



M1 DUNDALK WESTERN BYPASS

SITE 118: BALREGAN 5 and 6, SCOTCH GREEN MILL
CHAINAGE 22.660 – 22.740
NGR: 302847/310058
FINAL REPORT

FINAL REPORT

ON BEHALF OF
LOUTH COUNTY COUNCIL and the
NATIONAL ROADS AUTHORITY

LICENSEE: SHANE DELANEY
LICENCE NUMBER: 03E0159

JULY 2009

IAC Irish Archaeological
Consultancy

NON-TECHNICAL SUMMARY

Irish Archaeological Consultancy Ltd. (IAC Ltd.), funded by Louth County Council and the National Roads Authority, completed a building survey of Scotch Green Mill in addition to limited archaeological test trenching across a millrace associated with the mill. The mill complex is located in the townland of Balregan c. 2km northwest of Dundalk. The survey was undertaken in advance of the construction of the Dundalk Western Bypass (DWB). The survey and trenching was carried out in May 2003 (Licence 03E0159) directed by Shane Delaney.

The Scotch Green Mill building itself was designated 'To be retained' during the construction period of the M1 Dundalk Western Bypass. However, the millrace was due to be re-routed (via a culvert) through or near to the mill sluices, so it was considered necessary to undertake a record of the building, as it presently existed. The building survey was relatively brief and limited to recording the basic structure and components within and adjacent to the Lands Made Available as instructed by the Project Archaeologist.

The remains of the mill were quite denuded; however portions of elevations and walls survived to c. 3m of their original height and these upstanding remains were heavily overgrown. The mill was originally constructed around 1800 and it was illustrated on the first edition Ordnance Survey of 1836 map edition. The mill complex measures c. 30m x 30m (including sluices) and is situated in a yard accessed from the northeast. The mill was powered by a millrace, the section located upstream from the mill structure measured c. 300m long by c. 7m-10m wide and the downstream section was c.320m long, taking water from the Kilcurry River. Directly upstream of the mill sluices was a pond, originally c. 20m x 15m. The millrace upstream of the mill was blocked and dry prior to the archaeological investigations and the race downstream was seen to contain backed up water in wet weather. The original mill wheel was c.3m wide x 3m in diameter.

The mill complex comprised of three or four main structures, one demonstrated evidence for a brick barrel vault just above ground level of a buried structure and blocked cellars were also apparent.. As the water was directed through the main sluices, (a wheel sluice and an 'overflow' sluice, separated by a large 'island'), it was dropped by 1m to power a water wheel. A secondary race/sluice was directed out of the millpond through the centre of the mill.

As the river level waned during the later 19th/early 20th century, the entire length of the millrace was narrowed and canalised by the insertion of concrete block constructed double sluices. In addition to this, the millpond was reduced to half its original size and the overflow sluice was blocked completely and the main wheel sluice was narrowed to accommodate a wheel c. 0.75m wide x 2.40m in diameter. This resulted in the race 'internal' to the mill also being blocked. According to the Valuations Office of Ireland, the mill appears to have gone out of use by 1882 and is not marked on the fourth edition Ordnance Survey dating to 1939-40.

The Lands Made Available for the Dundalk Western Bypass encompassed c.140m of the millrace upstream of the mill, along with the main (wheel and overflow) sluices and both phases of wheel supports. These survive in a relatively intact and complete form.

ACKNOWLEDGEMENTS

The author would like to thank:

Sean Molony, Louth County Council
David McGuill, Louth County Council
Niall Roycroft, Project Archaeologist, National Roads Design Office, Navan
Rob Lynch and Dermot Nelis, IAC Ltd.
Mary Liz McCarthy, IAC Ltd

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1 INTRODUCTION

This report provides comment and assessment on fieldwork carried out at Site 118, Balregan 5 and 6, in the townland of Balregan, c. 2km to the northwest of Dundalk, Co. Louth. The site contains the remains of Scotch Green Mill and millrace. The work was undertaken as part of an archaeological mitigation program associated with the Dundalk Western Bypass (DWB). Archaeological fieldwork was directed by Shane Delaney of Irish Archaeological Consultancy Ltd. (IAC Ltd.) and was funded by Louth County Council and the National Roads Authority.

1.1 Site location

Site 118, Scotch Green Mill, Balregan 5 & 6 is located in Balregan townland, to the west of regional road R109, c. 2km north-west of Dundalk (Louth OS sheet 007). The site was:

- Site 118, Scotch Green Mill, Licence: 03E0159, Ch 22.660–22.740, NGR 302847/310058

The Scotch Green Mill building itself, which was in ruins, was designated 'To be retained' during the construction period of the Dundalk Western Bypass. However, the millrace was due to be re-routed (via a culvert) through or near to the mill sluices, so it was considered necessary to undertake a record of the building, as it existed prior to commencement of the scheme. The mill complex was located on slightly raised ground to the west of the Kilcurry River and its associated flood plain. The site lay at c.5m OD.

1.2 The scope of the project

General

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

The M1 Dundalk Western Bypass – Northern Link connects the existing Dunleer-Dundalk Motorway, which terminated in the area of the N52 Ardee Road, to the N1 Ballymascanlan Roundabout in an arc situated c.2.5km - 3km to the west and north of Dundalk.

The scheme was divided into two sections. Section 1 (7.8km main centre line chainage (Ch)) ran from Ch16.000 to Ch23.870 (the Armagh Road, R177). Work on the southern end of Section 1 was previously commenced so that the main cutting and rough surfacing for the road had been completed to chainage point Ch17.100. The chainage zone Ch16.000 – 17.100 had therefore not been investigated archaeologically under the present contract. Section 2 (2.08km main centre line chainage) ran from the Armagh Road Ch23.870 to the Ballymascanlan Roundabout, Ch25.950. In September 2003 the stretch from Ch25.950 - Ch26.350 was made available and was tested.

Therefore the archaeological potential of the route represented a distance of 9.25km (Ch17.100 – 26.350). The route corridor varied between 60m and 200m (not including side roads) and was on average 100m wide. The archaeological site area is thus approximately 90 hectares.

Specific

Site 118, Scotch Green Mill, Balregan 5 & 6 was located between chainage 22.660 – 22.740.

The mill complex was not included in the Louth Records of Monuments and Places nor was it featured in the Louth Records of Protected Structures or the National Inventory of Architecture for County Louth (NIAH). The structure appears to have no legal protected status however it has been retained with the millrace rerouted underneath the motorway.

1.3 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.

Four trenches were excavated across the millrace on the 19th of May 2003 in order to record its form, function and phasing. The trenches were excavated using a 20 tonne excavating machine equipped with a toothless bucket under strict archaeological supervision. The mill building was initially recorded at this time but was revisited in December 2003 after limited vegetation clearance had allowed more of the structures to be exposed.

The building remains and millrace within the lands made available were cleared of vegetation and the outline of the double millrace was recorded. A plan of this area was drawn at a scale of 1:50, with sections produced at 1:20 (sections were recorded generally at 1:10). The area was thoroughly photographed. All works were carried out in agreement with the Project Archaeologist and The Department of the Environment, Heritage and Local Government (formerly *Dúchas*-The Heritage Service).

It was agreed in advance that adequate funds to cover excavation, post-excavation, conservation and dating analysis would be made available by Louth County Council.

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 County 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 is the case with much of Louth, this covers thick strata of Ordovician and Silurian slates, with some rock outcrops (Gosling 1993, 237) notable. To the east of the urban district, the flat, low lying coastal plain is comprised of recent estuarine and alluvial clays and silts, shaped by the sea level changes following the end of the Ice Age in Ireland c.10,000 years ago.

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

The route for the Dundalk Western Bypass–Northern Link is located within an area that avoids the major 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 occurrence.

2.1 Prehistoric Period (c. 7000BC – c. 500AD)

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

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

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

The origins of the Neolithic in Ireland are disputed. Pollen records reveal forest clearances occurring before our earliest dated Neolithic sites or monuments; however this may be a reflection that our dating methods are too crude to discriminate between an early and a late Neolithic settlement rather than an indication of the true chronology (Mitchell & Ryan 1997). There is some debate over whether the culture evident in Ireland during the Neolithic was a product of a migrating people into Ireland or an indigenous development. The introduction of certain flora and fauna, management techniques,

cultural traits in architecture and domestic crafts with a striking resemblance to those evident in Britain at the time has been suggested by Mitchell & Ryan (1997) to indicate colonisation from Britain.

The vast majority of the archaeological evidence for this period is to be found at the 4-5m (25ft) contour, which reflects the coastline during the maximum post-glacial marine transgression, and it has been suggested that this settlement location would have facilitated the exploitation of the higher ground for farming and the lower ground for summer grazing (Gosling 1993, 242). There is a concentration of Megalithic tombs in the Flurry Valley to the north-east of the site at Balregan 5 & 6 (with the nearest example located at Faughart Lower (LH004-062), c.1.5km to the northeast) and scattered throughout the Cooley peninsula. Archaeological discoveries elsewhere on the DWB scheme revealed Late Neolithic/Early Bronze Age habitation activity at Site 115, Newtownbalregan 5 (Bayley, D. forthcoming (c)), located c.2.6km southwest of Site 118 and the truncated remains of a Late Neolithic/Early Bronze Age House identified at Site 101, Littlemill 1 (Ó Donnchadha, B. forthcoming (d)), located c.5.6km to the south southwest of Site 118. A collection of pits dating to the Late Neolithic/Early Bronze Age were identified at Site 103, Littlemill 4 & 5 (Ó Donnchadha, B. forthcoming (c)), c.5.4km south southwest of Site 118 (Balregan 5 & 6) and a number of Neolithic huts with associated pits were excavated at Site 124, Carn More 1 (Delaney, S. forthcoming (b)), located c.600m east of the site. Several pits containing Early Neolithic pottery were identified at Site 132, Faughart Lower 5 (Delaney, S. forthcoming (c)), located c.2.1km east of Site 118. A middle Neolithic to Late Neolithic/Early Bronze Age Beaker habitation site was identified at Site 108, Donaghmore 1 (Ó Donnachada, B. forthcoming (e)) which is located on a low ridge c. 4.1km southwest of Site 118.

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

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 immediate 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 (c. 3000BC – c. 2500BC).

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

From the relatively scant prehistoric archaeological evidence, there are indications that the area in which the DWB is located was not densely settled until the beginning of the Bronze Age (c. 2500 BC).

Bronze Age discoveries along the DWB consist of an Early Bronze Age Beaker (2400-2200BC) habitation site at Site 112, Newtownbalregan 2 (Bayley, D. forthcoming (e)), located c.3km southwest of the site. A number of Bronze Age ring-barrows, a cist and a cairn were also excavated at Site 127, Carn More 5 (Bayley, D. forthcoming (g)), located c. 1.2km east of Site 118. A total of 3 Bronze Age burnt mounds/*fulachta fiadh* were

excavated along the route of the DWB at Site 111, Newtownbalregan 1.1, Site 113, Newtownbalregan 5 and at Site 128, Faughart 1, 2 & 3. The burnt mound excavated at Site 102, Littlemill 2, has been dated to the medieval period (890-1250AD). A further 6 burnt mounds/*fulachta fiadh* were excavated by Archaeological Development Services Ltd (ADS Ltd.) as part of the archaeological resolution of the Dunleer/Dundalk Motorway.

The burial evidence from this period is varied and complex, some of this diversity in grave form or content reflects changing fashions over a period of time, some variations are regional and others may denote differences in social status. Pottery vessels of different types are the commonest artefacts found.

During the Bronze Age single burials became the common form of burial though the communal tradition of multiple burial continued with the internment of more than one individual in graves and by the clustering of their graves into small cemeteries. Burials were placed either in pits or in cists constructed in the ground and often grouped in flat cemeteries, in cairns or mounds specially built for the purpose.

Barrows have been constructed in Ireland since the Middle Neolithic period and were in use until the early centuries A.D. They may cover or contain Megalithic Linkardstown type cists of the Neolithic; all of the burial types of the Bronze Age or cremations or inhumations of the Iron Age. In the east of Ireland the mounds of these sites have been levelled in large numbers. The Bronze Age period lasted in Ireland from c. 2500 BC to c. 500BC and the burials of the period show a wide degree of variety with both pits and stone cists used. The pits can be simple excavated holes with or without stone lining and can range from circular to trapezoidal. More substantial stone built rectangular and polygonal cist graves, like at Keenoge, Co. Meath and Carn More 5 (DWB) were also used.

Bowl Barrows, often referred to as Tumuli or Moats, have a central dome-shaped mound, 2m or higher, usually enclosed by a fosse and one or more external banks. Where an enclosing fosse is not noted on the ground it is often found during excavation. Saucer barrows have low mounds, usually less than 1m, and range from 5-20m in diameter with one or more enclosing fosses and banks. Bell Barrows resemble bowls but have a berm between the mound and the fosse. Ring Barrows resemble Saucer Barrows but have a flat interior rather than a mound. It is most likely that the site at Donaghmore 7 originated as a ring barrow. Another type of barrow has a bank and a hollow interior, these are Pond Barrows. Excavation has revealed that a significant number of barrows belong to the Iron Age (c.300 BC- c.100AD), but many are of Bronze Age date as well. The barrows are often found in groups or cemeteries where a number of types can be found together. Sometimes they are found juxtaposed to Megalithic cemeteries as at Carrowmore, Co. Sligo or associated with ceremonial enclosures.

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

There is a marked lack of known Iron Age (500BC-AD500) activity within the study area and the ring barrow identified at Site 131, Donaghmore 7 is the sole example of a definitive Iron Age site identified through the DWB archaeological investigations. The site consisted of a small ring barrow. The remains of three charred wooden planks were found within the barrow ditch and were dated to the Iron Age period, specifically the mid-Iron Age based on Cal. 120BC-60AD.

2.2 Early Medieval Period (c. 400 – c. 1100)

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

Site 114 at Newtownbalregan 6 (Bayley, D. forthcoming (d)) located c. 2.5km southwest of Site 118, Balregan 5 & 6, consists of a ringfort and souterrain. The ringfort or rath is the most common indicator of settlement from the early medieval period (c. 500AD – c. 1100 AD). A recent study of the ringfort (Stout 2000) has suggested that there are a total of 45,119 potential ringforts or enclosure sites throughout Ireland. They are typically enclosed by an earthen bank and exterior ditch, and range from 25m to 50m in diameter. The smaller sized and single banked type (univallate) were more likely to be home to the lower ranks of society while larger examples with more than one bank (bivallate/trivallate) housed the more powerful kings and lords. At Site 124, Carn More 1 (Delaney, S. forthcoming (b)), (Area 1), 50% of a ringfort identified in the RMP as LH004-067 was excavated in advance of the motorway's construction, and produced evidence for a single banked enclosure 30m in diameter with an internal souterrain.

Souterrains are artificial underground structures, usually built of dry stone walling and comprising of passages and chambers with creeps connecting them. Souterrains are generally regarded as having had a defensive or protective function, as evidenced by the complex construction of many of the sites, with narrow winding passages, deliberate obstructions and small chambers. Raiding was endemic to early medieval society, and souterrains are thought to have served to house portable valuables and non-combatants during a raid. There is a previously recorded souterrain located 30m to the east of the CPO line at Ch17.640 (LH007-071). A further two enclosures with associated souterrains were also excavated by Archaeological Development Services Ltd (ADS Ltd) in advance of the construction of the Dunleer/Dundalk Motorway. A large settlement cemetery site with an internal enclosure containing evidence for two buildings, and c. 50 burials, with an associated field system and external stock enclosure, area of metal working and corn drying kiln was also excavated at Balriggeran (1) as part of the DWB excavations (Delaney, S forthcoming (4)).

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*, which had its capital at *Cnógbha* or Knowth in Co. Meath at the time of its greatest political cohesion, during the first half of the 7th century AD. Their earliest appearance in the annals is in 688 AD, as allies of the Knowth branch of the *Síl nÁeda Sláine* at the battle of *Imblech Pich* (Emlagh, Co. Meath), which was a key event in the political fragmentation of the *Síl nÁeda Sláine* dynasty. They were subsumed by the *Airgialla* or Oriel in the early 12th century.

The burnt mound identified at Site 102, Littlemill 2 (Ó Donnachadha, B. forthcoming (f)) was dated to Cal. 890AD - 1250AD (968 \pm 85BP).

2.3 Medieval Period (c. 1100 - c.1600)

The motte and bailey at Castletown (LH 007-118-07), located c. 3km southwest of Balregan 5 & 6, represents the initial phase of Anglo-Norman activity in the area. Although there are some suggestions that John de Courcy was responsible for this development, it is generally accepted that it represents the initial headquarters of the de Verdon family in their new territory. The Anglo-Normans were responsible for a network of towns throughout the country.

The land in the Castletown and Dundalk environs was granted to the Anglo-Norman Bertram de Verdon following his arrival in 1185, and corresponds to the modern barony of Upper Dundalk (Gosling, 1993, 252). The de Verdon estate passed onto the Bellews with many tower houses constructed at this time. The Bellews constructed 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 it survive above ground. In 1429, Henry IV introduced a £10 subsidy which was given to encourage the King's 'liege men' to build towers within the Pale, under the condition that they were built within ten years. This venture was so successful that twenty years later a limit was imposed on their construction. In Counties Louth, Kildare and Meath, the towers were mostly concentrated along the borders of the Pale (Davin 1982). The surviving tower house at Castletown (LH007-11801) most likely functioned as the centre of the Bellew manor of Dundalk during the 15th century. Garstin's map of 1655 shows it protected by a bawn wall, which also enclosed outhouses.

For information of the Anglo-Norman land ownership we are reliant on documentary sources, and in Louth this information is recorded in the 'Dowdall deeds'. The lack of documentary sources 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).

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

settlement at Castletown and the Newtown or '*nove ville de Dundalc*'. As a result of the low-lying nature of the surrounding landscape and the form of the gravel ridge on which the Newtown (Dundalk) was located, the town developed a markedly linear aspect, which is still apparent today.

2.4 Post-Medieval Period (c. 1600AD- c. 1800)

Post-medieval remains identified in the study area generally relate to industrial structures, particularly mills and kilns which used water drained from the Castletown and Kilcurry Rivers, through 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 route corridor. Small scale extraction cuts are also known sunk into natural rock outcrops such as the one at Ch19.200. Site 102 at Littlemill 2 (Ó Donnchadha, B. forthcoming (f)) contained the remains of a post-medieval house structure, which is indicated on the first edition OS map of 1836. It is probable that this structure was a small vernacular style residence accompanied by a small farmyard as was typical of the area and indeed most of Ireland during the 19th century.

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

2.5 Site Specific

Scotch Green Mill was built c. 1800, it was not illustrated by Taylor and Skinner on their map of County Louth dating to 1783, but it was depicted by the Ordnance Survey on the first edition 1:10, 560 scale map of 1835. The mill complex was not featured on the 1:2500 scale, second edition Ordnance Survey map of 1909. The mill was associated with a large millrace, tapping into the waters of the Kilcurry River and it is the millrace specifically which was impacted on directly by the motorway's construction.

An examination of the archives of the Valuation Office of Ireland indicated that the mill had gone out of use by 1882, when the site was described as 'Flour mill not used' and valued at £90.00. A note accompanying an entry in the valuation records dated 1864 stated that water was scarce for about three months each year and the rateable value for the site also decreased between 1860 (£120.00) and 1864 (£100.00), indicating a downturn in its production. The mill was described as a corn flour mill in 1864 and as 'house and mill offices' in 1860.

The site was described in 1891 and 1905 as a 'vacant flour mill' and in 1915 as a 'vacant dilapidated flour mill'. Its rateable value in 1891 was £50.00 and this continued to be its value until 1938 when it was deemed to no longer be a rateable property. This would indicate that a significant change had taken place at the site such as the loss of its roof, whereby the building would no longer be of value. The site was described as a 'vacant dilapidated flour mill' from 1938 onwards.

3 THE BUILDING SURVEY

3.1 Introduction

The survey of Site 118, Scotch Green Mill-Balregan 5 and 6 was undertaken as part of the archaeological mitigation for the DWB in the townland of Balregan.

3.2 Methodology

Archaeological excavation of four trenches across the millrace at Balregan 5 and 6 was carried out on the 19th of May 2003 with recording of the mill structure carried out in May 2003. The trenches were excavated using a 20 tonne excavating machine equipped with a toothless bucket under strict archaeological supervision.

The surviving structural remains and millrace within the Lands Made Available were cleared of vegetation and the outline of the double millrace was recorded. A plan of this area was drawn at a scale of 1:50, with sections produced at 1:20 (sections were recorded generally at 1:10). The area was thoroughly photographed. All works were carried out in agreement with the Project Archaeologist and the Department of the Environment, Heritage and Local Government (formerly *Dúchas* - The Heritage Service).

The mill building was initially recorded at this time but was revisited in December 2003 after limited vegetation clearance had allowed more of the structures to be exposed.

3.3 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 Dinavian limestone.

The main focus of the site is situated on well drained ground made up of glacially mixed gravels and is located approximately 5-10m OD.

Landscape

The site was located to the east of the floodplain of the Kilcurry River. The main concentration of buildings was located on slightly elevated ground overlooking the millrace, which followed the contour at the base of the very gently sloping (and shallow) Kilcurry River valley side.

4 RESULTS OF BUILDING SURVEY

4.1 The Site

The site comprised four main elements. These were:

1. The Millrace
2. The Millpond
3. The Mill sluices
4. The Mill building

4.2 The Millrace

Scotch Green Mill was located to the east of the Kilcurry River and on the eastern side of the millrace fed by the Kilcurry River (Figure 7 and 8). The millrace was c. 620m in length, with the mill structure located midway along the extent of the millrace. A series of structures including an iron grid (to prevent large debris entering the channel), weir and a very large sluice arrangement survived at this location.

The millrace appeared to have been primarily earth cut though there was evidence along its course for canalisation and the provision of sluices. The millrace flowed roughly north-south and fed a millpond just upstream of the mill buildings, and immediately south of Balregan 3 & 4 (Figure 3). According to anecdotal evidence the millrace was finally decommissioned during the last thirty to fifty years. Approximately 140m of the millrace lies within the Lands Made Available for the Dundalk Western Bypass, upstream to the north of the mill structures.

The millrace was overgrown and had been used by cattle for shelter, which had resulted in the surface and the sides of the channel being badly disturbed and denuded. Mixed woodland species had grown along the entire extent of the millrace along the base and the sides. Four trenches were excavated into the millrace and the exposed stratigraphy generally related to slumped material from the higher eastern slope. The lowest discernable channel was covered with a thin layer of peaty material over gravel ranging from 0.15m - 0.25m deep.

Trench 1

Due to access and health and safety concerns the trench was only excavated halfway across the width of the millrace. The recorded original dimensions of the millrace correspond to c. 7m wide at the top and c. 3m wide at the base. The eastern elevation of the millrace was cut into the rising ground and was 2m deep; the western extent was partly formed by a bank of excavated spoil. The base of the channel was filled with peaty organic material mixed with modern finds up to a depth of c 0.25m over natural gravels.

Trench 2

Due to access and health and safety concerns the trench was only excavated halfway across the width of the millrace. The recorded the original dimensions of the millrace correspond to c. 7m wide at the top and c. 3m wide at the base. The eastern elevation was cut into the rising ground and was 2m deep; the western extent was partly formed by a bank of upcast material from the channel. The base of the channel was filled with a peaty organic material mixed with modern finds for up to a depth of c 0.25m over natural gravels.

Trench 3

Due to access and health and safety concerns the trench was only excavated halfway across the width of the millrace. The recorded the original dimensions of the millrace correspond to c. 7m wide at the top and c. 3m wide at the base. The eastern elevation was cut into the rising ground and was 1.50m deep; the western extent was partly formed by a bank of upcast material from the channel. The base of the channel was filled with a peaty organic material with modern finds up to a depth of c. 0.25m over natural gravels.

Trench 4

A trench was recorded across the width of the millrace and the recorded original dimensions of the millrace correspond to c. 7.50m wide at the top, c. 2.5m wide at the base. The eastern elevation was cut into the rising ground and was c. 2m deep; the western extent was partly formed by a bank of excavated spoil and was c. 1m deep. The base of the channel was filled with a peaty organics material with modern finds for a depth of c. 0.25m over natural gravels.

Two quarry pits were located to the east of Trenches 1 & 4. These were located c. 3m from the eastern edge of the millrace and were up to 2m in depth. They were filled with modern mixed dumped material with brick and slate inclusions.

4.3 The Millpond

Millponds were an integral part of the milling mechanism and it can be assumed that its walls were of a more solid construction than the millrace generally. This was necessitated to protect against erosion caused by the regular changes in water levels. It can be reasonably presumed that the southern end was mostly walled. The millpond was originally approximately 20m long up stream of the sluices. The volume of water exiting this pond would have been controlled through the operation of the sluice gates located at the mill (Figure 5). The surviving remains of the millpond were silted up and overgrown and the edges were ill defined and obscured by dumped material and overgrowth (Plate 1).

Phase 1

The millpond was actually a widening (and probable deepening) of the millrace, rather than a separate pond. The millrace flared out from 5m wide (at the southern end) to 15m wide and formed a pool roughly 20m long. The pond was revetted to the west by stone walling [24], which was constructed using rough courses of mortared stone and had a slight batter at its base. The pool was overgrown and contained no water. A possible consolidating concrete surface was identified (which may correspond with the original bank line) to the northeast of the building complex.

Phase 2

Later work had narrowed/canalised the millpond by half its original dimensions. Material (C23) was dumped into the western area of the pool and this dumping was edged with loosely laid stone blocks, probably re-used from the original stone pool lining. This blocking was contemporary with the blocking of 'overflow' sluice [C31].

Phase 3

The millpond silted up completely. A channel [C22] was later cut through the dumped infill (C23) and associated western millpond bank, presumably at the latest

decommissioning phase of the mill. This would enable any excess water to overflow from the blocked wheel and overflow sluices.

4.4 The Mill Sluices

The millrace, sluices and revetments downstream of the pond were in a good state of repair. The location of the wheel appeared consistent with all phases. There appeared to be three phases associated with the mill wheel sluice.

Phase 1

The original mill sluices [C32] and [C33] occupied an area of 14m x 5m. The water from the millpond was split into two channels, an eastern wheel race [C32] (3m wide) and a western channel that acted as an overflow valve [C33] (1m wide) for the pond. Between the two sluices was an artificial island [C19], which was 13m in length with a blunt end c. 2m wide to the north and tapering to a point at the south. As the water passed through the sluices it was dropped by approximately 1m. As a result the island [C19] survived up to c. 2m high. The northern end had an upper facing of pitched stone blocks to protect from erosion. A third channel was also suggested through the presence of a bricked up arch [C2] to the north of the main sluice [C32] and an area of rebuild in red brick to the northeast of this [C2]. This channel was presumably bricked over (vaulted) and ran under the main complex of buildings (Plate 4). An exit channel for this was visible to the south of the revetted wall down stream of the waterwheel sluice. A linear hollow was also evident on the present ground level (roughly north-south orientation) suggesting a possible collapse.

The wheel sluice [C32] incorporated a short, level section [C11] where the water was delivered through the sluice, over a smooth stone faced and bottomed channel, and down a stone ramp [C8] (Plate 2) which undershot the original wheel. The distance from the wheel axle point implies the original wheel was c.3m in diameter and up to 3m wide.

The Island [C19] was constructed of roughly coursed greywacke stones with a rubble core (Plate 5). The exception to this build was the main wheel support stone area, which was of well-built, ashlar blocks. This well built section supported the main wheel fixing stone [C14], which measured 2.7m x 0.5m x 0.4m high. This limestone block has been cut to accommodate the wheel axle and still retains four iron bolts. The pair to this stone had been removed [C15]. Much of this central structure was overgrown with the stone facing severely undermined from root activity.

The western channel [C33] contained sluice gate [C20]. Sluice gate [C20] survived as vertical sockets in the channel sides and bulging stonework with much re-pointing of this area shows the structures have moved slightly during use.

Phase 2

The second phase saw the deliberate narrowing of the channel from both sides and discarding of the original wheel design in favour of a narrower wheel. The sloping ramp [C8] was reused and narrowed with the construction of a stone buttress to the east [C5] (of mixed roughly coursed rubble), which essentially halved the width (0.90m) of flow entering the sluice. This narrowing was complemented on the west with a new wall [C9] and with a wall on the east of the channel [C7], which also housed the axle support for the second use wheel (axle [C26] was still in position and measured approximately 2m). The wheel would have measured 0.75m x 2.40m diameter. Wall [C7] partly overlay the sluice drop masonry [C8]. The gap [C10] between wall [C9] and the middle section [C19]

was blocked with the insertion of random stones. The recesses for a sluice gate [C12] were incorporated into the walls to the north of this narrowing.

The millrace silted up, resulting in the abandonment of the western overflow sluiced channel. This appears then to have been banked [C23] with loose rubble and earth and was faced with rough stone. Other areas, which appeared to have been altered (possibly at this time), included an area [C28] to the southeast abutting [C4] (Plate 3) which was faced with rough stonework. An east to west running drain feature [C22] was recorded cutting across the banked material [C23] and this may have been an overflow channel from the narrowed millpond to the lower flood plain below

Downstream from the water wheel the base of the millrace channel was at a much lower level than upstream. The downstream channel was also narrowed during Phase 2, this time using concrete blocks [C17]. Access to the downstream channel area came from a flight of concrete steps [C6] adjacent to wall [C7] which provided access to a rough surfaced path [C30] to the east of the concrete block narrowing.

The western overflow channel [C33] was completely blocked from the millpond and partly infilled with dumped material. This was spanned with a large quern stone [C21] (c 0.90m in diameter) and a large rectangular stone block forming a bridge arrangement (Plate 7). The walling to the south is still visible in places but a considerable collapse [C34] was recorded (probably due to cattle disturbance).

The newly created flow was stemmed by [C29], a double channelled outflow each with recesses for double sluices. A deposit of mixed sludge fill (C16) had built up behind it, this was approximately 0.30-0.40m in depth, and may relate more to trample from cattle and infill from the degraded western bank than alluvial action. The entire structure was set on a concrete plinth (4.50m across the millrace) and was similar to others further upstream of the mill. To the south of the outflow [C29] (downstream) there was standing water in the millrace. This area [C31] was walled to the east ([C4] & [C18]) and west [C25].

Phase 3

The wheel sluice was finally decommissioned and blocked with concrete blocks [C13] (Plate 8) sealing two pipes in place, which continued to channel water down the sluice. The area of paving [C11] above the sluice appears to have been damaged with the insertion of these pipes.

4.5 The Mill Building

The mill building complex (Figure 3) measures approximately 30m x 30m. It comprised remnants of a number of buildings. The basic outline is traceable on the ground as a number of ruined and badly denuded walls. Although the 1st edition Ordnance Survey map depicts them as part of a single block building this is unlikely. The individual buildings and their rooms as observed are described below.

To the northeast of the complex at a higher level is a large 'open fronted' building (5.15m x 7.45m), which may have been a cart store (Building 1) (this building is an addition after 1835 but is the best preserved). Large arched vents in this room have been narrowed with red brick. Immediately to the west of this was a barrel vaulted room 7.45m (north-south) x 6.30m (east-west), of which the vault has collapsed.

Very little remains of Building 2 to the southwest but there are wall remnants on the east (c.3m) and south (5.85) of the building. The building appears to have been free standing and had a door/opening on the eastern wall (1.12m) and an opening in the southern wall. A hollow to the north may indicate that it extended in that direction.

A number of buildings are suggested to the northeast of the millpond. One upstanding wall [C1] (leaning precariously) appears to mark the northern end of a possible range of buildings (Building 3) that fronted onto the pond. This is constructed of mixed rubble. Only the west wall (2.70m in length), which rises flush with the pond revetment and the return with the northern wall, remain.

To the west of Building 2, running through the centre of the area is an internal race, presumably to power an internal wheel in the main building. The entrance [C2] to this race is visible as a blocked opening 1.2m wide at the millpond and the exit is visible 30m to the south.

To the west of the internal race and adjacent to the main wheel race [C32] is a building c.13m x (at least) 4m (Building 4). The western wall [C4] of this building faces the wheel race [C32] and is 2.75m high x 0.50m thick. Due to the drop into the wheel race, wall [C4] is at ground level internally to the mill. Voids visible in the extant face of wall [C4] imply that a large 'cellar' underlies this room.

To the south of wall [C4] is wall [C18] a revetment, which is up to 2.50m high. The upper surface is roughly at ground level.

Within Lands Made Available

The components within the Lands Made Available (LMA) include the western part of the millpond, the wheel sluice [C32] with all its rebuilds, the island [C19] and the overflow sluice [C33]. Part of the wall [C4] and implied cellars to the east of this wall are also within the LMA.

5 DISCUSSION

5.1 Realisation of the original research aims

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

Original Research Questions (**ORQ**) were prepared after the results of the test-trenching exercise were known and before the survey began. The following are the Original Research Questions relating to each of the survey of Scotch Green Mill and Responses (**R**) based on preliminary assessment of the site data.

Site 118, Scotch Green Mill-Site specific research questions

ORQ 1: *How were the mill and millrace constructed, and what was the original form?*

R: Almost the whole of the mill building, which is in ruins, was located outside the Lands Made Available for the Dundalk Western Bypass. The main sluices were within the lands made available. The mill was of masonry construction, dating to around 1800. Later additions/alterations were apparent in red brick and subsequently in concrete. A ground plan for the mill has been created, along with the millpond and sluices.

The majority of the millrace appeared to have been earth cut and banked and only reinforced with masonry walling at the point where it was fed by the Kilcurry River, sluices and at the main mill complex. There was some revetment walling apparent to the west and east of the millpond.

ORQ 2: *How much of the present construction are later additions, and what do these consist of?*

R: Most of the original structure survived. The alterations involved narrowing and over-building the original forms so that virtually all the parts of the 1800 structure have been incorporated into the surviving remains.

ORQ 3: *What is the construction date for the mill?*

R: The mill is shown on the 1836 OS map. It is not shown on the Taylor & Skinner's map of County Louth dating to 1783. It is therefore suggested that the mill was built around 1800.

ORQ 4: *There are many pieces of probable mill machinery lying around. Are any of these of intrinsic interest and worth saving?*

R: Random iron objects were lying around but appeared to be of limited interest. Generally these may have related to winding mechanisms associated with the sluices. A large stone mill wheel (grinding stone) was located lying recumbent over the eastern sluice. This stone was well crafted and was to be removed for safety if it were to be affected by construction works.

ORQ 5: *What was the mill used for (the Ordnance Survey maps simply record it as 'Scotch Green Mill')? Is there any evidence for a drying kiln?*

R: The mill was probably used for milling a variety of grains; however there was no evidence for a drying kiln.

5.2 Conclusions

Site 118, Balregan 5 and 6, contained the remains of a post-medieval water mill, which despite its ruinous condition showed a complete example of this site type. The millrace, millpond, main sluices, internal wheel race and a number of main rooms along with the access road yard for the mill buildings were present.

Mills are not uncommon, particularly close to a market town or distribution centre. It was usual to have a number of mills on the same river if its conditions and landscape suited. The Scotch Green Mill was situated along the Kilcurry River. The Castletown and Kilcurry Rivers to the northwest of Dundalk were associated with three mills, including Scotch Green Mill.

The results from this excavation and survey add to the existing body of data concerning post-medieval industrial sites nationally. However, nothing completely new or significant was recorded during the course of the excavation. The site is of historic and architectural importance at a local level.

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Project: M1 Dundalk Western Bypass

Client: Louth County Council

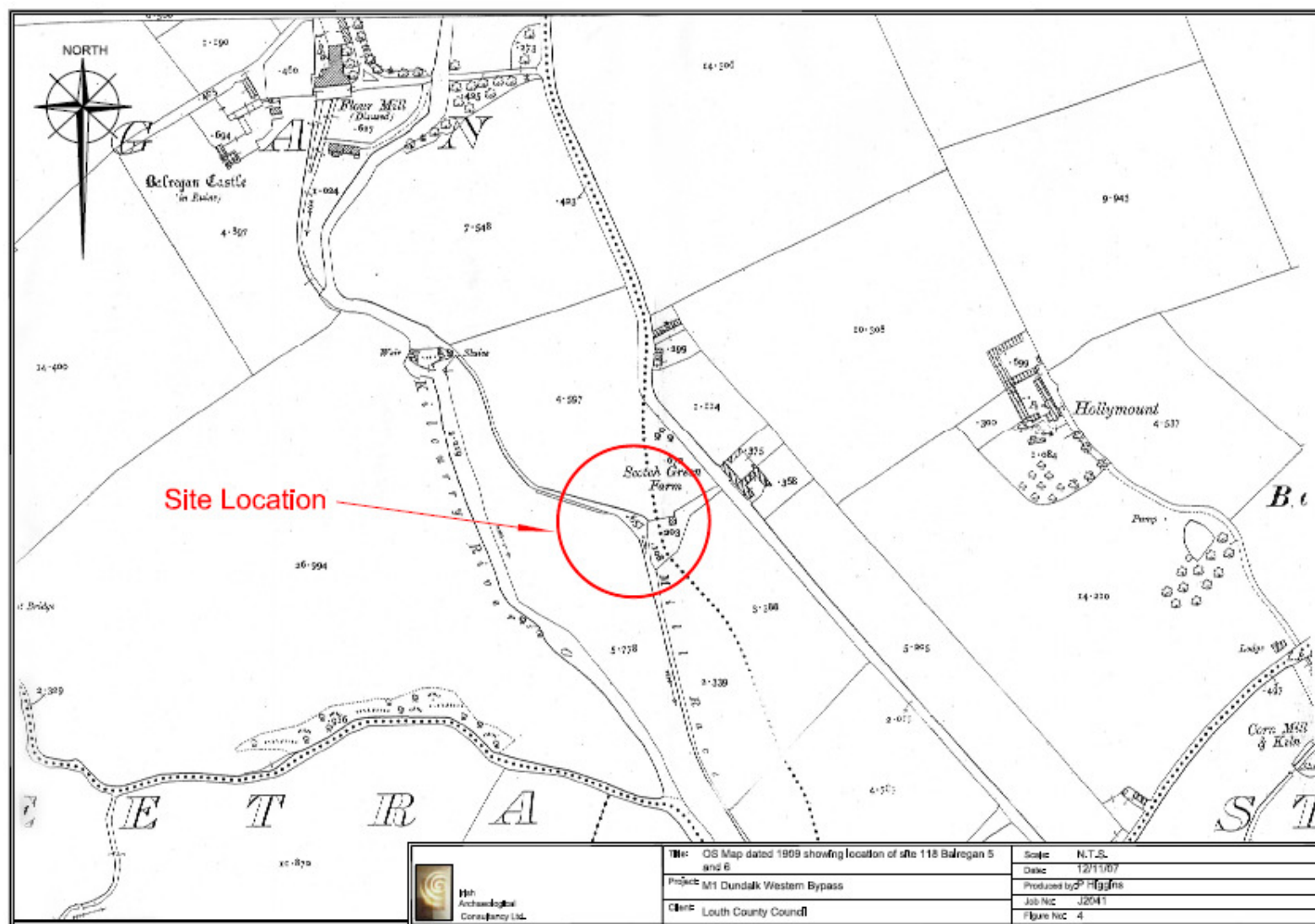
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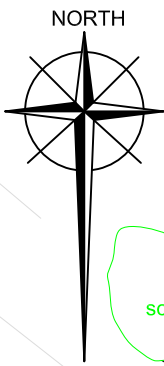
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Job No: J2041

Figure No: 1





MILL POND

HEAD RACE

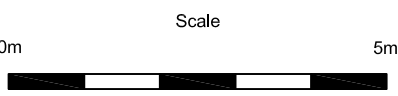
TAIL RACE

Suggested Line of Internal Mill race

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302855.0E
310070.0N

302855.0E
310045.0N



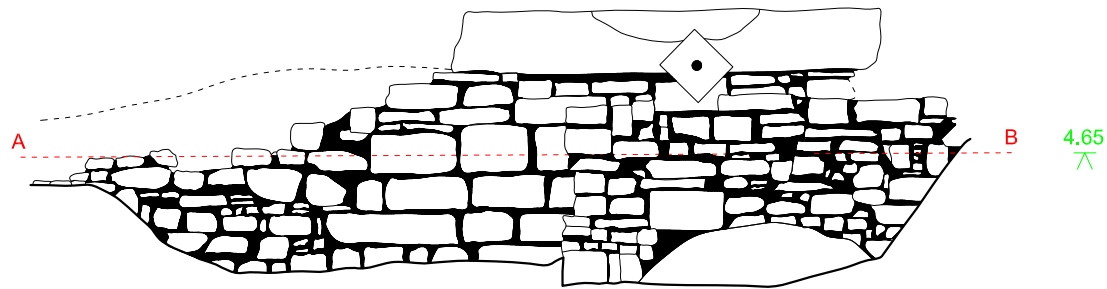
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C##	Masonry cut number
- - -	Section line
---	Limit of excavation
^	OD Levels

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Project: M1 Dundalk Western Bypass	
Client: Louth County Council	
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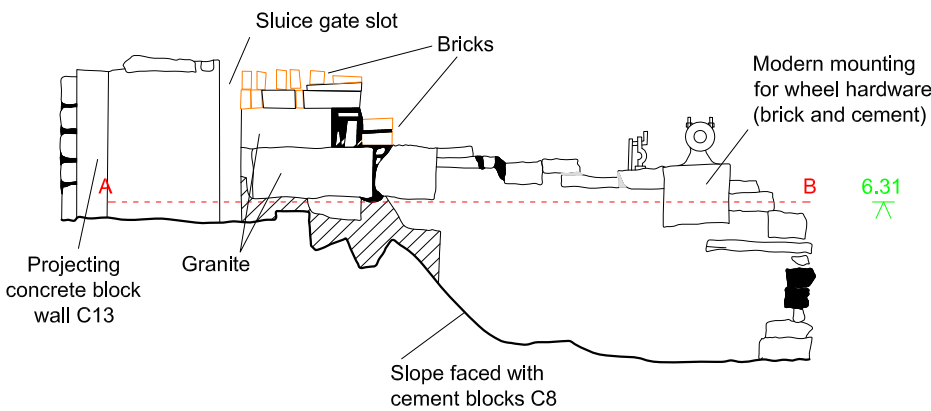


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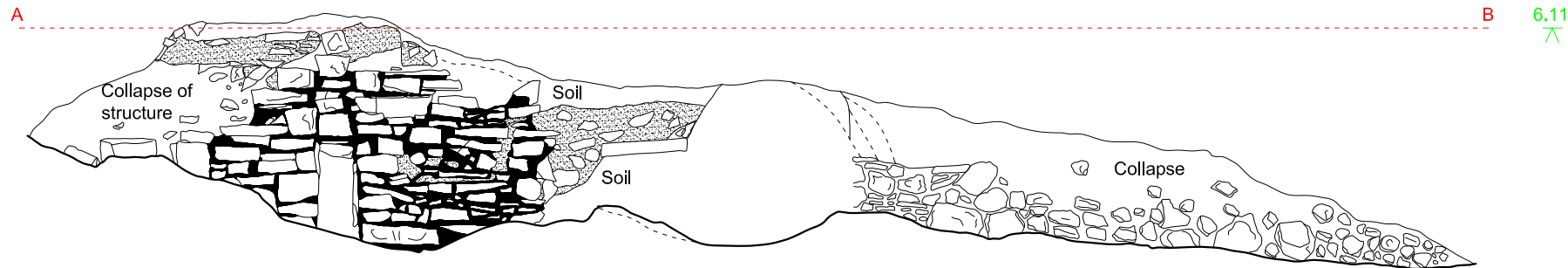
Balregan 5&6
East facing elevation #3:1 of wheel race C32



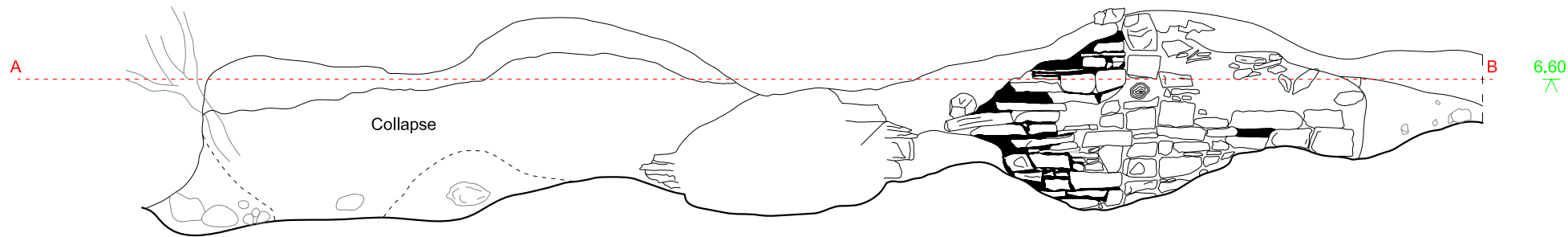
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West facing elevation #2:1 of wheel race C32



Balregan 5&6
West facing elevation #1:1 of sluice channel C33



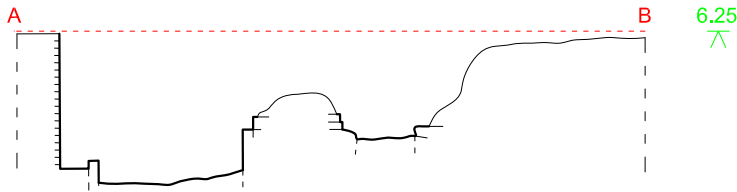
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Northeast facing elevation #1:2 of sluice channel C33



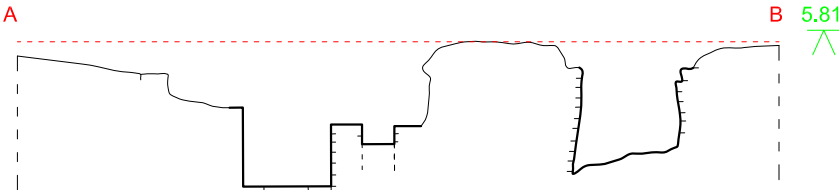
Balregan 5&6
Elevation 2:2
East facing bank of mill pond



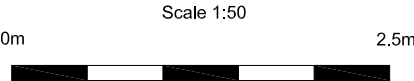
Balregan 5&6
North facing profile #3:2 across tail race



Balregan 5&6
North facing profile #3:3 across head race



Scale 1:100



Legend	
	Mortar
	Heavy Mortar
	Brick
	Section line
	OD Levels

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Project: M1 Dundalk Western Bypass

Client: Louth County Council

Scale: As shown

Job No: J2041

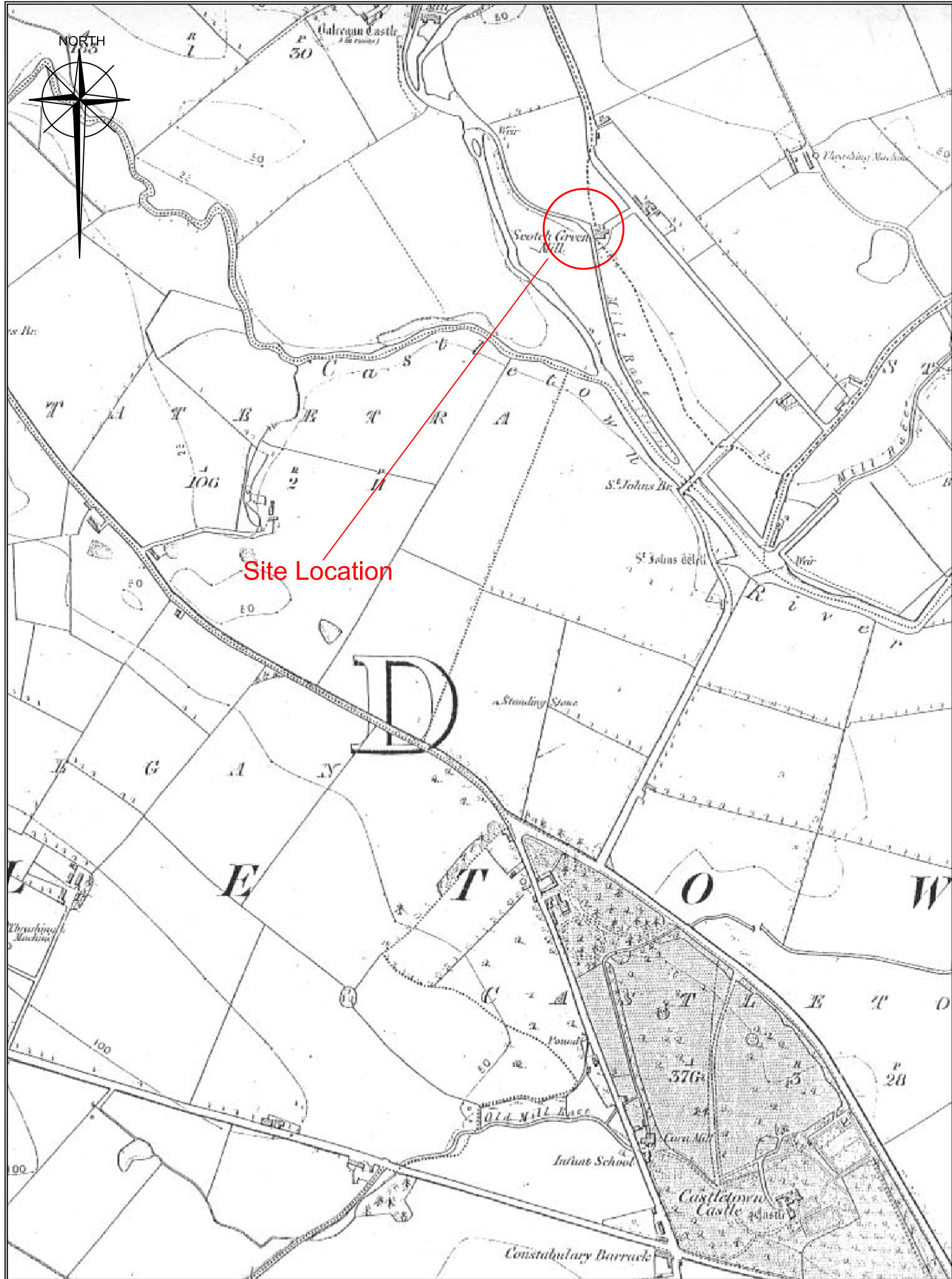
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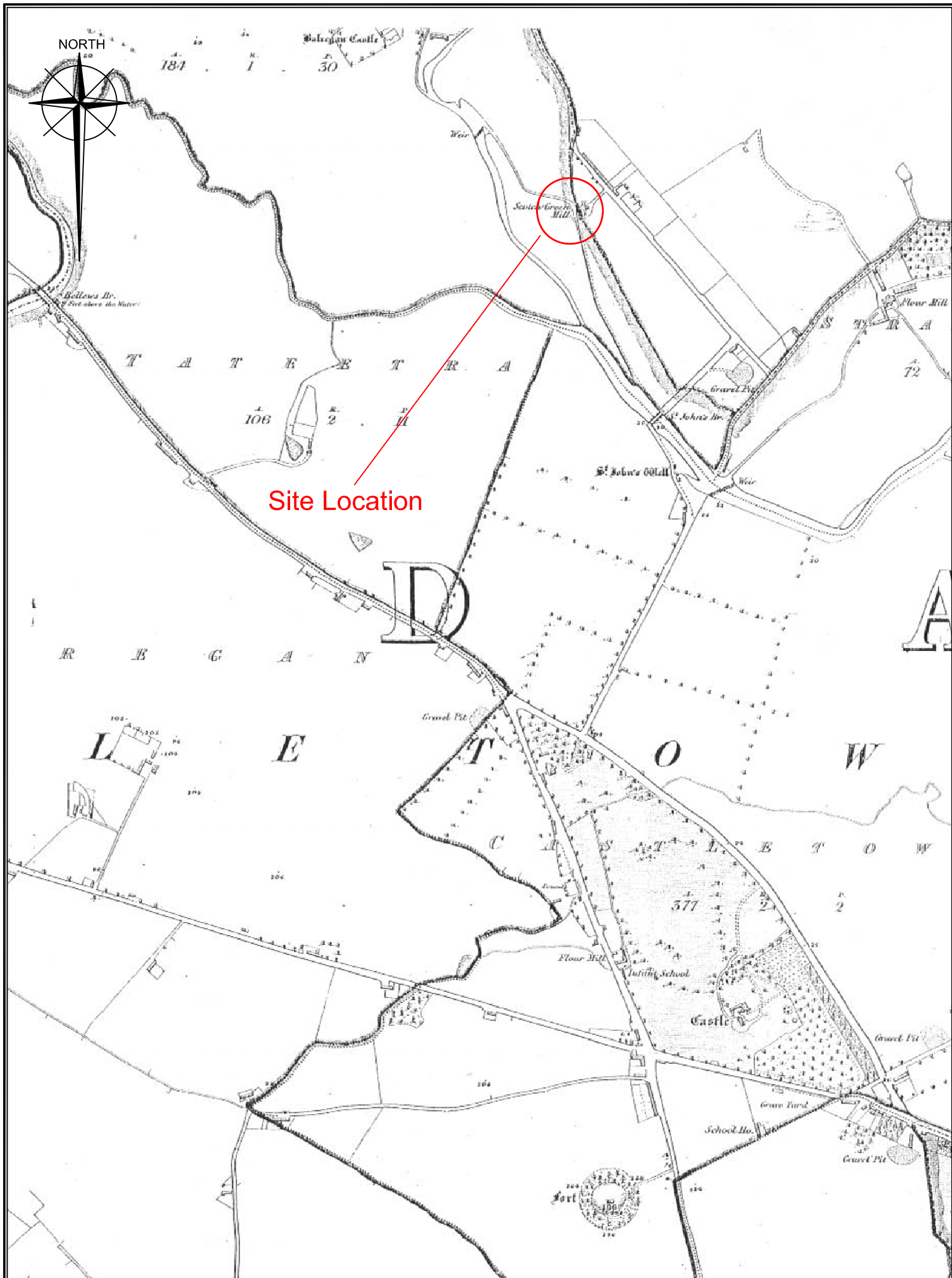
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Title: OS Map dated 1835 showing location of site 118 Balregan 5 and 6
Project: M1 Dundalk Western Bypass
Client: Louth County Council

Scale: N.T.S.
Date: 12/11/07
Produced by: P Higgins
Job No: J2041
Figure No: 7



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Title: OS Map dated 1864 showing location of site 118 Balregan 5 and 6

Project: M1 Dundalk Western Bypass

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Plate 1 – Overhead view of the site (Studiolab)



Plate 2– Water sluice, looking north



Plate 3 – Water channel, looking south



Plate 4 – Bricked up channel, looking east



Plate 5 – Central island with bricked up eastern channel looking southwest



Plate 6 – Bricked up window in barn building looking north



Plate 7 – Mill wheel spanning the western channel looking east



Plate 8 – Upper section of clogged mill race looking south



Plate 9 – Mill wheel spanning the western channel looking north



Plate 10 - Post-wheel sluices, looking East

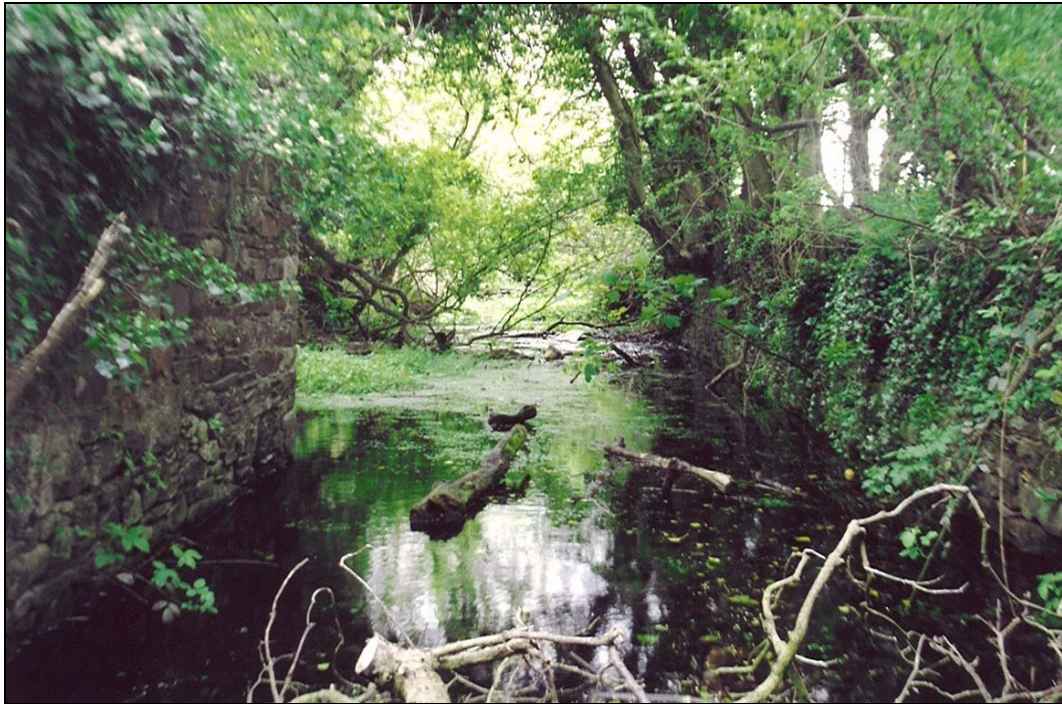


Plate 11 – Post-sluiice pond, looking east

APPENDIX 1 BUILDING COMPONENT NUMBERS

Number	Phase	Basic Build description and dimensions	Basic interpretation
1	1		Partly collapsed corner wall. Facing mill pond to w. Leaning precariously to W.
2	2		Brick and mortar rough coursed blocking for a 2 nd race leading from Mill Pond to E.
3	3		Area of walling completely collapsed and hidden
4	1	Fair face to W between 2.5 and 2.75m	Main W wall for the Mill. At ground level to E. Middle section altered. N end contains a blocked arch (brick voussoirs) 1.2m wide leading to E. Beneath the tree (Component 15) wall 4 shows a void perhaps indicating cellars to E.
5	2		Stone narrowing of Mill Wheel channel. Assoc. Sluice 12 and wall 7. Abutts 4
6	2		Series of concrete slab steps leading down to S. Assoc. re-used large piece of cast iron ?axle
7	2		Wall supporting 2nd phase mill wheel. Min. 1.5m high. Assoc 26 and 9
8	1		Stone faced curving waterfall for undershot original wheel. Presumably assoc wall 4 as overlaid by blocking 5 and 9
9	2		Wheel support wall for 2nd phase same as 7, assoc Sluice 12
10	2		Gap between wall 9 and Island 19, filled randomly to N
11	3		Area of loose stones. Original lining appears to have been removed to allow two plastic pipes to be laid for relief drainage.
12	2		Sluice for 2nd phase Wheel Race
13	3		Final blocking for Wheel Race of concrete blocking
14	1	2.7 x 0.5 wide x 0.4 high. Central area cut to support wheel & includes two in-situ iron bolts	Single ?Greywacke stone support for original wheel on Island 19. Orig. wheel would be 2m wide x 3m diam
15	1		Corresponding wheel support stone/area to Support 14. This area has collapsed/been disturbed and a tree is growing here. Beneath the tree wall 4 shows a void perhaps indicating cellars
16	3		Sludge fill. Small test holes indicate it to be at least 0.30 - 0.40m deep
17	2		Narrowed race channel lining with solid concrete blocks
18	1		Buttress wall for Wall 4. At N end is significantly lower than Wall 4 but to S rises to equal height (up to 2.4m). This wall faces the mill race to W and is at ground level to E.
19	1	8.5m N/S, 1.5m wide at N; runs to a point at south end, up to 2.75m high	Island. To E is Wheel Race, to W is overflow race. Top of Island at N is deliberately battered down to protect from wash. Very damaged by tree action at N and S end. Partly collapsed on W side. Made of rough coursed stone facing with rubble interior. The wall below Stone 14 is a different build of ashlar granite blocks for wheel support. Assoc Sluice 20 and 'bridge' 21
20	1		Sluice. Presumably for 1st phase. Area around sluice is bulging and has been re-pointed.
21	2		Bridge arrangement of a re-used top quernstone 1m diam. And flat stone (poss re-used wheel support from

			disturbed area 15. 2 or 3 other stones filling gaps between two majors. Overlaid with earth.
22	3		Overflow ditch. Appears to have been cut from the Narrowed Mill Pond through the W millpond bank to drain into the W field.
23	2		Fill area of earth with a rough stone face, visible 0.30m high over Fill 27. Narrowing of Mill Pond.
24	1		Stone facing for W side of original Mill Pond. Rough courses of mortared stone with slight batter out towards the base.
25	1		Stone facing for mill race, W side downstream from Wheel and overflow. Sections have collapsed and some sections are intact.
26	2		Second Phase Mill wheel axle in situ. Contains iron plates for attaching to wooden section. Gear/cog mechanism attached on E side.
27	3		Sludge fill of narrowed Mill Pond. Min 0.30m deep.
28	2		Narrowing of Mill Pond. Re-used rough stone facing up to 0.30m high and earth behind.
29	2		Sluice arrangement of three concrete blocks, giving two channels, each with double sluice. Built on concrete plinth. Similar to many set up along N section of Mill Race.
30	2		Rough surfaced 'path' edged by concrete blocks 17.
31	3		Backwater on S side of Sluice 29. Water is around 0.40m deep over silt base of unknown depth.
32	1		East Sluice
33	1		West Sluice
34			Collapse to the south of overflow sluice