is densely carved with motifs that are predominantly similar to those from the classic cup-and-ring rock art repertoire.

However the disk, rectangle, scallops and adjoining concentric ring motifs are more in keeping with the megalithic art tradition, as is the compositional use of a prominent natural groove. As noted above scallops and rectangles are also a feature of the Newtownbalregan stone. The fact that the lower section of the panel has been left blank supports the proposal that this stone was decorated with its position in a built monument in mind.

A further example was recently discovered in the neighbouring townland of Tateetra (Avril Hayes, AEGIS, pers.comm.). This quarried piece of arenaceous sandstone features a series of integrated design elements at the centre of one face (see Plate 20). The carved elements include three concentric rings (slightly diamond-shaped) flanked by three half rings (oval through to 'V' shaped) on one side and four on the other, each adjoining the outer ring of the central design. The stone was reused as a souterrain capstone, as at Newtownbalregan, and was accompanied by several cross-inscribed stones that are possibly derived from the same monument.



Plate 20 The Tateetra capstone positioned as found in the souterrain (scale: 50cm) (Photo: O'Connor).

Each of the Louth megalithic panels is quite different in terms of their motifs. In the extant decorated passage tombs of Ireland there is frequently a degree of similarity amongst many of the panels within individual tombs. Taking into account the distances between these sites, these factors perhaps indicate that the stones are derived from more than one former megalithic monument. This is not surprising given the antiquarian accounts detailing several monuments at Killin Hill. It may also indicate stylistic change, and therefore chronological depth, within the megalithic art tradition in the Louth area.

5.4 Contribution to Research Questions and Significance of the Assemblage

The stones indicate that, despite the dominance of the later ringfort and souterrain on the ridgeline at Newtownbalregan, much earlier Neolithic activity also occurred in relatively close proximity to the site. This may be significant in terms of the prehistoric

activity uncovered at Newtownbalregan 1.2 and Newtownbalregan 5 (Bayley 2004), and at sites in the surrounding area, such as Balregan henge (LH007:001). The megalithic monuments for which the stones were originally carved are commonly interpreted as high status 'ritual' sites. The high status nature of the later souterrain and ringfort indicates that the location was of some significance over a considerable period of time. The stones are of particular interest given the presence of a series of megalithic art panels from the area of the Castletown and Kilcurry River confluence, together suggesting that the area may once have featured a small complex of decorated megalithic monuments.

At the regional level, the stones add to the significant assemblage of prehistoric art from the Louth / Monaghan region, which includes outcrop rock art, megalithic panels and decorated cist slabs. The stones are of considerable significance as there are very few decorated megalithic panels known from Louth, and megalithic tombs are known to have been destroyed in the area. The discovery of the stones is significant given the close spatial association between clustered distributions of megalithic art and outcrop rock art within County Louth, a situation currently paralleled within Ireland only at Loughcrew, County Meath. The lack of overlap has previously been used to argue for the lack of chronological relationship between the two traditions (Shee Twohig 1981: 121-3).

The stones are also able to contribute to wider research questions. They are of considerable value for the study of prehistoric art, particularly in terms of the current debate over the age of a series of stones from the northern half of the island of Ireland exhibiting tendril / comma leaf and three-sided void / trumpet motifs and related forms. The controversial nature of the motifs, exhibiting affinities with both megalithic and *La Tène* traditions, makes Stone 293 all the more significant in research terms. The present report considers the stone to be strongly in keeping with megalithic art, but recognises that not all specialists would share this view. Accepting this proposal, the motifs would seem to indicate that the Iron Age *La Tène* tradition, predominantly a metal working convention, may have its roots in a much early decorative practice in stone. If correct, this could be of considerable importance in terms of our knowledge of the development and timing of the *La Tène* style across Europe.

At the national and international level then, Stone 293 in particular represents an important find in terms of our understanding of a series of carved stones across Ireland and beyond, where we see motifs featuring *La Tène* style elements occurring in Neolithic contexts. On the other hand, this interpretation would obviously be challenged should a similar stone be recovered from a secure Iron Age context in the future. These two carved stones, and Stone 293 in particular, are therefore of considerable local, regional and national significance.

More detailed recording than that presented in the illustrations and photographs presented here could be achieved via high-resolution laser scanning. However, given the stable condition of the stones and their accessibility within Dundalk Museum, the need for such costly techniques is not apparent at this stage.

6 Conservation

6.1 Condition

The stones and carvings are in relatively good condition and appear to have suffered only moderate weathering and surface damage. No conservation work was

undertaken and the condition of the stones appears to be stable. Both stones feature a hard white calcite (crystalline calcium carbonate) deposit that built up whilst the panels were situated in the souterrain, but this does not obscure the pecked designs. Most of the stone surfaces of the souterrain interior were covered with similar deposits, sometimes forming small stalactites (Bayley 2005).

6.2 Recommendations

Though currently stable, the condition of the stones should be monitored regularly. Removal of the calcite deposit is *not* recommended, and any attempts to alter the substance should only be undertaken with advice from a professional conservator. The stones should ideally be stored or displayed in such a way as to ensure that all of the decorated surfaces are visible or accessible. For Stone 293 this is important as it features pecked designs on four of its narrow side surfaces as well as its main face. This will aid in avoiding damage to the stones during any future recording or research. All forms of contact with the decorated surfaces, including direct-contact recording methods such as rubbing or chalking, hands-on contact by viewers, and direct contact with materials during transport, storage or display, should be avoided.

7 References

- ApSimon, A., 1985-6. 'Chronological Contexts for Irish Megalithic Tombs', *The Journal of Irish Archaeology* 3:5-15.
- Bayley, D., 2004. 'Newtownbalregan Excavations: Sites 111, 112 and 113. Post-Excavation Assessment and Project Design'. Unpublished Report, Irish Archaeological Consultancy Ltd.
- Bayley, D., 2005. 'M1 Dundalk Western Bypass Site 114: Newtownbalregan 6 Post Excavation Assessment'. Unpublished Report, Irish Archaeological Consultancy Ltd.
- Bayley, D., and Roycroft, N., 2003 'Megalithic Art Discovered in Souterrain'. *Archaeology Ireland* 17(3): 4.
- Bradley, R., 1997. *Rock Art and the Prehistory of Atlantic Europe: Signing the Land*. London: Routledge.
- Buckley, V., and Sweetman, P.D., 1991. *Archaeological Survey of County Louth*. The Stationary Office, Dublin
- Burgess, C., 1990, 'The chronology of cup- and cup-and-ring marks in Atlantic Europe'. *Review Archéologique de l'Ouest*, Supplément 2, 157-171.
- Clarke, J., 1982. Prehistoric rock inscriptions near Dundalk, County Louth. *Journal of the County Louth Archaeological and Historical Society*, 20(2), 106-116.
- Collins, A., and Waterman, D., 1955. *Millin Bay. A Late Neolithic Cairn in Co. Down*. Belfast: Her Majesty's Stationery Office.
- Cooney, G., 2000. *Landscapes of Neolithic Ireland*. London: Routledge.
- Curran-Mulligan, P., 1994. 'Yes, but it *is* art!', *Archaeology Ireland*, 8(1), 14-5.

Davidson, J., and Henshall, A., 1989. *The Chambered Tombs of Orkney*. Edinburgh: Edinburgh University Press.

Duignan, M., 1976. 'The Turoe Stone: its place in insular La Tène art', in Duval, P-M. and Hawkes, C. (eds), *Celtic Art in Ancient Europe, Five Protohistoric Centuries*, 201-17, London.

Eogan, G., 1986. *Knowth and the Passage-Tombs of Ireland*. London: Thames and Hudson.

Eogan, G., 1997. 'Overlays and Underlays: Aspects of Megalithic Art Succession at Brugh na Bóinne, Ireland', *Brigantium* 10: 217-234.

Evans, E., 1939. 'Killin Hill'. *Ulster Journal of Archaeology* 2 (3rd Series): 250-254.

Grogan, E., 1991. 'Radiocarbon Dates from Brugh na Bóinne', in Eogan, G., 'Prehistoric and Early Historic Culture Change at Brugh na Bóinne', *Proceedings of the Royal Irish Academy* 91C: 105-32.

Herity, M., 1974. *Irish Passage Graves. Neolithic Tomb-Builders in Ireland and Britain 2500 B.C.* Dublin: Irish University Press.

Johnston, S., 1993. 'The Relationship Between Prehistoric Rock Art and Irish Passage Grave Art', *Oxford Journal of Archaeology* 12(3): 257-279.

Loendorf, L., 2001. 'Rock Art Recording', in Whitley, D. (ed.), *Handbook of Rock Art Research*. Walnut Creek, California: Altamira Press, 55-79.

Lynch, P., 2002. 'Crumlin 1 Bronze Age Cist Burial', in Bennet, I. (ed.), *Excavations 2000. Summary Accounts of Archaeological Excavations in Ireland*. Bray, Wicklow: Wordwell, 215-6.

Morris, H., 1929. 'Ancient Graves in Sligo and Roscommon', *Journal of the Royal Society of Antiquaries of Ireland* 59: 99-115.

O'Connor, B., 2003. 'Recent excavations in a rock art landscape', *Archaeology Ireland*, 17(4), 14-16.

O'Connor, B., 2005. 'Report on Carved and Worked Stones. Site 127, Carn More 5, County Louth'. Unpublished Report, UCD School of Archaeology.

O'Connor, B., forthcoming. 'Prehistoric Petroglyphs in the Archaeological Landscape: Contextualising Sites in Ireland and the United Kingdom'. PhD Thesis, University College Dublin.

O'Kelly, M., 1982. *Newgrange. Archaeology, Art and Legend*. London: Thames and Hudson.

O'Kelly, M., Lynch, F., and O'Kelly, C., 1978. 'Three Passage Graves at Newgrange, Co. Meath'. *Proceedings of the Royal Irish Academy* 78C: 249-352.

O'Kelly, M., and O'Kelly, C., 1983. 'The Tumulus of Dowth, Co. Meath'. *Proceedings of the Royal Irish Academy* 83C: 135-90.

O'Sullivan, M., 1987. 'The Art of the Passage Tomb at Knockroe, County Kilkenny', *Journal of the Royal Society of Antiquaries of Ireland* 117: 84-95.

O'Sullivan, M., 1994. 'A Specialist's View', *Archaeology Ireland* 8(1): 14-5.

O'Sullivan, M., 1999. 'An Overview of Irish Megalithic Art', in Cruz, A. and Oosterbeek, L. (eds), *Arkeos. Perspectivas em Diálogo. 1.º Curso Intensivo de Arte Pré-Histórica Europeia*, N° 6, Tomo II: 301-329.

Raftery, B., 1994. *Pagan Celtic Ireland*. London: Thames and Hudson.

Shee Twohig, E., 1981. *The Megalithic Art of Western Europe*. Oxford: Clarendon.

Seglie, D. (ed.), 2001. *Prehistoric Art: Guide to Good Practice*. Pinerolo, Italy: CeSMAP.

Tempest, H., 1931. 'Bronze Age Carved Stone, Carrickrobin T.L.', *Journal of the County Louth Archaeological Society* 7(3): 387-9.

Twohig, E., 1988. 'The Rock Carvings at Roughting Linn, Northumberland'. *Archaeologia Aeliana* 16: 37-46.

Van Hoek, M., 1997. 'Petroglyphs of South-East Monaghan, Ireland', *Adoranten* 1997: 39-45.

Waddell, J., 2000. *The Prehistoric Archaeology of Ireland. 2nd edition*. Dublin: Wordwell.

Whitley, D. (ed.), 2001. *Handbook of Rock Art Research*. Walnut Creek, California: Altamira Press.

Whittow, J., 1984. *The Penguin Dictionary of Physical Geography*. London: Penguin.

APPENDIX 2.5: EARLY MEDIEVAL POTTERY REPORT

REPORT ON THE POTTERY FROM EXCAVATIONS AT
NEWTOWNBALREGAN 6,
COUNTY LOUTH
03E0115

M1 Dundalk Western Bypass

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1 INTRODUCTION

The following commentary reflects my tabulated inventories and the Preliminary Excavation Report that accompanied the artefacts under study. The Preliminary Excavation Report contained stratigraphic references to all contexts relevant to the tabulated material.¹

A total of 33 sherds (excluding fragments) were examined from 17 contexts at Newtownbalregan. Very little of any one vessel was present and some of the material could not be identified due in part to the fragmentary nature of the evidence. The minimum number of vessels (MNV) however is calculated as 16. Within this 8 vessels were classified as Souterrain Ware, 4 as Post Medieval Earthenware's and 4 vessels were Unclassified.

Only 5 rim sherds were present within the assemblage. Two were identified as Souterrain Ware. A third consisted of a fragment only and the remaining 2 were from an Unclassified vessel displaying an inward curve to the rim profile. All rim sherds were plain.

Two base angles were also identified belonging to a large vessel classified as Souterrain Ware. Otherwise the assemblage was composed of small body sherds or unclassified fragments, as well as material tentatively identified as Fired Clay. A total of at least 71 fragments were contained within the assemblage.

The material came from a variety of contexts throughout the site including the enclosure ditch, an internal pit and posthole and an external circular structure. The majority of the material however came from the souterrain cut in Galleries 1 and 2 as either dumped backfill or features and deposits associated with the reuse of the galleries as a smoke house.

The total number of ceramics put forward for analysis including both sherds and fragments was greater than 104.

The headings used in the following report are those suggested in Draft 3 of the Draft Template for Final Report Stratigraphic, Finds and Environmental Specialist Texts.²

2. METHODOLOGY

Each piece of ceramic material within the assemblage was examined as hand specimens and the results of this is presented in tabular form by Table 1 below. Contained in Table 1 under the heading Excavation Details are the context number; find number and the total numbers of sherds relevant to each find number. Table 1 is compiled in descending order by context number. Starting at Context 39 and finishing with Context 341 it lists each sherd individually. The heading Vessel Description is given based on form, thickness and diameter. The terms used to describe form are rim, base angle and body. In some cases the term fragment has been used to describe material too small or abraded to make an accurate identification regarding which part of the vessel it originated from. Fragment has also been used when in some case numerous grains or crumbs of pot have been bagged together as with Context 84:1. The term Fired Clay is also present under the heading form. Except in the case of some fragments the thickness of all sherds were measured and where relevant a diameter of the rim or base was estimated. Where

¹ I could find no reference to Context 341.

² Roycroft, Project Archaeologist 14th August 2003.

only a small piece of rim or base existed then the diameter of the vessel becomes less accurate and the symbol > is used in this instance.

Details regarding the colour of the core and inner and outer surfaces have been given using the Munsells Colour Chart. This has been included in order to give some information relating to the firing conditions of the vessel³ and to help to determine whether sherds were made with similar or a variety of clays. Ultimately the results of the colour analysis from the Newtownbalregan assemblage were found to go beyond the scope of this report.

The presence of the heading Decoration in Table 1 refers to the rim of the vessel only.

Lastly the heading Additional Comments has also been included in Table 1. This may include whether sherds were conjoining as well as general observations that may form the basis of further study of the assemblage. No detailed analysis of fabric was undertaken and inclusions were only mentioned in the comment section when visible with the naked eye. It was decided that no comment would be made on the degrees of hardness of each sherd. This was because all sherds, except for the Earthenware's, were consistently soft.

Table 2 gives a brief description of the relevant contexts and includes the MNV from each as well as vessel classification. The classification of the material from the Newtownbalregan excavation has fallen into the following categories namely Souterrain Ware, Earthenware and Unclassified. At times the MNV does relate to unclassified material. In other instances Unclassified has been used to describe fragments or grains of ceramic material that are too small to analyse. Dating of contexts where it existed in the Preliminary Excavation Report was generalised and was not therefore included in any of the tabulated data.

The basis of Table 3 is to give the overall sherd count from each context including the number of fragments present. A summary of vessel classification is also given in Table 3.

3. QUANTIFICATION

Quantification of the ceramic material from the Newtownbalregan excavation is represented in Tables 1 to 3 below using the headings outlined in Section 2 above.

4. PROVENANCE

Souterrain Ware

A minimum number of 8 Souterrain Ware vessels were recovered from the excavation at Newtownbalregan. 2 pots were recovered from the fill (Context 202 and 215) of a cooking pit or domestic hearth (Contexts 214 and 365) located in the upper fill of the enclosure ditch. One vessel came from the stony fill (Context 43) of an internal pit (Context 60) and 2 vessels came from dumped fill (Contexts 47 and 102) inside the Souterrain cut (Context 44). A further 2 pots were recovered from the fill (Contexts 180 and 235) of a timber lined pit (Context 34) linked to one of the souterrain galleries via a narrow channel. It has been suggested in the Preliminary Report that this gallery was in use as a smokehouse. One Souterrain Ware vessel also came from a charcoal-rich layer (Context 45) interpreted as debris from the smoking process.

³ Blake and Davey 1983, 10.

Earthenware

A minimum number of 4 vessels were classified as Earthenware. The Earthenware's were both glazed and unglazed. One tiny fragment was identified as probable Blackware (Context 100:2). Three of the Earthenware vessels were recovered from the upper layers of fill (Contexts 66 and 100) in the souterrain cut (Context 44). A further sherd came from the fill (Context 226) of a circular structure (Context 207) located outside the enclosure ditch and interpreted as a possible stock coral or enclosure.

Unclassified

A minimum number of 4 vessels from the excavation could not be identified. One of these came from the fill (Context 39) of the enclosure ditch (Context 5). Two from dumped backfill (Contexts 47 and 45) in the souterrain cut (Context 44) and 1 from Context 341 for which no contextual information could be found in the Preliminary Report. The micaceous fabric of the pot sherd from the enclosure ditch is similar to Leinster Cooking Ware.

4.1 SUMMARY

50% of vessels from the Newtownbalregan excavation can be classified as Souterrain Ware. The appearance of this material in the archaeological record of the site however may be considered towards the end of the site sequence. Souterrain Ware is not found in any of the main ditch fills as occupational debris and the domestic hearth where it does survive is cut into the upper layers of the in-filled ditch.

The backfill of the souterrain cut is above the collapsed capstones and the *in situ* burning and debris from the smoke house phase of the souterrain is presumably after it had fallen into disuse for other purposes more commonly identified with this monument type. Souterrain Ware was also found in the stony fill of a disused posthole as part of a consolidation layer. The majority of the Souterrain Ware vessels, numbering 3 in total, came from their association with a smokehouse or meat smoking debris and as such may represent a new association for the pottery in terms of vessel usage.

The Earthenware's in the assemblage are dated in the report to the Post Medieval period. This is also reflected by their depositional contexts in the upper fills of the souterrain cut and by their appearance in a circular structure outside of the ringfort and considered in the Preliminary Report to be a Post Medieval feature.

The sherds from the unclassified vessels are described below.

Context 39:2

A small body sherd with a smooth internal and external surface and slightly curved profile. There is evidence for a slip on both surfaces. The micaceous fabric is similar to Leinster Cooking Ware, but very little of the pot now survives to make a full identification.

Context 45:8

A tiny rim fragment with orange/buff coloured fabric.

Context 47:33

A very small, thin body sherd with traces of slip and burning on the external surface but otherwise with a bright orange fabric.

Context 341:1-3

This context contains 2 small, plain rim sherds that fit together and a small body sherd from the same vessel. The rim is rolled and slightly curved inwards. The fabric is an orange colour.

5. CONSERVATION AND FUTURE WORK

Standard conservation of the pottery will be required for storage purposes. Generally the material is fragmentary or composed of small body sherds. There are no specific features or decoration and as a result none of the ceramic material from Newtownbalregan warrants any specific photography or drawing.

The only sizeable sherds within the assemblage are the base sherds numbered 4 and 5 in Context 45 and a larger body sherd numbered 4 in Context 180.

The association of Souterrain Ware with meat smoking debris may represent a tangible function for the pottery. Radiocarbon dating, where possible, would be useful to elaborate on the potential use of the pottery in this way and during what period this may have been occurring.

Given the high percentage of fragments within the assemblage the Newtownbalregan material may yield greater results if studied in conjunction with other Souterrain Ware assemblages. This particularly applies to those recovered from other excavations on the Dundalk Western Bypass and in County Louth as a whole (Figure 1).

6. COMPARATIVE MATERIAL

Archaeological sites within County Louth to produce Souterrain Ware include excavations on souterrains and Early Christian settlement at Marshes Upper,⁴ a rectangular fosse at Dowdallshill⁵ and the excavation of a souterrain at Dromiskin where Souterrain Ware was found in association with Leinster Cooking Ware and other glazed medieval pottery fragments.⁶ Souterrain Ware was also recovered from souterrain sites in Ballybarrack,⁷ Donnaghmore⁸ and Farranderg.⁹

With the archaeological excavations along the Dundalk Western Bypass the numbers of sites producing Souterrain Ware in County Louth has almost doubled.

Together with the excavations Newtownbalregan evidence for Souterrain Ware specific to the Dundalk Western Bypass include a souterrain site at Tateetra¹⁰ an enclosure and field systems at Balrigan¹¹ and an enclosure and souterrain at Carn More.¹²

Finds of Souterrain Ware are more prolific from County Louth than any other county in Ireland, outside the Province of Ulster (Figure 1). The souterrain and enclosure site is still the most common location for finds of Souterrain Ware within the county¹³ and one would expect further finds of Souterrain Ware to be recovered from the excavation of other such sites in County Louth.

⁴ Manning and Hurl 1989-90, pg. 76.

⁵ Bennett 1994.

⁶ Bennett 1998.

⁷ Delaney 1987-8.

⁸ Ryan 1969 (There is no information from the excavator as to the location or results of this excavation).

⁹ Bennett 1998.

¹⁰ Zajac 2006.

¹¹ Zajac 2006.

¹² Zajac 2006.

¹³ S. Zajac 2002.

In general the pottery remains at Newtownbalregan find their closest parallels with those from the Carn More excavation situated to the northeast (Figure 1). In each case the site type is both an enclosure and souterrain with the pottery remains in each instance being in a fragmentary condition. At Carn More the minimum number of vessels was 6. The site director has pointed out¹⁴ that only 50% of the Carn More site has been excavated and it is possible that if the whole were completed the number of vessels from Carn More would have doubled. If this were the case the finds from both Newtownbalregan and Carn More would have been similar in regard to the minimum number of vessels.

The smaller enclosures at Newtownbalregan and Carn More may be compared further in that both may have acted as satellite sites to the much larger enclosure at Balrigan¹⁵ which in turn may have provided a focal point for sites within the wider area.

There is evidence that some of the Souterrain Ware vessels within the assemblage have a slight inward curve to the rim¹⁶. McCorry¹⁷ has illustrated that this feature also occurs on Souterrain Ware from some later sites in County Down including Movilla Abbey and the Early Christian earthwork at Dunneight.¹⁸ This gradual development of the rim profile of some of the later Souterrain Ware vessels is also seen on the material recovered from excavations at Farranderg.¹⁹

7 DATING

According to Ivens²⁰ it is difficult to find any evidence of Souterrain Ware before the 8th century AD. Souterrain Ware appears during the currency of E Ware,²¹ an imported pottery produce in the 6th and 7th centuries.²² There are sites where E Ware is found alone in layers below Souterrain Ware and sites where the two are found together but none where Souterrain Ware has been found in layers below E Ware.²³ According to McCorry,²⁴ Souterrain Wares in Ulster have a long life span from the 8th century right up and possibly beyond the Anglo-Norman settlement.

Where possible at Carn More, radiocarbon dating should be used in conjunction with the pottery evidence to help narrow the broad date range that currently exists nationally in regard to the production and use of Souterrain Ware during the Early Medieval period and beyond.

8. DISCUSSION

Despite the minimum number of vessels from the Newtownbalregan excavation reaching a relatively high figure of 16 the evidence in general was very fragmentary. Eight of these vessels were identified as Souterrain Ware whereas the remainder were categorised either as Earthenware's or unclassified material.

¹⁴ Delaney, 2005, 60.

¹⁵ Excavated by S. Delaney 02E01325.

¹⁶ This feature can be seen on the rim sherds from Context 43.

¹⁷ 2001, 101.

¹⁸ *Ibid.*

¹⁹ Bennett, 1998.

²⁰ 1984, 24 in S. Zajac, 2002.

²¹ Mallory and McNeill 1991-1995, 201.

²² Conway 1999, 8.

²³ Mallory and McNeill *ibid.*

²⁴ 2001 101.

None of the usual characteristics associated with Souterrain Ware, such as grass marking or other secondary forming techniques could be identified on the sherds. This may have been due to the small size of individual sherds. Sooty residue occurred on the surface of some vessels but in general identification of the Souterrain Ware was through consideration of fabric and sherd thickness.

The Souterrain Ware on the site is associated with food preparation in the way of meat or fish smoking and a large vessel with a base diameter greater than 180mm was found in association with a charcoal layer of meat smoking debris. Two further pots were found in association with a domestic hearth.

According to Rice²⁵ the presence and location of soot deposits are clear indications of use in cooking or other activities involving fire. The soot deposits are generally absent from the base of Souterrain Ware vessels and this suggests that the vessel were probably set in the fire.²⁶ Vessels placed in the fire in this way were probably used for boiling according to Rice.²⁷ Vessels intended for cooking are generally thought to have had rounded rather than angled contours²⁸ to avoid thermal damage and also because the rounded contours permit greater exposure of the vessel base, walls and contents to the heat.²⁹

The Souterrain Ware at Newtownbalregan may be occurring at the latter stages of both the site sequence and also the relatively broad life span of the pottery (Section 7).

This is suggested by its depositional context, the rim profile of some of the sherds and the possible sherd of Leinster Cooking Ware within the assemblage.

Radiocarbon dates, where available from associated features, would augment the fragmentary nature of the ceramic evidence and allow for a more precise understanding as to when the pots from the Newtownbalregan assemblage were being used on the site.

²⁵ 1987, 235.

²⁶ *ibid.*

²⁷ *ibid.*

²⁸ Woods in Rice, *ibid.* 237.

²⁹ *ibid.*

9 BIBLIOGRAPHY

Bennett, I (ed), Summary Account of Archaeological Excavations in Ireland.
<http://www.excavations.ie>

Blake, H. and Davey P. (eds.) Guidelines for the Processing and Publication of Medieval Pottery from Excavations. *Report by a Working Party of the Medieval Pottery Research Group and the Department of the Environment* 1983.

Conway, M.1999. Director's First Findings from Excavations in Cabinteely, *Transactions 1*, Dublin: Margaret Gowen and Company.

Delaney, S. Stratigraphic Report on behalf of Louth County Council and the National Roads Authority. Unpublished Report, March 2005.

McCorry, M. 2001. The Medieval Pottery Kiln at Downpatrick Co. Down: An investigation of its working life, its products and their distribution. *BAR* 326.

Mallory J. P. and McNeill T.E. 1991-1995. *An Archaeology of Ulster*. Belfast: Institute of Irish Studies Queens University.

Manning, C and Hurl D. (ed). Excavations Bulletin 1980-1984. Summary Account of Archaeological Excavations in Ireland. *The Journal of Irish Archaeology*, IV 89/90.

Rice, P. M. 1987. *Pottery Analysis a Sourcebook*. Chicago: The University of Chicago Press.

Ryan, M 1969 Native pottery in Early Historic Ireland. Unpublished MA Thesis. University College Dublin.

Zajac, S. Souterrain Ware in Early Medieval Ireland: Perspectives on an Indigenous Ceramic Tradition. Unpublished MA thesis, University of Leicester 2002.

Zajac, S. Report on the Souterrain Ware from Excavations at Balriggan County Louth, Unpublished Report, January 2006.

Zajac, S. Report on the Pottery from Excavations at Newtownbalregan County Louth, Unpublished Report, February 2006.

Zajac, S. (*forthcoming*) Souterrain Ware in Early Medieval Ireland: Attributes and Application. *Medieval Ceramics*, Medieval Pottery Research Group.

Zajac, S. (*forthcoming*) Souterrain Ware from Excavations at Tateetra, County Louth.

Context	Find No.	Sherd Nos.	Form	Thickness	Diam	Ext Sur	Core	Int Sur	Decoration	Comments
39	2	1	Body	5mm	n/a	5YR6/6RY	5YR6/6RY	5YR5/6YR	None	Unclassified
42	1	1	Unknown	11mm	n/a	7.5YR6/2PG	7.5YR6/2PG	n/a	None	Unclassified, may be Fired Clay
43	1	1	Rim	7mm	140mm	10YR4/2DGB	10YR2/1B	10YR4/2DGB	Plain	The fabric suggests that all
43	2	1	Body	6mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	the sherds from this context are
43	3	1	Body	8mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	from the same vessel.
43	4	1	Rim	8mm	140mm	10YR4/2DGB	10YR2/1B	10YR4/2DGB	Plain	The core of the vessel is reduced
43	5	1	Body	5mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	and the rim curves inwards
43	6	1	Body	6mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	It is classified as Souterrain Ware
43	7	1	Body	6mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	but may be late in the sequence
43	8	1	Body	6mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	Sherds 43:5-8 are bagged together
45	1	1	Base Angle	15mm	>180mm	5YR6/6RY	10YR4/2DGB	10YR2/1B	None	Fits with 45:5 below as part
45	5	1	Base Angle	14mm	>180mm	5YR5/6YR	5YR5/6YR	5YR5/6YR	None	of a large Souterrain Ware vessel
45	6	7	Fired Clay	n/a	n/a	5YR5/6YR	5YR5/6YR	5YR5/6YR	None	Lumps of Fired Clay
45	8	2	Fragments	4mm	n/a	5YR5/6YR	5YR5/6YR	5YR5/6YR	None	Unclassified, includes poss' rim fragment
47	3	1	Body	12mm	n/a	5YR3/1VDG	5YR6/6RY	5YR5/6YR	None	Souterrain Ware body sherd
47	4	>50	Fragments	n/a	n/a	5YR5/6YR	5YR5/6YR	5YR5/6YR	None	Unclassified fragments
47	33	1	Body	2mm	n/a	5YR3/1VDG	5YR6/6RY	5YR5/6YR	None	Unclassified
47	38	1	Body	7mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	Fabric suggests 47:38 and 39 are from
47	39	1	Body	8mm	n/a	10YR4/2DGB	10YR2/1B	10YR4/2DGB	None	same pot, classified here as S-Ware
66	1	1	Body	4mm	n/a	10YR5/6YB	10YR5/6YB	10YR5/6YB	None	Glazed, Post Medieval Earthenware
84	1	n/a	Fragments	n/a	n/a	5YR5/6YR	5YR5/6YR	5YR5/6YR	None	Minute, Unclassified fragments
97	1	1	Fragment	5mm	n/a	5YR5/6YR	5YR5/6YR	5YR5/6YR	None	Unclassified fragment
100	1	1	Body	2mm	n/a	5YR6/8RY	5YR6/8RY	5YR6/8RY	None	Unglazed, Post Medieval Earthenware
100	2	1	Body	3mm	n/a	5YR5/4RB	5YR5/4RB	5Y3/1VDG	None	Fragment of Blackware, possible
102	1	3	Fragments	8mm	n/a	10YR2/1B	5YR5/6YR	5YR5/6YR	None	Fragments of Souterrain Ware
180	4	1	Body	7mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	Sherd of a Souterrain Ware vessel
202	1	1	Body	6mm	n/a	5YR5/6YR	10YR2/1B	10YR4/2DGB	None	Reduced core with gritty fabric
202	2	1	Body	10mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	Sherds in C202 classified as S-ware
202	3	1	Body	Between	n/a	5YR5/6YR	10YR2/1B	10YR4/2DGB	None	Sherds 202:3-5 from same pot as
202	4	1	Body	6mm and	n/a	5YR5/6YR	10YR2/1B	10YR4/2DGB	None	202:1. Former 3 sherds bagged
202	5	1	Body	12mm	n/a	5YR5/6YR	10YR2/1B	10YR4/2DGB	None	together and 1 sherd fits with 202:1

213	1	1	Fired Clay	7mm	n/a	5YR5/1G	5YR5/1G	5YR5/1G	None	Two small lumps of fired clay
215	1	1	Rim	6mm	160mm	10YR2/1B	10YR4/2DGB	5YR5/6YR	Plain	Fabric suggests that all the sherds
215	2	1	Body	11mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	from this context belong to the same
215	3	1	Body	6mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	vessel, identified here as Souterrain
215	4	1	Body	6mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	Ware
215	5	1	Body	11mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	The external surface of 215:5 may
215	6	1	Fragment	5mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	have the remains of a cordon
215	7	1	Fragment	5mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	suggesting that
215	8	1	Fragment	5mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	it originated from just below the rim
226	1	1	Body	5mm	n/a	5YR6/8RY	5YR6/8RY	5YR6/8RY	None	Unglazed, Post Medieval Earthenware
235	1	1	Body	5mm	n/a	10YR2/1B	10YR4/2DGB	5YR5/6YR	None	Fragment of Souterrain Ware
341	2	1	Rim	6mm	120mm	5YR6/6RY	5YR6/6RY	5YR6/6RY	Plain	Fabric suggests sherds from this
341	3	1	Rim	7mm	120mm	5YR6/6RY	5YR6/6RY	5YR6/6RY	Plain	context are from same pot, 341:2 and 3
341	4	1	Body	5mm	120mm	5YR6/6RY	5YR6/6RY	5YR6/6RY	None	fit together. Here they are unclassified

Context	Type	Interpretation	Type	MNV
39	Fill of Enclosure Ditch 5	Occupational Fill of Ringfort Ditch	Unclassified	1
42	Fill of Enclosure Ditch 5	Occupational Fill of Ringfort Ditch	N/A	N/A
202	Fill of Cooking Pits 214 and 365	In Situ Burning in pit cutting Upper Fill of Ringfort Ditch	S-Ware	1
215	Fill of Cooking Pits 214 and 365	Fire Base in pit cutting Upper Fill of Ringfort Ditch	S-Ware	1
43	Stony Fill of Pit 60-Internal Feature	Consolidation layer or foundation to reinstate surface	S-Ware	1
84	Fill of Posthole 86-Internal Feature	Natural Silting of one of 5 Linear Postholes	Unclassified	N/A
226	Fill of Structure 207-External Feature	Internal Fill of Possible Stock Enclosure	Earthenware	1
45	Backfill of Souterrain Cut 44-Gallery 2	Charcoal Layer or possible Meat Smoking Debris	S-Ware/Un-Clss	2
47	Backfill of Souterrain Cut 44-Gallery 2	Basal Layer of dumped Stones and Clay on Top of Capstones	S-Ware/Un-Clss	2
102	Backfill of Souterrain Cut 44-Gallery 2	Basal Layer of dumped Stones and Clay on Top of Capstones	S-Ware	1
66	Fill of Souterrain Cut 44-Gallery 1	Upper Layer of Natural Silting	Earthenware	1
97	Fill of Souterrain Cut 44-Gallery 1	Upper Layer of Dumped Material	Unclassified	N/A
100	Deposit in Souterrain Cut 44-Gallery 1	Upper Layer of Dumped Material	Earthenware	2
180	Fill of Pit 34-Gallery 1	In Situ Burning	S-Ware	1
213	Fill of Pit 34-Gallery 1	Basal Layer of Pit, in situ Burning	N/A	N/A
235	Fill of Pit 34-Gallery 1	Upper Layer of Pit, possible in situ Burning	S-Ware	1
341	Unknown	No Description Available	Unclassified	1

Context	Sherd Count	Classification	MNV
39	1	Unclassified	1
42	1	Unclassified	N/A
43	8	Souterrain Ware	1
45	2 (9 fragments)	Souterrain Ware/Unclassified/Fired Clay	2
47	4 (>50 fragments)	Souterrain Ware/Unclassified	2
66	1	Glazed Earthenware	1
84	minute grains	Unclassified	N/A
97	(1 fragment)	Unclassified	N/A
100	(2 fragments)	Unglazed Earthenware, Blackware (possible)	2
102	(3 fragments)	Souterrain Ware	1
180	1	Souterrain Ware	1
202	5	Souterrain Ware	1
213	(2 fragments)	Fired Clay	N/A
215	5 (4 fragments)	Souterrain Ware	1
226	1	Unglazed Earthenware	1
235	1	Souterrain Ware	1
341	3	Unclassified	1
Totals	Totals	MNV Summary	Totals
17	33 (>71)	Souterrain Ware MNV 8	8
		Glazed/Unglazed Earthenware MNV 4	4
		Unclassified MNV 4	4
		Totals	16

APPENDIX 2.6 SMALL FINDS REPORT

**Small Finds Report
Newtownbalregan 6
Dundalk Western Bypass**

Licence no: 03E0115

**By
Siobhán Scully MA MA
Margaret Gowen & Co. Ltd**

**For
Irish Archaeological Consultancy Ltd**

27th August 2008

Introduction

This report details the sixteen metal and glass artefacts recovered from the excavation of a ringfort at Newtownbalregan 6 (03E0115) as part of the M1 Dundalk Western Bypass scheme. Ten metal artefacts including ferrous and non-ferrous metal objects were recovered as well as four glass beads, a small sherd of 19th/20th century glass and a piece of glass slag. The penannular brooch (03E0115:37:3), stick pin (03E0115:37:2) and three of the glass beads (03E0115:37:1, 4-5) were found in the southern part of the enclosure ditch of the ringfort (Bayley 2004, 343).

Metal

Introduction

Ten metal artefacts were recovered from the excavations at Newtownbalregan 6. These include two copper alloy finds, a penannular brooch and a stick pin, and eight iron objects including a ringed pin, three nails, a piece of sheet metal and three unidentified ferrous finds.

Penannular Brooch

A zoomorphic penannular ring brooch (03E0115:37:3) was recovered from C37. The brooch ring has broad flat terminals which are decorated with stylised animal heads; the larger lobes at the end of the terminals representing the 'snout', the smaller loops beside them the 'eyes' and the lobes at the far end of the plates the 'ears'. It is possible that the sunken fields of the decoration once contained red enamel, which is found on many penannular brooches, although there is no trace of it now. The front of the ring is decorated with ribbing that has the remains of silver. The pin is very plain and has a simple looped head which, as with other penannular brooches was intended to swing freely of the ring. The pin, when the brooch was worn, pointed upwards and was drawn through the cloth and the ring was then brought around so the gap in the terminals engaged with the pin and kept it in place (Edwards 1996, 133).

Penannular brooches are a Romano-British type which were being produced in Britain during the fourth century and the design spread to Ireland. Those with zoomorphic terminals became particularly popular in Ireland during the sixth and seventh centuries (Youngs 1989, 21). Fowler (1960) developed a classification of penannular brooches based on the morphology of the brooch terminals. The penannular brooch from Newtownbalregan 6 is a combination of Type H with its large, expanded, flat terminals and Type F with has zoomorphic terminals, a classification which Fowler also recorded (*ibid.*, 153-4; Fig 1.H/F).

The penannular brooch from Newtownbalregan 6 is very similar to other such brooches which date to the sixth or seventh centuries AD. Two very similar penannular brooches – which are themselves almost identical – were recovered from the River Bann, one at the Creagh (Youngs 196, 190a; UM AL8.1932) and one near Coleraine (*ibid.*, 190b; UM A500.1976). These two penannular brooches also have broad, flat terminals with stylised zoomorphic decoration and ribbing on the front of the ring. Both these brooches have been dated to the sixth century (*ibid.*). A similar unprovenanced penannular brooch which belonged to the Dawson Collection also has broad flat zoomorphic terminals and ribbing on the front of the ring (*ibid.*, 31-2, 16; NMI w.358). This brooch is dated to the sixth or seventh century (*ibid.*).

A fragmentary lead die for a mould to manufacture a zoomorphic penannular brooch dated to the sixth or seventh century was found during excavations of the defended settlement site at Dinas-Powys, near Cardiff. A reconstruction of what this brooch

would have looked like was made based on Irish parallels (Redknap 1991, 13, 19). The zoomorphic decoration visible on the die and in the reconstruction is almost identical to the brooch from Newtownbalregan 6, the only difference being that the 'snout' is wider on the Newtownbalregan brooch and fills almost the entire width of the terminals.

Ringed Pin

The ringed pin (03E0115:215:10) is a plain-ringed loop-headed pin made of iron. It has a long pin, circular in section, which tapers to a point and the other end has been flattened and formed into a loop. The loop holds a plain, closed loop. The pin appears to be plain, although there is a raised knob on the loop but this is possibly due to corrosion. When knobs are present on ringed pins they occur on the ring itself, although it is possible that Newtownbalregan 6 ringed pin is a variation of this type. Plain-ringed loop-headed pins are the most commonly found of all ringed pins and appear to have been in use longer than any other type of ringed pins. This is more than likely due to it being the simplest form of ringed pin and thus the easiest to manufacture (Fanning 1994, 15). It is also the most common type that has examples made of iron. Fanning (ibid.) states that this is because the plain ring and head were easier to produce by smithing than the more elaborate forms of ringed pin. Kelly (1986, 184, 187) suggests that while casting was probably only carried out at specialised workshops, settlement sites could have evidence for iron-smelting and they could have produced iron versions of ringed pins, or they could have been manufactured by travelling smiths. Plain-ringed loop-headed pins, made of both bronze and iron, have been found on ringfort and crannog sites dating as early as the fifth or sixth centuries AD but only gained popularity in the eighth century (Fanning 1994, 16). They were adopted by Viking settlers in Dublin in the middle of the ninth century and the form spread to Viking territories outside of Ireland (ibid., 17). A number of ringed pins from Co. Louth have been published by Kelly (1986). All these ringed pins are made of bronze, many of them are decorated and the majority of them have pins which are rectangular in section, with the exception of the Millockstown 1, 2 and 3 pins (E194:15, E194:85, E194:61) which are circular in section (ibid. 196-8). A number of the pins appear to be plain like the Newtownbalregan 6 pin; one from Cortial (NMI:1982:72), possibly dating to the ninth century, one from an unknown location in Louth (NMI:1932:6466), possibly dating to 10th-11th centuries, the ringed pin from Dromiskin appears from its 19th century drawing to be plain (NMI:1901:54) which is given a date bracket of between the sixth and ninth centuries and there is plain pin with no loop from Marshes Upper II (E211:144) which is dated between the eighth and 10th centuries (ibid.).

Stick Pin

A short copper alloy stick pin (03E0115:37:2) was recovered from C37. It has a circular tapering shank and a crescent-shaped head set perpendicular to the shank. This pin is possibly a variation of O'Rahilly's Class 5 crutch-headed stick pins (1988, 26) which itself was an evolution from a ringed type of pin. She dated crutch-headed pins from the early 11th century to the mid-12th century.

Nails

The three nails (03E0115:47:5a-c) from Newtownbalregan 6 only survive as partial nail shanks. Two are rectangular in section but the third is too corroded to tell what type of section it has. The nails are all heavily corroded and all surface detail is obscured.

Sheet Metal

There is one fragment of ferrous sheet metal (03E0115:215:11) from Newtownbalregan 6 which is rectangular in shape and section. Its original function is unknown but it is possible that it could have been part of a structural object such as a strap hinge.

Unidentified Ferrous Objects

Three iron objects from Newtownbalregan 6 could not be identified due to both their highly corroded state and their fragmentary nature. One (03E0115:45:_) is almost completely encrusted in adhering corrosion products but it is possibly triangular in section suggesting that it might be a fragment of a blade. The other two unidentified objects (03E0115:47:5d-e) are rectangular in shape but they are heavily corroded and encrusted with corrosion products and nothing diagnostic is apparent in their x-rays.

Catalogue

Find Number	Category	Description	Dimensions
03E0115:37:2	Stick Pin	Copper alloy stick pin. Circular shank tapering to a point. Head is set perpendicular to the shank and is crescent-shaped.	Pin: L 50.5mm Diam. 2mm Head: Wth 5.7mm H 2.5mm
03E0115:37:3	Penannular ring brooch	Copper alloy penannular brooch. Ring with broad flat terminals with zoomorphic decoration. Ring is circular in section with ribbing on front of ring with the remains of silvering in the grooves. Pin is sub-rectangular in section and expands to form the loop.	Ring: diam. 42.8mm section diam. 2.4mm Terminals: Wth 9.1mm T 1.2mm. Pin: L 56.3mm Wth 2.1-5.5mm T 2mm.
03E0115:45:9	Unidentified	Iron. Small fragment of iron, almost completely encrusted with adhering corrosion products. What is visible is heavily corroded but appears to be triangular in section.	L (38mm) Wth 23mm T 1.5-6.5mm
03E0115:47:5 (a)	Nail	Iron. Partial fragment of nail shank. Rectangular in section. Heavily corroded.	L (18mm) Wth 4mm T 2mm
03E0115:47:5 (b)	Nail	Iron. Partial fragment of nail shank. Rectangular in section. Heavily corroded.	L (15.5mm) Wth 4mm T 2mm
03E0115:47:5 (c)	Nail?	Iron. Possible fragment of nail shank. Very heavily corroded; metal has split.	L (20mm) Wth 7mm T c.2mm
03E0115:47:5 (d)	Unidentified	Rectangular fragment of iron. Corroded and encrusted.	L 20mm Wth 9mm T 8mm
03E0115:47:5 (e)	Unidentified	Rectangular fragment of iron. Corroded and almost completely covered in adhering corrosion products.	L 19.5mm Wth c. 10mm T 7.5mm
03E0115:215:10	Ringed pin	Iron. Plain-ringed, loop-headed pin. Ring circular in section. Circular shank flattened at loop and tapers towards the point.	Ring diam. 13mm Pin: L 102.5mm diam. 3mm.
03E0115:215:11	Sheet Metal	Flat fragment of iron, rectangular in shape.	L (82mm) Wth 32mm T 2mm

Glass Beads

'Meare spiral'

A clear glass bead with three opaque yellow spirals (03E0115:37:4) was recovered from C37. This type bead corresponds with Guido's (1978) Class 10 'Meare spiral' beads, named due to the large numbers of such beads found in the Iron Age village of Meare in Somerset and Guido has suggested that they may have originated from this area. She suggests a date range of 250BC to AD 50 but many survived in later contexts. A number of 'Meare spiral' beads are known from Ireland. Eight were found during from the first century AD possible cremation burial of Loughy, Co. Down (Jope & Wilson 1957, 84; Jope 1960). Single beads of this type were found at Garryduff ring-fort, Co. Cork (O'Kelly 1963), at Sheephaven, Rosguil, Co. Donegal, at Rosapenna Sandhills, Co. Donegal and one was found from an unstratified context at Lagore crannog, Co. Meath and another nearby at Dunshaughlin (Guido 1978, 188).

Four 'Meare spiral' beads were found in the ditch of Site 3 at Ballydavis, Co. Laois (Keeley 1996, 52).

Black glass bead with ring-less eyes

A globular black glass bead with at least two ring-less eyes was also found in C37. This is similar to the dark blue 'South Harting type' beads described by Guido (1978, 49-50) but these usually have eyes surrounded by a white ring and Guido states that they are not found in Ireland. They are found in England, Wales and Scotland on sites dating between the first century BC and the third century AD (ibid.). The Newtownbalregan 6 bead appears to have been clumsily made; one of the eyes has a partial second eye to the side of it and there are spots of opaque white glass outside the area of the eyes.

Blue glass bead

A single blue glass bead was recovered from the topsoil at Newtownbalregan 6. It is globular in shape and dark blue in colour. This was a very common type of glass bead and appears to have been in use for a very long period of time (Guido 1978, 70). Many are known from Iron Age sites in Ireland. Sixty-one were recovered from the first century AD possible burial site at Loughy, Co. Down (Jope & Wilson 1957, 84; Jope 1960, 140). Blue glass beads have been found at a number of Iron Age burials sites in Ireland including one from Mullaghmore, Co Down (Mogey 1949, 86), a number from Grannagh, Co. Galway (Rynne 1969, 9) and eighty from Oran Beg, Co. Galway (Rynne 1970, 10). Over eighty glass beads were also recovered from excavations at Ballydavis, Co. Louth, which included blue glass beads (Keeley 1996, 51-2). Twenty-one blue glass beads were recovered from Iron Age sites along the N8 Cashel to Mitchelstown Road Improvement Scheme, many of which were in contexts with cremation burials (Scully forthcoming). Small blue glass beads are also common finds on early medieval sites, for example, among the 136 beads known from Lagore Crannog were a number of blue glass beads (Hencken 1950, 132-4).

Yellow glass bead

A yellow globular bead was recovered from C37. Yellow glass beads were common in Britain from about the third century BC (Guido 1978, 16). Seventy-one yellow glass beads were found at Loughy, Co. Down which were thought to date to the first century AD (Jope & Wilson 1957, 84).

Catalogue

Find Number	Description	Dimensions
03E0115:1:304	Dark blue glass bead, opaque. Globular. Straight perforation. Surface is discoloured.	Diam. 10.3mm H 6.7mm DP 4.1mm
03E0115:37:1	Black glass bead with white ring-less eyes, opaque. Globular, not entirely circular. Straight perforation. Chipped on one side.	L 17.3mm Wth 16.3mm H 9.5-10.7mm DP 4.7mm
03E0115:37:4	Yellow glass bead, opaque. Globular but higher on one side than the other. Straight perforation.	Diam. 8mm H 4.8-5.6mm DP 1.8mm
03E0115:37:5	Meare spiral' glass bead. Clear glass with three opaque yellow spirals. Straight perforation. Guido's Class 10.	Diam. 11.3mm H 8.1mm DP 3.8mm

Miscellaneous Glass

Two glass artefacts other than beads were recovered from the excavations at Newtownbalregan 6. One is a very small body sherd (03E0115:31:12) of clear glass, possibly from a bottle but it is too small and fractured to tell. The other glass artefact is a small tear-drop shaped piece of glass waste (03E0115:1:311). Drops such as this were produced when the glass-maker gathered a small drop from the crucible of molten glass onto the tip of an iron to check if it had reached a sufficient temperature to work with (Tyler & Willmott 2005, 49). Craft activity is often present at ringforts

and glass-making was usually carried out in the same locations as copper alloy working (Edwards 1996, 33, 92).

Catalogue

Find Number	Description	Dimensions
03E0115:1:311	Glass waste. Tear-shaped drop. 'Black' glass.	H 18mm Diam. 8mm
03E0115:31:12	Very small body sherd of clear glass. L19th/20th Century.	17.5mm x 7mm x 2mm

Bibliography

- Bayley, D. 2004 'Newtownbalregan, Co. Louth,' in I. Bennett (ed.), *Excavations 2002: summary accounts of archaeological excavations in Ireland*, 342-3. Wordwell, Dublin
- Edwards, N. 1996 *The Archaeology of Early Medieval Ireland*. 2nd ed. Batsford, London,
- Fanning, T. 1994 *Viking Age Ringed Pins from Dublin*. Royal Irish Academy, Dublin.
- Fowler, E. 1960 'The origins and development of the penannular brooch in Europe,' *Proceedings of the Prehistoric Society* **26**, 149-77.
- Guido, M. 1978 *The Glass Beads of the Prehistoric and Roman Periods in Britain and Ireland*. The Society of Antiquaries of London, London.
- Hencken, H. O'N. 1950 'Lagore crannog: An Irish Royal Residence of the 7th to 10th centuries AD,' *Proceedings of the Royal Irish Academy* **53C**, 1-247.
- Joep, E. M. 1960 'The beads from the first century AD burial at Loughy near Donaghmore; supplementary notes,' *Ulster Journal of Archaeology* **23**, 40.
- Joep, E. M. & Wilson, B. C. S. 1957 'A burial group of the first century AD near Donaghmore, Co. Down,' *Ulster Journal of Archaeology* **20**, 73-95.
- Keeley, V.J. 1996 'Ballydavis' in I. Bennet (ed.) *Excavations 1995: Summary accounts of archaeological excavations in Ireland*. Wordwell, Bray.
- Kelly, E. P. 1986 'Ringed Pins of County Louth,' *Journal of the County Louth Archaeological and Historical Society* **xxi** no.2, 179-199.
- Mogey, J. M. 1949 'Preliminary report of excavations in Mullaghmore td., Co. Down,' *Ulster Journal of Archaeology* **12**, 82-8.
- O'Kelly, M. J. 1963 'Two ring-forts at Garryduff, Co. Cork,' *Proceedings of the Royal Irish Academy* **63C**, 17-125.
- O'Rahilly, C. 1998 'A Classification of Bronze Stick-Pins from the Dublin Excavations 1962-1972' in C. Manning (ed.), *Dublin and Beyond the Pale: Studies in Honour of Patrick Healy*, 23-33. Wordwell, Bray.
- Redknap, M. 1991 *The Christian Celts: Treasures of Late Celtic Wales*. National Museum of Wales, Cardiff.
- Rynne, E. 1969 'Grannagh, near Ardrahan, Co. Galway,' in T. G. Delaney (ed.), *Excavations 1969*, 9. Archaeological Bulletin published by Irish Young Archaeologists Association. Belfast.
- Rynne, E. 1970 'Oran Beg Ring Barrow,' in T. G. Delaney (ed.), *Excavations 1970*, 10. Irish Young Archaeologists Association. Belfast.
- Scully, S. forthcoming 'Glass Beads,' in M. McQuade, B. Molloy & C. Moriarty, *In the Shadow of the Galtee Mountains: archaeological excavations along the N8 Cashel to Mitchelstown road scheme*. National Roads Authority/Wordwell, Bray.
- Tyler, K. & Willmott, H. 2005 *John Baker's Late 17th-century Glasshouse at Vauxhall*. MolAS Monography **28**. Museum of London Archaeology Service/English Heritage. London.
- Youngs, S. 1989 *The Work of Angels': Masterpieces of Celtic Metalwork, 6th-9th Centuries AD*. British Museum, London.

APPENDIX 2.7 MEDIEVAL AND POST-MEDIEVAL POTTERY REPORT

A note on the medieval and post-medieval pottery from the Dundalk Western bypass at Newtownbalregan 6 (03E0115)

Clare McCutcheon MA MIAI

Newtownbalregan 6 (03E0115): A total of 29 sherds of post-medieval pottery were recovered. The detailed information is contained in Table 4.

Feature	Fabric	Finds number	Form	Date
1	Frechen	312	Jug	17th
	Black glazed ware	256-266, 306	Jar	18th-19th
	Glazed red earthenware	267-272	Jar	18th-19th
	Glazed red earthenware: slip coated	273-275	Plate	18th-19th
	Unglazed red earthenware	280, 305	Flower pot	19th
	Pearlware	276-277	Plate	19th
	Spongeware	281	Cup	19th
	Stoneware	278-279	Bowl	19th-20th

Table 1: Pottery from Newtownbalregan 6 (03E0115).

APPENDIX 2.8 ANIMAL BONE REPORT

OSTEOARCHAEOLOGICAL REPORT
OF
ANIMAL BONE FROM
DUNDALK WESTERN BYPASS, NEWTOWNBALREGAN 6
COUNTY LOUTH



Moore Group

Animal Bone Report Prepared for IAC Ltd
Licence No: 03E0115

Author: Camilla Lofqvist,
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Date: November 2007
Job No: 07LH03

TABLE OF CONTENTS

1	INTRODUCTION
1.1	GENERAL OSTEOLOGICAL INFORMATION
2	METHODOLOGY
3.	GENERAL RESULTS
3.1	MAMMALS, FISH AND BIRDS
3.1.1	Domestic Animals
3.1.2	Other Domesticates
3.1.3	Wild Animals
3.1.4	Human remains
3.2	UNIDENTIFIED BONE
4	SUMMARY
5	BIBLIOGRAPHY

TABLE OF PLATES AND TABLES

Table 1.	Total nisp, mne and weight (in grams) of identified and unidentified fragments
Table 2.	Nisp, mne, mni and weight for all species
Table 3.	Number of fragments with cut/gnaw marks or pathology
Table 4.	Cattle fusion data
Table 5.	Stature estimations

Plate 1. Diaphysis fragment of a metacarpal with arrows indicating traces of gnawing

Plate 2. Human skull fragment with arrow highlighting the almost complete closure of the sutures

NON TECHNICAL SUMMARY

This report describes the results of the osteoarchaeological analysis of bones retrieved during excavation carried out at Newtownbalregan 6, Co. Louth. The author undertook the bone analysis for the Osteological Services Section of Moore Archaeological & Environmental Services Ltd (Moore Group) on behalf of the client, IAC Ltd.

The bone analysis was commissioned in order to provide an osteoarchaeological aspect of the development site. The purpose is also to broaden the understanding of animal consumption and animal husbandry at the site, through the osteological study of the animal remains.

The animal bone analysis entailed a total of 439 fragments from 229 anatomical units. In general, the bones were in moderate but fragmented condition with a total weight of 3,687g. A total of four fragments had been exposed to vary degree of burning.

The sample contained bones from seven animal species along with one skull fragment of a human. The animals identified were: cattle, pig, sheep/goat, dog, horse, deer and cat. Due to difficulty in differentiation, sheep and goat bones have been analysed as one group (caprinae).

1. INTRODUCTION

The Osteoarchaeological Services Section of Moore Group was commissioned to undertake an osteoarchaeological analysis of disarticulated burnt bones retrieved during an excavation at Newtownbalregan 6, Co. Louth. The excavation was carried out by IAC Ltd under license no. 03E0115 and was part of the archaeological work along the Dundalk Western Bypass.

The osteoarchaeological analysis was carried out on behalf of IAC Ltd and this report details the result of this analysis.

1.1. General osteological information

The purpose of this report is to broaden the understanding of animal consumption and animal husbandry at the site, through the osteological study of the animal remains. The aim is to use the bones as a means of archaeological interpretation of the site, either to support suggested theories or to point to other possible interpretations of the cultural heritage. As the osteological material contains a large quantity of information; it is important from the start, to define the type of information that is going to be collected. The data gathered from this report was based on five different variables:

- Species distribution
- Anatomical distribution
- Age distribution
- Sex ratios and size variations
- Cut-/gnaw-marks and disease distribution.

In order to enable comparisons between the different materials, it is important to be consistent in the use of analysis methods. If this is not fulfilled, the results would be impossible to compare. The osteological methods used in this report are presented in the section below.

2. METHODOLOGY

Identification of the bones was made by reference to Sisson and Grossman The Anatomy of the Domestic Animals (1975), Schmid Atlas of Animal Bones (1972), Hillson Teeth (1996), During's Bildkompendium i Animalosteologi (unpubl) and a comparative collection of bones belonging to the author. A systematic bird bone identification was made by reference to Cohen & Serjeantson A Manual for the Identification of Bird Bones from Archaeological Sites and where possible, the bones were identified to family level.

During analysis of the material, all fragments were counted and identified to species, anatomical unit, part of anatomical unit, side and fusion stage. Pathology and cut/gnaw marks were also examined. Quantification was based on three methods:

NISP: Number of Identified Specimens. Indicates the total number of fragments found. The NISP is decided by different factors like the age of the animal, the size of the animal and how well the preservation was at the place where the bones were deposited.

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, taking left and right side in consideration, as well as looking at the age of the animal. However, it is important to point out that MNI is only an estimate.

MNE: Minimum Numbers of Elements. Indicates the minimum number of anatomical units that are present and what side they are from. MNE is used to calculate MNI and is used in the Fusion data tables. To allow for a young individual to grow the bones from a juvenile at birth are made up of several different parts. When the individual gets older the different parts grow together and form one bone. The parts of the bone grow together at different age-stages and this makes it possible to estimate the age of an animal. This means that three bone fragments can be part of the same bone element. For example: Proximal and distal epiphyses fused with the diaphysis. To avoid getting a higher MNE all loose epiphyses have to be paired with all unfused diaphysis.

Age is based on fusion data and tooth eruption. Habermehl (1961) and Silver (1969) were used to determine stages of fusion while Schmid (1972) and Hillson (1996) have been used to determine tooth eruption data. It should be noted that bone elements from juveniles are often under-represented in bone materials, because they are very fragile and very easy to break.

Different formulae are used to calculate Estimated Shoulder Heights (ESH) for the different species. Matolski (1970) and Fock (1966) were used to estimate height of withers for cattle while Teichert (1975) were used for sheep. Height of withers on dogs was calculated after Koudelka (1885).

The average height of withers and average weight of the meat-producing animals has increased from Bronze Age to Modern time. For example, cattle during medieval times had an average height of 1.05m but by the late 18th century this had increased to an average height of 1.35m (Davis, 1987:178; tab 8:7). Along with size, the average weight of the animals had increased. The dressing-out weight for cattle and caprinae is 50% of the animal's total, live weight. The dressing-out weight for pig is 80% of the animal's total weight (McCormick, 1997:200). The size figures of cattle are based on Davis (1987:178; tab 8:7).

The genders of the cattle and caprinae are estimated from measurements of the horncore and the coxae. The sex of cattle can also be estimated from the distal width of the metacarpal, based on Higham & Message, 1969. For cattle, Armitage & Clutton Brock (1976) were used for the estimation based on the horncore and Vretemark (1997) for the estimation based on the coxae. For caprinae, Pollok (1976) was used for the horncore and Vretemark (1997) for the coxae. For pig and horse, the upper and lower Canine teeth are used to determine the sex.

The bones were searched for traces of gnawing, cut marks and pathology. The gnaw marks give information about how exposed the bones were after being discarded. A high percentage of bones with traces of gnawing indicate that the bones were left exposed so animals like dogs, rats and other scavengers had access to the bones. The cut marks can give valuable information about how the carcasses were butchered. These marks can also give information about if the animals were kept for their milk, as a source of meat, or if they played an important part in industrial production of for example hide or bone objects.

3. GENERAL RESULTS

A total of 439 individual pieces of bone (NISP) from 348 anatomical units (MNE) were analysed. Of these, a total of 119 fragments (6.3%) were not identifiable to species as the bones were too disintegrated. The remaining 320 fragments (93.7%) from 229 anatomical units (e.g. two fragments of the same femur were counted as a MNE of one) were identified and divided into species (Table 1).

The total number of individual pieces of bone (NISP), anatomical units (MNE) and the total weight of the bone.					
Group	Nº of frag	Frag in %	MNE	Weight in g	Weight in %
Fragments identified to species	320	72.9%	229	3,454.5	93.7%
Unidentified fragments	119	27.1%	119	232.5	6.3%
Total	439	100%	348	3,687.0	100%

Table 1. Total NISP, MNE and weight (in grams) of identified and unidentified fragments.

Bones from seven animal species along with one human skull fragment was identified in the material. The animal species were *Bos taurus* (cattle), *Sus domesticus* (pig), *Ovis aries*/*Capra hircus* (sheep/goat), *Canis familiaris* (dog), *Equus caballus* (horse), *Cervus elaphus* (red deer) and *Felis catus* (cat) (Table 2, Appendix 1).

Sheep (*Ovis*) and goat (*Capra*) are difficult to distinguish from each other. For this reason, and due to the fragmented condition of the bones, these two species have been analysed together as one group (Caprinae). However, it is indicated in old Irish law-texts that the goat was never common and that the animal never played an important roll in the animal husbandry during early Irish farming (Kelly, 1998:78). Bones of goat are rarely found on rural Early Christian sites but seem to have been more common in urban environments, the explanation being that the goat could be kept in the towns and thereby supply the inhabitants with fresh milk while cow's milk was not readily available (McCormick, 1997:202f).

The total number of fragments (NISP), total number of anatomical elements (MNE), total number of individuals (MNI) and total weight (in grams) for all species present.								
Species	NISP	NISP in %	MNE	MNE in %	MNI	MNI in %	Weight	Weight %
Cattle	238	74.4%	160	69.9%	6	31.6%	3003.5	86.9%
Pig	48	15.0%	41	17.9%	5	26.3%	164.0	4.7%
Caprinae	22	6.9%	19	8.3%	2	10.5%	76.5	2.2%
Dog	5	1.6%	3	1.3%	2	10.5%	16.5	0.5%
Horse	4	1.3%	3	1.3%	1	5.3%	104.0	3.0%
Deer	1	0.3%	1	0.4%	1	5.3%	74.0	2.1%
Cat	1	0.3%	1	0.4%	1	5.3%	1.0	0.0%
Human	1	0.3%	1	0.4%	1	5.3%	15.0	0.4%
Grand Total:	320	100%	229	100%	19	100%	3454.5	100%

Table 2. NISP, MNE, MNI and weight for all species.

The condition of the bones varied a lot. The few bones which were complete were mainly phalanges, tarsals and teeth. Many of the bones have been exposed to the elements over time, which contributes to their moderate condition. The average weight per fragment of the 320 fragments identified to species was 10.8g. The average weight of the unidentified fragments was only c. 2g per fragment. This illustrates the high degree of fragmentation of the unidentified fragments.

Thirty-seven (37) of the fragments had cut-marks while five fragments had traces of gnawing, mainly by dog. Two fragments (2) displayed traces of pathological changes (Table 3).

Table display the total number of fragments with cuts, gnaw or pathology per species and per unidentified fragments.							
Species	Cut	Cut in %	Gnaw	Gnaw in %	Path	Path in %	Total
Cattle	25	67.6%	3	60.0%	2	66.7%	30
Pig	5	13.5%	2	40.0%	0	0.0%	7
Caprinae	1	2.7%	0	0.0%	1	33.3%	2
Deer	1	2.7%	0	0.0%	0	0.0%	1
Unidentified	5	13.5%	0	0.0%	0	0.0%	5
Grand Total:	37	100%	5	100%	3	100%	45

Table 3. Number of fragments with cut/gnaw marks or pathology.

3.1. Mammals, fish and birds

The following sections present the different species retrieved from the site at Newtownbalregan 6, Co. Louth. The first section refers to the domesticated meat-producing animals; cattle, sheep/goat and pig, while the second section is dedicated to domesticated animals like horse, dog and cat. The third section deals with the wild animals while the fourth section deals with the human bone.

3.1.1. Domestic Animals

CATTLE, BOS

Cattle dominated the assemblage at Newtownbalregan 6 in terms of bone fragments (NISP) and MNE present on the site. In total, 238 bone fragments from 160 bone elements were retrieved. The total weight of the cattle bone came to 3,003.5g (74.4% of the bones identified to species) and the MNI was 6; two adult, two semi-adults and two juveniles (Table 4).

The age at which the cattle were slaughtered was estimated from fusion data and on the basis of the tooth eruption and wear of the teeth in the mandible. This data indicated that two individuals were juveniles of 1-1.5 years, two individuals were

semi-mature adult animals of c. 2-4 years, one was an adult of c. 5-8 years, while the fourth adult was an old mature individual of 8+ years. There were no indications of any juveniles younger than 1 year present on the site (Table 4).

Cattle fusion data							
Age of fusion	Unfused		Closing		Fused		Total
	Nº of frag	%	Nº of frag	%	Nº of frag	%	
7-10 months	0	0.0%	0	#DIV/0!	2	22.2%	2
12-18 months	1	100.0%	0	#DIV/0!	3	33.3%	4
18-24 months	0	0.0%	0	#DIV/0!	1	11.1%	1
2-2.5 years	0	0.0%	0	#DIV/0!	1	11.1%	1
2.5 -3.5 years	0	0.0%	0	#DIV/0!	1	11.1%	1
3.5-4 years	0	0.0%	0	#DIV/0!	1	11.1%	1
Total:	1	100.0%	0	0.0%	9	100.0%	10

Table 4. Cattle fusion data

The animals reaching the highest age were in general the milk cows. However, a few bulls were also kept for breeding along with a few draft animals. The oxen were usually taken into work at four years of age and were on average used for four years before the animals were fattened and slaughtered (Trow-Smith, 1957:70, Vretemark, 1997:175). Remodelling of the bone along with formation of bony outgrowths on the cattle acetabulum and scapula is thought to be evidence for cattle being used to pull ploughs. The excessive strain causes the bones of the working animal to develop a condition called osteoarthritis or a degenerative joint disease (Davis, 1995:178).

In the rural economy it was milk production that was of primary importance and consequently the majority of animals kept were milk cows. The older cows gilded the most and the best milk, which was then used to produce products like butter. The meat production was only of secondary importance as it was the result of replacing older animals by younger individuals, removing juveniles which weren't needed as draught-oxen or when young milk cows weren't producing enough milk. Therefore, in rural bone material there is a tendency towards cattle being more evenly divided between the different age categories, while in urban material there is a predominance towards older animals. The reason for this is that it was more profitable for outside producers to send mature or semi mature animals to the market in town.

The sex of an animal is determined from visual inspection of the coxae and through measurements of the distal metacarpal, horn cores and metatarsals. In this case there were no measurable distal metacarpals present so all the sex estimations were determined from coxae and horn-cores. These sex estimations could only substantiated the presence of one cow and one male (bull/ox).

The average height of withers and average weight of cattle has increased from Bronze Age to Modern time. For example, cattle during Middle Bronze Age (c. 1000 bc) had an average height of c. 1.08m, during Medieval times this had slightly decreased to an average of c. 1.05m. By the late 18th century the average height had once again increased, now being close to 1.35m (Davis, 1987:178; tab 8:7). Along with size, the average weight of the animals had increased. The dressing-out weight for cattle is 50% of the animal's total weight. For Medieval cattle, of c. 3 years of age, this means a total weight of 200kg and an average dressing out weigh of c. 100kg. For modern animal of c. 3 years the corresponding weight is c. 550kg, yielding c. 265kg of beef (Sten, 1992:203).

Most anatomical elements from cattle seem to be present in the bone assemblage from Newtownbalregan 6. However, there was a higher frequency of lower jaw, teeth

and lower leg extremities. One explanation could be that the meat-rich cuts were retrieved to be cooked and consumed on the site or alternatively in a different location. Another possibility could be that the hides, usually with the skulls and the lower extremities still attached, were brought to the site.

Calfskins were sometimes gathered and treated for use as a writing surface. A fine grade prepared from the skin of the calf or kid became known as vellum, a name applied during the Middle Ages to any parchment used in manuscripts. Parchment, untanned skins of animals, especially of the sheep, calf, and goat, was prepared for use as a writing material. It is more durable than papyrus and susceptible to being folded into book form, in Europe it gave way to paper for use in books only after the advent of printing. To create the parchment the skins were soaked in water, treated with lime to loosen the hair, scraped, washed, stretched, and dried, and then rubbed with chalk and pumice stone.

Twenty-five (25) fragments (10.5% of the total number of cattle bones) showed traces of cuts or butchering (Table 3). The type of cut-marks found on the bones varied, from thin, fine cuts to proper chop-marks which were the result of the carcass being divided up into smaller cuts. Perforations to, or halving of the skull might indicate that the brain was removed. The fatty brain was often used for greasing in leather and skin processing (Sten, 1992:204) while metacarpals and metatarsal often were used in comb manufacturing (Vretemark, 1997:22). One cut up horn fragment from Newtownbalregan 6 could also indicate this fragment was retrieved to be used in comb-manufacturing. However, the majority of the butchered bone was chopped up diaphyses fragment.

The bone assemblage from Newtownbalregan 6 was fairly small but it is possible that it was the result of rubbish deposits. Possibly the animals were butchered on or close to the site, the cuts holding a higher proportion of meat were consumed and this mixed refuse was then discarded. Alternatively that hides with attached skull and lower extremities were brought to the site, possibly to be tanned and later to be used some type of leather manufacturing.

There were also a small quantity of bone which displayed traces of gnawing, 3 fragments or 1.3% of the cattle bone displayed teeth marks indicating that scavengers access to the bone (Plate 1). The pointed imprints from the teeth on some of the bones indicate these were mainly caused by dogs.

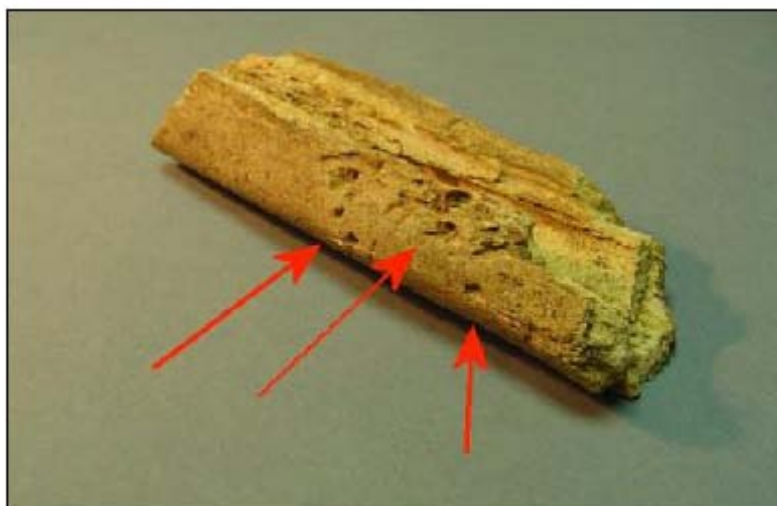


Plate 1. Diaphysis fragment of a metacarpal with arrows indicating traces of gnawing.

Two fragments (0.8%) displayed pathological changes. Both of these were from the articulating surface of the scapula and were most likely associated with repeated stress, for example caused by ploughing or heavy hauling. As mentioned above, remodelling of the bone along with formation of bony outgrowths on the cattle acetabulum and scapula is thought to be evidence for cattle being used to pull ploughs (Davis, 1995:178).

PIG, SUS

The total number of bone fragments identified as pig was 48, from 41 anatomical units. The MNI was 5; two juveniles, two semi-adult and one adult. The total weight of the pig bone was 164g or 4.7% of the total weight of all bones identified to species. (Table 2)

The age at which the pigs were slaughtered was estimated on fusion data and on the basis of the tooth eruption and wear of the teeth in the mandible. This data indicated that the bones were from two juvenile animals of between 6-12 months, two semi-adult and one mature pig.

Most of the pigs were culled when they were young as they were only a source of meat, fat and skin (slaughter products) and it was therefore not beneficial to keep them any longer (Davis, 1995:181). However, the main purpose of breeding pigs was for their meat, which was highly appreciated. The piglets were born in spring and were at times slaughtered as sucklings. In Early Christian times it was common practice to fatten up young pigs that were born at springtime, on an acorn. This usually happened in September and October when the acorn was harvested and the pigs were then immediately slaughtered (Kelly, 1998:83). However, it was more common to fatten up the pig and postpone the slaughter until they were fully grown. As mentioned above, pigs were not just kept for their meat. During a time when extraction of vegetable oils was difficult, the pig was also an important source of essential fat (Wiseman, 2000:5). The Medieval pig was sexually mature at 2-3 years and yielded at this time c. 40kg of pork. As a comparison, today young pigs are sexually mature at 6 months of age and at this time yield c. 75kg of pork (Sten, 1992:207). Pigs need a different environment to cattle and caprinae to thrive.

The retrieval of two tusk fragments, one from a young male and one from an older individual, show the presence of at least two boars. Further fragments indicate the

presence of at least two females (sows). None of the bone elements could be used in a stature estimation.

The most frequently present anatomical units were teeth-fragment, scapulae and humerus. However, there were only one vertebra and one femur fragment present. This suggests that this assemblage represents butchery waste and that meat –rich cuts might have been removed, possibly to be cooked and consumed in a different location. It is also possibly that the cooking process caused the bone to deteriorate and shatter resulting in the destruction of the bone. The flesh of pig was highly appreciated and it provided a feast for visiting high-ranking guests. The pig was often chopped up in to shoulder joints and hams which were the most appreciated cuts but even the head of a pig, mainly of a boar, was a cherished dish. A perforation of the pigs shoulder blades-usually indicates that these parts were being hung up and cured either by smoking or salting. None of the four scapula fragments present in the Newtownbalregan 6 material exhibited any traces of a perforation however, most of the blades was missing.

Five fragments (10.4% of the total number of pig bones) showed traces of cut (Table 3). Two of these were scapula fragments while the remaining two fragments were a mandible and a chopped up diaphysis fragment of a humerus. Two fragments displayed traces of gnawing. Parts of a scapula and a proximal epiphysis of an ulna had been gnawed off, most likely by a dog.

CAPRINAE (SHEEP/GOAT, OVIS/CAPRA)

Sheep and goat are difficult to distinguish from each other and are therefore grouped as caprinae. However, one tibia fragment from the Newtownbalregan 6 bone assemblage could be identified as a definite sheep.

The total number of bone fragments identified as sheep/goat was 22, from 19 anatomical units. The MNI was 2; one semi-adult and one adult. The total weight of caprinae was 76.5g or 2.2% of the total weight of all bones identified to species. (Table 2)

The age at which the caprinae were slaughtered was estimated on fusion data and on the basis of the tooth eruption and wear of the teeth in the mandible. This data indicated that one of the individuals was a semi-adult of c. 20-24 months and one individual was an adult of c. 4-8 years. It was not possible to estimate the sex of any of the individuals from the bone fragments present at Newtownbalregan 6.

A higher percentage of older animals on a site would suggest that the sheep were kept for their wool and not for their meat as the wool was of poor quality up until the animal passed its second winter. A high percentage of juveniles being slaughtered would suggest that the animals were mainly kept for meat and not for wool as the meat on an animal gets less tasty and more fatty with the rising age of the animal. The few animals reaching a higher age were likely used for breeding and for some production of wool.

It is indicated in old Irish law-texts that the goat was never common and that the animal never played an important roll in animal husbandry during early Irish farming (Kelly, 1998:78). Sheep however, were kept for their wool, meat and milk. During the Medieval period, sheep milk was regarded as nutritional and invigorating. The common presence of looms and spindle-whorls also shows that the wool was highly appreciated. However, only one bone could be determined to be from a sheep while the remaining fragments were identified as caprinae.

The dressing-out weight of a lamb during 14th century was 7kg. Today lambs are slaughtered at 4-6 months and they have a dressing-out weight of 15kg (Sten, 1992:207). The dressed weight of an adult was c. 55-60kg (Luff, 1984:25, Murray, 2000:6; tab 2).

The anatomical units present from caprinae were teeth, femur, metacarpal, phalanx, vertebra and tibia, where of 16 of the 22 fragments were either teeth or metacarpal fragments. This indicates a significant distribution of cuts with low meat contents like skull fragments, tibia, metapodia and phalanges. There was also an underrepresentation of vertebrae in the material as there was only one single fragment present. Further, bone elements with a high meat contents like the humerus, radius and femur were also underrepresented. This might indicate that animals were butchered on the site, the skull, metapodia and phalanges were discarded while cuts with high meat content like the leg of lamb, shoulder which was brought to a different location to be cooked. Legs of lamb were often cured, preserving the meat and making an ideal food to bring on long trips as food supplies (Sten, 1992:205).

The bone material contained one complete bone, a metacarpal, which could be measured and used in a stature estimation (Table 5):

Sample Bag	Bone	Part of bone	Side	GL	Bp	CF ¹	ESH ²	Comment
6	Mc	Complete-in frag	Sin	122.00	22.49	4.89	59.66	O/C

1) Calculation Factor 2) Estimated Shoulder Height

Table 5. Stature estimations

The height of withers estimated from this astragalus came to 59.66m. The average height of withers of ewes in early Medieval Lund, Sweden (Ekman, 1973:94, tab. 21) was 63.0cm while the average height for males were 68.5cm. The height of withers of the individual from Newtownbalregan 6 was below this average. However, this height was estimated from a fragmented metacarpal.

Only one fragment (4.5% of the total number of caprinae bones) showed traces of cuts. The fragment was a metacarpal with fine cuts across the diaphysis (Table 3). One fragment showed traces of pathologies. The fragment was a metacarpal with osteophytes on the diaphysis, possibly related to the mature age of this individual.

3.1.2. Other Domesticates

DOG, CANIS

There were five fragments from three anatomical units in the Newtownbalregan 6 bone assemblage identified as dog. The MNI was two; one juvenile which was younger than 1.5 year and one adult. The total weight of the dog bones was 16.5g (Table 2).

The anatomical units present from dog were mandible, femur and tibia. The size of these fragments indicated the presence of a small to medium sized dog. None of the bones could be used in a sex estimation.

None of the fragments displayed any traces of cuts, gnawing or pathology.

HORSE, EQUUS

The total number of bone fragments identified as horse was four, from three anatomical units. The MNI was one; an adult. The total weight of the horse bones was 104g or 3% of the total weight of all bones identified to species. (Table 2)

The only anatomical units represented in the bone assemblage were a coxae, a tarsal and a very deteriorated tooth fragment. The coxae fragment suggests this individual was a male (stallion). The complete tarsal (astragalus) measured GH:59.98, LmT:64.22 and BFd:55.46 but could not be used in an estimate height of withers.

Today, an animal of 14.2h (c. 144.3cm) or over is usually considered a horse while one less than 14.2h is considered a pony. However, there are exceptions to the general rule. Some smaller horse breeds who typically produce individual horses both under and over 14.2h are considered "horses" regardless of height. Likewise, some pony breeds, such as the Welsh pony, share some features of horses and individual animals may occasionally mature at over 14.2h, but are still considered ponies. Light riding horses such as Arabians, Morgans, or Quarter Horses usually range in height from 14.0 (142cm) to 16.0 hands (163cm). The Connemara pony stands between 12.2 (c. 124cm) and 14.2 hands high, although some can grow taller and are therefore horse-sized, although still technically ponies genetically. Horses in the Middle Ages differed in size, build and breed to the modern horse. They were, on average, considerably smaller.

None of the bone fragments displayed any traces of cuts, gnawing or pathologies.

CAT; FELIS

One fragment was identified as a cat. The fragment was a metacarpal and weighed only 1g. The diaphysis of this mc had not yet fused with the distal epiphysis. This indicates this was a juvenile (<1 year) and that it was still growing at time of death.

3.1.3. Wild Animals

RED DEER, CERVUS

Only one fragment, from context 17 was identified as deer. The fragment was the base part of an antler and had a total weight of 74g (Table 2). The-fragment retrieved was from a red deer, which is the largest of the Irish herbivores.

The antlers are shed and grown anew every year. When the stag is fully mature they usually have at least three points (tines) along the main beam and a fork or cup of pints at the top. Judging from the antler fragment this was an older stag. The deer antler had been cut off at the base, possibly to be use for handles, buttons or in comb production.

Red deer is the only ruminant native to Ireland. Even though deer occasionally were consumed (during early Christian times and later) the animal did not play an important part in the diet. The percentage of deer bones found on archaeological sites is usually very low and they are in many cases industrial waste rather than food debris. Deer antler was for example often used in the production of combs. As deer hunting often was a privilege for the aristocracy or royalty, shed antlers were in many cases collected and used in the production of bone artefacts (Kelly, 1998:272-6). The fallow deer was introduced in Ireland in the thirteenth century. It was brought in to be hunted as its venison was regarded to be superior to the meat of the native red deer. (Kelly, 1998:21f, 272n)

3.1.4. Human remains

One human bone was retrieved with the animal bone assemblage from the Newtownbalregan 6. The bone was a skull (parietal) fragment and had a total weight of 15g. The almost complete fusion of the sutures indicates this was a middle to old adult of >35 years.

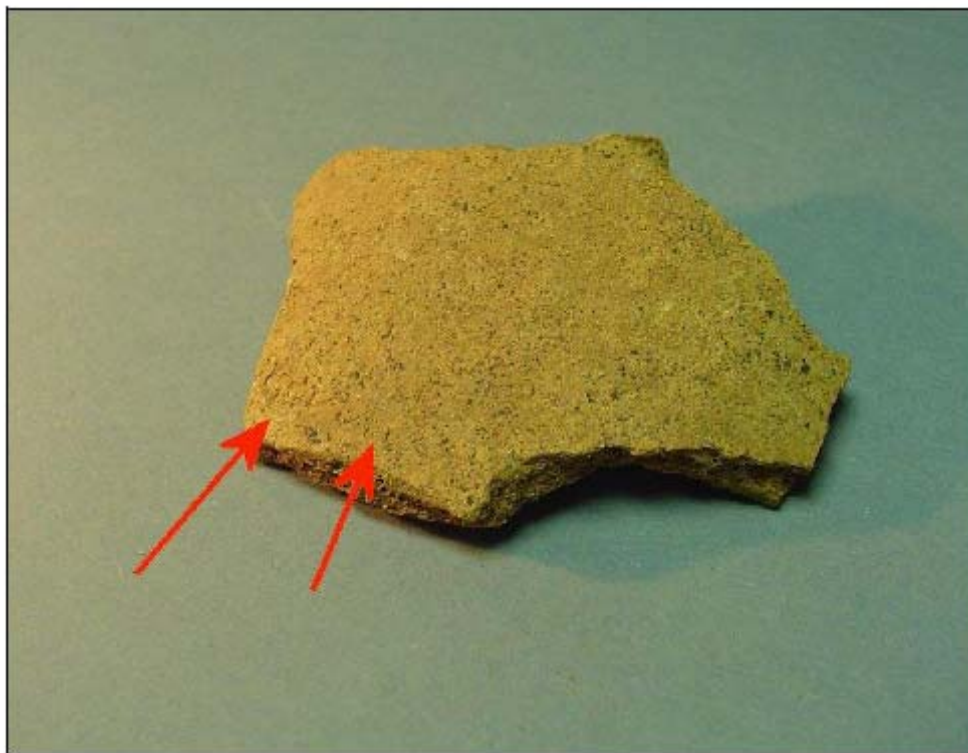


Plate 2. Human skull fragment with arrow highlighting the almost complete closure of the sutures.

3.2. Unidentified bone

One-hundred and nineteen (119) fragments or 27.1% of the bone assemblage could not be identified to species or anatomical unit. The total weight of these fragments came to 232.5g, with an average weight per fragment of only c. 2g.

Two fragments had been exposed to varied degree of burning. The total weight of these was 3g and their colour varied from grey to completely white. The white colour and a high fragmentation of the bones indicated a high heat during burning, while black colour indicates that the bone had only been slightly scorched by fire.

The unidentified bone assemblage contained five fragments displaying traces of cuts but none of the fragments displayed any gnawing or pathologies.

4. SUMMARY

The animal bone analysis entailed a total of 439 fragments whereof 320 or 72.9% were identified to species. In general, the bones were in a poor and fragmented condition and had a total weight of 3.687g.

The bone material at Newtownbalregan 6 contained bones from seven animal species along with a human skull fragment. The animals identified were: cattle, pig, sheep/goat, dog, horse, deer and cat. Domesticated meat-producing animals such as cattle, pig and sheep/goat totally dominated the material but there were also a range of other domesticated animals e.g. dog, horse and cat. Wild animals were only represented by one deer antler fragment.

By far the most common animals were cattle which dominated the bone material by number of fragments (NISP), number of elements (MNE) and weight. The second and third most common animals were pig followed by caprinae. Together these animals constituted 96% of all the bones identified to species. Cattle, caprinae and pig thrive different environments, while cattle and caprinae favour open dry grass fields, pigs prefer wooded and slightly damp surroundings.

At Newtownbalregan 6 there was a high frequency of cattle bones, c. 74% of the total number of bone identified to species. Most anatomical elements from cattle seem to be present in the bone assemblage from Newtownbalregan 6. However, there was a higher frequency of lower jaw, teeth and lower leg extremities. One explanation could be that the meat-rich cuts were retrieved to be cooked and consumed on the site or alternatively in a different location. Another possibility could be that the hides, usually with the skulls and the lower extremities still attached, were brought to the site.

The pig was represented by 54 bone fragments making it the second most common animal in the bone assemblage. The main purpose for keeping pigs was for its meat, even though the animal was also an important source for essential oil during Medieval times. The most frequently present anatomical units were teeth-fragment, scapulae and humerus. However, there were only one vertebra and one femur fragment present. This suggests that this assemblage represents butchery waste and that meat-rich cuts might have been removed, possibly to be cooked and consumed in a different location. The flesh of pig was highly appreciated and it provided a feast for visiting high-ranking guests. The pig was often chopped up in to shoulder joints and hams which were the best cuts but even the head of a pig, mainly of a boar, was also an appreciated dish (Sten, 1992:208).

It is indicated in old Irish law-texts that the goat was never common and that the animal never played an important roll in animal husbandry during early Irish farming (Kelly, 1998:78). Sheep however, were kept for their wool, meat and milk. During the Medieval period, sheep milk was regarded as nutritional and invigorating. The common presence of looms and spindle-whorls also shows that the wool was highly appreciated. However, only one bone could be determined to be from a sheep while the remaining fragments were identified as caprinae. The anatomical units present in the material seem to indicate that animals were butchered on the site, the skull, metapodia and phalanges were discarded while cuts with high meat content like the leg of lamb, shoulder which was brought to a different location to be cooked. Legs of lamb were often cured, preserving the meat and making an ideal food to bring on long trips as food supplies (Sten, 1992:205)

Further domesticated animals in the Newtownbalregan 6 material were dog, horse and cat which constituted c. 3% of all the bone identified to species. Wild animals was only represented by one deer antler.

One human skull fragment was retrieved with the Newtownbalregan 6 animal bone material. This fragment was most likely from an middle to mature adult individual.

5. BIBLIOGRAPHY

Clutton-Brock, J. 1999. *A Natural History of Domesticated Mammals*. Cambridge.

Cohen, A. & Serjeantson, D. 1996. *A Manual for the Identification of Bird bone from Archaeological Sites*.

Davis, S. J. M. 1987. *The archaeology of animals*. London

Driesch, A. von den. 1976. *A guide to measurement of animal bones from archaeological sites*. Peabody Museum Bulletin 1. Peabody museum of archaeology and Ethnology. Harvard University.

Ekman, J. 1973. *Early Mediaeval Lund - the fauna and the landscape*. Archaeologica Lundensia. Lund

Getty, R. 1975. *Sisson and Grossman's The Anatomy of the Domestic Animals*. Vol 1+2. W.B. Saunders Company. Philadelphia. London. Toronto.

Habermehl, K.H. 1961. *Die Altersbestimmung bei Haustieren, Pelztieren und beim jagdbaren Wild*. Parey, Hamburg – Berlin

Hayden, T. & Harrington, R. 2001. *Exploring Irish Mammals*. Duchas The Heritage Service. Dublin.

Hillson, S. 1996. *Teeth*. Cambridge University Press. Cambridge.

Higham, C. & Message, M. 1969. *An Assessment of Prehistoric Technique of Bovine Husbandry*. In Brothwell, D.R. Higgs, E. (eds): *Science in Archaeology*. 2nd ed., p 315-330. London.

Kelly, F. 1998. *Early Irish Farming, a study based mainly on the law-texts of the 7th and 8th centuries AD*. Early Irish Law Series Volume IV. Dublin.

Lisle, L. 1957. *Observations on Husbandry*. (2 vols) London

Luff, R.M. 1984. *Animal Remains in Archaeology*. Aylesbury.

McCormick, F. 1988. *The domesticated cat in early Christian and medieval Ireland*. In Keimelia; *Studies in Medieval Archaeology and History in Memory of Tom Delaney*. Eds: Mac Niocaill, G. and Wallace, P.F. Galway University Press, Galway, 218-228.

McCormick, F & Murphy, E. 1997. In Walsh, C (ed). *Archaeological excavations at Patrick, Nicholas and Winetavern Streets, Dublin*. Dublin.

O'Connor, T. 2000. *The archaeology of animal bones*. Gloucestershire.

O'Connor, K.D. 1998. *The Archaeology of Medieval Rural Settlement in Ireland*. Discovery Programme Monograph No. 3. Dublin

Ó Cróinín, D. 1998. *Early Medieval Ireland 400-1200*. London and New York.

O'Sullivan, T. 1997. In Walsh, C (ed). *Archaeological excavations at Patrick, Nicholas and Winetavern Streets, Dublin*. Dublin.

Schmid, E. 1972. *Atlas of Animal Bones*. For Prehistorians, Archaeologists and Quaternary Geologists. Amsterdam.

Silver, I.A. 1969. *The aging of domestic Animals*. Science in Archaeology. (283-309). London.

Sten, S. 1992. *Borgar fran forntid och medeltid I Vastsverige*. Arkeologi i Vastsverige 5. Goteborgs arkeologiska museum. Goteborg.

Teichert, M. 1966/69. *Osteometrische Untersuchungen zur Berechnung der Wiederisthöhe bei vor- und frühgeschichtlichen Schweinen*. (Habil.-Schr. Univ. Halle 1966 oder Ethnogr.-Arch. Zeitschr. 10, 1969,517-525).

Troy-Smith, R. 1957. *A history of British livestock husbandry to 1700*. London

Vretemark, M. 1997. *Fran ben till boskap. Kosthall och djur hallning med utgangspunkt I medeltida benmaterial fran Skara. Del 1* . Skrifter fran Skaraborgs Lansmuseum, Nr 25.

Walsh, C. 1997. *Archaeological excavations at Patrick, Nicholas and Winetavern Streets, Dublin*. Dublin.

Warner, D., Linnane, K. & Brown, P.R. 1980. *Fishing in Ireland. The complete guide*. Belfast.

Wiseman, J. 2000. *The pig. A British History* . London

Unpublished

During, E. 1997. *Bildkompendium i animalosteologi* . Arkeosteologiska Forsknings Laboratoriet. Ulriksdal. Stockholm.

Murray, E.V. 2000. Maynooth Castle, Co. Kildare. Animal Bone Report. QUB, Belfast

Bag	Context	Sample	Animal	Element	Part of element	NI SP	MN E	Side	Pre epi	P 1/3	M 1/3	D 1/3	Di epi	J	M/F	C	G	P	B	Descr C/P/G	Measure	Comment	Weight
1	25	105	Bos	Radius	Prox dia+epi frag	1	1	Sin	F	1	-	-	-	-	-	-	-	-	-	-	-	-	25
2	17	120	Bos	Mandible	Interval, alv, ramus, ang	10	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77
2	17	120	Bos	Mandible	Interval, alv, cond, proc musc	3	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
2	17	120	Bos	Mandible	Proc art, cond, M1	2	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
2	17	120	Bos	Maxilla	P2+P4, M1, alv	3	1	Dx	-	-	-	-	-	J	-	-	-	-	-	-	-	-	34
2	17	120	Bos	Humerus	Dist dia+epi frag	1	1	Sin	-	-	-	1	F	-	-	-	-	-	-	-	-	-	30
2	17	120	O/C	Dens	Mand, M3	1	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
3	18	4	Bos	Dentes	Mand, M1+Mol cups	2	2	Sin	-	-	-	-	-	J	-	-	-	-	-	-	-	-	8
3	18	4	Bos	Vert cerv	Atlas frag	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
3	18	4	Bos	Vert cerv	Arch, proc art cran+caud	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
3	18	4	Bos	Mandible	Alv, ramus frag	1	1	Dx	-	-	-	-	-	-	1	-	-	-	-	-	-	-	14
3	18	4	Bos	Mc	Prox dia+epi frag	1	1	Sin	F	1	-	-	-	-	1	-	-	-	-	-	-	-	56
3	18	4	Bos	Mt	Prox dia+epi frag	1	1	Dx	F	1	-	-	-	-	1	-	-	-	-	-	-	-	13
3	18	4	Equus	Tarsal	Astragalus-complete	1	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54
3	18	4	Ovis	Tibia	Dist dia+epi frag	1	1	Sin	-	-	-	1	F	-	-	-	-	-	-	-	-	-	3
4	24	184	Bos	Dens	Mand, M3	1	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
4	24	184	Bos	Scapula	Cav glen frag	1	1	Sin	-	-	-	-	-	-	-	-	-	1	-	-	-	-	17
4	24	184	Bos	Humerus	Dist dia+epi frag	3	1	Sin	-	-	-	1	F	-	-	1	-	-	-	-	-	-	49
4	24	184	Sus	Dens	Mand, M2 cups frag	1	1	Sin	-	-	-	-	-	J	-	-	-	-	-	-	-	-	2
5	17	139	Bos	Vert thor	Spina+proc art caud	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
5	17	139	Bos	Humerus	Dist dia+epi frag	1	1	Dx	-	-	-	1	F	-	-	1	-	-	-	-	-	-	129
5	17	139	Bos	Tarsal	Astragalus-family compl	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
5	17	139	Unid	Unid	Unburnt frag	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	6
6	28	305	Bos	Vert thor	Corpus+spina frag	2	1	-	C	1	-	-	-	-	-	-	-	-	-	-	-	-	10
6	28	305	Bos	Vert lumb	Corpus frag	1	1	-	-	Unf	1	1	C	-	-	-	-	-	-	-	-	-	10
6	28	305	Bos	Vert lumb	Corpus+spina+na frag	7	3	-	-	Unf	1	Unf	-	-	-	-	-	-	-	-	-	-	40
6	28	305	Bos	Sacrum	Basis, spina, frag	4	1	-	C	1	-	-	-	-	-	1	-	-	-	-	-	-	49
6	28	305	Bos	Vert cocc	Corpus frag	4	4	-	C	1	1	1	C	-	-	-	-	-	-	-	-	-	18
6	28	305	O/C	Dens	Mand, M1 frag	1	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5
6	28	305	O/C	Dens	Max, dp4 frag	1	1	Sin	-	-	-	-	-	J	-	-	-	-	-	-	-	-	2.5
6	28	305	O/C	Dentes	Max, M1+M2	2	2	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
6	28	305	O/C	Mc	Fairly complete in frag	2	1	Sin	F	1	1	1	F	-	-	-	-	1	-	-	-	-	14
6	28	305	O/C	Mc	Prox dia+epi frag	1	1	Sin	F	1	-	-	-	-	-	-	-	-	-	-	-	-	5
6	28	305	O/C	Mc	Prox dia+epi frag	1	1	Dx	F	1	-	-	-	-	-	-	-	-	-	-	-	-	4.5
6	28	305	O/C	Mc	Dist dia+epi frag	3	2	-	-	-	-	1	F	-	-	1	-	-	-	-	-	-	9
6	28	305	O/C	Mc	Dist diaph	1	1	-	-	-	1	Unf	-	J	-	-	-	-	-	-	-	-	4
6	28	305	O/C	Femur	Prox dia+epi frag	1	1	Dx	F	1	-	-	-	-	-	-	-	-	-	-	-	-	2.5
6	28	305	O/C	Ph1	One complete, one half	2	2	-	F	1	1	1	F	-	-	-	-	-	-	-	-	-	4
6	28	305	Sus	Scapula	Glen cav, collum frag	1	1	Sin	-	Unf	-	-	-	J	-	1	-	-	-	-	-	-	5
6	28	305	Sus	Scapula	Glen cav, collum, spona frag	2	1	Dx	-	Unf	-	-	-	J	-	-	-	-	-	-	-	-	7
6	28	305	Sus	Femur	Prox epi frag	1	1	Dx	Unf	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5
6	28	305	Sus	Humerus	Prox epi frag	1	1	Sin	Unf	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5

Bag	Context	Sample	Animal	Element	Part of element	NI SP	MN E	Side	Pre	P 1/3	M 1/3	D 1/3	Di	M/F	C	G	P	B	Descr C/P/G	Meas	Comment	Weight
6	28	305	Sus	Vert lumb	Corpus frag	2	2	-	-	Unf	1	Unf	-	-	-	-	-	-	-	-	Fuse at 4-7yrs	3
6	28	305	Unid	Unid	Unburnt frag	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
7	24	191	Bos	Mt	Diaph frag	1	1	Dx	-	1	1	1	-	-	-	-	-	-	-	-	In bad cond	42
7	24	191	Bos	Mt	Prox dia+epi frag	1	1	Sin	F	1	-	-	-	-	-	-	-	-	-	-	In bad cond	8
7	24	191	Bos	Mt	Dist dia+epi frag	2	1	-	-	-	-	1	F	-	-	-	-	-	-	-	In bad cond	27
7	24	191	Equus	Coxae	Acet+pubis frag	2	1	Dx	-	-	-	-	-	M	-	-	-	-	-	-	In bad cond	47
7	24	191	Unid	Unid	Unburnt frag	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	Costa pos bos, in bad cond	15
8	18	8	Bos	Mc	Prox dia+epi frag	2	1	Dx	F	1	1	-	-	M?	1	-	-	-	-	-	C:chopped up dia	57
8	18	8	Bos	Mc	Prox dia+epi frag	1	1	Sin	F	1	-	-	-	-	-	-	-	-	-	-	Y Bp:51.51, in bad cond	14
8	18	8	Bos	Dentes	Mand, M1+Mol frag	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	M1 very worn, Mol cusp unw.In bad cond	6
8	18	8	Bos	Coxae	Pubis frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	10
8	18	8	Sus	Dens	Mand, M2 cups frag	1	1	Sin	-	-	-	-	J	-	-	-	-	-	-	-	Unworn, no root=6-12mths	3
8	18	8	Unid	Unid	Unburnt frag	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5
9	13	268	Bos	Scapula	Glen, collum, spine frag	2	1	Dx	F	1	1	-	-	-	1	-	-	-	-	-	C:chopped up	81
10	56	271	Bos	Vert thor	Corpus, spina frag, epi plate	3	2	-	-	Unf	1	Unf	Unf	-	-	-	-	-	-	-	-	42
10	56	271	Bos	Dens	Mand, dp4	1	1	Sin	-	-	-	-	J	-	-	-	-	-	-	-	-	5
10	56	271	Unid	Unid	Unburnt frag	2	2	-	-	-	-	-	-	-	1	-	-	-	-	-	C:pos cut but might be modern	11
11	24	6	Bos	Mandible	Alv frag	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	In very bad cond	5
11	24	6	Bos	Humerus	Dist dia frag	1	1	Dx	-	-	1	F	-	-	1	-	-	-	-	-	C:chopped up dia	41
11	24	6	Bos	Mt	Dist dia frag	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	In very bad cond	12
11	24	6	Bos	Coxae	Acet frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	15
11	24	6	Unid	Unid	Unburnt frag	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	10
12	56	266	Bos	Dens	Mand, M1	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	I=41-47=5-8yrs	8
12	56	266	Bos	Dentes	Cusp frag	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	14
12	56	266	Bos	Dens	Mand, M3 frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	4
12	56	266	Sus	Dentes	Max, C, mol cusp frag	6	4	-	-	-	-	-	J	M	-	-	-	1	-	-	Slight worn	7
12	56	266	Sus	Maxilla	Frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	3
12	56	266	Unid	Unid	Burnt frag	2	2	-	-	-	-	-	-	-	-	-	-	2	-	-	One white, one grey	3
13	14	1	Bos	Humerus	Dist dia+epi frag	1	1	Dx	-	-	1	1	F	-	M?	1	-	-	-	-	C:chopped up dia	205
14	19	122	Bos	Humerus	Dist dia frag	1	1	Sin	-	-	-	Unf	J	-	1	-	-	-	-	-	C:chopped up dia	9
15	45	302	Bos	Femur	Prox dia+epi frag	2	1	Dx	F	1	-	-	-	-	-	-	-	-	-	-	Fues at 1.5yrs, bad cond	53
15	45	302	Sus	Scapula	Collum frag	1	1	Sin	-	-	-	-	-	-	1	-	-	-	-	-	Pos cut up	3
15	45	302	Sus	Mandible	Mand, P3-4, M1-2, ramus	3	1	Sin	-	-	-	-	J	-	1	-	-	-	-	-	C:chopped up	16
15	45	302	Unid	Unid	Unburnt frag	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	C:chopped up	3
16	17	108	Cervus	Antler	Basis, burn frag	1	1	Dx	-	-	-	-	-	-	1	-	-	-	-	-	C:pos cut up	74
17	11	132	Bos	Dentes	Max, M3, mol frag	5	3	Sin	-	-	-	-	-	-	-	-	-	-	-	-	Broken	40
17	11	132	Bos	Femur	Prox dia frag	1	1	Dx	-	1	-	-	-	-	1	-	-	-	-	-	C:chopped up dia	35
17	11	132	Bos	Ulna	Diaph frag	1	1	Sin	-	1	1	-	-	-	-	-	-	-	-	-	In bad cond	8
17	11	132	Bos	Mc	Prox dia+epi frag	1	1	Dx	F	1	-	-	-	-	-	-	-	-	-	-	In very bad cond	48
17	11	132	Sus	Humerus	Dist dia frag	1	1	Sin	-	1	Unf	J	-	1	-	-	-	-	-	-	C:chopped up dia	28
18	20	123	Bos	Skull-fron	Frontale+cornu frag	2	1	Sin	-	-	-	-	-	F	1	-	-	-	-	-	C:cut up cornu	102
18	20	123	Bos	Mandible	Artic cond	1	1	Dx	-	-	-	-	-	-	1	-	-	-	-	-	C:cut up	11

Bag	Context	Sample	Animal	Element	Part of element	NI SP	MN E	Sid e	Pr epi	P 1/3	M 1/3	D 1/3	Di epi	J	M/ F	C	G	P	B	Descr C/P/G	M e a s	Comment	Weight
19	17	-	Bos	Mandible	Alv, ramus frag	7	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	In very bad cond	43
19	17	-	Bos	Mt	Diaph frag	1	1	Dx	F	1	1	1	-	-	-	-	-	-	-	-	-	In very bad cond	55
19	17	-	Unid	Unid	Unburnt frag	74	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	In very bad cond	140
20	17	121	Bos	Mandible	Mand, dp2-4, M1, M2	3	1	Sin	-	-	-	-	J	-	-	-	-	-	-	-	-	C. 1.5yr	121
20	17	121	Bos	Dentes	Mand, M2, M3	2	2	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	I, g=44-46=c. 8yrs	25
20	17	121	Bos	Vert cerv	Axis, dens	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
20	17	121	Bos	Tarsal	Calcaneus frag	3	1	Sin	F	1	1	1	F	-	-	-	-	-	-	-	-	-	48
20	17	121	Bos	Mt	Prox dia+epi frag	1	1	Sin	F	1	1	-	-	-	-	-	-	-	-	-	-	Y Bp:47.1	91
20	17	121	Sus	Dens	Mand, M3 frag	1	1	Dx	-	-	-	-	J	-	-	-	-	-	-	-	-	b=27-35=2-5yrs	8
20	17	121	Sus	Scapula	Glen clav, collum, spine	1	1	Sin	-	1	1	-	-	-	-	1	-	-	-	G: tub pos gnawed off	-	-	14
20	17	121	Sus	Humerus	Dist dia frag	1	1	Dx	-	-	-	1	-	-	-	-	-	-	-	-	-	In bad cond	9
20	17	121	Sus	Coxae	Corpus frag	3	3	-	-	-	-	-	-	-	1	-	-	-	-	C: cone cut up	-	-	25
20	17	121	Sus	Fibula	Diaph frag	1	1	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	3
20	17	121	Unid	Unid	Unburnt frag	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	1
21	26	14	Unid	Unid	Unburnt frag	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	3
22	17	119	Bos	Mandible	Mand, M1, M2-frag, M3, alv, ang	6	1	Dx	-	-	-	-	-	-	1	-	-	-	-	C: chopped up ramus	-	I, -; k=47=8+yrs	102
22	17	119	Bos	Mandible	Ang. art cond	2	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35
22	17	119	Bos	Mandible	Ang. art cond, proc musc, alv, interalv	6	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
22	17	119	Bos	Coxae	Acet, ilium frag	1	1	Dx	-	-	-	-	-	M?	1	-	-	-	-	C: chopped up	-	Pos male	101
22	17	119	Bos	Costae	Collum, corpus frag	1	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
22	17	119	Bos	Radius	Diaph frag	1	1	Dx	-	-	1	-	-	-	-	1	-	-	-	C: chopped up dia	-	-	11
22	17	119	Unid	Unid	Unburnt frag	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
23	18	164	Human	Skull-parie	Parietal frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	Prob old mature adult	15
23	18	164	Bos	Mandible	Proc art, proc musc	2	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
23	18	164	Bos	Dens	Mand, P4	1	1	Sin	-	-	-	-	J	-	-	-	-	-	-	-	-	a=36=c. 3yrs	4
23	18	164	Bos	Radius	Diaph frag	1	1	Dx	-	1	1	-	-	-	1	-	-	-	-	C: chopped up dia	-	-	42
23	18	164	O/C	Vert cerv	Dens, corpus, na frag	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5
23	18	164	Unid	Unid	Unburnt frag	1	1	-	-	-	-	-	-	-	1	-	-	-	-	C: chopped up dia	-	-	16
24	47	281	Bos	Dens	Max, M3 frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	Very worn, broken	14
24	47	281	Bos	Mc	Prox dia+epi frag	1	1	Sin	F	1	-	-	-	-	1	-	-	-	-	C: chopped up dia	-	-	12
24	47	281	O/C	Dens	Max, M2-frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	In bad cond	3
24	47	281	Unid	Unid	Unburnt frag	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
25	24	12	Bos	Scapula	Glen cav, collum frag	1	1	Sin	-	-	-	-	-	-	-	-	1	-	-	P: glen cav-pitting=heavy work?	-	-	33
26	18	202	Sus	Dens	Mand, M2-frag	2	1	Dx	-	-	-	-	J	-	-	-	-	-	-	-	-	c=19-24=1.5-2yrs	3
27	56	267	Sus	Dentes	Mand, I1-3, C, M1	6	5	Dx	-	-	-	-	J	F?	-	-	-	-	-	-	-	C. 15-18mths, pos f but C broken	6
27	56	267	Sus	Dentes	Mand, I1, I3, C	3	3	Sin	-	-	-	-	J	M?	-	-	-	-	-	-	-	c. 9-12mths, pos m but not compl C	2.5
27	56	267	Sus	Dentes	Max, Inc, C, M2	3	3	Sin	-	-	-	-	J	F	-	-	-	-	-	-	-	C. 1yr	4
27	56	267	Sus	Dentes	Cusp frag	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5
28	56	96	Bos	Dentes	Cusp frag	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Very fragmented	17
29	56	12	Bos	Mandible	Ramus frag	2	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	Burnt, blacked	6
30	56	96	Bos	Dens	Mand, M3 cusp frag	4	1	Sin	-	-	-	-	J	-	-	-	-	-	-	-	-	C. 2yrs, not worn	8
31	56	137	Bos	Dens	Max, dp-cusp frag	3	1	-	-	-	-	-	J	-	-	-	-	-	-	-	-	-	4

Bag	Context	Sample	Animal	Element	Part of element	NI SP	MN E	Side	Pre epi	P 1/ 3	M 1/ 3	D 1/ 3	Di epi	J	M/ F	C	G	P	B	Descr C/P/G	Measurements	Comment	Weight		
31	56	137	Bos	Dentes	Max, M1,M2,mol cups	4	3	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36		
31	56	137	Bos	Mp	Dist epi frag	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3		
32	17	109	Bos	Dens	Max, M3	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17		
33	17	269	Bos	Dentes	Mol-frag	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5		
34	45	301	Bos	Coxae	Acet,ilium frag	1	1	Sin	-	-	-	-	-	-	M	1	1	-	-	C:chopped up,G:gnaw-dog	-	Male	75		
34	45	301	Bos	Tarsal	Astragalus-family compl	1	1	Dx	-	-	-	-	-	-	-	-	1	-	-	G:gnaw-pointy=dog	Y	GLI:57.56,GLm:52.85	30		
34	45	301	Canis	Mandible	Ang.art proc,C	2	1	Dx	-	-	-	-	-	J	-	-	-	-	-	-	-	-	3.5		
34	45	301	Canis	Femur	Prox dia frag	1	1	Sin	-	Unf	1	-	-	J	-	-	-	-	-	-	-	-	Fuse at 1.5yrs	3	
34	45	301	Unid	Unid	Unburnt frag	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	
35	17	277	Bos	Dens	Mol-frag	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	
35	17	277	Bos	Coxae	Acet,pubis fra	1	1	Dx	-	-	-	-	-	-	F	-	-	-	-	-	-	-	-	10	
35	17	277	Bos	Tibia	Diaph frag	1	1	Dx	-	-	1	-	-	-	-	1	-	-	-	-	C:chopped up dia	-	-	9	
36	18	11	Bos	Mc	Prox dia+epi frag	4	1	Dx	F	1	1	-	-	-	-	-	1	-	-	-	G:gnaw-pointy=dog	Y	Bp:53.29	48	
37	26	14	Bos	Humerus	Dist dia+epi frag	6	1	Dx	-	-	-	1	F	-	-	-	-	-	-	-	-	-	-	In very bad cond	25
38	26	13	Bos	Dens	Max, M3-frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
38	26	13	Bos	Dentes	Mol-frag	6	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	In frag	15
39	47	293	Felis	Mc	Prox dia+epi frag	1	1	Sin	F	1	1	Unf	-	J	-	-	-	-	-	-	-	-	-	Fuse at c. 6mts	1
40	45	346	O/C	Dens	Mand, Inc	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
41	17	9	Unid	Unid	Unburnt frag	2	2	-	-	-	-	-	-	-	-	1	-	-	-	-	C:one cut up	-	In bad cond	5	
42	13	4	Bos	Radius	Diaph frag	2	1	Sin	-	1	1	-	-	-	-	2	-	-	-	-	C:2 chopped up dia	-	In bad cond	23	
43	24	5	Bos	Dens	Mol-frag	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
43	24	5	Bos	Mp	Dist epi frag	2	1	-	-	-	-	-	1	-	M?	-	-	-	-	-	-	-	-	Large=male? In bad cond	27
44	31	71	O/C	Dens	Mand,M1-frag	1	1	Sin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Broken	4
45	18	216	Bos	Dens	Max,P-cusp frag	1	1	Dx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pos P3, Not worn	2
45	18	216	Unid	Unid	Unburnt frag	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	In very bad cond	4
46	13	273?	Bos	Radius	Prox dia+epi frag	2	1	Dx	F	1	1	-	-	-	-	1	-	-	-	-	C:chopped up dia	-	In very bad cond	49	
46	13	273?	Bos	Tibia	Dist dia+epi frag	1	1	Dx	-	-	-	1	F	-	-	1	-	-	-	-	C:chopped up dia	-	In bad cond	40	
46	13	273?	Bos	Ph1	Fairly complete	1	1	-	F	1	1	1	F	-	-	-	-	-	-	-	-	-	-	In bad cond	15
47	13	1	Bos	Dentes	Mol-cusp frag	13	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Very fragmented	15
48	45	306	Bos	Dens	Max, dp4-cusp frag	2	1	-	-	-	-	-	-	J	-	-	-	-	-	-	-	-	-	Juv=unworn, fragmented	4
48	45	306	Equus?	Dens	Cusp frag	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pos horse but in bad cond	3
48	45	306	Sus	Ulna	Prox dia frag	1	1	Sin	-	1	-	-	-	-	-	-	1	-	-	-	G:gnawed off prox epi-dog?	-	-	4	
48	45	306	Sus	Fibula	Diaph frag	1	1	-	-	Unf	1	1	-	J	-	-	-	-	-	-	-	-	-	Fuse at 3.5yrs	2
48	45	306	Canis	Tibia	Prox+dist dia+epi frag	2	1	Dx	F	1	1	1	F	-	-	-	-	-	-	-	-	-	-	Small/medium sized	10
49	18	216	Bos	Costae	Corpus frag	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	In very bad cond	9