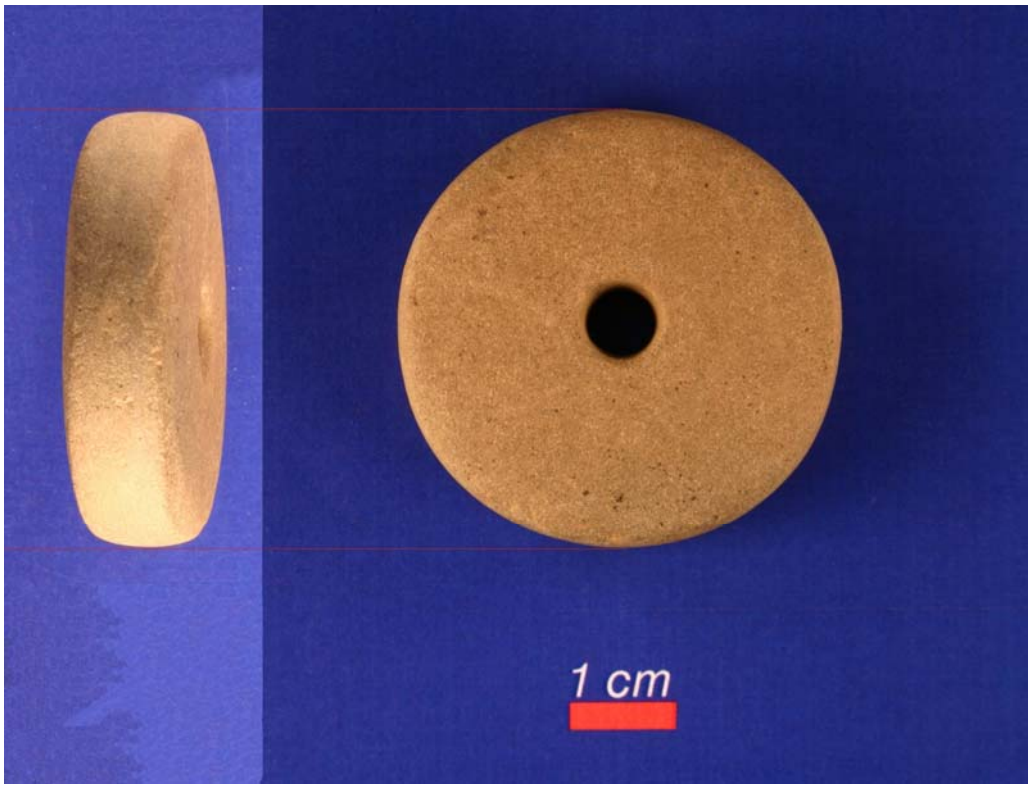
N8 Rathcormac/Fermoy Bypass Scheme

Archaeological Services Contract

Phase 2 – Resolution



Final Report on Archaeological Excavation of Rath-Healy 1

Townland: Rath-Healy, Co. Cork

Licence no.: 03E1139

Archaeological Director: Stephen J. Linnane

April 2006

Cork County Council

Archaeological Consultancy Services Limited

PROJECT DETAILS

Project	N8 Rathcormac-Fermoy Bypass Scheme
Site Name	Rath-Healy 1
Licence No.	03E1139
Archaeologist	Stephen J. Linnane
Townland	Rath-Healy
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NON TECHNICAL SUMMARY

The proposed N8 Rathcormac-Fermoy Bypass is approximately 17.5km in length and will extend from the northern end of the new N8 Glanmire-Watergrasshill Bypass in the townland of Meenane, passing to the west of Rathcormac and to the east of Fermoy and onto the northern tie-in point on the existing N8 Cork-Dublin Road at Moorepark West.

A programme of advance archaeological investigation (phase one) was undertaken in May 2002, September 2002 and July 2003 under licences 02E0713-02E0720 issued by Duchas, The Heritage Service, to Donald Murphy and Deirdre Murphy. A total of forty-four sites were identified during this phase of works and they were subsequently resolved in 2003 during the second phase of the project (resolution phase). The site was identified during phase 1 of the investigation and designated Rath-Healy 1. At this time pits and hearths were identified but no information for dating or function was discovered.

Archaeological resolution of this site commenced on the 19th July 2003 and was carried out by Stephen J. Linnane under licence number 03E1139. Resolution of the site revealed a complex of disparate features including two cereal-drying kilns, metalworking hearths, pits containing burnt stone and cremated bone and a segmented boundary ditch.

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1. INTRODUCTION

1.1 Site location

The proposed N8 Rathcormac-Fermoy Bypass will be approximately 17.5km in length and will extend from the northern end of the new N8 Glanmire-Watergrasshill Bypass in the townland of Meenane, passing to the west of Rathcormac and to the east of Fermoy and onto the northern tie-in point on the existing N8 Cork-Dublin Road at Moorepark West. The site designated as Rath-Healy 1 was situated at NGR 181970 099052 on the northern valley side overlooking the River Blackwater.

The site was located in a field currently used as pasturage. The field sloped southwards towards the R666 which runs westwards from Fermoy to the north of the River Blackwater. The site was extended into the field to the north. The latter field was level, used as pasturage and had as its northern boundary a disused railway line.

1.2 Scope of the Project

The purpose of the Archaeological Services Project was to conduct Archaeological Site Investigations within the lands made available for the scheme and to assess the nature and extent of any new potential archaeological sites uncovered (Phase 1). This phase of the project was carried out in May 2002 and September 2002 under licences 02E0713-02E0720 issued by Duchas, The Heritage Service, to Donald Murphy. The principal aim of this phase of the project was to test the known sites, including sites of potential, identified in the EIS and through aerial photography. It sought to test for any previously unknown sites that may by virtue of their size or complexity lead to significant delays and costs if revealed during construction works. This phase of the project also tried to assess the archaeological risk across the scheme by examining the volume, range, complexity and distribution of archaeology identified during testing.

The second phase of the project involved the resolution of all archaeological sites identified within the proposed road corridor prior to commencement of the construction of the bypass (Phase 2). The aim of this phase of works was to clear the entire route of archaeology in order to avoid delays and costs during construction works. This phase of the project was carried out from June-October 2003 and excavations were conducted by five licensed directors under the management of a Senior Archaeologist, Deirdre Murphy. In total forty-four sites were excavated during this phase of works and all excavations were carried out under separate licences issued by The Department of the Environment, Heritage and Local Government.

Following completion of fieldwork a programme of post-excavation analysis was necessary as reports on the archaeological findings must be published. A dissemination strategy also forms a crucial part of this phase of the project. It is proposed that all final reports will be

submitted to the relevant authorities by June 2006 and that publication and public lectures/seminars will follow thereafter. Both the format and timescale for publication and seminars will be decided in consultation with the Project Archaeologist.

This Archaeological Services Project was carried out on behalf of Cork County Council, National Roads Design Office, Richmond, Glanmire, Co. Cork. This project was funded by the Irish Government under the National Development Plan, 2000-2006. The total archaeological cost was administered by the National Roads Authority through Cork County Council as part of the Authority's commitment to protecting our cultural heritage.

1.3 Circumstances of recovery

Phase 1 of this project was carried out in May 2002 and September 2002 under licences 02E0713-02E0720 issued by Duchas, The Heritage Service to Donald Murphy. The principal aims of this phase of the project were to test the known sites, including sites of potential identified in the EIS and through aerial photography. It also sought to test for any previously unknown sites and to help to assess the archaeological risk across the scheme by examining the volume, range, complexity and distribution of archaeology identified during testing.

The site designated Rath-Healy 1 was located within two distinct fields (Field 112 and Field 113) during the programme of advance archaeological testing. Field 113 was located immediately south of the disused railway line and the eastern part of the field was along the proposed main route. Field 112 was located to the south of Field 113. Rathealy Cottage is located along the southern half of this field (112) and the proposed route runs along the eastern boundary. Pre-development testing was carried out at the site on the 31st May 2002 with the aid of a 20-ton excavator equipped with a grading bucket. Nine trenches, the centreline (Trench 1) and eight offsets (2–9), were excavated in field 112. Six trenches, the centreline Trench (Trench 1) and five offsets (Trenches 2–6), were excavated in Field 113. A number of features of archaeological potential were located in the course of the excavation. Two features were exposed in Trench 4, Field 112. The first of which (F112 004) was an irregularly-shaped pit exposed in the eastern half of the trench. The feature measured 0.80m north–south by 0.45m east–west and on excavation was found to be 0.22m in depth. The fill consisted of a loosely-compacted mid–light-brown sandy silt. F112 005 was exposed *c.*3.0m to the east of F112 004. This oval-shaped pit measured 0.65m north–south by 0.50m east–west and on excavation was found to measure 0.22m in depth. It had a similar fill to F112 004 with occasional small stones. F112 009 was a small area of burning located near the western end of Trench 5, Field 112. The fill was a loosely-compacted medium–dark-brown silt with occasional flecks of charcoal. The feature measured 0.40m north–south by 0.45m east–west and was found to be approximately 0.10m in depth.

A small oval-shaped feature exposed in the eastern end of Trench 5, Field 113. Measuring 0.28m north–south by 0.30m east–west, a small section across the feature confirmed that it was quite shallow measuring 0.05m in depth. The fill consisted of loose dark-brown silt with very occasional small stones. Although no charcoal was recovered, this feature represents a small area of burning.

Topsoil stripping around these features was recommended with full resolution of all features exposed.

1.4 Date and duration of excavation works

The excavation was begun on the 19th July 2003 when the machine stripping of the site began. Resolution of archaeological features began on the 21st July and was completed on the 22nd August.

1.5 Size and composition of the excavation team

The excavation team for the majority of the time comprised of the director (S.J.Linnane), two supervisors and ten site assistants.

2. RECEIVING ENVIRONMENT

2.1 Detailed overview of the receiving environment

2.1.1 Topographic

The topography in this region can be characterised by a series of east west ridgelines with river corridors and agricultural plains in the valleys. The major towns and smaller settlements are predominately located within the valleys and often at important river crossings.

Devonian sandstones and siltstones alternate along the route, underlying Carboniferous shales and limestones. The upland areas contain the anticlinal ridges of the Devonian sandstones and siltstones, with the synclinal valleys consisting of Carboniferous shales and limestones. The oldest rocks in Cork are Devonian (approximately 355-410 million years) and are mainly red and green sandstone, siltstones and mudstones. Carboniferous Limestone is the most abundant rock type in Ireland and dates from 290-355 million years It varies in texture, colour and components from fine calcite mud to calcite ooliths or coarse corals and shells and from compact calcareous blue limestone to hard blue-grey siliceous variety to black softer shaly beds of the 'Calp' formation.

One of these Carboniferous valleys, known in geological terms as the Cork Syncline, extends westwards from the coast just south of Youghal, to include Cork city and harbour and the lower Lee Valley. A parallel ridge, known as the Watergrasshill Anticline, lies immediately north of the valley, and is comprised mainly of the Ballytrasna Formation, a sub-type of Devonian Old Red Sandstone consisting mainly of purple mudstone with some sandstone. To the north of the Watergrasshill Anticline there lies Bride River valley, referred in geological terminology as the Tallow Syncline. Immediately north of this is another low ridge, which has no specific name but is an eastwards extension of the Nagles Mountains which rise to a maximum height of 428m OD some 10Km to the west. Proceeding northwards ground level falls again into the Blackwater Valley, which is geologically divided into the Lismore Syncline, to the east of Fermoy, and the Fermoy Syncline to the west. North of the Blackwater ground level rises again to the Knockmealdown Anticline, (Sleeman & McDonnell, 1995).

The proposed road scheme with which this report is concerned begins immediately north of the village of Watergrasshill, on the northern flank of the Watergrasshill Anticline and continues northwards to the Fermoy Syncline, ending immediately north of Fermoy town. More specifically, the area in which the excavations described here took place is located on the lower southeastern slopes of the ridge that extends eastwards from the Nagles Mountains, overlooking the upper reaches of the Bride valley. Being on the lower slopes of the ridge, the underlying bedrock geology of the area is at an interface between the Waulsortian Limestones of the valley floor and the Ballytrasna sandstones and mudstones of the ridge and consists of

three successive narrow bands with a southwest/northeast trend. The first of these is the Ballysteen Formation, a dark-grey, muddy limestone, which is succeeded upslope by an equally narrow band of Lower Limestone Shale, consisting of sandstone, mudstone and thin limestone. Immediately upslope to the northwest this gives way to the Gyleen Formation, consisting of sandstone with mudstone and siltstone, (Sleeman & McDonnell, 1995).

The bedrock geology of the area is overlain by more recent Quaternary sediments mostly deposited by melting glaciers and ice sheets during the various alternating warm and cold phases in the period from 1.6 million years ago to 10,000 years ago. Quaternary deposits generally range from 3-4m in thickness but thicknesses of up to 60m are known in the Blackwater valley. The nature of these sediments depends on the origin of the ice sheets which deposited them. In the Blackwater valley the sediments are dominated by sandstone derived from hills to the north. Similarly, in the upper reaches of the Bride valley, including the area in question here, the visible soils and stones are almost invariably derived from sandstone, (Sleeman & McDonnell, 1995).

Brown Podzolic is the main soil type found in County Cork and is especially suitable for pasture. 71% (532’500ha.) of the total land area was farmed in County Cork with the greatest use being pasture along with hay, silage. The landscape of the N8 bypass route may be characterised as rolling pastoral farmland. Soil cover along the route may be characterised as glacial deposits, with some alluvial deposits in the river valleys and occasional pockets of peat in low-lying areas. Generally, the upland areas comprise of a 1.5m-3m cover of boulder clay over sandstone and siltstone bedrock. The lower lying valleys comprise of 7-8m of alluvial sands, silts, lays and limited glacial deposits. Geotechnical investigations along the Bride River, near Rathcormac, indicated the presence of medium dense gravels and sands, and stiff gravely clays, of glacial origin, to 18m in depth. The alluvial material along the valley floor is bounded by high clay banks, possibly formed by boulder clay. Investigations in the Blackwater River valley indicate the presence of soft clays to around 4m in depth, overlying loose sandy gravels to around 7m in depth and very dense gravels, (Hanley, 2003).

The landscape of County Cork has a series of valleys and ridges running east to west with the main valleys being those of the rivers Lee, Blackwater, Bandon and Bride. Cork has more rivers than any county in Ireland with approximately 1,200km of main channel rivers and 2,000km of streams and drains. The Lee River Valley contains the only remaining area of alluvial woodland in Ireland as well as being one of only a few examples in Western Europe with native broad-leaved woodlands being associated with the steeper slopes of its river valleys. The principle watercourses aligned east-west along the route are the Flesk, Bride, Blackwater and Funshion Rivers although there are seven river/stream crossings in all. The water table in lowland areas is understood to be generally within 15m of the ground surface.

The water table near the Bride and Blackwater Rivers is thought to be at depths of 3.5-6m and 3-4m respectively, (Hanley 2003).

2.1.2 Historic

by Bryn Coldrick

GENERAL HISTORICAL BACKGROUND

Before the arrival of the Anglo-Normans, this part of County Cork was controlled by the Uí Liatháin (or O'Lehane) clan, an offshoot of the ruling Munster dynasty, the Eoghanacht. From the fifth to the eleventh centuries, the Uí Liatháin dominated the whole of East Cork from Corrin and the hills north of Castlelyons as far as the sea at Youghal and Cork City. In the tenth and eleventh centuries, however, their power was weakened through wars with neighbouring clans, in particular the O'Briens (O'Riordáin 1976).

In the wake of the Anglo-Norman invasion of 1169, King Henry II conferred the kingdom of Cork by charter on two of his magnates, Robert Fitzstephen and Milo de Cogan. Because of the strength of the Gaelic inhabitants in this part of the country, however, the new Anglo-Norman proprietors were cautious in actually claiming their grants and preferred to use diplomacy instead of force to establish themselves in their holdings. Fitzstephen offered the Irish chieftains twenty-four cantreds of land at an annual rent on condition that he and de Cogan be permitted to divide the remaining seven cantreds in the vicinity of Cork City between themselves. The three eastern cantreds Fitzstephen retained included the traditional property of the O'Lehane clan, i.e. the area under study. Like their Gaelic predecessors, however, the new arrivals were prone to infighting which, coupled with attacks from the native Irish, made it more difficult to secure their newly-acquired lands. When Milo de Cogan and his son-in-law Randolph Fitzgerald turned on Robert Fitzstephen, Fitzstephen sought the help of his nephew in Wales, Philip de Barry. In return for military assistance, Fitzstephen granted de Barry his three cantreds in East Cork, including the O'Lehane lands. This grant was later confirmed on William de Barry by King John and the Barrys remained a powerful influence in the area until well into the eighteenth century (Dennehy & Coleman 1923; O'Riordáin 1976).

Philip de Barry built a strong castle at Carrigtohill that later became known as Barryscourt Castle. In the fifteenth and sixteenth centuries, the Barrys consolidated their holdings by building additional castles at Walterstown, Ballymacshanero and East Ballinakill. During the Desmond Revolt in the sixteenth century, when Barry took arms to fight alongside his Anglo-Irish compatriot, Barryscourt was besieged by Captain (later Sir) Walter Raleigh and Barry burned it rather than surrender. Despite their involvement in the rebellion, however, the

Barrys managed to escape forfeiture and were pardoned. Before the close of the century, they had converted to Protestantism and had become loyal servants of the English Crown. In 1593, Hugh O'Neill punished the Barrys for this perceived treason by laying waste their lands (Dennehy & Coleman 1923). O'Neill burned and ravaged almost all of Barrymore including Kildinan, Rathcormac, Mondaniel, Lisnagar, Kilshannig and Curraghprevin (Barry 1994).

In the seventeenth-century, however, the family was rewarded for their choice of loyalties when, in the aftermath of the 1641 Rebellion as the majority of Catholic landowners on the island were being dispossessed, the Barrys actually increased their holdings in South Munster (Dennehy & Coleman 1923). At one time, the Barry holdings covered approximately one-third of modern County Cork and they were masters of castles at Buttevant, Castlelyons, Carrigtohill and Timoleague. They also gave their name to two Cork baronies—Barrymore and Barryroe (Windele 1897).

The study area mainly falls into two baronies, those of Barrymore and Condons and Clangibbon. Barrymore is a large barony of twenty-nine parishes and comprises more than 150,000 acres. The landscape is undulating and the soil is of average fertility. According to Power, the existence of the Cork–Fermoy and the Cork–Youghal roads in the barony of Barrymore, as well as towns like Midleton, has contributed to the Anglicisation of the area. By the time Power was writing in the early twentieth-century, Irish was hardly spoken by the locals here and many ancient traditions had disappeared. Archaeological monuments were also disappearing by this time and traditional thatched cottages were being replaced by modern two-storey slated houses (Power 1917).

Condons formed part of the ancient kingdom of *Fearna Maigh Féine* (Fermoy) of which the O'Keeffes were chieftains until the coming of the Anglo-Normans. It then became the property of le Fleming who were succeeded by the Condons (or Cantons) and who for a long period held lands and castles in the area. Clangibbon was anciently called *Ivela Bane* or 'the white (or fair) territory'. It may also mean 'the White Knight's country' where the knight in question was Maurice, head of the Gibbon sept of the Fitzgerald family. Following the Battle of Hallidon Hill, which took place near Berwick in England on 15th July 1333, King Edward III knighted three of the Fitzgeralds for their bravery. They became known as the Black Knight (who was the ancestor of the Knight of Glin), the Green Knight (ancestor of the Knight of Kerry) and the White Knight. The earl of Desmond subsequently made these knighthoods transmissible through the male line (Anonymous 1892). The White Knight was the only member of the Barrys to join O'Neill against the Crown in the sixteenth century. In response, Henry Pyne of Mogeely wrote to the earl of Essex suggesting that one thousand Irish troops be garrisoned against the White Knight in the castles of Ballyroberts, Castlelyons and Rathcormac (Barry 1994).

TOWNS AND VILLAGES

Castlelyons

Castlelyons is a village located two miles (3.2km) east of Rathcormac. It derives its name from *Caisleán Uí Liatháin* and was the principal seat and royal residence of the Uí Liatháin (O'Lehane) tribe whose territory covered the whole of East Cork until the coming of the Anglo-Normans in the late twelfth century (Barry 1994). Castlelyons was included in the three cantreds acquired by Robert Fitzstephen in the aftermath of the invasion and in 1204, a castle was built here by William de Barry on the site of the existing ruined castle. The castle was also said to have been built close to the site of the ancient O'Lehane fortress. In 1307, a Carmelite Friary was established in Castlelyons by John de Barry and before the close of the fourteenth century, a church was built dedicated to St. Nicholas (O'Riordáin 1976; Lewis 1837).

In 1568, the monastery and its properties (including 11½ acres) were granted to Viscount Buttevant. It subsequently passed to Richard Boyle, Earl of Cork, who gave it to his daughter in 1621 as a wedding present ("to buy her gloves and pins" as Boyle put it) on her marriage to David Barry, the first Earl Barrymore (O'Riordáin 1976; Lewis 1837). Soon afterward his marriage, sometime around 1636, David Barry built a new Tudor-style castle at Castlelyons. This was to be the principal seat of the senior branch of the Barry family and, therefore, the capital of Barrymore until the second half of the eighteenth century (Barry 1994). The main historical event in Castlelyons' history was the Battle of Castlelyons which took place in 1645 when Lord Broghill won a decisive victory over the Irish under Gen. Purcell. Soon afterwards, the castle fell to Lord Castlehaven (Lewis 1837).

The Barrymore earls remained in Castlelyons until 22nd July 1771 when their castle was destroyed by a fire which was accidentally started by workers repairing the roof. Once the Barry house was destroyed, the family left the area and the town rapidly decayed. The house was never restored and it remains were being used as a quarry when visited by Windele in 1849 (Windele 1897). Windele described the Castlelyons district in quite bleak terms: "the country presented only a picture most eloquently speaking of a ruined and extirpated tenantry, lands depopulated and houses ruthlessly flung down by a pauperised gentry". He also wrote that the River Bride which runs through Castlelyons village was also known the Shannow or 'old river' (Windele 1898).

Almost a century later, Samuel Lewis described Castlelyons as a market town and a parish partly in the barony of Condons and Clangibbon but chiefly in that of Barrymore. By this

time, the total population of the parish was 5,647 while the village comprised 116 houses occupied by 689 people. Castlelyons contained premises for woollen manufacture, a dye house, corn stores and flour mills etc. Of the 12,326 acres in the parish as a whole, three-quarters was arable and the rest pasture. Many recent improvements had taken place in the sphere of agriculture especially in cattle breeding. There was no waste, very little bog and abundant limestone for building, road repair and burning for fertiliser (Lewis 1837).

Fermoy

The name Fermoy has been applied to kingdom, parish, village and town. Originally, the kingdom or territory of Fermoy was known as *Fearna Maigh Féine* which has been translated as 'the men of the grassy plain'. The ancient kingdom of Fermoy comprised all of Northeast Cork from Mallow and Doneraile to the modern County Waterford border (O'Búachalla 1965). One account concerning the origin of the territory of Fermoy relates to Cormac MacAirt, the legendary third-century High King of Ireland. When Cormac decided that he was not receiving sufficient tribute from the kingdoms of Munster, he decided to lead an army against them but was fiercely resisted. In response to Cormac's use of a Scottish druid who was brought to Cork to cast spells against the Munstermen, the king of Munster, Fiachaidh Muilleathan, travelled to Valencia Island to enlist the help of the renowned druid Magh Ruith. In return for his services, Magh Ruith demanded certain lands, including what became known as *Fearna Maigh Féine*. The druid was granted his request and Cormac's army was eventually forced to return to Tara in disarray (O'Murchú 1975).

In the seventh century AD, Fermoy was ruled by King Cuanna, a descendant of Magh Ruith who was famed for his hospitality. The territory was also known as *Dubhagan* from which its chieftains eventually came to take the surname O'Duggan (Anonymous 1892). After the decline of the O'Duggans, Fermoy (or *Caoilli* as it was also known) came under the control of the O'Keeffes, kings of Glanworth and members of the powerful Munster dynasty, the Eoghanacht (O'Murchú 1975). By the twelfth century, the O'Keeffes had themselves come under the influence of the more powerful O'Briens (O'Sullivan 1946).

Bunyan has written that the territory of Fermoy occupied "one of the agricultural districts in Ireland" and comprised the area between the Galtee Mountains and Ballyhoura Hills to the north and the Nagle Mountains to the south and was drained by the River Blackwater and its tributaries, the Awbeg, Funcheon and Araglin rivers. After the invasion of 1169–70, territory was granted to the Anglo-Norman family of le Fleming. Later, East and Northeast Fermoy fell to the Condons and Fitzgibbons forming the barony of Condons and Clangibbon while

West Fermoy in the thirteenth century passed by marriage from the Condons to the de Rupes (or Roche) family to form the barony of Fermoy. The Roches and Condons forced the O'Keeffes westwards up the Blackwater valley and broke up the traditional Gaelic land divisions or *tuatha* (Bunyan 1983; O'Murchú 1975; Anonymous 1892).

In the early seventh century, a monastery is said to have been founded in the kingdom of Fermoy by St. Finnchua (or Findchu). Under his successors, this had become "a celebrated educational establishment". The first actual settlement at Fermoy itself began in 1170 when a Cistercian Abbey known as *De Castro Die* was founded here. It has been suggested by some writers that this abbey was established by the Roches but this has been disputed by others who point out that the Roche family did not arrive in Cork until around AD1200 (Windele 1897). Although they did indeed become patrons of the abbey, the Roches could not, therefore, have founded it. Others have written that the abbey was established by the previous Anglo-Norman proprietors, the Flemings (Anonymous 1900). Fermoy Abbey was actually built by Domhnaill O'Brien, King of Munster, and was the fourth Cistercian monastery to be established in County Cork (O'Sullivan 1946; Gwynn & Hadcock 1988).

Fermoy Abbey was located on the south bank of the River Blackwater between the river and Fermoy's main east–west street and was initially populated with monks from the monastery of *De Surio* in Inishlounaght, south County Tipperary. After 1228, the monks came from Furness in Lancashire. The abbey features in some important episodes in the history of the Cistercian order in Ireland. For example, in 1227 the abbot of Fermoy was expelled for his part in the 'conspiracy of Mellifont' and in 1229–30 the abbey became the focus of a violent rebellion against the general chapter. In 1230 the abbot of Fermoy, along with a monk from Inishlounaght and certain others, was murdered, probably by the native Irish, who were the previous owners of the monastic lands. (O'Sullivan 1946; Gwynn & Hadcock 1988). The Book of Fermoy was also in all likelihood written at this abbey (Windele 1897).

After violent beginnings, much of the abbey's remaining history seems to have been equally unfortunate. A valuation of 1302–6 found that the abbey was so badly in debt that the monks were unable to feed themselves and in 1467, the abbot appealed to the pope that his abbey was so poverty-stricken that it was unable to offer any hospitality to visitors. Furthermore, wars and other disasters meant that buildings in urgent need of repair could not be maintained (Gwynn & Hadcock 1988).

The abbey in Fermoy was eventually suppressed by the Crown in 1560 and the monks were scattered. The abbey church had acted as Fermoy's parish church since time immemorial, which meant that from 1560 until work began on the Church of Ireland church in 1802, the

parish of Fermoy was "derelict" (Abbot 1928). According to Brunicardi, an inquisition in 1540–41 had found that Fermoy Abbey possessed 120 acres of arable land, sixty acres pasture, forty acres of woodland as well as a watermill and a ferry. It also owned property in Johnstown and other townlands (Brunicardi 1975). Gwynn & Hadcock wrote that the inquisition heard that the abbey buildings occupied a 1½ acre site and that its overall possessions included 1,040 acres of land, two castles, a watermill and the rectories of Fermoy and Dunmahon. Under normal circumstances, this property would have been worth £26 but it was entered as a mere fifty-eight shillings because of the ravages of war (Gwynn & Hadcock 1988).

In 1570, the property of Fermoy Abbey was granted to Tibold Roche, son of Viscount Roche, for forty years. In 1591, the site of the abbey (then comprising three acres) along with 550 acres of its land were granted to Sir Richard Grenville (Gwynn & Hadcock 1988). Unfortunately, Sir Richard never had the opportunity to enjoy his lands in Fermoy as his flagship, *The Revenge*, was attacked by the Spanish and he was mortally wounded. His Fermoy grant was transferred to his son instead (O'Sullivan 1946). In 1624, the abbey and its holdings came into the possession of Richard Boyle, the first earl of Cork, who passed it down to his son Robert who is famous for discovering the scientific formula known as Boyle's Law. In 1705, the lands were sold to William Cockerell and then in 1724 they came into the hands of William Forward whose widow sold them to John Anderson in 1791 (Bunyan 1983).

From an early period, a small hamlet had existed around the abbey. This hamlet was located on a ford over the River Blackwater and the main road south from Dublin had always crossed at this point. Throughout its history, the abbey had operated a ferry service across the river but in 1626, Richard Boyle, Earl of Cork, erected a wooden bridge at a cost of £500. When this new bridge was swept away by a severe flood on 28th September 1628, Boyle left a bequest for the construction of a new stone bridge. When Lord Castlehaven left Licklash in April 1645, he passed over what he described as "the ford of Fermoy" which suggests that the stone bridge was still under construction at the time (construction was probably interrupted by the wars of the 1640s and 1650s). Bunyan has written that the stone bridge was completed in 1690, the year in which the village of Fermoy was attacked by the Jacobite general, Carroll, and 1,500 Irish troops. The attack was called off, however, when the defenders under Gen. Donep feigned a trumpet charge of arriving reinforcements. The present bridge, described as one of the biggest bridges of its kind in the south of Ireland, was built in 1865 (Bunyan 1983; Waters 1917; Anonymous 1900; Lewis 1837).

After remaining a small hamlet in association with the abbey for centuries, Fermoy eventually became a town during the late eighteenth/early nineteenth century. Its transformation took

place under the patronage of the Scotsman, John Anderson Esq., who purchased the estate in 1791. Anderson came from humble beginnings in Pentland, Scotland, and later in life attributed his success to his simple education. When still a young man, he came to Cork Harbour and made his fortune as a shipping merchant. Having bought the Fermoy estate, he decided to build a new town from scratch and Fermoy "suddenly sprang into existence as at the touch of a magician's wand" (Anonymous 1900; Abbot 1928). When Anderson arrived in Fermoy, the village was no more than "a miserable collection of squalid cabins" and was described as "one of the meanest villages in the county". At that time, it merely comprised a two-storey inn and two mud-walled cabins. By 1809, however, Fermoy had become "a prosperous town" with a population of more than four thousand, excluding military personnel (Abbot 1928).

First, Anderson built a good hotel to accommodate the many travellers who had been making their way through the village for centuries. Then, he built a few good houses, provided a square and repaired the seventeenth-century bridge. The main catalyst in Fermoy's development came in the closing years of the eighteenth century when, as Britain geared up for a war with revolutionary France, the Dublin government were considering establishing new military bases in the south of Ireland. When John Anderson became aware of this, he seized what was a golden opportunity to develop his fledgling town and approached the government with the offer of a free site for a barracks, temporary facilities while these were under construction, and the promise of a town which would meet the needs of a large garrison. The government for their part recognised the strategic advantages of a major barracks in Fermoy as it was located on several major roads and commanded an important pass on the River Blackwater (Abbot 1928).

The first troops arrived in Fermoy in 1797 and within three years, the East (or Old) Barracks was built on the north side of the river (Abbot 1928). After being without a parish church since the mid-sixteenth century, Anderson then nominated his close friend Rev. William Adair as curate of Fermoy and they applied to the Board of First Fruits for financial assistance to build a new church to replace the abbey church which had been in ruins since the Dissolution. The board granted £500, Anderson himself donated £3000 and additional funds came from the parish. Early in 1804, work began to remove all remaining traces of the original abbey and the new church was completed by 1809. Much of the remaining town was planned around this building (Abbot 1928). Unfortunately, however, there is no longer any trace of Fermoy Abbey and only its memory is preserved in the street name Abbey Street (Windele 1897).

A few years later, a second barracks was in place and became known as the West (or New) Barracks (Abbot 1928). In order to cater for the fashionable taste of resident officers,

Anderson provided more good houses and a theatre (though this closed after just a few years). He then invited well-off families to come and settle in Fermoy and built his own handsome residence. Still a keen businessman, Anderson then set up a bank (though this establishment was also short-lived) and founded the first mail coach company in Ireland which ran between Dublin and Cork. He also established a school and an agricultural society to promote good agricultural practices in the area. Local historians seem to be united in their respect for the Scotsman who "left behind him, in the town of Fermoy, a noble monument to what can be achieved by a man possessed of energy and talent" (Anonymous 1900). Windele, who visited Fermoy in 1849, wrote that "a century ago" (i.e. the mid-eighteenth century), Fermoy was hardly worth mentioning but that by 1849, it was in a position to "nearly challenge the place of the first town in the county". He described the thirteen-arch bridge over the Blackwater as "half modern, half antique" with the eastern portion being the older. Set in "one of the most fertile and picturesque districts in the county … nothing can be happier than the situation of Fermoy, seated on the most romantic of Irish rivers, within a few miles at either side of high healthy hills" (Windele 1897).

It was not just the town of Fermoy which prospered because of the barracks, the locality also benefited. The presence of 1500–2000 troops in Fermoy at any one time produced a demand for food and fodder for horses. Flour mills, a paper factory, a salt kiln and brewery were established (Bunyan 1983). In the 1830s, the parish of Fermoy contained 8,690 inhabitants with 6,976 of these living in the town itself. The parish comprised 3,319 acres of generally good agricultural land and agricultural practices had been greatly improved as a result of the agricultural society founded by John Anderson. The substratum north of the Blackwater comprised limestone while that on the south side was described by Lewis as "a kind of brown stone". There was no bog and very little waste. By 1837, the main trade of Fermoy town, which Lewis described as a "grand military depot", involved corn and butter. However, the town was severely disadvantaged by the lack of water communication as the Blackwater was not navigable in this area (Lewis 1837). There were even plans to provide Fermoy with a canal but this was never realised. Yet it was the loss of the barracks in the early twentieth century that naturally proved to be one of the greatest challenges in Fermoy's history. The barracks were vacated by the British following Independence and were subsequently destroyed during the ensuing Civil War of 1922–23 (Bunyan 1983).

Rathcormac

Samuel Lewis described early nineteenth-century Rathcormac as a market, post town and parish in the barony of Barrymore (Lewis 1837). Rathcormac, or 'Cormac's Rath', was one of three very large parishes in the barony of Barrymore at almost 14,000 acres, two-thirds of

which was mountain (Power 1923). Rathcormac village was burned by O'Neill in revenge for Lord Barrymore's refusal to fight for the Gaelic cause against Queen Elizabeth. In 1638, James Barry of Lisnagar was granted a charter to hold a Saturday market and two annual fairs here and this may have been the beginnings of Rathcormac town (Barry 1994). In 1682, King Charles II granted Barry a charter for Rathcormac in which it was made a free borough with the right to return two members to the Dublin parliament. This privilege was lost with the Act of Union in 1801 for which compensation to the value of £15,000 was paid to Lord Riversdale of Lisnagar (Windele 1897).

By 1837, the parish contained an overall population of 5,143 while 1,574 of these lived in the town. The parish was made up of 12,984 statute acres, one-sixth of which was mountain and bog. The soil quality varied. The uplands of the parish formed part of the Nagle Mountains, a range of clay-slate with limestone on the lower ground. The town was situated on the mail coach road between Cork and Dublin and the only manufacture here at this time was in leather. There was one principal street with minor ones diverging from it and there were 244 houses, several of which were built in stone. There were also "several picturesque cottages" at the entrance to the town from Cork. A flour mill which had been established under the charter of Charles II as a manor mill had recently been rebuilt at a cost of £1,500 (Lewis 1837).

During ploughing near Rathcormac village in late 1882 or early 1883, six twisted silver torques were discovered under a stone. One of the hoard came into the possession of R. Westropp and was ornamented with "various markings and engravings" (Anonymous 1883). The village was visited by Windele during his tour of the area in 1849 and he described Rathcormac as "a pretty little town lying in a fruitful and pleasant valley watered by the River Bride, a clear and gentle river". Having a resident rather than an absentee landlord allowed Rathcormac to retain "an air of cleanliness and rather comfort" (Windele 1897). Rathcormac was also described by Cox in 1902 as "a pretty village" (Cox 1902).

Watergrasshill

Watergrasshill is said to have received its name because of a stream which flowed from the townland of Bishop's Island down the entire length of the town's main street. The stream formed a pool from which horses drank and in which watercress flourished (Power 1917). The village was visited by Windele during his tour of the area in 1849 and his diary was published in the Cork Historical and Archaeological Society Journal in 1897. He described Watergrasshill as "respectably situated" with "excellent and wide" views of the surrounding countryside. It was a village of one street, a few of the houses were two-storey are there was a large number of "licensed houses of jollification" (Windele 1897).

Samuel Lewis, in his *Topographical Dictionary of Ireland* which was published in 1837, described Watergrasshill as a village partly in the parish of Kilquane but chiefly in that of Ardnageehy. According to Lewis, Watergrasshill stands on the highest ground in the county and in its vicinity were two paper mills, and a church for the union of Killaspigmullane was about to be erected near the village (Lewis 1837).

PARISHES

Ardnageehy

Ardnageehy was translated by Power as *Ard na Gaoithe* or 'the windy height' (Power 1917). The parish forms part of the Nagle Mountains, so-called after a family who owned the district for generations (Anonymous 1892). By 1837, Ardnageehy comprised 15,546 statute acres and supported a population of 3,715. Around six thousand acres in the parish were occupied by the Nagle Mountains and Lepers' Hill and there were two hundred acres of wasteland on the south side of the River Bride. There was also four hundred acres of unworked bog in the parish but generally, the lands comprised rough pasture with some tillage and agricultural practices were improving. The soil overlay a substratum of clay-slate, and flagstones and coarse slate for roofing were to be found in abundance though neither was worked to any great extent (Lewis 1837).

Clondulane

Translated by Bunyan as *Cluain Dalláin* or 'O'Dillane's Meadow', Lewis wrote that this parish lay partly in the barony of Fermoy but chiefly in that of Condons and Clangibbon. Comprising 4,736 statute acres on either side of the River Blackwater, Clondulane supported a population of 1,585. Although the land was mainly used for tillage, there was "excellent pasture on the banks of the Blackwater", two hundred acres of woodland and no bog. Agriculture was progressively improving. A continuous substratum of limestone runs along the north side of the river and in patches along the south side. This limestone was used for building and road repair (Lewis 1837; Bunyan 1983).

Kilquane

This placename has been translated as *Cill Cuain* or 'Cuan's Church' and an ancient church is located in the townland of the same name. Annual stations took place at the holy well in Kilquane on 23rd June and under the patronage of the Anglo-Normans, the patron saint of the well was transferred to another saint (Power 1923). The parish was anciently in the territory of the *Uí Béce Abha* (O'Búachalla). Kilquane (or Kilcoan) is located partly in the barony of Condons and Clangibbon but mainly in Barrymore. In 1837, it contained 5,842 statute acres

and supported a population of 2,335. The land was generally fertile though there were parts of "irreclaimable mountain". Agriculture was improving and Knockcumcreagh Mountain, which rises "to a considerable elevation", provided pasture for cattle (Lewis 1837).

Kilshanahan

Translated as *Cill Séanacháin* or 'the church of Senchan'. The church in question was located in the townland of Ballinaltig, the old graveyard of which indicating considerable age due to its elevated nature (Power 1923).

TOWNLANDS

Ballybrowney (Upper and Lower)

Power interpreted this placename as *Baile an Bhrúnaigh* or 'Browne's Homestead' and mentioned that it contained *Loch an Chláirín* or 'the pond of the little bridge' (Power 1923). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Ballynagore

Translated by Power as *Baile na gCórr* though he was unable to offer a meaning for the name (Power 1923). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Ballynahina

Translated as *Baile na hOighne* by Power, though he was unable to offer any meaning for the name (Power 1923). In the 1830s, Ballynahina House was the home of Gerard Barry Esq. while Ballynahina Cottage was home to the Rev. Dr. Barry (Lewis 1837). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheets Cork 35 & 44).

Ballynamona

Baile na Mona or 'town of the bog', a common townland name in the region. Located in the barony of Condons and Clangibbon and in the parish of Clondulane (OS six-inch sheet Cork 35).

Ballyoran

According to legend, a lake at the bottom of the Corrin hill, now known as Ballyoran Bog or *Currach na Druimmine* ('marsh of the white-backed cow'), was drained by a local prince to

prevent the prophesied drowning of his son (O'Murchú 1975). Located in the barony of Barrymore and in the parish of Castlelyons (OS six-inch sheet Cork 35–6).

Bishops Island

Bishops Island, or Bishopsland as it was also known, was the property of H.M. Smith in the mid-nineteenth century. Windele commented that Smith not only drained the soil but the "population too", possibly a reference to increased grazing on the estate which was incompatible with sustaining a large peasant population. He also mentioned that there was a small round fort here (Windele 1897). Located in the barony of Barrymore and in the parish of Ardnageehy (OS six-inch sheet Cork 53).

Corrin and Coolcarron

Corrin stands on the boundary between the baronies of Condons and Clangibbon and Barrymore. The only archaeological find recorded by the Topographical Files of the National Museum of Ireland for the townlands under study was made on the border of Coolcarron and Corrin in the 1830s. The find was that of a "covered cinerary" or "lidded food vessel" within a cist burial beneath the *Corrin Tierna* or 'Cairn of the Kings' (72.7cm from the left margin and 44.7cm from the top margin of Ordnance Survey six-inch sheet Cork 35). The find was described in the Cork Historical and Archaeological Society Journal, Vol. 34 (1929). The *Corrin Tierna* near Fermoy is the eastern terminus of the Nagle Mountains which form a range stretching along the entire southern side of the Blackwater as far as Killarney and Castlemain. Windele wrote that the *Corrin Tierna* stands 666ft (203m) in height above sea level (Windele 1897).

The cairn which gives its name to *Corrin Tierna* possibly dates to the Early Bronze Age and is surrounded by a possible Iron Age hillfort, both of which were consumed by modern afforestation. Considerable folklore surrounds the cairn. One story tells of a prince of the *Fír Maigh Féine* who was warned by a druid that his young son would die from a drowning accident. In order to prevent this prophecy from occurring, the prince ordered a castle to be built at the highest point in his kingdom and as far from water as possible. A large quantity of stones was brought to the summit of Corrin and the lake at the bottom of the hill, subsequently known as Ballyoran Bog or *Currach na Druimmine* ('marsh of the white-backed cow'), was drained. One day, while the work of transporting the building material to the site of the castle was still in progress, the boy came across a bucket of water left unattended by the stone masons. Fascinated by his own reflection, he fell into the bucket and was drowned. The construction of the castle was abandoned and the cairn of stones was left behind (O'Murchú 1975).

Lewis mentioned that there was a chalybeate spa in Corrin townland under the mountain of the same name about 1½ miles (2.4km) south of Fermoy (Lewis 1837). Corrin is listed in the 1851 Townlands Index as being in Castlelyons parish, barony of Barrymore, while Coolcarron is listed in Fermoy parish, barony of Condons and Clangibbon.

Curraghprevin

Translated by Power as *Corach Phréibhín* or Previn's Swamp. Power also mentioned that it contained three lios sites—two on John Barry's holding and one on Buttimer's, both of which had been levelled. There was also a well in the townland that was formerly venerated as a holy well though stations were no longer held. It was known as *Tobairín na Fuinnséoige* or 'the little well of the ash tree' (Power 1923). Curraghprevin was one of the townlands burned by O'Neill in revenge for Lord Barrymore's refusal to fight for the Gaelic cause against Queen Elizabeth (Barry 1994). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Curraghteemore

Possibly translates as *Corach Tighe Mór* or 'the marsh of the big house'. Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Garrynacole

Power translates this as *Garraidhe Niocóil* or Nichol's Garden. It contained a field known as *Páirc na gCloch* which Power interpreted as 'the field of the standing stones' of which there is no longer any trace (Power 1923). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Kilbrien

Derived from *Cill Bhriain* or 'Brien's Church', this place was referred to as 'Killbryanitt' in relation to an inquisition which was held during the reign of King Charles I (1625–49). The site of the ancient church is said to have been located in a field on Collins' holding known as *An Folacht Fiaidh* (Power 1923). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Licklash

Translated by Bunyan as *An Leac Glas* or 'the green/grey stone' (Bunyan 1983). To the east of Fermoy are the castles of Carrickabrick and Licklash, the latter described by Windele in 1849 as "a square castle of rude workmanship built by the Condons". He pointed out that it

was built at a strategic location overlooking the River Blackwater and that "some ruinous buildings run along the edge of the precipice on which it is built". Like Carrickabrick, it was double-vaulted and had pointed arches (Windele 1897). In June 1643, the Irish camped at Licklash following their victory over Sir Charles Vavasour and two years later, Licklash was visited by the troops of Lord Castlehaven before marching on to Fermoy (Waters 1917). Located in the barony of Condons and Clangibbon and in the parish of Clondulane (OS six-inch sheet Cork 27, 35–6).

Lisnagar Demesne

Lisnagar Demesne adjoins the town of Rathcormac on the west. Lisnagar was interpreted by Power as *Lios na gCarr* or 'lios of the cars' though this is an unconvincing translation (Power 1923). Barry suggests that it derives from *Lios na Garra* or 'the enclosed fort'. Lisnagar is important in the history of the Rathcormac area because it was the seat of the MacAdam branch of the Barry family, the first lords of Rathcormac manor, and it later became the residence of the Tonsons, earls of Riversdale. Prior to AD1200, Rathcormac was in the hands of a branch of the Uí Liatháin tribe known as the Uí Dhonaille who gave their name to Mondaniel townland. When it became a manor of Robert de Barry, a motte-and-bailey castle was constructed in Lisnagar. There was evidence of this structure until recently when its remains survived as a large earthen mound known locally as 'the Alps'. Eventually the motte and bailey was replaced by a more permanent stone castle, evidence of which survives only in a small guard tower and in the name 'castle field'. Robert de Barry's descendents remained in possession of Lisnagar until the 1770s (Barry 1994).

On the death of Adam de Barry in 1358, the manors of Rathcormac, Kilshanahan (Ballinaltig) and Ballydufflotther (Brooklodge) were broken up. His son and heir, David, called himself MacAdam, an indication of the increasing Gaelicisation of the original Anglo-Norman settlers' descendants. The direct descendants of David MacAdam Barry included the Barrys of Kildinan, Ballinaltig, Curraghprevin, Ballynahina, Ballyclogh and Ballinaglogh. The hospitality of the MacAdam Barrys at Lisnagar was legendary and nobles from the province as a whole came here to enjoy hunting and hawking. Everyday, a feast was laid on at the hall of the castle involving harpers, pipers and bards and the roasting of an ox. By the sixteenth century, the MacAdam Barrys in Lisnagar were living in a tower house which abutted the western side of the present house but which was demolished around 1930. T.A. Barry has written that, like their cousins and overlords the lords Barrymore, the MacAdam Barrys chose their political allegiances wisely. In 1571, they were pardoned by Queen Elizabeth for their involvement in the Desmond revolt of 1569 and they later refused to fight for the Gaelic

cause against her. As a result, Lisnagar was burned by O'Neill but the MacAdam Barrys held onto their lands until the 1770s (Barry 1994).

Following the death of Richard Barry in March 1770, the Lisnagar estate was sold to Robert and Nicholas Lawless of Dublin for £59,000. This sale, coupled with the burning of Barrymore Castle in Castlelyons the following year, signalled the beginning of the end for the Barry dynasty in East Cork (Barry 1994). By 1837, Lisnagar was the location for "the elegant mansion of the Rt. Hon. Lord Riversdale" which was set in a "small but highly improved demesne" (Lewis 1837). Lisnagar Demesne is located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Maulane East

Power interpreted this placename as *Meallán* which indicates a small rounded hill. He also mentioned a large circular lios in this townland close to the present chapel. However, there was no longer any trace of this monument by the time he was writing. In addition, he referred to the *Bóithrín na Sailighe* or 'the little road of the willow' in Maulane and the 'chapel field' which was a triangular enclosure northeast of the present crossroads in which stood a former chapel (Power 1923). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Meenane

Translated by Power as *Míneán*, a word which indicates a small patch of green ground on a mountain. Power also noted that a lios not depicted on Ordnance Survey maps was located on Twohill's farm (Power 1917). Located in the barony of Barrymore and in the parish of Ardnageehy (OS six-inch sheet Cork 53).

Mitchellsfort

Mitchellsfort takes its name from its previous owners but the original name is unknown. Power noted that four small circular lioses were marked on Ordnance Survey maps in this townland. Two had been destroyed by the time he was writing while the third, with ramparts 10–12ft in height, had been partially removed. The fourth still stood to a few feet. Both of the surviving forts were on Fell's Farm (Power 1923). Located in the barony of Barrymore and in the parish of Kilquane (OS six-inch sheet Cork 53).

Mondaniel

Translated by Power as *Móinín Domhnaill* or 'Daniel's Little Bog' though, according to T.A. Barry, the townland name preserves the identity of the pre-Anglo-Norman occupiers, the Uí

Dhonaille (Barry 1994). Power also mentioned that there were two large polygonal lioses near the eastern boundary of the townland. Mondaniel was burned by O'Neill in the sixteenth century in revenge for the Barrys' refusal to fight for the Gaelic cause against Queen Elizabeth (Power 1923; Barry 1994). Located in the barony of Barrymore and in the parish of Rathcormac (OS six-inch sheet Cork 44).

Rath-Healy

According to O'Búachalla, Rathealy or *Rath Siadhail* and Corran (formerly called 'Curraghmore alias Corane' and now Strawhall) were part of the territory of the Uí Chonaill sept (O'Búachalla 1950). In the 1830s, Rath-Healy was the seat of J. Lucas Esq. (Lewis 1837). Located in the barony of Condons and Clangibbon and in the parish of Clondulane (OS six-inch sheet Cork 35).

Scartbarry

Translating the placename as 'Barry's Thicket', Power stated that this townland contained a large circular lios on John McCarthy's holding which had been "completely improved away". That other ringforts existed here is indicated by a field known as *Pairc na Leasa* or 'field of the forts' (Power 1923). Located in the barony of Barrymore and in the parish of Kilshanahan (OS six-inch sheet Cork 44 & 53).

Strawhall

On early maps, the height at *An Corrán* was shown as *An Currach Mór* ('the big marsh') and is known today as Strawhall. To the north, across the river, was *Rath Siadhail* or Rath-Healy (Brunicardi 1975) and according to O'Búachalla, this area was part of the territory of the Uí Chonaill sept (O'Búachalla 1950). In the 1830s, Strawhall was the seat of J. Carey Esq. (Lewis 1837). Located in the barony of Condons and Clangibbon and in the parish of Clondulane (OS six-inch sheet Cork 35–6).

Tinageragh

Translated by Power as *Tigh na gCaorach* or 'Sheep House', this townland contained three lioses—one quadrangular in plan, one bivallate and the largest circular. The square one is said to have been stone-lined while the circular one had souterrains. The townland also contained St. Stephen's Well, which had not been venerated since the mid-nineteenth century, and a *Seana Bhaile* or old village site of which no trace remained. Power also mentioned the *Lúb an tSagairt* or 'the priest's loop', a curve in the road that may indicate an early church site (Power 1917). Located in the barony of Barrymore and in the parish of Ardnageehy (OS six-

inch sheet Cork 53).

2.1.3 Archaeological Background

Mesolithic

Most of the evidence for an Early Mesolithic occupation of Munster has 'come from the Blackwater valley in Co. Cork' (Woodman 1989, 116). There is no evidence that Mesolithic people built permanent structures. They lived a hunter-gatherer lifestyle and used mainly flint to produce stone tools. West of the town of Fermoy, at Castlehyde East, on north side of the Blackwater River a flint scatter (CO035-063) was identified during a field-study project, (Power & Lane, 2000, 2). Also in the Blackwater Valley, 18km west of Fermoy, in the townland of Kilcummer Lower, over 300 flint pieces were recovered during excavations (CO034-060) by Liz Anderson. Most of these consisted of blades and blade fragments; also found were ten microliths including rods and one scalene triangle, three microburins, two scrapers, a single-platformed core and much debitage, (Power & Lane, 2000, 2). Between Kilcummer Lower and Fermoy, two more flint scatters were found along the Blackwater valley, in the townlands of Conva (CO034:61) and Castleblagh (CO034:62). Evidence of temporary Mesolithic settlement was excavated at Curraghprevin 3 as part of this project.

Neolithic

Until relatively recently, it was felt that Cork was first colonised at the end of the Neolithic by 'Beaker using' groups from northwestern France who sought to exploit local copper resources and who were responsible for the construction of wedge tombs and stone circles, both of which are present in large numbers throughout much of this area (O'Nuallain 1984). As very few megalithic tombs, the traditional indicators for Neolithic settlement, were present in this region, this was looked upon as evidence to support the view that this area may not have been settled during this period.

A major turning point in the history of Neolithic study in the South came with the discovery of three Neolithic houses during the construction of the Gas Pipelines in Munster. Two of these houses were unearthed at Tankardstown in County Limerick while the third was located at Pepperhill in County Cork. The discovery of a Neolithic house at Bangagore on the route of the Ballincollig Bypass (Danaher, forthcoming) is only the second example excavated in County Cork. There were examples of Early Neolithic carinated pottery also found at two sites along that route at Curraheen 1 and Ballinaspig 5. There was no evidence of the Neolithic found during excavations along the N8 Glanmire-Watergrasshill Bypass and only one example along the Rahcormac to Fermoy route. This site, Curraghprevin 3 had pits that

contained examples of Mid-western Neolthic pottery.

Palynological evidence of Neolithic activity was present at Cashelkeelty (Lynch 1981) where it has been suggested that openings created in pine-dominated woodlands were used for agricultural activity during the early Neolithic. Buzer (1980) suggests that human activity may been responsible for a decrease in tree pollen which coincides with the rise in grasses at Ballyally Lough, County Cork. However, the crux of the pollen evidence would suggest a pattern of minor woodland disturbance and that the human impact on vegetation was minimal up until the late Neolithic and early Bronze Age (O'Brien 1999).

Bronze Age

The Bronze Age is accredited with having the most significant impact on the landscape of the South during the prehistoric period. This is supported by both the distribution and abundance of associated archaeological sites and monuments as well as from the regional pollen evidence.

Pollen diagrams indicate permanent woodland clearances which possibly represent an increase in agricultural activity caused by an increase in human population particularly in the later Bronze Age. This woodland is replaced by a " cultural landscape dominated by acidic grasslands, blanket peats and agricultural land" (O'Brien 1999).

In terms of monuments dating from the Bronze Age, both wedge tombs and stone circles are the most visible, while *fulachta fiadh* are the most numerous with over two thousand examples having been recorded for County Cork alone (however, these cannot all be ascribed to the Bronze Age). Of the overall number of *fulachta fiadh* discovered, only a fraction of these have been scientifically excavated. Until relatively recently, many were looked at in isolation rather than within their wider settlement context. Internationally, burnt mounds are known from Scandinavia, Wales, Scotland, Orkney, the Shetland Islands and parts of Cumbria (Buckley 1990, 9). On the ground, the classic *fulacht fiadh* is a relatively low grassy mound of crescent or U-shaped plan. Ploughed-out examples reveal themselves as large spreads of burnt stone and charcoal in the ploughsoil. They are usually, though not exclusively close to water, often a stream, lake, river or marsh. They sometimes occur in groups, clusters of two to six occasionally being located within quite a small area. *Fulachta fiadh* are recognised to have a number of consistent features: a mound of heat-fractured stones, a trough and traces of fires sometimes represented by a formal hearth.

Linear road projects such as this one provide a transect through the archaeological landscape of a region. As the road passed through large tracts of marshy ground, *fulachta fiadh* were the most common site encountered. Ten *fulachta fiadh* sites were identified (Fermoy 1, Fermoy 2, Fermoy 4, Corrin 4, Corrin 6, Kilbrien 1, Lisnagar Demesne 2, Lisnagar Demesne 3,

Scartbarry 1 and Ballynahina) which varied from small isolated burnt mound spreads (eg. Fermoy 1 and Kilbrien 1) to multiple burnt spreads with associated activity (eg. Fermoy 2 which included a cremation pit and a flint hoard). There were seven *fulachta fiadh* excavated along the route of the N8 Ganmire-Watergrasshill Bypass (Purcell, 2003).

There are a number of *fulachta fiadh* listed in the Record of Monuments and Places in close proximity to the N8 Rathcormac-Fermoy Bypass route. In the Skahanagh North townland, there was a cluster of three *fulachta fiadh* (CO053-091). There were four found in adjoining fields in Ballinantig (CO053-067, 68). There were three fulachta fiadh listed at the base of Corrin Hill (CO035-050). Also, within the townland of Corrin, there were three *fulachta fiadh* listed in adjoining fields, (CO035-058, 068, 070). There were two *fulachta fiadh* in the townland of Coolcarron (CO035-75, 077) and one at Ballyoran (CO035-057) and Ballynoe (CO035-081).

There were four Bronze Age sites (Fermoy 3, Scartbarry 2, Lisnasallagh 2 and Ballybrowney Lower 1) identified on the basis of pottery recovered during excavation. Of these sites three comprised of small pits and limited remains while one site, Ballybrowney Lower 1 was exceptional. The settlement at Ballybrowney Lower 1 consisted of three pallisaded enclosures, one rectangular enclosure, three houses, a stone lined corn drying kiln, a cremation pit, pits, hearths and postholes. During the N8 Glanmire-Watergrasshill Bypass, a circular Bronze Age house was excavated at Killydonoghoe (Sherlock, 2003).

A puzzling aspect of this area is the apparent lack of wedge tombs. A group of around fifty tombs is present on the ridge and valley topography of the upper Lee valley basin and surrounding landscape of mid Cork (O'Brien, 1999). There are two possible explanations which may account for the apparent void in the landscape of these monuments. Firstly, centuries of intensive farming may have destroyed all traces of these tombs and secondly, an alternative approach to the treatment of the dead may have been practiced.

One possible example of Bronze Age burial was at Skahanagh North 3. This is the site of a possible ring ditch. The simplest form of barrow found in Ireland is the ring-ditch. Newman has defined it as 'an enclosure defined by an annular or pennanular fosse, with no evidence that the material dug from the fosse was either used to build up the central area into a mound or to create a bank' (Newman, 1997, 157). They date from the Neolithic to the later Bronze Age (*ibid*, 157). Most of these sites measure less than 6m in diameter but can have diameters of up to 15m. The ring-ditch at Skahanagh North 3 had an external diameter of 10m. Many previously unknown and unrecorded ring ditches have been discovered during archaeological investigation on recent development projects. The burials associated with barrows are generally cremations, although some inhumations have been found.

During excavations along the route of the N8 Glanmire-Watergrasshill Bypass, three Bronze

Age cremation pits were excavated, two in the townland of Killydonoghoe, close to the Bronze Age house, and one isolated cremation pit at Mitchellsfort (Sherlock, 2003). There was also an isolated cremation pit excavated during this project at Skahanagh North 1.

Iron Age

The Iron Age is possibly the most obscure period in Irish prehistoric archaeology. At present, there is little evidence of a significant Iron Age presence in the Cork and Kerry region. Settlement sites are few and far between as well as being difficult to identify (Woodman, 2000) while the material culture of this period, which has been used to indicate Iron Age activity in other regions of the country, is almost non-existent. There was iron slag found on two sites along this route. At Lisnagar Demesne 1, there was iron slag found within and around a bowl furnace and at Lisnagar Demesne 3, there was a small amount of iron slag found within a deposit of a *fulacha fiadh* trough overspill, perhaps indicating that metal working was taking place at or near the site.

There were a number of bowl furnaces excavated during the N8 Glanmire-Watergrasshill Bypass within a kilometre of roadway. At Ballyvinney North, there was an isolated bowl furnace truncated by later agricultural activity, (Sherlock 2003). There was a cluster of five possible bowl furnaces at Kilrussane and at Trantstown there were two furnaces close to each other, one of which had its clay lid *in situ*, (Sherlock, 2003).

Medieval/Post Medieval

The predominate archaeological monuments within the environ of the N8 roadway are ringforts or enclosure sites. Indeed, these monuments were the most common settlement type in the Early Medieval period, with around 30,000 examples identified. Ringforts are usually situated on gentle slopes with good views of the surrounding countryside. Ringforts appear as a circular area defined by banks and external ditches and excavation often reveals the remains of dwelling houses within their interior. Many of the ringforts within the RMP files appear to fit into the average size associated with these monuments of around 30-40m in diameter. The banks are generally constructed of earth except in stony areas where they may be constructed of stone. Most ringforts are enclosed by a single bank but it is also quite common for them to have two sets of banks (a ‘bivallate’ ringfort) or even three (‘trivallate’). The land in this area of Cork is generally of good quality and this, therefore means that a high number of ringforts have been partially or completely destroyed

Although they can have a dispersed distribution in the landscape, they are occasionally found in pairs or clusters or even joined together to form a ‘conjoined ringfort’. Within this study area, the ringforts listed in the Record of Monuments and Places are mostly in pairs or

clusters with a number associated with souterrrains. Souterrains are man-made structures composed of a chamber or a number of chambers linked by narrow passages and entered from ground level by a narrow, often concealed opening. They are often found with in ringforts and date predominately to the Early Christian period. There are two possible explanations as to the function of these features, namely as storage or a place of refuge. A survey of souterrains in Cork showed three main types of design, all of which are present in East Cork (McCarthy 1983, 100-105).

Within the townland of Skahanagh, there is a concentration of this monument type. One of these has been partially excavated as part of this project (CO053-010, Skahanagh North 3). Two other ringforts (CO053-011, CO053-047) within the townland had souterrains in their interior, (CO053-076 and CO053-077 respectively). There are also two possible ringforts (CO053-012, CO053-013) and one circular enclosure (CO053-078) within the townland, perhaps representing clustering of these monuments within this area. West of Skahanagh, in Cordonstown North there was a ringfort (CO053-009) with a possible souterrain in the interior (CO053-075). East of Skahanagh, there was another ringfort in the townland of Coolquane (CO053-015).

There are other examples of pairs and clusters along the route. The townland of Scartbarry contains one possible ringfort (CO053-014) and four enclosures, three circular (CO053-087, 088, 090) and one rectangular (CO053-089) in shape. In the townlands of Mondaniel, Corrin and Kill St Anne North, there are four ringforts within 1.5km (CO044-007, 008, 009, 010). Also within the townland of Corrin, there is a circular enclosure (CO035-050) that was partially excavated during this project, (Corrin 1) and a hillfort (CO035-049). Corrin Hill itself has strong religious/spiritual associations and has local legend and forklore associated with it. There are two holy wells noted in its vicinity (CO035-051, 069).

There is a ringfort at Ballybrowney Lower (CO044-029). This circular area was defined by three earthen banks with intervening fosses. It was located in a field just west of the Bronze Age site, Ballybrowney Lower 1 excavated as part of this project and close to a cluster of pits and a bowl furnace excavated at Lisnagar Demesne 1.

In the townland of Kilshannig Upper, there is a circular enclosure (CO044-031) and a ringfort (CO044-032) in close proximity to each other. In the townland of Ballyglissane, there are two possible ringforts, (CO044-034, 035) with two possible souterrrains in the adjoining fields, (CO044-062, 065). In the townlands of Inchinapallas and Glanworth there are two ringforts (CO027-075 and CO027-077) in adjoining fields. There is another possible ringfort (CO027-074) nearby also in the townland of Inchinapallas. There are two possible ringforts (CO027-083-084) in the townland of Labbacallee. In the townland of Ballymona there are two circular enclosures and a ring ditch clustered together (CO027-130, 163). A lime kiln and a souterrain

are associated with the ringfort at Ballyhindon (CO027-106).

During the fifteenth century, the Tower House (a relatively plain structure of three or more storeys in height) became the principle dwelling type for the wealthy Anglo-Irish landowning class of The Pale. Outside The Pale, Tower Houses were also used by families of the Gaelic gentry who frequently fought each other as well as the Anglo-Irish. Gaelic clans were also prone to fighting amongst themselves and in the early fourteenth century, one branch of the O'Briens was frequently attacking the others. This hostile environment ensured that tower houses were common all over the country. Cork, Limerick, Tipperary and Clare are particularly abundant in Tower Houses, mainly dating to the period 1450-1500. There are examples of Tower Houses listed at Garraunigarinagh (CO027-101), Ballynahow (CO027-107) and Moorepark (CO027-107) and a castle at Ballyhindon (CO027-114).

The country house and its demesne were dominant features of the rural Irish countryside throughout the 18th and 19th centuries. There are many more of this site type in the East and South of Cork by comparison with West Cork. This reflects the richer quality of the land here and the influence of the city (Power & Lane, 2000, 312). Within the RMP files, there was a country house with an ice house listed at Kilshannig Upper (CO044-033), built in approximately 1766. There is also an early 18th century country house at Lisnagar Demesne (CO044-11). This house was remodelled in the early 19th century in a Tudor-Gothic style and has a large ornamental lake to its east. While the house will not be disturbed by the new road, it does cut through part of the walled garden associated with it.

Limekilns are an industrial feature of medieval and post-medieval date. They were generally used in the burning of limestone to produce quicklime. In the medieval period limekilns were predominately used for the production of mortar for building purposes. Many townlands had their own limekiln until the nineteenth century, especially in hill areas (Aalen 1997). The burning of lime as an agricultural fertiliser became widespread with the improvements of the 18th century and the 1st edition OS 6 inch map shows thousands of lime kilns in County Cork, (Power & Lane, 2000, 312). A number of limekilns were listed in the RMP files, namely, at Maulane East (CO044-054), Bridgeland West (CO044-055) and at Gortore (CO027-116). While these were not directly within the route, during the excavations three limekilns were uncovered at Mondaniel 3, (probably medieval) and at Lisnagar Demesne 1.

There were a number of one-story vernacular houses noted in the RMP list within the study area. At Ballybrowney Lower, there are two occupied one-story vernacular houses (CO044-030). One has a hipped roof of thatch while the other was formerly thatched but has been replaced with corrugated iron. The abandoned one-story vernacular house at Coolnakilla (CO044-051) had a hipped roof of thatch. At Kilshannig Lower, there was another abandoned

one-story vernacular (CO044-051). It had a hipped roof of thatch while the rear of the roof was of corrugated iron.

3. RESEARCH FRAMEWORK

The research framework for Rath-Healy 1 will address the following topics:

(i) The dating of individual features and groups of features in order to establish whether some or all are contemporary.

(ii) The temporal sequence of activity on the site and the reasons for such a sequence.

(iii) The location and distribution of contemporary sites within the vicinity in order to establish the relevance of the subject site within the social, economic and cultural environment.

(iv) The location of the site within the natural environment, why this location for this activity or range of activities.

(v) Which cultural group occupied the site?

(vi) What was the broader material culture of the group which occupied the site?

(vii) Why did the site become irrelevant and consequently become abandoned?

4. EXCAVATION RESULTS

4.1 Excavation methodology

The site was initially stripped of turf and topsoil (C101) using a tracked machine equipped with a grading bucket. All features exposed within the cuttings were carefully cleaned and recorded by feature sheet, plan and photograph (where appropriate). All contexts were numbered sequentially from C101 to C199 etc. within each site; i.e. C112 represents the cut of a pit. Where appropriate, soil samples and charcoal samples were taken in an effort to obtain a date and function for the various features. All finds were numbered according to the requirements of the National Museum of Ireland from 1 to 99, according to licence number and feature number; i.e. 03E1139:113:4 represents find number 4 within pit fill C113 which was excavated under licence number 03E1139. All excavated cuttings were then surveyed using the GPS system and tied in to the proposed road. Only areas within the CPO were resolved.

The area stripped at Rath-Healy 1 was divided into two portions due to the crossing of the site by overhead power lines, which made it too dangerous to use a machine in their vicinity. The division ran from west to east hence the features described below are divided into those in the Northern Sector and those in the Southern Sector.

The site was later extended to the south (The Southern Extension) and to the north (The Northern Extension). Context numbers beginning C3## were located in the Northern Extension.

4.2 Full Stratigraphic Report

4.2.1 Stratigraphic Matrix

The following account of the excavation results divides the recorded deposits and features into discreet Phases and Groups. The report also divides the site into four distinct areas which makes the location of features easier. The four areas referred to are The Northern Sector, The Southern Sector, The Northern Extension and the Southern Extension (see Figure 6).

The assignation of features to Periods such as the Early Bronze Age relies on radiocarbon dating allied with the assumption that features of similar composition may be contemporary.

The finds assemblage was poor and the features excavated were of a type that survive within the archaeological record over a number of periods. The Phases and Groups are detailed in the table below.

Table … Stratigraphic Groups		
Site Name: Rath-Healy 1		**Licence No.: 03E1139**
Phase	**Group**	**Composition**
I	-	The natural subsoil, geological
II	2	Early Bronze Age. Cuts and fills of all pits containing burnt stone
II	1	Bronze Age. Construction and use of the segmental boundary/enclosure ditch
II	3	Bronze Age. Cuts and fills of all pits which do not contain burnt stone
II	4	Bronze Age. Disuse and backfilling of the boundary/enclosure ditch
II	5	Later Bronze Age, post hole alignment
IIIA	1	Iron Age. Construction and use of bowl hearths etc.
IIIA	2	Iron Age. Disuse and backfilling of bowl hearths etc
IIIB	1	Early Christian. Construction and use of cereal drying kilns
IIIB	2	Early Christian. Disuse and backfilling of cereal drying kilns
IV	-	Post medieval agricultural activity

Phase I: Geological

All Areas

C102, C302, Natural Subsoil

The natural subsoil across the whole site consisted of orange/brown boulder clay with sand content and varying concentrations of shattered limestone and rounded sandstone and limestone pebbles. The subsoil originated as a glacial deposition.

Phase II, Early Bronze Age, Group 2: Pits containing burnt stone *(All sections Figure 20)*

Scattered across the whole site were a series of pits varying in size and shape but sharing a common characteristic. All the pits contained significant quantities of heat-fractured stone. There were 13 pits in total with a significant cluster within the Southern Sector of the site. Features associated with these pits through their proximity have been included within this group although it is by no means certain that they were contemporary. The discovery of burnt bone within some of the pits might indicate that they contained token cremations. Analysis of the burnt bone is included in Appendix 10.1. The analysis could not confirm the provenance of the bone

One radiocarbon date was obtained from the fill of pit C168, C167 and this produced a date of Cal BC 1910, within the Early Bronze Age.

Northern Sector *(Figure 13)*

Pit C122; Fill C121

This pit was circular with a diameter of *c.*1.00m and a maximum depth of *c.*0.06m. The sides sloped at *c.*45 degrees to a flat base. The fill consisted of dark, grey/brown silty clay with frequent inclusions of heat-cracked stones and occasional charcoal flecks.

Two Stake-holes C152, Fill C153

These two stake-holes were both *c.*0.09m in diameter, *c.*0.14m deep and V-shaped in profile. Their fill was soft, medium brown, silty clay. They were close to pit, C122 and may be connected.

Pit C170; Fills C169 and C191

This bowl-shaped pit was irregular in shape with an average diameter of *c.*0.80m and a maximum depth of *c.*0.14m. The base fill consisted of compact, light brown, silty clay with frequent small stone inclusions. The upper fill consisted of compact, mid-brown silty clay with inclusions of heat-cracked stone and frequent charcoal flecks.

Pit C180; Fills C179, C195 and C196 (Plate 7)

This sub-circular, bowl-shaped pit was *c.*1.00m in diameter with a maximum depth of *c.*0.18m. There were three fills and these consisted of, from the base

C196 Compact, pale orange/grey silty clay with occasional small stone inclusions.

C179 Very compact dark grey, silty clay with occasional charcoal flecks and small stone inclusions.

C195 Compact grey/brown silty clay with infrequent charcoal flecking and inclusions of heat-cracked stone.

Pit C243; Fills C242 and C244

This bowl-shaped pit was oval with the long axis running from west to east, measuring *c.*0.79m by *c.*0.69m and with a maximum depth of *c.*0.28m. The base fill consisted of medium brown silty clay with charcoal flecking especially at its interface with the natural subsoil. The upper fill was loose, near black, silty clay containing *c.*50% heat-cracked stone and a substantial charcoal content.

Southern Sector *(Figure 10)*

Pit C104; Fills C103 and C129 (Plates 8 and 9)
In plan this pit was an elongated oval with dimensions of *c.*0.86m from west to east and *c.*0.45m from north to south. The pit had near vertical edges to the east and more gentle sloping sides to the west leading to a flat base with a maximum depth of *c.*0.18m. The upper fill (C103) consisted of near black, silty clay with a high proportion of heat-cracked stone, some charcoal flecking and occasional fragments of burnt bone. The lower fill (C129) consisted of grey, silty clay with occasional stone inclusions and frequent charcoal flecks. A spindle whorl was found within this fill and this along with the burnt bone in the upper fill suggests the possibility of a cremation pit.

Pit C106; Fills C105 and C130 (Plates 10 and 11)
This pit was oval with dimensions of *c.*0.80m from northeast to southwest and *c.*0.63m from northwest to southeast. The pit was bowl-shaped and had a maximum depth of *c.*0.20m. The upper fill (C105) consisted of fine dark grey-brown silty clay with a high concentration of heat-cracked sandstone and some charcoal flecking. The lower fill (C130) consisted of medium brown silty clay with occasional fragments of heat-cracked stone and very slight charcoal flecking.

Pit C108; Fill C107
This circular pit was steep sided with a shallow bowl-shaped base. The pit was *c.*0.33m in diameter with a maximum depth of *c.*0.18m. The fill consisted of medium grey/brown silty clay with frequent heat-cracked stones, charcoal flecking and very occasional fragments of burnt bone.

Pit C110; Fill C109
This pit was an irregular oval with dimensions of *c.*0.60m from west to east and a maximum depth of *c.*0.15m. The fill consisted of medium brown silty clay with near black, charcoal-stained mottling and some heat-cracked stone.

Pit C114; Fill C113
This shallow, circular pit was *c.*0.60m in diameter and *c.*0.10m deep. The fill consisted of dark, grey/brown silty clay with inclusions of heat-cracked stone and charcoal flecking.

Stake-hole and fill C218
This feature was *c.*0.07m in diameter and *c.*0.07m deep with a V-shaped profile. The fill consisted of loose, medium brown, silty clay with charcoal inclusions. The stake-hole was situated immediately to the south of C114 hence its inclusion in this group.

Pit C156; Fill C157
This circular, bowl-shaped pit was *c.*0.50m in diameter with a maximum depth of *c.*0.15m. The fill consisted of light brown silty clay with few inclusions of heat-cracked stone and occasional charcoal flecks. Thispit was situated *c.* 7.20m to the northwest of the principal cluster.

Pit C168; Fill C167
This circular, bowl-shaped pit was *c.*0.60m in diameter with a maximum depth of *c.*0.21m. The fill consisted of compact, orange/brown, silty clay with a high concentration of heat-cracked sandstone but only occasional flecks of charcoal.

Northern Extension *(Figure 8)*

Pit C326, Fill C325
This oval pit had dimensions of *c.*0.60m from north to south by *c.*0.46m and a maximum depth of *c.*0.13m. The sides sloped gradually to a concave base and the fill consisted of medium orange-brown sandy clay with inclusions of heat-shattered stone, cremated bone and some charcoal flecking.

Pit C328, Fill C327 (Plate 12)
This bowl-shaped pit had dimensions of *c.*1.70m from east to west by *c.*1.10m and a maximum depth of *c.*0.25m. The fill consisted of heat-shattered stone in a matrix of near black silty clay with inclusions of cremated bone.

Phase II, Bronze Age, Group 3: Pits *(All sections Figure 21)*

The following group of features consisted of a scatter of pits with no defined purpose. Possibly their only connection was that they did not have burnt stone within their fills but tended to have silty clay fills. Although the pits have been grouped together, suggesting contemporaneity, each individual pit could have been excavated at any point within the prehistoric or historic periods. The lack of finds and their proximity to features of certain antiquity suggest that some, at least, are of archaeological significance.

The Northern Sector *(Figure 13)*

Pit C162; Fill C161
This oval pit was *c.*0.57m from northwest to southeast by *c.*0.42m with a maximum depth of *c.*0.36m. The sides sloped in steeply, stepped in shallowly then continued to the base steeply. The fill consisted of compact, dark brown, silty clay with charcoal inclusions frequent towards the top of the fill. It is possible that this feature was another remnant of tree root activity.

Pit C164; Fill C163
This pit was oval with dimensions of *c.*0.69m from north to south by *c.*0.50m and a maximum depth of *c.*0.16m. In form it was like a shallow, inverted bell. The fill consisted of compact, light grey/brown, silty sand with inclusions of small stones but no charcoal. As with C162 this feature may be a result of root disturbance.

Pit C198; Fill C197 (Figure 7)
This bowl-shaped, circular pit was *c.*0.50m in diameter with a maximum depth of *c.*0.15m. The fill consisted of medium, red/brown silty clay. In the upper fill of this feature was a large fragment of carbonised wood measuring *c.*0.08m by *c.*0.14m and up to *c.*0.04m thick. The charcoal could not be removed intact but no traces of working were observed.

Pit C214; Fill C213
This pit was sub-circular with an average diameter of *c.*0.60m and a maximum depth of *c.*0.20m. The side was steep to the north but less so elsewhere, whilst the base formed a shallow bowl. The fill consisted of loose, medium orange/brown, silty clay with occasional stone inclusions. This feature could be the result of tree/bush removal.

Hearth C132; Fill C131
This feature consisted of a sub-circular, bowl-shaped pit, *c.*0.85m in diameter with a maximum depth of *c.*0.18m. The fill consisted of compact, red/brown silty clay with frequent charcoal inclusions. There is a possibility that the feature is the result of bush/tree burning.

The Southern Sector *(Figure 14)*

The following features clustered closely together in conjunction with seven pits from Group II/2 (Plate 14). Initially it was thought that some significance could be created from the clustering but examination did not provide anything of structural significance and the patterning of pits although indicating fairly intense activity in the restricted area did not indicate the nature of that activity.

Pit C112, Fill C111
This pit was somewhat irregular and had been disturbed by root action. The pit was sub-circular with an average diameter of *c.*0.60m and a maximum depth of *c.*0.15m. The fill consisted of orange/brown, silty clay with frequent stone inclusions. There is a possibility that this feature is a product of root action.

Pit C172, Fill C171
This pit was circular with a diameter of *c.*0.23m and a maximum depth of *c.*0.13m. The sides sloped steeply to a flat base of *c.*0.10m diameter. The fill consisted of medium brown, silty clay with charcoal flecking but no stone inclusions. There is a possibility that this feature was a post-hole.

Pit C210, Fill C211
This shallow, bowl-shaped pit was *c.*0.65m in diameter and had a maximum depth of *c.*0.08m. The fill consisted of dark brown, silty clay with a slight yellow tinge and charcoal inclusions. This pit cut C209, the fill of C136.

Pit C142, Fill C143
This pit was sub-circular with a diameter of *c.*0.32m and a maximum depth of *c.*0.05m the sides were concave leading to an irregular base. The fill consisted of compact, medium brown, silty clay with occasional stone inclusions.

The following features are included in Group II/3 due to their proximity to pits containing burnt stone (II/2) and their lack of finds by which some or all of them could be given a later date.

Spread C135
Situated *c.*1.20m to the west of C168 was a spread of brown silty clay with charcoal flecking. The spread had a maximum depth of *c.*0.07m and had irregular dimensions of *c.*0.90m by *c.*0.90m.

Pit C136, Fill C209 (Plate 13)
This large pit was kidney-shaped with its long axis running from west to east and measuring *c.*2.44m by *c.*1.73m. The maximum depth was *c.*0.30m and the sides were concave leading to a flat base. The fill consisted of compact, orange/brown sandy clay with occasional charcoal flecking and stone inclusions. The fill of the pit was cut by C210.

Spread C160
Situated *c.*2.50m to the west of C136 was an irregular spread of dark brown silty clay with a high charcoal content. The deposit survived in a natural depression and had a maximum depth of *c.*0.05m and an irregular diameter of *c.*0.40m.

Hearth C145
This was a circular area of oxidised natural subsoil situated to the north of C136. The subsoil had been reddened by heat over an area of *c.*0.60m in diameter with the reddened clay extending to a maximum depth of *c.*0.03m.

Northern Extension *(Figure 8)*

Pit C330, Fill C329
This circular pit had an average diameter of *c.*0.45m and a maximum depth of *c.*0.17m. The sides sloped steeply to a concave base whilst the fill consisted of loose pale orange-brown sandy clay with occasional charcoal flecks.

Pit C332, Fill C331
This irregular oval pit had a maximum diameter of *c.*0.20m and depth of *c.*0.15m. The fill consisted of dark brown silty clay.

Pit C334, Fill C333
This oval pit measured *c.*1.00m from north to south by *c.*0.59m and had a maximum depth of *c.*0.43m. The sides sloped steeply to a flat base and the fill consisted of medium yellow brown silty clay with frequent charcoal flecking and occasional large stone inclusions.

Phase II, Bronze Age, Groups 1 and 4: Boundary Ditch *(All sections Figure 21)*

Boundary Ditch C120, Fills C119, C223, C222; (Figures 7 and 11, Plates 3 and 4)
Boundary Ditches C308, Fills C307 and C335; C310, Fill C309 (Figure 8 and 9, Plate 5)
Boundary Ditches C234, Fill C233; C246, Fill C249; C248, Fill C249 (Figure 12, Plate 6)
The principal feature on the site consisted of a ditch which, when first identified ran from north to south in the Northern and Southern Sectors close to the western edge of the road take. The ditch was thought to be modern but as more of it was excavated and no modern finds were produced it became increasingly clear that the ditch was probably archaeologically significant. The ditch varied in profile along its length but on average was *c.*0.60m wide and *c.*0.50m deep with steeply sloping sides leading to a, generally, flat base, which was on average *c.*0.20m wide. The fills consisted of, from the base
C119 Moderately compact medium brown silty clay with a slight red hue. The deposit contained inclusions of angular and rounded stone.
C223 Compact medium orange-brown silty clay with occasional stone inclusions.
C222 Compact medium orange-brown silty clay with yellow and grey mottling and occasional small stone inclusions.
The ditch was notable in that it tended to weave slightly from side to side rather than run straight. To the north the ditch was disrupted by the northern field boundary. When stripping occurred in the field beyond this boundary (Northern Extension) the ditch was again identified and continued its progress northwards for *c.*8.50m from the edge of the excavation (C308, fills C307 and C335). At *c.*7.50m the ditch took a distinct turn to the east before ending in a terminal with a straight east to west edge, which then curved back to meet the eastern edge of the ditch

After a gap of *c.*2.00m the ditch started again (C309, fill C310) in an alignment slightly to the west of C308. The terminal again had a straight edge running from northeast to southwest. The gap between the two ditches has been interpreted as an entrance. The new ditch ran northwards for a distance of *c.*81.00m before petering out or becoming obscured by the various ditches and furrows which cut it at the northern end of the field (C320 and C322).
Returning to the principal site, further areas were stripped by machine of turf and topsoil (Southern Extension) and the continuation of the ditch exposed (C233, fill C234, Southern Extension). The ditch ran for a distance of *c.*30.00m before becoming obscured by the pond-like feature C174. However it re-appeared *c.*20.00m further on (C246, fill C245) where it curved to the southeast and continued for a further *c.*38.00m before ending in a rounded terminal. After a break of *c.*1.95m the ditch reappeared (C248, fill C249) and ran into the southeastern corner of the field where it was disrupted by the modern field boundary and road and where it also extended beyond the proposed road-take.
The ditch was traced for a total of *c.*275m.

Phase II, Group 5: Later Bronze Age, Three aligned post holes

To the west of the southern sector were a number of features situated on either side of ditch C120. These features are described below running from west to east. It is possible that they are all post-holes and, because of the similarity of their fills, part of the same structure. The fact that they appear on either side of ditch C120 would indicate that they are not contemporary with its use. A radiocarbon date of Cal BC 1000 was obtained from a charcoal sample from the fill of C140, C141. This date places the post alignment in the Later Bronze Age. The post holes may have been structural, possibly with posts supporting a ridge-pole which in turn supported weather proof material to create a tent-like shelter.

Pit C166; Fill C165
Situated close to the edge of the road-take this pit was circular with a diameter of *c.*0.37m and a maximum depth of *c.*0.19m. The sides were near vertical and led to a bowl-shaped base although root disturbance made this somewhat irregular. The fill consisted of compact, dark grey/brown silty clay with occasional charcoal flecks and small stone inclusions.

Pit C140; Fill C141
This pit was circular with a diameter of *c.*0.30m and a maximum depth of *c.*0.28m. The sides were near vertical leading to a bowl-shaped base. The fill was the same as in C166.

Pit C142; Fill C143
Situated to the east of ditch C120, this circular pit had a diameter of *c.*0.42m and a maximum depth of *c.*0.15m. The sides sloped fairly steeply and at approximately halfway down became near vertical. The fill was the same as in C166.

Phase IIIA, Late Iron Age, Groups 1 and 2: Cereal drying kilns

Cereal-drying kilns have been recognised within the archaeological record throughout Ireland. Once thought to be particularly concentrated in the wetter north and west of the island this no longer appears to hold true. The type of kiln excavated on this site has provided radiocarbon dates from the Iron Age to the post-medieval period with a significant quantity dating to the Early Christian period.

Seeds were obtained from the fills of both kilns and these are reported upon in Appendix 10.1, the seeds were predominantly barley.

Charcoal from C123 provided a radiocarbon date of Cal AD 350 (see Appendix 10.2), within the Late Iron Age.

Kiln C124; Burning C177 and Fills C123, C151, C175 and C176
(Figures 15 and 16, Plates 15 and 16)

This kiln was situated to the east of ditch C120 and *c.*44.00m to the southwest of kiln C182. The remains of the kiln consisted of a pit in the shape of a figure of eight thus dividing it into two chambers with the deeper chamber to the south. The pit was *c.*2.50m in length from north to south and *c.*1.50m wide at the widest point. The deeper chamber was c0.60m in depth whilst the shallower northern chamber was *c.*0.25m. The sides of the pit were steep to the north but elsewhere sloped more gently to shallow U-shaped profiles. The base of the deeper chamber had been oxidised to a deep red by heat (C177). The fills consisted of, from the base

C123 Compact, grey/brown, silty clay with high concentrations of charcoal and very occasional fragments of burnt bone.

C151 Compact, pale grey/brown, ashy clay with frequent charcoal inclusions.

C176 Compact, medium grey/brown, silty clay with slight charcoal flecking and occasional stone inclusions.

C175 Compact, light orange/brown, silty clay with occasional charcoal flecks and small stone inclusions.

Kiln C182; Burning C208 and Fills C203, C192/3, C181 and
(Figure 17, Plates 17 and 18)

This feature was situated *c.*44.00m to the northeast of kiln C124.The kiln consisted of an excavated pit in the form of a figure of eight, the waist of which divided the pit into two chambers. The pit was *c.*2.30m from west to east with a maximum width of *c.*1.20m in the western chamber. The sides sloped steeply to a flat base in both chambers. The western chamber was *c.*0.60m deep whilst the eastern chamber was *c.*0.40m deep. The base of the western chamber had been oxidised to a deep red colour (C208). The fills consisted of, from the base

C203 Compact, near black, silty clay with a high charcoal content. The deposit had a maximum depth of *c.*0.12m at the step between the western and eastern chambers.

C192/C193 Fairly compact, dark brown silty clay with occasional inclusions of charcoal and fragments of metallic slag and kiln debris.

C181 Loose brown silty clay with occasional charcoal flecks.

Phase IIIB, Early Christian, Groups 1 and 2: Metalworking Activity *(Figure 18)*

To the immediate south of cereal-drying Kiln C182 was a cluster of features, which appeared to be associated and were characterised by containing metalworking slag and kiln debris. The same type of material was also to be found within the fills of the kiln, indicating that the metalworking had taken place prior to the construction and disuse of the kiln. Analysis of the slag is reported upon in Appendix 10.4 and radiocarbon dating of charcoal from C206 provided a date of Cal AD 530, within the Early Christian period.

Bowl hearth C184; Fill C183 and Burning C212 (Plates 19 and 20)
This hearth consisted of a shallow, bowl-shaped pit with a diameter of *c.*0.34m and a maximum depth of *c.*0.05m. The sides had been oxidised in places (C212) and the fill consisted of near black silty clay with frequent gravel and small stone inclusions. There were no obvious slag inclusions within the fill.

Bowl hearth C186 Burning C206 and C207; Fills C185 and C205 (Plates 21 and 22)
This hearth consisted of a circular, bowl-shaped pit with a diameter of *c.*0.42m and a maximum depth of *c.*0.12m. The rim of the pit had been oxidised to a deep red colour (C207) whilst the sides were burnt to a grey/blue colour (C206). The fills consisted of C185, a soft, near black, silty clay with stone and gravel inclusions. This underlay C205, a compact deposit of pale yellow/grey silty clay with charcoal flecking.

Pit C188; Fills C187, C201 and C202 (Plate23 and 24)
This circular pit was *c.*0.42m in diameter with a maximum depth of *c.*0.31m and with near vertical sides leading to a shallow bowl-shaped base. The fills consisted of, from the base
C187 Loose near black silty clay with some red mottling and charcoal flecking. The deposit was obviously affected by heat but this did not happen within the pit whose sides were unaffected by heat.
C202 Dark brown, silty clay with yellow clay mottling, charcoal flecking and some stone inclusions.
C201 Medium brown, silty clay with orange and black mottling and some stone inclusions.
The fills contained slag and kiln debris and appeared to have been affected by heat. Although such finds could be residual the overall impression is that the pit was connected with the two bowl hearths although the exact purpose is not clear.

Phase IV: Group 1, Post-medieval Agricultural Activity

All Areas

Plough furrows C240, Fill C239
These furrows ran from west to east across the whole of the area they were generally *c.*0.35m wide and *c.*0.06m deep.

Southern Extension *(Figure 6)*

Ditch C220, Fill C219
Running from west to east and cutting C was a ditch of *c.*2.20m width. When sampled the fill contained modern finds. The fill consisted of medium brown silty clay. This

ditch probably formed a field boundary shown in this location on the OS maps of 1841-4 and 1935 (Figures 3 and 4).

Large depression C174, Fill C173
Situated to the south of ditch C220 was a large area of medium brown silty clay (similar to the topsoil). This filled a depression of *c.*6.60m diameter. The fill contained recent finds and it is possible that the area once formed a shallow pond.

Gulley C230, Fill C229
This gulley was *c.*0.74m wide and *c.*0.16m deep and ran from east to west parallel with C236. The ditch formed part of the field boundary as noted in C236 (below). The fill consisted of medium brown silty clay with occasional small stone inclusions.

Ditch C236, Fill C235 (Plate 25)
This ditch ran from west to east and was *c.*1.30m wide with a maximum depth of *c.*0.35m. The fill consisted of medium brown silty clay with a substantial deposit of limestone rubble within it. In conjunction with C230 the boundary may have been a double ditch with central bank of stones which was later pushed back into the ditch when no longer required as a boundary.

Northern Extension *(Figure 8)*
Hearth C311, Cut C312 (Plate 26)
This patch of charcoal and reddened clay sat within topsoil C301 and formed an irregular circle with an average diameter of *c*1.00m and depth of *c.*0.10m.

Ditch C314, Fill C313 (Plate 27)
This ditch ran from west to east parallel with the southern field boundary. The ditch was *c.*1.30m wide and *c.*0.15m deep. The fill consisted of pale brown sandy clay with recent iron, glass and pottery inclusions.

Furrows C316, Fill C315
The field was crossed by furrows running from west to east and filled with medium brown loam. These furrows were not sampled.

Ditch C318, Fill C317

This ditch ran from west to east and was not excavated. The fill consisted of medium brown loam and it is probable that this feature is merely a large furrow.

Ditch C320, Fill C319

This ditch ran from west-southwest to east-northeast and was *c.*0.85m wide. The fill consisted of medium brown silty clay but was not sampled.

Ditch C322, Fill C321
This ditch was *c.*1.05m wide and ran from west-northwest to east-southeast. The fill consisted of medium brown silty clay but was not excavated.

Linear rubble spread C323, Cut C324
This spread of rubble sat within a cut within the natural subsoil. The rubble spread was *c.*0.80m wide and ran from north to south, extending beyond the northern limit of the stripped area. The rubble may have been the result of clearing the field of stones. A feature in the same location appears on the 1935 OS map, (Figure 4)

4.2.2 Stratigraphic Sequencing

This section describes the division of the excavated contexts into phases of occupation and groups of similar activities. The phasing makes assumptions due to the nature of the site.

Phase I

The natural subsoil consisting of glacially deposited moraines.

Phase II Early Bronze Age

Group 2: Excavation, use and backfilling of pits containing burnt stone

Phase II Bronze Age

Features assigned to the Bronze Age because of their form and/or their proximity to dated features.

Group1: Construction of segmental boundary ditch.

Group 3 Excavation, use and backfilling of pits containing silty clay

Group 4: Disuse and backfilling/silting of boundary ditch

Phase II Later Bronze Age

Group 1: Alignment of three post holes.

Phase IIIA Late Iron Age

Group 1: Construction and use of cereal drying kilns

Group 2: Disuse and backfilling of cereal-drying kilns

Phase IIIB Early Christian

Group 3: Construction and use of bowl hearths

Group 4: Disuse and backfilling of bowl hearths

Phase IV Post medieval/Modern

Activities identified as being associated with post-medieval occupation on the site

Group 1: All activities associated with recent agricultural activities; field boundaries, plough furrows etc.

4.2.3 Stratigraphic Discussion

As a general rule, other than interaction with agricultural features such as ditches and furrows, all the important features on this site were stratigraphically isolated. As such, interpretation of their relationship with each other can only come from an analysis of their form, location and contents. Hence the bowl hearths are considered to be closely contemporary because of their

similarity of form and proximity to each other. The cereal-drying kilns are considered to be closely contemporary because of their similarity of form and function despite being separated by 44m.

The various pits only occasionally interacted and had no obvious similarities in form but were a disparate group. They were formed into groups solely on the basis of their fills. Those that contained burnt stone are likely to be of ancient origin whilst those containing only silts or clays and with no other finds may have been excavated at any time from prehistoric times to the present day.

4.2.4 Stratigraphic Conclusion

Because the features were not intercutting and the finds assemblage was poor the features and groups on this site can only securely be dated by the results of radiocarbon analysis.

Radiocarbon dates obtained for four samples have proved that the main features excavated were not contemporary. Features have been dated between Cal BC 1910 and Cal AD 530, ranging between the Early Bronze Age and Early Christian periods.

The pits containing burnt stone (Group II/2) dated to the early second millennium BC and may indicate the early penetration of man into the ancient woodland which once clothed the land.

The pit alignment (GroupII/5) dated to Cal BC 1000 and proves that activity still was taking place in the Later Bronze Age.

No independent dating for the segmented boundary ditch was obtained but, in form, the ditch belonged in a prehistoric context; the slag from its fill would indicate the Bronze Age at the earliest. All the other features which have been placed in Phase 2 due to similarity or proximity could have been formed at any time within the Bronze Age and may indicate constant if sporadic use of the site throughout that period.

The cereal drying kilns with a radiocarbon date of Cal AD 350 would indicate that in the late Iron Age the land was still in use for agriculture with cereal production important.

The two bowl hearths with a single radiocarbon date of Cal AD 530 might indicate that the land had become less agricultural and more wooded during the Early Christian period. Metal working required substantial quantities of timber for charcoal production, essential in the smelting process.

4.3 Cultural Material

Specialist analysis of finds from this site are included within the Appendices. The following tables list those finds and samples considered capable of further analysis.

See Appendix 10.1

Table 1: Summary of Charcoal samples sent for analysis				
Site Name: Rath-Healy 1		**Licence No.: 03E1139**		
Sample No.	**Context No.**	**Description**	**Period**	**Weight**
S1	C123	Fill of cereal-drying kiln C124	III/2	33g
S28	C167	Fill of pit C168	II/2	35g
S15	C206	Fill of hearth C184	III/3	-
S32	C141	Fill of post-hole C140	II/3	6g

See Appendix 10.1

Table 2: Summary of recovered seeds sent for environmental analysis			
Site Name: Rath-Healy 1		**Licence No. 03E1139**	
Director	**Site**	**Context/Sample No.s**	**Weight**
Stephen J. Linnane	Rath-Healy 1	C123: S1	198g
"	"	C203: S21	32g

See Appendix 10.1

Table 3: Summary of cremated bone sent for analysis			
Site Name: Rath-Healy 1		**Licence No. 03E1139**	
Director	**Site**	**Context/Sample No.s**	**Weight**
Stephen J. Linnane	Rathhealy 1	C123: S1	<1g
"	"	C105: S12	1g
"	"	C103: S13	2g
"	"	C129: S19	1g
"	"	C107: S24	4g
"	"	C325: S35	<1g
"	"	C203: S7	5g
"	"	C327	2g
"	"	C203	4g
"	"	C105	1g
"	"	C123	15g

See Appendix 10.3

Table 4: Summary of Lithics sent for analysis					
Site Name: Rath-healy 1			Licence No.: 03E1139		
Licence: Context: Find number	Period	Completeness	Artefact type	Condition	Comments (decoration etc)
03E1139:119:1	II		Flint flake	Good	utilised flake
03E1139:119:2	II		Flint flake	Good	utilised flake
03E1139:119:3	II		Possible whetstone	Good	
03E1139:119:4	II		Possible whetstone	Good	
03E1139:119:5	II		Flint flake	Good	debitage
03E1139:129:1	II	Complete	Spindle whorl	Good	
03E1139:167:1	II		Flint flake	Good	debitage
03E1139:222:1	II		Whetstone	Good	Probable
03E1139:101:1:	IV		Rubbing stone	Good	Possibly natural
03E1139:101:2	IV		Rubbing stone	Good	Possibly natural
03E1139:101:3	IV		Possible whetstone	Good	?

See Appendix 10.4

Table 5: Summary of slag sent for analysis			
Context	Description	Period	Weight
C207	Spheroidal hammer scale	IIIB	30
C222	Vitrified furnace lining	II	24

4.4 Dating evidence

The various features excavated on this site were difficult to date because the finds assemblage was so poor. However radiocarbon dates have helped to clarify the matter although assumptions on contemporaneity have still had to be made.

The earliest radiocarbon date obtained was for charcoal from the fill of a pit containing burnt stone (Group II/2). That date was Cal BC1910 and placed the features within the Early Bronze Age. Pits containing burnt stone are frequently to be found associated with spreads of burnt stone. Such spreads have been dated to all periods between the Neolithic and the early post-medieval but most commonly date to the Bronze Age. The spindle whorl found in one of these pits was not particularly diagnostic and such objects occur within the archaeological record from the Neolithic period onwards.

The principal feature on the site was the segmented boundary ditch which produced flint and stone artefacts and some metalworking slag. This type of feature with a weaving course and interrupted segments has been identified within the prehistoric landscape with a similar example having been recently excavated at Tullyallen in Co. Louth. That ditch was associated with an extensive Bronze Age landscape.

Three post holes formed an alignment of uncertain purpose and the fill of one produced a date of Cal BC 1000, within the Later Bronze Age. No other features were associated with the post holes but the fact that they occur on either side of the boundary ditch would indicate that they were not contemporary with the use of that ditch; possibly suggesting that the ditch had fallen out of use before the post holes were excavated.

Cereal-drying kilns appear within the archaeological record in the Iron Age and have been dated to all periods following but are maybe most common in the Early Christian period. A radiocarbon date of Cal AD 350 placed one of the kilns within the very late Iron Age.

Primitive bowl hearths used for iron smelting remained in use in Ireland from the introduction of iron smelting into Ireland in *c.*900BC until the early post-medieval period. The lack of any associated finds would suggest that the constructors of the hearths at Rath-Healy 1 did not have a lasting material assemblage e.g. pottery and glassware. It therefore seemed probable that the hearths were constructed towards the early part of this broad period. A radiocarbon date of Cal AD 530 confirmed that supposition, placing the hearths within the Early Christian period.

Modern finds were noted within those features that were placed within Phase IV.

5. DISCUSSION

The disparate features excavated on this archaeological site have provided radiocarbon dates ranging between the Early Bronze Age and the Early Christian period, demonstrating continuous human activity within the area from *c.*2000 BC to the present. Some of the excavated features fit into the archaeological picture perfectly; cereal drying kilns from the Iron Age and iron smelting hearths from the Early Christian period are common features and readily understood. The features excavated at this site will be of assistance in reinforcing our current corpus of knowledge in these areas. Less satisfactory are the various pits containing burnt stone and in one instance a spindle whorl. The spindle whorl indicates that human activity in the form of spinning and consequently fabric manufacture was taking place in the vicinity but no domestic structure was found on the site.

Assuming that the pits were more or less contemporary then this activity was taking place within the Bronze Age but the purpose of the pits with their fill of burnt stone remains as elusive as ever and will no doubt be the subject of debate in the future. Certainly none of the

pits were substantial enough to have functioned as troughs for cooking food, which for a long time was the accepted interpretation of burnt stone spreads and associated large pits.

No independent date for the boundary ditch was obtained but the lack of modern finds suggests some antiquity for the ditch and its weaving, segmented form suggests a Bronze Age date, possibly contemporary with the pits with burnt stone.

The alignment of three post-holes, dating to the Later Bronze Age is enigmatic. It would be difficult to create any structure other than a fence or at most a form where three posts supported a ridge pole with roofing material leaning against the ridge thus forming a simple, tent-like shelter.

6. INTERPRETATION AND RECONSTRUCTION

The range of radiocarbon dates obtained from this site reveals a long period of intermittent occupation with only small glimpses into activities and settlements at any period represented.

Phase IIA Early Bronze Age

Possibly the first penetration by man into this area of ancient woodland occurred in this period with the clearance of trees and the establishment of agriculture. With agriculture came the establishment of boundaries using bank and ditch. The boundaries may have demarked settlement from agricultural land or fields from forest. As settlement was established pits were excavated and backfilled with burnt stone. The purpose of this activity is as yet unknown but must have been of significance to the Bronze Age community. The discovery of whet-stones indicates the use of bronze tools whilst a sandstone spindle whorl indicates that spinning and hence fabric production was under way. Either flax or animal hair could have been used.

Phase IIB, Later Bronze Age

The boundary ditch went out of use and silted up and a linear arrangement of three posts crossed its line. The posts could have supported a ridge pole and hence a simple shelter but no other evidence survived to support this. Possibly some of the pits containing burnt stone were contemporary with this feature.

Phase IIIA, Late Iron Age

Possibly the weather was deteriorating and although agriculture was still being practiced in the area in the form of cereal growing, the product now had to be dried artificially in order to halt germination in damp conditions. The cereal drying kilns would have been carefully used for this purpose and presumably were located somewhere close to a farmstead or settlement. Dry grain is essential for milling but it is sometimes suggested that such kilns could have been used for malting barley in the beer making process.

Phase IIIB Early Christian

Previous agricultural land reverted back to woodland, possibly due to further deterioration of the climate. The woodland would probably have been managed and formed a resource for nearby communities. One of these uses was the preparation of charcoal by roasting timber and then using it for smelting iron. This activity would have taken place on a sporadic basis with the people moving from area to area within the woodland returning to a spot when the wood had been restored. They would have lived in temporary shelters and left no trace of their accommodation, returning to more structured settlements with the results of their labours; iron.

7. ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL & SIGNIFICANCE

The research framework endeavoured to answer various questions about this site and with the receipt of the results of specialist analysis the research agenda has been partially realised.

The features on this site were not considered to be so significant that a comprehensive radiocarbon dating strategy was justified and selection of samples for radiocarbon dating was restricted to four samples.

The results of wood analysis was disappointing and at no period have we been able to reconstruct the surrounding environment other than to reveal that barley was the principal cereal crop being cultivated in the Iron Age.

Small quantities of iron slag were recovered from the bowl hearths and radiocarbon analysis of charcoal from one of them provided a date within the Early Christian period. Examination of the slag material provided little further information on iron technology, which is now known to have been introduced into Ireland as early as 900 BC.

Pits containing burnt stone are frequently associated with *fulacht* spreads although there was no evidence for such a spread on this site. Although burnt stone spreads have been dated from the Neolithic to the post-medieval periods they are most commonly dated to the Bronze Age as at Rath-Healy 1. Spreads are frequently associated with pits of various forms that are generally called troughs. These pits were used to contain water into which the heated stones were deposited thus heating the water. The debate concerning the usage to which the water was put continues but cooking and bathing are frequently proposed. None of the pits excavated on this site were of a size where they could have functioned as troughs.

Cremated bone was found in a number of features but never in sufficient quantity or quality to enable analysis to discern whether the bone was animal or human. Pit fill C129 produced a spindle whorl and a very small amount of cremated bone, initially giving rise to the thought of a token cremation with grave goods but this can no longer be stated with any certainty.

The significance of the excavations at Rath-Healy 1 lies in the fact that they prove the continual if sporadic presence of human activity within the vicinity of the site; the potential lies in including the individual feature types into whole landscape studies for the different periods represented. An overview of this type could eventually provide each excavated feature with a much clearer meaning than as presently understood.

8. CONCLUSION

The excavations at Rath-Healy 1 provided firm evidence for human activity on the site, dating from the Early Bronze Age to the Early Christian period. Although no obvious domestic structures were noted from any of the dated periods it seems probable that all of the activities identified would have taken place in proximity to settlement sites.

The well drained site overlooking the River Blackwater is a prime location for early settlement and therefore the findings may not be considered so surprising. The significance of the Bronze Age activity will provide opportunity for discussion concerning the purpose of pits filled with burnt stone. Insufficient evidence was obtained to come to any novel conclusion from this excavation.

Agricultural activity continued through the Iron Age as evidenced by the cereal drying kilns and these must have been located close to a settlement. The need to dry cereal artificially at this period has been explained as due to deteriorating climatic conditions arising at the beginning of the Iron Age. Other reasons given have been for ease of milling and for malting barley as part of the beer brewing process.

By the time of the Early Christian period and the construction of the bowl hearths it seems possible that the climate had deteriorated to the extent that the site had reverted to woodland, although probably managed. The smelting of iron requires significant quantities of charcoal obtained from roasting wood and it seems probable that charcoal preparation and smelting would have been undertaken close to the source of the necessary materials.

There was no evidence for later medieval activity on the site although existing hedge lines dating to the post-medieval period may reflect earlier property boundaries.

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Signed:

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10. APPENDICES

10.1 Assessment of charred plant remains and burnt bone from excavations at Rath-Healy 1, County Cork, Republic of Ireland (licence no: 03E1139)

by

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for

***Palaeoecology Research Services, PRS* 2005/28**

Summary

An archaeological excavation was undertaken by Archaeological Consultancy Services Ltd (ACS) at Rath-Healy 1, County Cork, Republic of Ireland, as part of works associated with the N8 Rathcormac–Fermoy by-pass project.

Two samples from cereal-drying kilns produced large quantities of barley grains, with only a few remains representing other plant species. If the entire fractions recovered from processing were available for study, further analysis of these remains would be of value. The cereal grains would provide suitable material for radiocarbon dating the deposits to be attempted, if required.

Burnt bone was recovered from eight of the excavated deposits. The largest concentrations were from the cereal-drying kilns, whilst smaller amounts were found in the pit fills. None of the fragments could be identified but human remains were not apparent in the assemblage. No further work on these remains is necessary.

KEYWORDS: RATH-HEALY 1; COUNTY CORK; REPUBLIC OF IRELAND; N8 RATHCORMAC – FERMOY BY-PASS PROJECT; ASSESSMENT; ?BRONZE AGE; PREHISTORIC; CHARRED PLANT REMAINS; CHARRED CEREAL GRAINS; BURNT BONE

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Introduction

An archaeological excavation was undertaken by Archaeological Consultancy Services Ltd (ACS) at Rath-Healy 1, County Cork, Republic of Ireland (NGR 181970, 099052), as part of works associated with the N8 Rathcormac–Fermoy by-pass project.

The principal feature on the site consisted of an enclosure ditch within which there were a series of features including two figure-of-eight cereal drying kilns, two shallow bowl hearths, an associated pit containing slag and kiln debris and two stake holes. There were also numerous bowl-shaped pits scattered throughout the site, some occurring in clusters. The fills of some of these contained small amounts of burnt bone and the excavators suggested that these remains may represent 'token' cremations. Although few artefacts were recovered, it was thought that some of the features were of Bronze Age date.

Charred plant remains and burnt bone, recovered from sediment samples and by hand-collection, were submitted to Palaeoecology Research Services Limited (PRS), County Durham, UK, for assessment.

Methods

The sediment samples were processed by ACS prior to delivery to PRS, and the charred plant remains recovered submitted for assessment. The excavator's standard processing technique was employed. The soil samples were placed onto 1 mm nylon mesh in a sieving tank. The light organic fraction was washed over through a 2 mm sieve into a 500 micron sieve to collect the flots. The soil samples were put through this system twice to ensure that as much material as possible was recovered.

Plant remains were submitted for identification and for consideration as the basis for radiocarbon dating by standard radiometric technique or accelerator mass spectrometry (AMS). The original sizes of the processed samples were not recorded. Nomenclature for plant species follows Stace (1997).

For the vertebrate remains notes were made, where appropriate, concerning the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Fragments were identified to species or species group using the PRS modern comparative reference collection. The bones, which could not be identified to species, were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: medium-sized mammal (assumed to be caprovid, pig or small cervid) and totally unidentifiable.

Results

Plant remains

All of the plant remains recovered were preserved by charring.

Context 123 [fill of cereal-drying kiln]

Sample 1 (198 g of charred plant remains)

The main components of this sample were charcoal fragments and cereal grains. The grains were all of barley (*Hordeum distichon* L./*H. vulgare* L.), with both the naked and hulled variety present, the latter being more frequent. The small size of the charcoal fragments made identification impossible. Numerous achenes of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve) were also recorded but no other seeds or fruits of wild species were present.

Context 203 [fill of cereal-drying kiln]

Sample 21 (32 g of charred plant remains)

The assemblage from this deposit was similar to that recovered from Context 123 consisting mainly of cereal grains and charcoal. Hulled barley was prevalent, with naked barley and a small number of oat (*Avena*) grains also being identified. Again, the charcoal fragments were too small to be identified. Remains of black-bindweed were frequent, whilst knotweed (*Persicaria*) was also present.

Burnt bone

Context 103 [pit fill]

Sample 13 (2 g of burnt bone)

Burnt bone recovered from this sample amounted to 25 small fragments (most less than 10 mm in maximum dimension). None could be identified to species but some were shaft and rib fragments, possibly representing medium-sized mammals. The remains had been subject to fresh breakage and a high degree of fragmentation. Much of the material appeared rather crumbly and a little 'chalky'. It was not possible to identify any of the fragments but none had the appearance or texture of human bone.

Context 105 [pit fill]

hand-collected (1 g of burnt bone)

A single fragment of unidentified burnt bone was recovered from this pit fill.

Sample 12 (<1 g of burnt bone)

The sample from this deposit produced a further eight fragments of burnt bone, all of which were small (less than 5 mm), with rather rounded edges and much fresh breakage damage. None could be identified to species.

Context 108 [pit fill]

Sample 24 (4 g of burnt bone)

Forty-nine small fragments of burnt bone (4 g) were recovered, but none could be identified. Most fragments were less than 10 mm in maximum dimension, although a few were slightly larger (to 15 mm). Some of the larger bones were shaft fragments, probably representing the remains of medium-sized mammals. The texture of the fragments suggested that they were animal bone rather than human, but their poor condition made identification difficult.

Context 123 [fill of cereal-drying kiln]

hand-collected (11 g of burnt bone)

Approximately 70 fragments of burnt bone were recovered from this sample, but many were very small (less than 10 mm), and much of the material showed evidence of fresh breakage damage. There were also a few larger shaft and rib fragments (to 23 mm) which may be from medium-sized mammals, however, morphologically distinctive features were absent which made identification to species impossible.

Sample 1 (2 g of burnt bone)

Burnt bone from this sample amounted to 14 rather poorly preserved and eroded fragments. They were mostly white in colour, although some had a blue-ish tinge. None of the fragments were greater than 10 mm in maximum dimension and it was not possible to identify any of them to species.

Context 129 [pit fill]

Sample 19 (1 g burnt bone)

Seventeen very small fragments of burnt bone were recovered from this deposit. Some fragments were tiny (less than 3 mm), but a few were slightly larger (to 16 mm). None could be identified, however.

Context 203 [fill of cereal drying kiln]

hand-collected (4 g of burnt bone)

Twenty-five fragments of bone were recovered from this deposit. All were burnt and most showed evidence of fresh breakage damage. Most bones represented fragments of medium-sized mammal shaft, some of which belonged to the same shaft.

Sample 7 (5 g of burnt bone)

The sample produced many tiny fragments of burnt bone, most of which were damaged by fresh breakage and some had rounded and eroded edges. Most fragments were less than 10 mm in maximum size, with larger fragments to 13 mm. A few possible maxilla fragments and a tooth root were present but these could not be identified to species.

Context 325 [pit fill]

Sample 35 (<1 g of burnt bone)

Two very small burnt bone fragments were recovered from this deposit. They were both rather eroded, with no discernable features that could aid their identification.

Context 327 [pit fill]

hand-collected (2 g of burnt bone)

This deposit produced six fragments of burnt bone. Fresh breakage was evident throughout and several fragments could be joined together. The largest bone was a shaft fragment, but its edges were somewhat eroded and it was not possible to identify it to species. Other fragments were too small and indistinct to identify.

Discussion and statement of potential

The two samples from the cereal-drying kilns produced numerous barley grains, weeds, however, were rare, with the exception of black-bindweed (*Fallopia convolvulus* (L.) Á. Löve), a species represented by large achenes. Overall, it would appear that the cereals had been carefully cleaned, although, this conclusion can only be tentative as it is not known whether the submitted material constitutes the entirety of the processed sample fractions.

The cereal grains would be suitable for radiocarbon dating of two of the deposits (Context 123 and 203) to be attempted.

Only small quantities of burnt bone were recovered from eight of the deposits at this site. Six of these were pit fills, whilst two were fills of cereal-drying kilns; the greatest quantity of bone being from the latter. Most fragments were small, eroded and white in colour, with a few from Context 123 displaying a bluish tinge. All of the remains had, therefore, been subjected to high temperatures or prolonged exposure to a heat source (Mays 1998).

There was a marked absence of distinctive morphological features of use for identification and although a few bones from Context 203 could be recognised as fragments of maxilla or tooth root it was not possible to identify them to species. Their appearance and texture suggested that the fragments were animal bone rather than human, however.

Overall, it is unlikely that these remains represent cremations but, as most of the material could not be identified the presence of human bone cannot be ruled out.

Recommendations

Assuming that the questions concerning the methods of recovery can be addressed and the deposits dated, analysis of the cereals and other plant remains could make a valuable contribution to the interpretation of the site, as well as to our knowledge of past crop production in Ireland.

The large quantities of cereal grains from Contexts 123 and 203 would provide suitable material for radiocarbon dating. Ideally, AMS should be employed, so as to minimise the

amount of material destroyed, though in each case sufficient remains were present for the standard radiometric technique to be used.

The burnt bone does not warrant further consideration.

Retention and disposal

Unless required for radiocarbon dating, all of the recovered remains should be retained as part of the physical archive for the site.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

Acknowledgements

The authors are grateful to Maria Lear and Rachel Sloane, of ACS, for providing the material and the archaeological information.

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10.2 Radiocarbon Dating Results

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155. Tel: (305)6675167. Fax:(305)6630964.
Email: beta@radiocarbon.com

Material Received: 5th April 2005
Report Date: 10th May 2005

Sample Data	*Measured Radiocarbon Age*	*13C/12C Ratio*	*Conventional Radiocarbon Age(*)*
Beta - 203725	1710 +/- 40 BP	-24.9 o/oo	1710 +/- 40 BP
SAMPLE: 03E1139C123S1			
ANALYSIS: Radiometric-Standard delivery			
MATERIAL/PRETREATMENT:	(charred material): acid/alkali/acid		
2 SIGMA CALIBRATION:	Cal AD 240 to 420 (Cal BP 1710 to 1530)		
Beta - 203726	2880 +/- 70 BP	-26.6 o/oo	2850 +/- 60 BP
SAMPLE: 03E1139C140/141S32			
ANALYSIS: Radiometric-Standard delivery			
MATERIAL/PRETREATMENT:	(charred material): acid/alkali/acid		
2 SIGMA CALIBRATION:	Cal BC 1200 to 850 (Cal BP 3150 to 2800)		
Beta - 203727	3570 +/- 40 BP	-25.5 o/oo	3570 +/- 40 BP
SAMPLE: 03E1139C167S28			
ANALYSIS: Radiometric-Standard delivery			
MATERIAL/PRETREATMENT:	(charred material): acid/alkali/acid		
2 SIGMA CALIBRATION:	Cal BC 2020 to 1770 (Cal BP 3970 to 3720)		
Beta - 203728	1550 +/- 40 BP	-24.8 o/oo	1550 +/- 40 BP
SAMPLE: 03E1139C206S15			
ANALYSIS: AMS-Standard delivery			
MATERIAL/PRETREATMENT:	(charred material): acid/alkali/acid		
2 SIGMA CALIBRATION:	Cal AD 420 to 610 (Cal BP 1530 to 1340)		

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.9:lab. mult=1)

Laboratory number: **Beta-203725**

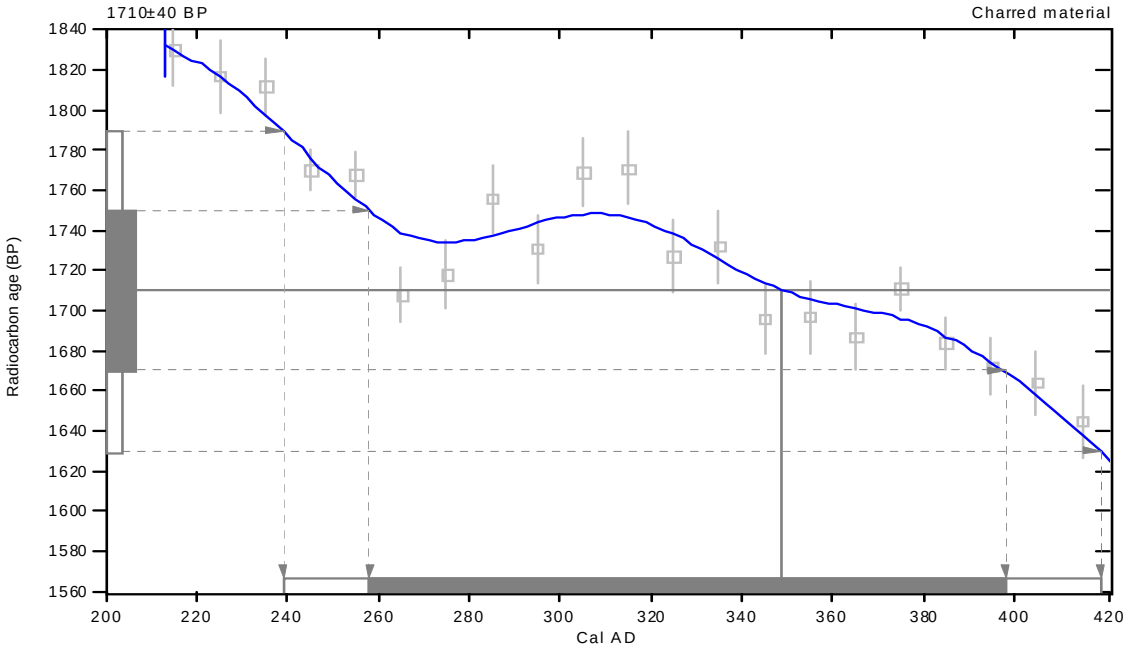
Conventional radiocarbon age: **1710±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 240 to 420 (Cal BP 1710 to 1530)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 350 (Cal BP 1600)

1 Sigma calibrated result: (68% probability) Cal AD 260 to 400 (Cal BP 1690 to 1550)



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Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.6:lab. mult=1)

Laboratory number: **Beta-203726**

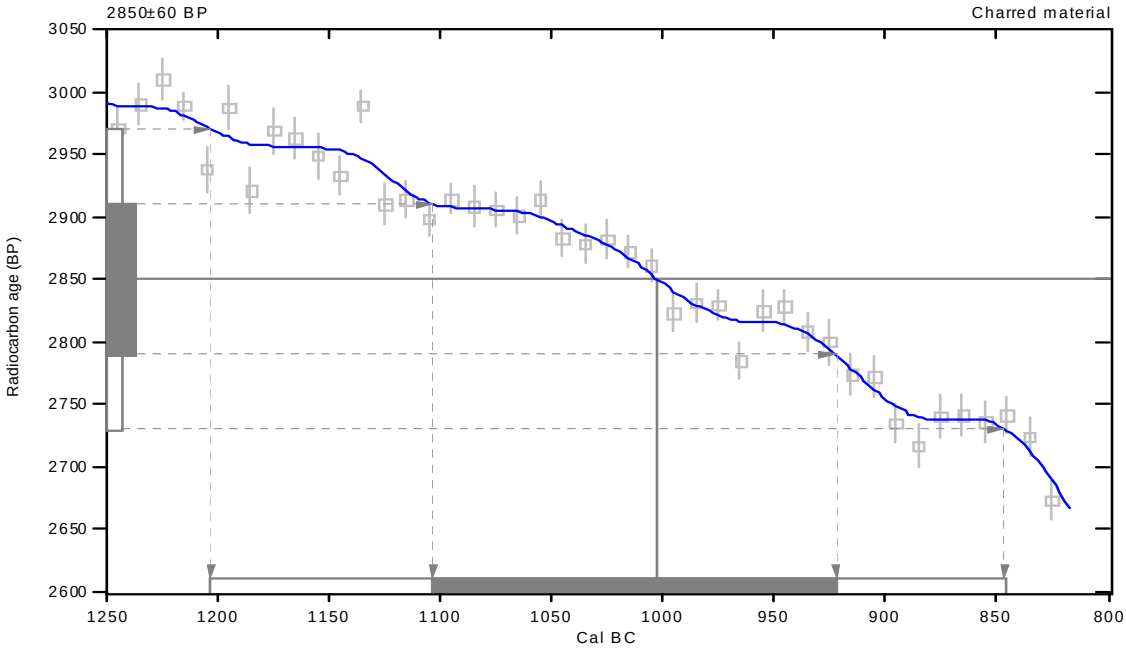
Conventional radiocarbon age: **2850±60 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1200 to 850 (Cal BP 3150 to 2800)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1000 (Cal BP 2950)

1 Sigma calibrated result: (68% probability) Cal BC 1100 to 920 (Cal BP 3050 to 2870)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.5:lab. mult=1)

Laboratory number: **Beta-203727**

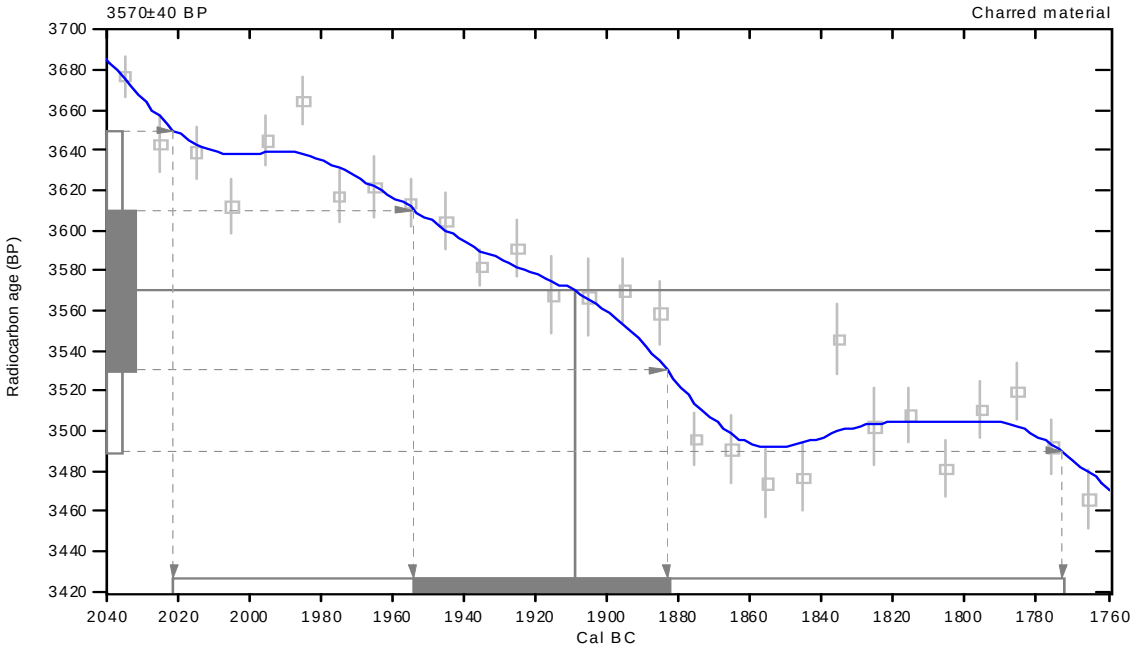
Conventional radiocarbon age: **3570±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 2020 to 1770 (Cal BP 3970 to 3720)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1910 (Cal BP 3860)

1 Sigma calibrated result: (68% probability) Cal BC 1950 to 1880 (Cal BP 3900 to 3830)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.8:lab. mult=1)

Laboratory number: **Beta-203728**

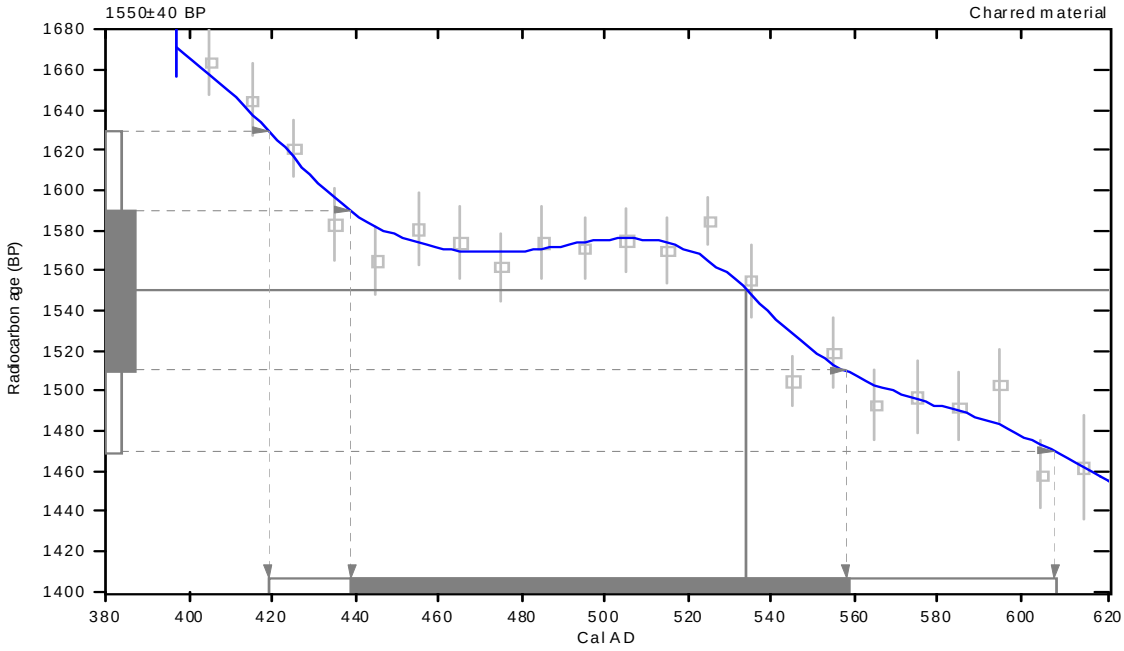
Conventional radiocarbon age: **1550±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 420 to 610 (Cal BP 1530 to 1340)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 530 (Cal BP 1420)

1 Sigma calibrated result: (68% probability) Cal AD 440 to 560 (Cal BP 1510 to 1390)



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10.3 Lithic Analy*sis* by Jon Stirland

1: Introduction

This report describes the lithics assemblage and stone tools recovered during the archaeological excavations associated with the N8 Rathcormac-Fermoy Bypass project. The report has been broken down into an assessment of the overall lithics and stone tools assemblage on a site by site basis. The results of the assessment of site Rath-Healy 1 are summarised below.

2: Non-Technical Summary

A total of 12 items were catalogued including five items that have been identified as being of no archaeological significance. The assemblage includes two whetstones, which were made of sandstone, one spindle whirl, two flint blades and two pieces of flint that have been classified as debitage.

The assessable material associated with the site of Rath-Healy 1 suggests limited or no production of stone tools within the area of the site because of the limited presence of debitage. However the general assemblage suggests settlement and stylistically the blades/ flakes suggest a Bronze Age date. The whetstones and spindle whorl also suggest settlement related activities.

Generally the limited flint assemblage associated with the site at Rath-Healy 1 comprises poor quality flint that appears to have derived from small glacial pebble or glacially transported nodules of flint, presumably found as background glacial deposits within the surrounding landscape. The two blades have relatively well preserved edges that suggest limited exposure to weathering and movement. The blades generally appear to be primary in nature with no visual evidence of retouching. Both blades have been removed from a prepared core and both have a clear striking platform present.

The two pieces of debitage associated with the Rath-Healy 1 assemblage are not diagnostic however one of the two pieces appears to take the form of a utilized flake/debitage. The colour variation in the flint ranges from cream to grey to white, which indicates a variety of sources. All the assemblages are heavily patinated.

3: Composition of Assemblage

The following table lists the composition of the lithic and stone tool finds excavated at Rath-Healy 1.

Type	Flint	Chert	Quartz	Lime Stone	Sandstone	Silicated Limestone	Total
Blades	2						2
Debitage	2						2
Whet stone					2		2
Spindle Whirl					1		1
Non-Archaeological					5		5

4: Raw Materials

The majority of the overall assemblage is material derived from the silica group with flint as the predominant raw material although some chert is present. The flint is blue-grey, grey to nearly black when fresh but most of this assemblage is weathered to a whitish powdery crust (patina). Two types of flint appear to be present, both pebble and chalk but it is predominantly the pebble type that is represented. Pebble flint would be available locally and the range of cortex types indicates that local sources of pebble flint were mainly used within this overall assemblage.

Many of the artefacts or flakes are of poor quality, reflecting the availability of relatively poor quality flint/chert pebbles. The assemblage generally appears to derive from these relatively poor quality sources although a small number of the larger blades may have derived from glacially transported nodules that could have been available.

The flint has a wide range of colour variation (honey coloured, brown orange, cream, grey and white), which could indicate a variety of sources. All the artefacts have a degree of patination or opacity and have suffered dulling and abrasion. All the artefacts within this assemblage have been subject to levels of post-depositional processes and weathering since they had been knapped.

The assemblage also contains a number of hammer stones and whetstones. The hammer stones are rounded in appearance and appear to be hard sedimentary rock type of light sandy brown colour. The assemblage contains five whetstones that vary in size and shape from rough blocks to regular rectangular shaped whetstones. They appear to be formed of a hard angular material of both metamorphic and sedimentary types.

5: Primary Technology

The overall assemblage shows clear signs of evidence for flint knapping and tool production. The assemblage contains mainly struck pieces consisting of flakes, blades and only two scrapers. The assemblage has very limited evidence of technology in the form of cores but contains a large number of tested pebbles.

Many of the blades appear to have been removed from what appears to be prepared cores which may have derived from dual, multiple and single platforms. The majority of the blades and flakes appear to represent the latter stages of core reduction. Rejuvenation flakes result from the process by which the exhausted or ruined core platform would be removed as a tabular flake thereby establishing a new platform.

Many of the blades and flakes ventral surfaces contain virtually all information pertaining to the detachment of this particular artefact from a core. A large percentage of the blades and flakes contain evidence of a small section of platform which is retained from the core. This retained area is called the butt.

Many of the surfaces of the blades and flakes show swelling or bulb arising from a point just below the striking platform or point of percussion. This is a clear indication of knapping.

Many also contain other features including concentric ripples or lines of force, which show the direction of percussion, as well as irregular straight fissures, both of which radiate from the point of percussion.

6: Detailed Assemblage Description

Rath-Healy 1: 03E1139		
Finds No: **16**		
Feature No: **C119**		
Material: **Flint**		
Type: **Flake**	Colour: **Light Grey**	Weight: **6g**
Length: **39mm**	Width: **21mm**	Thickness: **0.3mm**
Platform type: **Prepared**	Width: **15mm**	Thickness: **0.3mm**
Lateral: **Parallel**	Dorsal ridge: **Off centre**	
Cortex: **Nil**		
Percussion: **Direct**		
Retouch: **Nil**		
Position of retouch: **Nil**		
Type of retouch: **Nil**		
Edge form: **Left lateral concaved, right lateral convexed.**		
End form: **Proximal straight, distal off set/broken.**		
Description: **Un-utilized flake, no visible signs of retouching. Proximal end contains a prepared striking platform and dorsal surface contains two off centred dorsal ridges. Ventral surface contains evidence of a bulb of percussion, percussion ripples and a bulbar scar.**		

Rath-Healy 1: 03E1139		
Finds No: **5**		
Feature No: **C167**		
Material: **Flint**		
Type: **Debitage/Debris**	Colour: **Grey**	Weight: **4g**
Length: **25mm**	Width: **15mm**	Thickness: **0.7mm**
Platform type: **N/A**	Width: **N/A**	Thickness: **N/A**
Lateral: **N/A**	Dorsal ridge: **N/A**	
Cortex: **Present on 25%**		
Percussion:**Nil**		
Retouch: **Nil**		
Position of retouch: **Nil**		
Type of retouch: **Nil**		
Edge form: **N/A**		
End form: **N/A**		
Description: **Waste Material little or no definitive characteristics.**		

Rath-Healy 1: 03E1139		
Finds number: **2**		
Features: **C119**		
Material: **Flint**		
Type: **Flake**	Colour: **Cream/Brown**	Weight: **2g**
Length: **30mm**	Width: **22mm**	Thickness: **2.5mm**
Platform type: **N/A**	Width: **N/A**	Thickness: **N/A**
Lateral: **Parallel**	Dorsal ridge: **Off centre**	
Cortex: **This flake appears to be mainly cortexural.**		
Percussion: **Nil**		
Retouch: **Nil**		
Position of retouch: **Nil**		
Type of retouch: **Nil**		
Edge form: **Left lateral straight, right lateral convexed.**		
End form: **Proximal broken/missing, distal shouldered point.**		
Description: **Utilized flake, no visible signs of retouching, however both the left and right lateral edges show possible signs of use. The proximal end is missing and the dorsal surface contains an off set dorsal ridge. The ventral surface is featureless.**		

Rath-Healy 1: 03E1139		
Finds number: **1**		
Feature No: **CII9**		
Material: **Flint**		
Type: **Flake**	Colour: **Cream/Grey**	Weight: **3g**
Length: **31.5mm**	Width: **17mm**	Thickness: **0.3mm**
Platform type: **Corticated butt**	Width: **13mm**	Thickness: **0.3mm**
Lateral: **Convergent**	Dorsal ridge: **Parallel**	
Cortex: **Present on corticated butt.**		
Percussion: **Direct**		
Retouch: **Nil**		
Position of retouch: **Nil**		
Type of retouch: **Nil**		
Edge form: **Left lateral concaved, right lateral straight.**		
End form: **Proximal off set, distal pointed/broken.**		
Description: **Utilized flake, no visible signs of retouching, however visible signs of use along lateral edges. Proximal end contains a corticated butt while dorsal surface contains two dorsal ridges. Ventral surface contains evidence of a bulb of percussion and percussion ripples.**		

Rath-Healy 1: 03E1139		
Finds number: **8**		
Feature No: **(129) of [104]**		
Material: Sandstone		
Type: **Spindle Whirl**	Colour: **Yellowish Brown**	Weight: **32g**
Diameter: **40mm**		
Description: **Sandstone spindle whirl, 40mm in diameter, with a central hole measuring 0.5mm in diameter. The edges are well rounded and smooth.**		

Rath-Healy 1: 03E1139		
Finds number: **11**		
Feature No: **C307**		
Material: **Sandstone**		
Type: **Non-archaeological**	Colour: **Yellowish Brown**	Weight: **307g**
Description: **Non-archaeological.**		

Rath-Healy 1: 03E1139		
Finds number: **6**		
Feature No: **C119**		
Material: **Sandstone**		
Type: **Non-archaeological**	Colour: **Yellowish Brown**	Weight: **22g**
Description: **Non-archaeological.**		

Rath-Healy 1: 03E1139		
Finds number: **1**		
Feature No: **C101**		
Material: **Sandstone**		
Type: **Non-archaeological**	Colour: **Greyish Brown**	Weight: **2003g**
Description: **Non-archaeological.**		

Rath-Healy 1: 03E1139		
Finds number: **9**		
Feature No: **C222**		
Material: **Sandstone**		
Type: **Whetstone**	Colour: **Yellowish Brown**	Weight: **109g**
Length: **88mm**	Width**: 25mm**	
Description: **Sandstone whetstone. Broken at one end, the other end is rounded. Generally rectangular in shape with rounded edges. One of the surfaces is concaved and smooth which suggests that this stone is a whetstone.**		

Rath-Healy 1: 03E1139		
Finds number: **3**		
Feature No: **119**		
Material: **Sandstone**		
Type: **Whetstone**	Colour: **Yellowish Brown**	Weight: **127g**
Length: **110mm**	Width**: 19mm**	
Description: **Sandstone whetstone. Broken at one end, the other end is rounded. Generally rectangular in shape with rounded edges. One of the stones four surfaces is smooth which suggests that this stone is a whetstone.**		

Rath-Healy 1: 03E1139		
Finds number: **2**		
Feature No: **101**		
Material: **Sandstone**		
Type: **Natural**	Colour: **Yellowish Brown**	Weight: **543g**
Length: **N/A**	Width**: N/A**	
Description: **Natural river rolled stone, non-archaeological.**		

Rath-Healy 1: 03E1139		
Finds number: **15**		
Feature No: **C101**		
Material: **Sandstone**		
Type: **Natural**	Colour: **Yellowish Grey**	Weight: **334g**
Length: **106mm**	Width**: 36.8mm**	
Description: **Sandstone rectangular in shape, non-archaeological.**		

7: Bibliography

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10.4 Assessment of Industrial Residues from Excavations at Rath-Healy 1, Co. Cork. Licence 03E01139 by Neil Fairburn

Summary

The excavations at Rath-Healy 1, Co. Cork recovered one small piece of vitrified furnace lining and a small collection primary iron smithing debris primarily consisting of Spheroidal Hammer Scale. The small collection of the material from the excavation would not indicate that the excavated site was a metalworking site but would suggest that there was probably some metalworking activity taking place in the vicinity.

Radio carbon dates obtained from the site indicate that there was activity in the Bronze Age and in the Early Medieval period and it is suggested that metalworking activity from the site dates to the later period.

Introduction

Excavations on the Fermoy Bypass undertaken by Stephen J. Linnane at Rath-Healy 1 recovered one small piece of vitrified furnace lining and a small collection primary iron smithing debris primarily consisting of Spheroidal Hammer Scale. All of the material has come from an industrial process associated with metalworking and was submitted for assessment and analysis.

Results

Quantification of the industrial residues from the excavations at Rath-Healy 1.

Context Number	Description	Qty	Weight grammes	Comment
C207	Spheroidal hammer scale	30	30	
C222	Vitrified furnace lining	1	24	
Total		**31**	**54**	

Spheroidal Hammer Scale

Spheroidal hammer scale consist of round droplets which can be hollow to varying degrees and are mainly formed during the primary smithing of an iron bloom. The small droplets, some of which, but not all, are magnetic are expelled from the bloom when the hot bloom is struck during the consolidation process. They can also be formed by the welding process of two iron objects.

The Spheroids recovered from the excavation vary in size from 2mm to 9mm and there are also some fragments of expunged slag which have not formed spheroids. The location of the material would be indicative of the area in which the smithing of the bloom took place..

Vitrified Clay Lining

This material consists of clay that has been vitrified on one side in the high temperature area of the furnace or the smithing hearth. Vitrified lining is produced by a high temperature reaction between the clay lining and the alkaline fuel ashes or slag

It can be difficult to identify if pieces of vitrified clay come from a furnace or a hearth structure. Smelting sites usually produce significantly larger quantities than smithing sites, because of the difference in the size of the structures.

The lining has probably been made from the local clay and has oxidised to an orangey red colour. Where one face of this lining has been exposed to high temperatures, it has started to vitrify to a slightly vesicular vitreous material with a bluey green colour. Vitrified surfaces on furnace lining can vary in colour from black through to olive green, which in turn reflects the temperature conditions and the make up of the silica content in the clay.

Discussion

Introduction to the Iron Working Process

The manufacture of an iron artefact from iron ore can be separated into three distinct processes. The smelting of the ore in a furnace, which will produce a bloom of iron as well as fayaltic slag residues; the primary smithing consolidation of the iron bloom into a billet; and finally secondary smithing - the shaping of the billet into an object. Each of these processes will produce a range of residues.

Work by Brian Scott (1991) has indicated the range of material that might be found on early ironworking sites in Ireland, and recent work by Peter Crew and Thilo Rehren on material from the excavations at Ráith Na Ríg, Tara, Co. Meath has highlighted the types of industrial residues that are diagnostic of both iron smithing and non-ferrous metalworking (Crew and Rehren 2002). However, aside from this recently published work, very little analytical work has been carried out on early Irish ironworking sites. Edwards (1996) notes that in past excavations in Ireland the slag was often not recorded systematically or rarely analysed to provide additional information about the activity that produced it

Experimental and analytical work on iron production and iron working residues in Britain, particularly work by Peter Crew, Snowdonia National Park, at Bryn y Castell, Crawcwellt and Llwyn Du, Wales, (Crew 1986, 1989, 1990, 1991, 1998, Crew and Crew 1995) and Gerry McDonnell, Bradford University (1988), along with work in Europe by Radomír Pleiner

(Pleiner 2000), has clearly shown the nature of the archaeological evidence for iron production and for secondary smithing, and archaeologists can now identify the range of metalworking activity on sites in Ireland and Britain more confidently.

The Ironworking Process

The base material for making iron is ore. Any iron ore needs to have a sufficient concentration of iron minerals for conversion to metallic iron, but the reducibility and availability of ore will influence the willingness to use lower-grade ores. Therefore it is reasonable to accept that mineral composition, both of the iron mineral, the location and availability of ores had the most influence over the production of iron.

The commonest iron ores in a geological sense are hematites, limonates and carbonates. The largest concentration of these iron ores in Ireland is in County Wicklow (Scott 1991, 153-154). However, one of the major sources of iron ore and the most likely to have been used for iron smelting in Ireland, was bog ore. A relatively easy ore to extract once it had been located. In theory there are plenty of sources of bog ore around Ireland, but this aspect has not been studied but is often cited. An analysis of the iron working slags recovered from the rath at Mullaghbane, Co Tyrone (Harper 1972) and the ringfort at Cush, Co Limerick (O'Riordain 1940) showed that bog ore was used on these sites for the manufacture of iron.

Before it was smelted, it was necessary for the mineral ore to be broken into smaller fragments and roasted to drive off excess water and also to change the ore to an iron oxide. On most sites, the roasting of the ore would have taken place in a simple bonfire on to which was heaped the iron ore and a bonfire erected around it. This may have taken place close to the furnace, but equally may have taken place near to the ore source.

Ore and fuel, usually charcoal, are fired in a furnace in a reducing atmosphere to remove unwanted material (the slag) and produce raw iron. The furnaces were either a shaft furnace or a bowl furnace. The air-supply for the burning fuel is provided by forcing the air through blowing holes in the sides of the furnace with use of bellows, or by natural draught as has been proposed for the medieval furnaces at Stanley Grange, Derbyshire (Challis 2002).

Shaft furnaces could have been up to 1.5m tall and some 0.30m in diameter and were built with clay. Considerable quantities of clay would have been used in the construction of furnaces and it could have been an important aspect in the location of a site. It is the large quantity of the vitrified remains of the furnace superstructure that helps to identify the remains of a shaft furnace.

At the base of the majority of the shaft furnaces was a small arch that enabled the slag to be removed. The efficiency of the shaft furnace improved in Britain with the arrival of the Romans, who went on to industrialise iron producing areas like the Weald (Cleere and

Crossley 1986), using efficient large furnaces similar to the one found at Laxton (Jackson and Tylecote 1988 and Crew 1998a). For example, the known Roman sites in the Weald produced tens of thousands cubic metres of slag and tonnes of iron (Cleere and Crossley 1986).

The Post Roman period in Britain has produced no evidence to suggest great centres of smelting comparable with the Roman occupation (Cleere and Crossley 1986, 87). The evidence that can be gathered suggests that the Roman metallurgical techniques for smelting iron were not passed onto the native population of Britain (Tylecote 1986, 179). Instead the evidence suggests that the native population returned to a pre-Roman Iron Age tradition of producing iron probably with smaller shaft furnaces. The two possible explanations Tylecote (1986) give for this are that the old techniques were reintroduced by the migration of peoples from north east Europe and more likely- the economic conditions did not warrant the same large scale production as the Roman period did. The main notable development, however, in the medieval period in terms of iron production, comes later with the introduction of waterpower in the fourteenth century (Cleere and Crossley 1986,106).

The shaft furnace was loaded from the top with alternate layers of iron ore and charcoal. Molten slag was drawn off through an arched opening at the bottom and ran away in channels in which it solidified. The arched opening allowed air to be drawn into the shaft but bellows could also be used. Shaft furnaces achieved a higher temperature, so increasing the carbon content of the iron and also could produce larger amounts of iron.

During smelting the iron minerals are reduced and broken up by reaction with the burning charcoal. The unwanted minerals and elements, of which silicon is the most important, react with part of the iron oxides from the ore and with the clay and fuel ash form a liquid slag that falls to the bottom of the furnace. The clay used in construction of the furnace and possible air-pipes is subjected to the high furnace temperatures as well. If sufficiently heated it may melt, resulting in vitrified clay, or is even dissolved into the slag.

The final product of smelting, besides the residues of ash and slag, is called a bloom. This is a rough, often spongy mass, containing metallic iron flakes and nodules that have sintered together, mixed with bits of slag, partially reduced ore, charcoal and parts of the furnace clay. The bloom gives the early production technology its name of “the bloomery process”.

The bloom has then to be refined. This is done by hammering the bloom into a smaller piece, consolidating the iron particles and this is part of the primary smithing process.

Primary smithing requires that the iron bloom is heated again until red-hot and soft, and subsequently hammered to squeeze out remaining slag and consolidate the fragment into a workable shape. This piece of iron, called a billet, can then be worked on again and made into an artefact. The slag that is squeezed out during the primary smithing of the bloom will end up in the bottom of the hearth, and it differs from smelting slag in that it is more or less

magnetic and less fluid. These slags forming just above the bottom of the hearth are very characteristic and are often described as smithing hearth cakes or more frequently as Plano Convex Bottoms (PCB's). These slags are sub-circular convex-convex shaped and usually magnetic. The smithing process hardly changed from the Prehistoric period through to the medieval period, leaving similar residues.

The smithing of the bloom can be done anywhere. Quite often this primary smithing was carried out on the smelting site. The bloom is heated in a hearth or forge. The hearth doesn't need a purpose built structure but would require a shelter from the elements for the smith and also so as to provide low light for the smith to be able to judge the temperature of iron. Early ironworking hearths were situated at ground level, while some Roman, and later, medieval, hearths were positioned at waist height. The anvils, positioned close to the hearth, to strike the red hot bloom quite often utilised a large flat topped stone or a large wooden block.

The hammering of the metal bloom produces further waste products; slag spheres, solid balls or vesicular balls of slag that can fly for a considerable distance; hammer scale, small flat and thin pieces of magnetic metal. Hammer scale is usually a prime indicator of smithing and can be used to locate where the process was taking place. However hammer scale can also be produced during the consolidation of the bloom,

If a large amount of smithing has taken place, the residues from this process can become trampled in to the floor around smithing area and form a cemented smithing pan. The pan is a conglomerate of highly magnetic material, dust, hammer scale, slag spheres and some other non related material.

Secondary smithing is the process that turns a refined billet into an artefact or implement and is carried out in the same way as the primary smithing and leaves the same sort of residues described above. This is the sort of small scale smithing work is the sort of work that would be expected to be undertaken within the small nucleated farmsteads and enclosures. It has been suggested that many people were using basic iron technology to make and repair simple artefacts (secondary smithing), but the actual production of iron and manufacture of complex iron artefacts were still being produced by specialised smiths (Mytum 1992). Documentary evidence from the Irish Annals suggests that the blacksmith was held in high esteem and that the forge was a central part of the community (Scott 1987, Edwards 1996, 86).

The Rath-Healy 1 Material

The material from Rath-Healy 1 consisting of Spherodial Hammer Scale and a piece of Vitrified Furnace Lining would suggest that there was iron working activity taking place in the near vicinity of the excavations. This iron working activity was probably, based on the recovered material, from the primary smithing of the iron bloom. The absence of any furnace

superstructure, ore and large quantity of slags from the excavation indicates that the main iron working site was not located during the excavation work and is probably located outside of the excavated area.

However, it should be noted that the presence of the hammer scale would normally indicate where a bloom was being smithed, but the low volume of material and the lack of any hearth or a larger collection of slag and other material would appear to indicate that this was not the case here and the material recovered from the excavation must therefore be considered to be just an isolated small dump. It is possible that this material had accumulated on clothing or had collected in a vessel and was just dumped in this area. Slag after all is just a waste product.

Radio carbon dates obtained for the site show that there activity in the Bronze Age and in the Early Medieval period. Neither of the contexts from which the material was recovered were dated. However, it is highly likely that the material dates to the later Early Medieval period.

Conclusion

The material from the Rath-Healy 1 excavation consisting of Spheroidal Hammer Scale and one piece of Vitrified Furnace Lining is interesting as it indicates the possible site of primary iron smithing. The lack of other material in an appreciable volume precludes the site from being called an iron working site. It can only be said that Rath -Healy 1 has evidence to suggest that iron working, probably primary smithing, was taking place in the vicinity.

Recommendations

No further work on the material is required.

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10.5 ARCHIVE CONTENT

Table …. Site Archive (Basic) Summary			
Site Name: Rath-Healy 1		**Licence No.: 03E1139**	
Type	**Description**	**Quantity**	**Notes**
Contexts	Pro forma A4 sheets	184	Fully cross referenced
Plans	A2 plans at 1:20	18 sheets	Pre and post-excavation plans
	A2 plans at 1:100/200	2 sheets	Outline plans of stripped areas including site grid
Sections	A2 sheets at 1:10	9 sheets	61 profiles and sections
Matrices		1	
Photographs		Colour print, 6x26 and 2x36	Films CP1401-1408
Registers	Plan Register Photographic Register Finds Register, Sample Register, Cremated bone Register Surveying register	2 pages, 7 pages 1 page 2 pages 1 page 1 Survey Book	All registers retained as paper, A4, pro forma
Diaries	Director's Diary	1	Cross-referenced with supervisor's notes.

10.6 DISSEMINATION STRATEGY

The dissemination strategy will include publication of reports and presentations of archaeological material.

Publications

The dissemination strategy will involve a variety of publications and the level of published detail proposed will vary according to each publication. Work will commence on articles for publication from March 2005 and it is envisaged that this material will be published in 2006. The right of Cork County Council (*the Council*) to fulfil some or all of the stated publication requirements, either in part or in full, should it so decide will be acknowledged. Copyright will be assigned to the Council in order that it may make such information available to the public. All publications will make appropriate references to the road scheme and credit the sources of funding (NDP, via NRA and Cork County Council NRDO) including the use of official logos.

Archaeology Ireland

The excavation results will be submitted for publication in Archaeology Ireland, either as an overview or as a thematic account. It is intended that this article will be published in either the spring or summer (2006) edition.

Cork Historical & Archaeological Journal

A comprehensive account of the major excavation results will be submitted for publication in the Cork Historical & Archaeological Journal. A gazetteer of the minor excavations (with accompanying NGRs & C14 dates) will be included. Editors of this journal will be approached in June 2006 with a view to agreeing a date for publication.

Journal of Irish Archaeology

A comprehensive thematic account of selected major excavations results will be submitted for publication in the Journal of Irish Archaeology. Likewise editors of this journal will be approached in June 2006 with a view to agreeing dates for publication.

Full technical Report

A full and comprehensive excavation report of all excavations results (including all specialist and supplementary reports) will be submitted in digital format for electronic publication in June 2006.

Popular Report

It is proposed that a popular account of the excavation results be published in an appropriate format. Currently, this is likely to be an NRA-sponsored publication aimed at presenting a well-illustrated and detailed overview/interpretation of the results. A provisional date of June 2006 is suggested for this publication, however this is subject to agreement with the Project Archaeologist.

Presentations

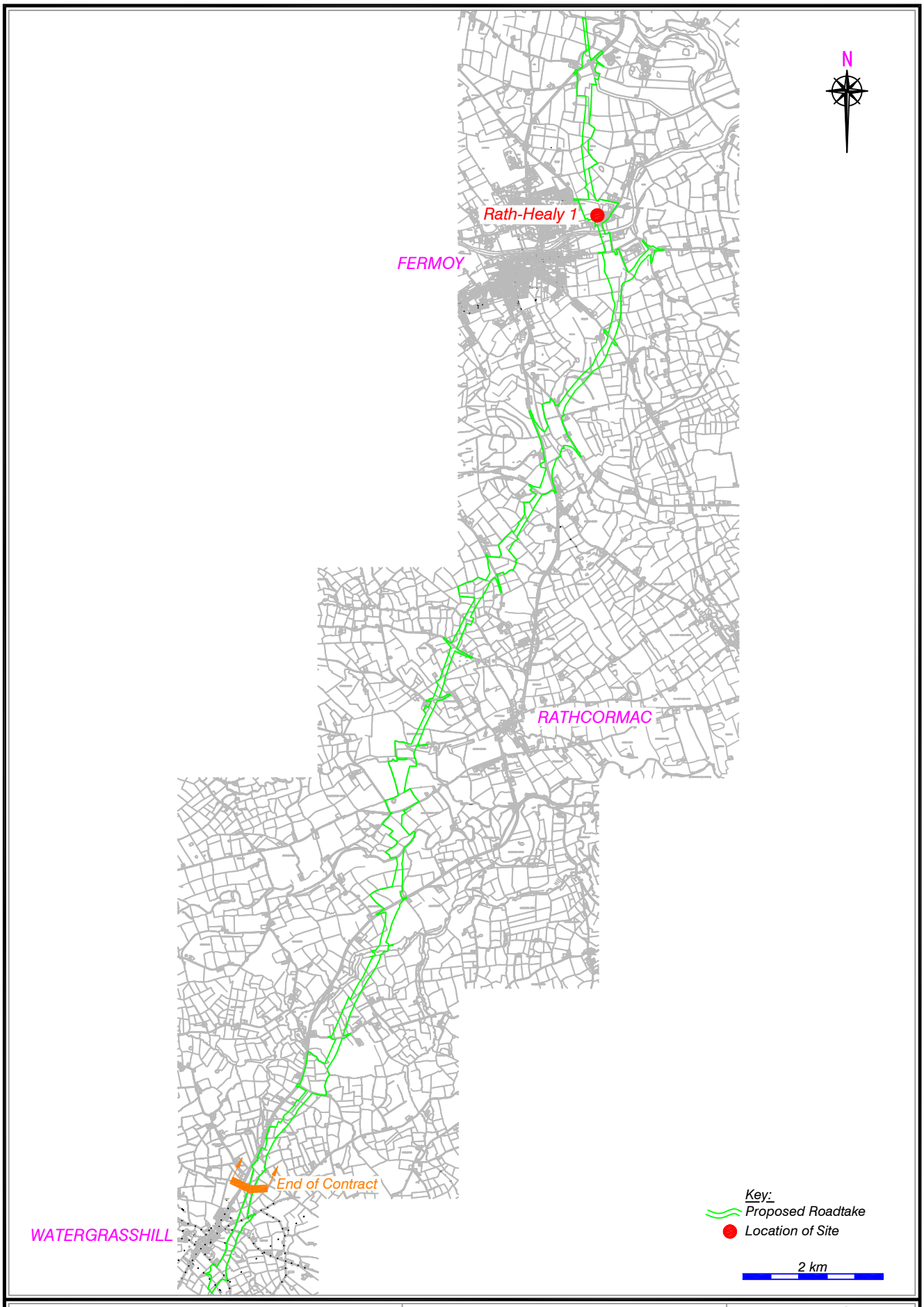
A level of public presentation is proposed for the N8 Rathcormac/Fermoy Bypass archaeological findings. Preparation for such presentations were conducted in March 2005. The right of Cork County Council (*the Council*) to fulfil some or all of the stated public presentation requirements, either in part or in full, should it so decide will be acknowledged. Copyright will be assigned to the Council in order that it may make such information available to the public. All public presentations will make appropriate references to the road scheme and credit the sources of funding (NDP, via NRA and Cork County Council NRDO), including the use of official logos.

Public Presentation

A comprehensive overview of all the excavations results will be presented by way of an appropriate public presentation. Such a presentation will (where permitted by the National Museum of Ireland) include the presentation of a reasonable sample of the excavated artefacts. Additional public presentations, where appropriate, will be given as a matter of public interest.

Institute of Archaeologists of Ireland (IAI)

A comprehensive academic overview of all the excavations results was presented to the Institute of Archaeologists of Ireland. This presentation was delivered at the Spring Conference 2005.



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: Rath-Healy 1 N8 Rathcormac-Fermoy Bypass, Co. Cork	Scale: 1: 75,000 A4
	Issued for: Archaeological Excavation Final Report	Date: Apr '06
	Client: Cork County Council	Origin: Courtesy of client
		Drawing no.: 02_14_C392

Figure 1: Location of site in relation to proposed roadway

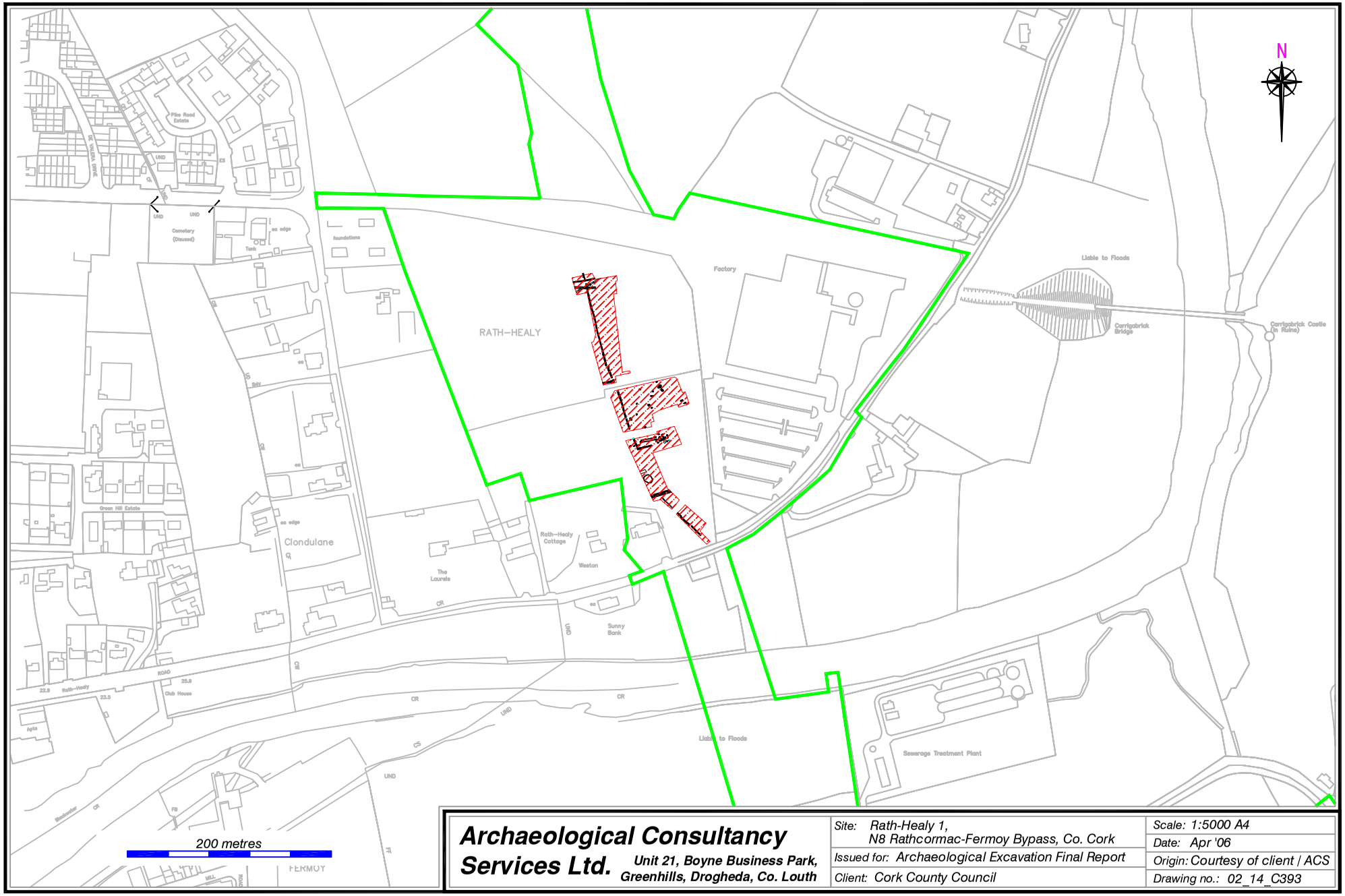
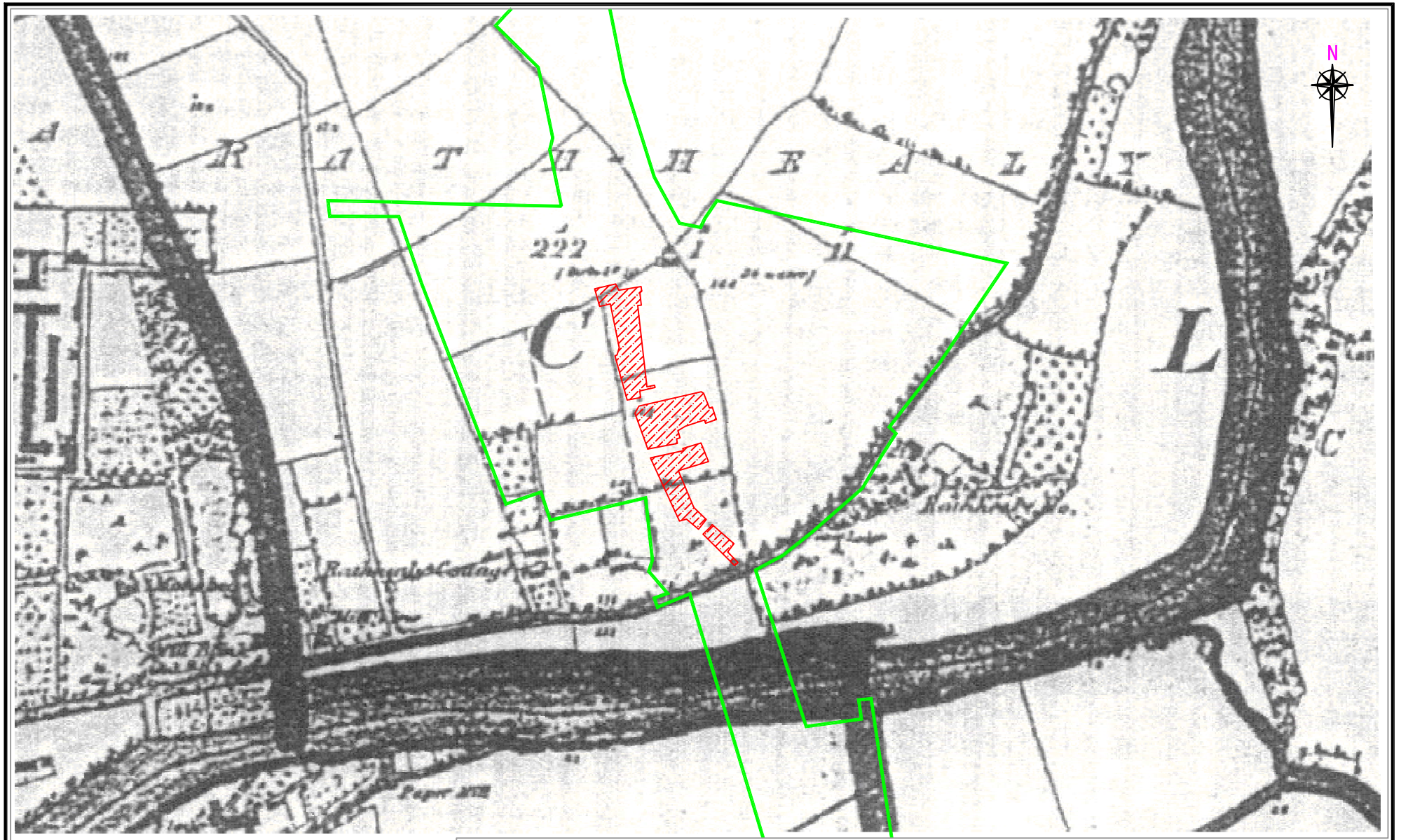


Figure 2: Site location showing limit of excavation.



Archaeological Consultancy Services Ltd. *Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth*	Site: Rath-Healy 1, N8 Rathcormac-Fermoy Bypass, Co. Cork	Scale: 1:5000 A4
		Date: Apr '06
	Issued for: Archaeological Excavation Final Report	Origin: OSi 1st edition sheet 35
	Client: Cork County Council	Drawing no.: 02_14_C394

Figure 3: O.S. six-inch Sheet 35 1841-44

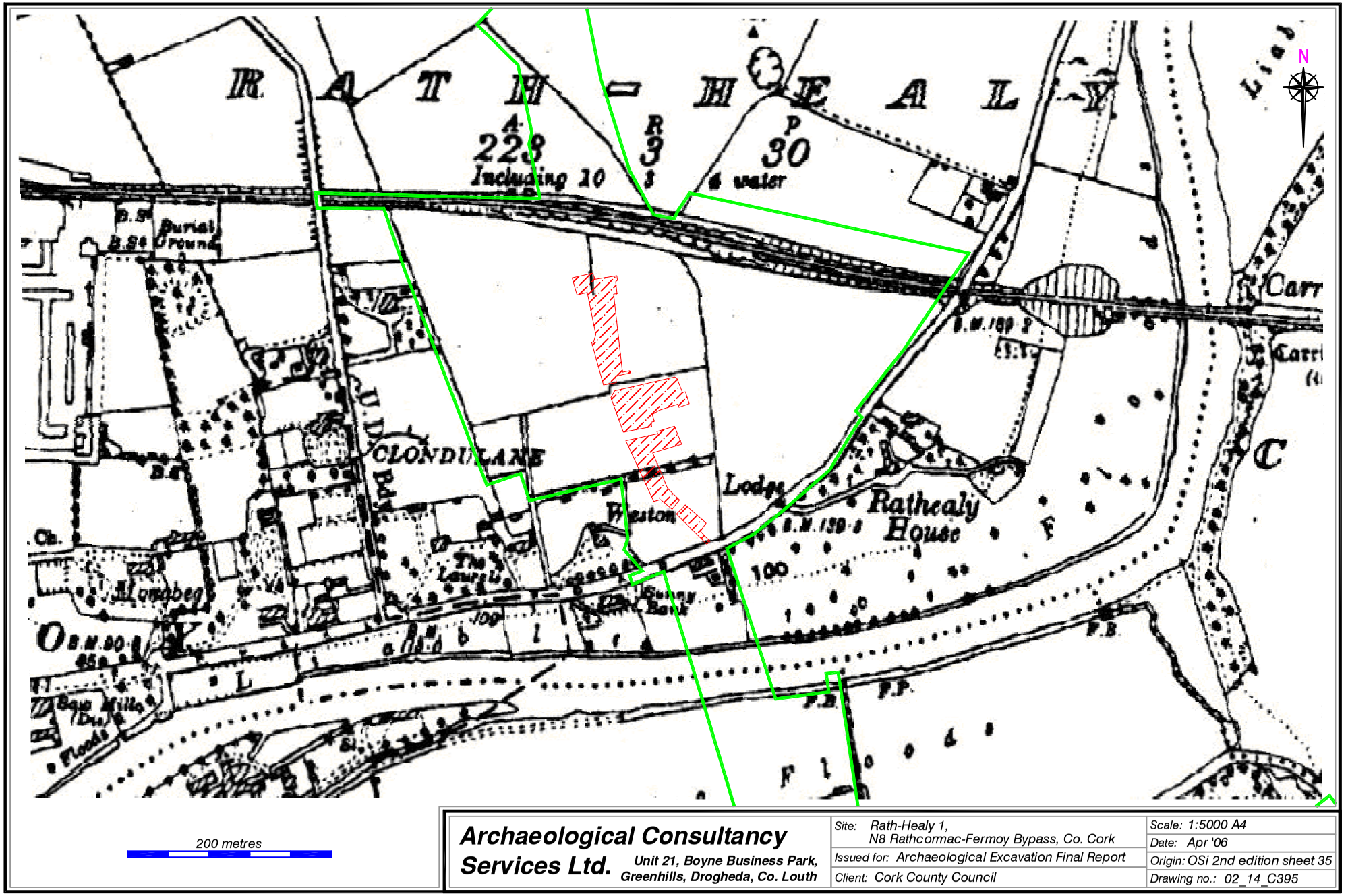


Figure 4: O.S. six-inch Sheet 35 1935

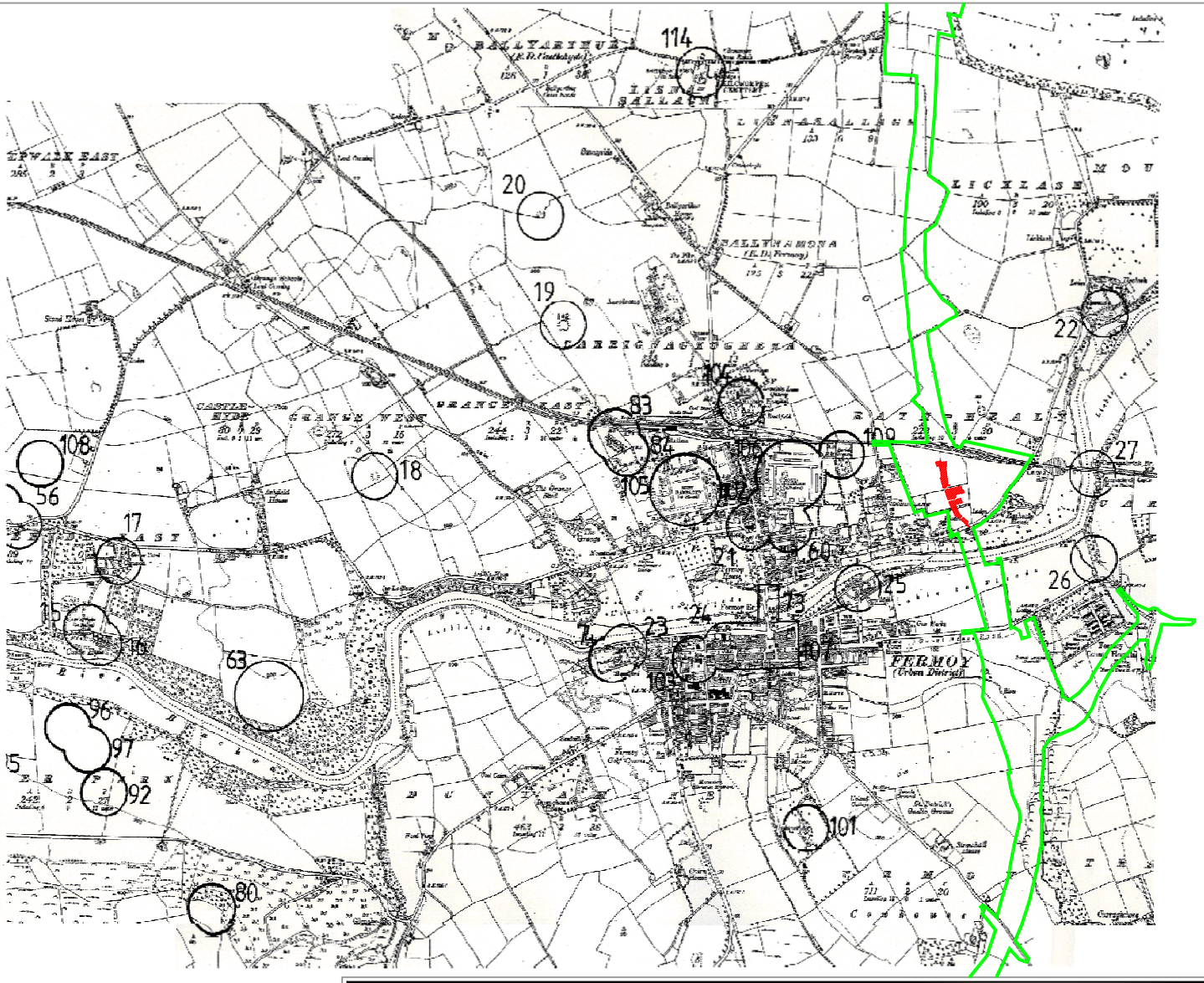
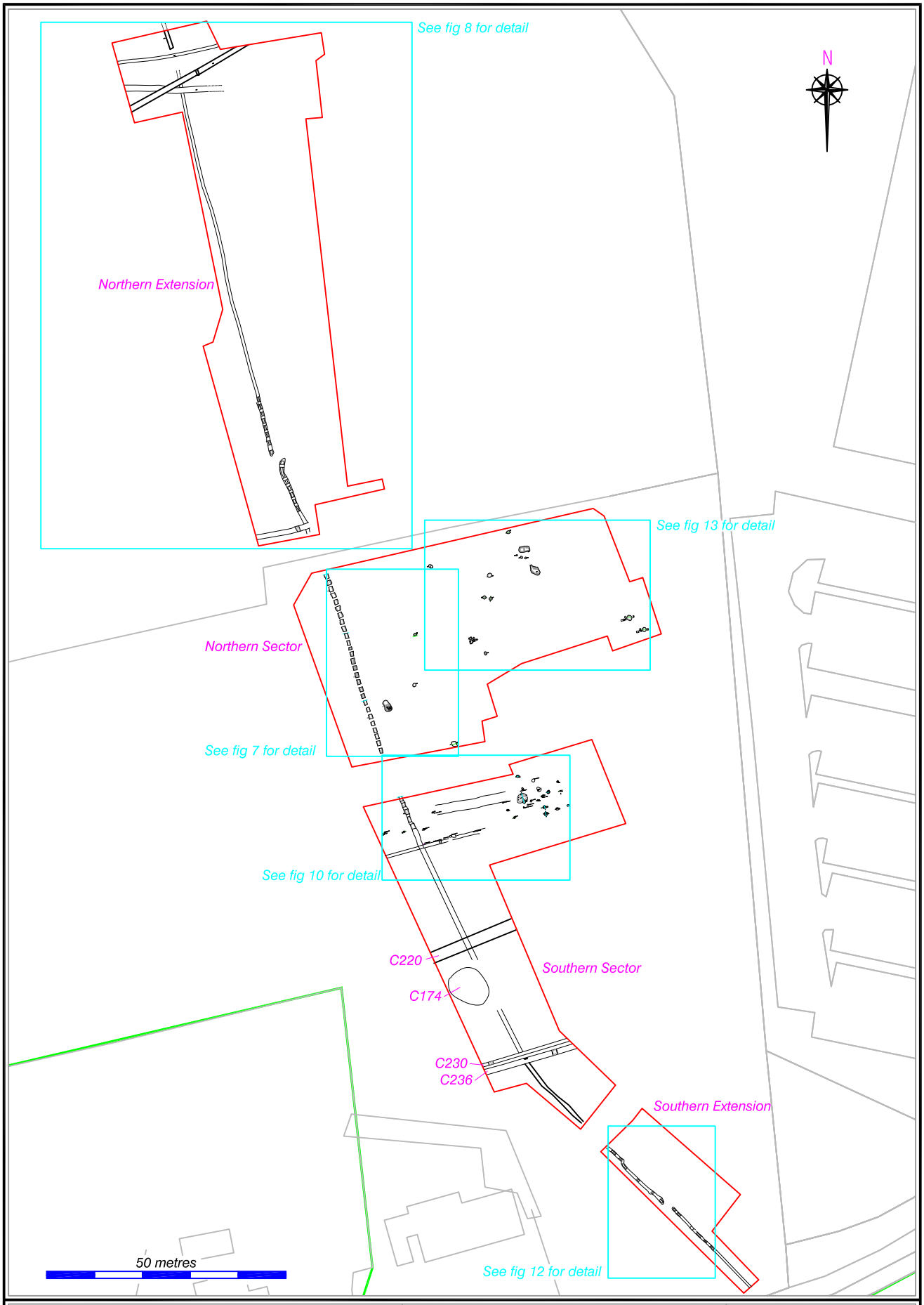


Figure 5: Location of local RMP sites.



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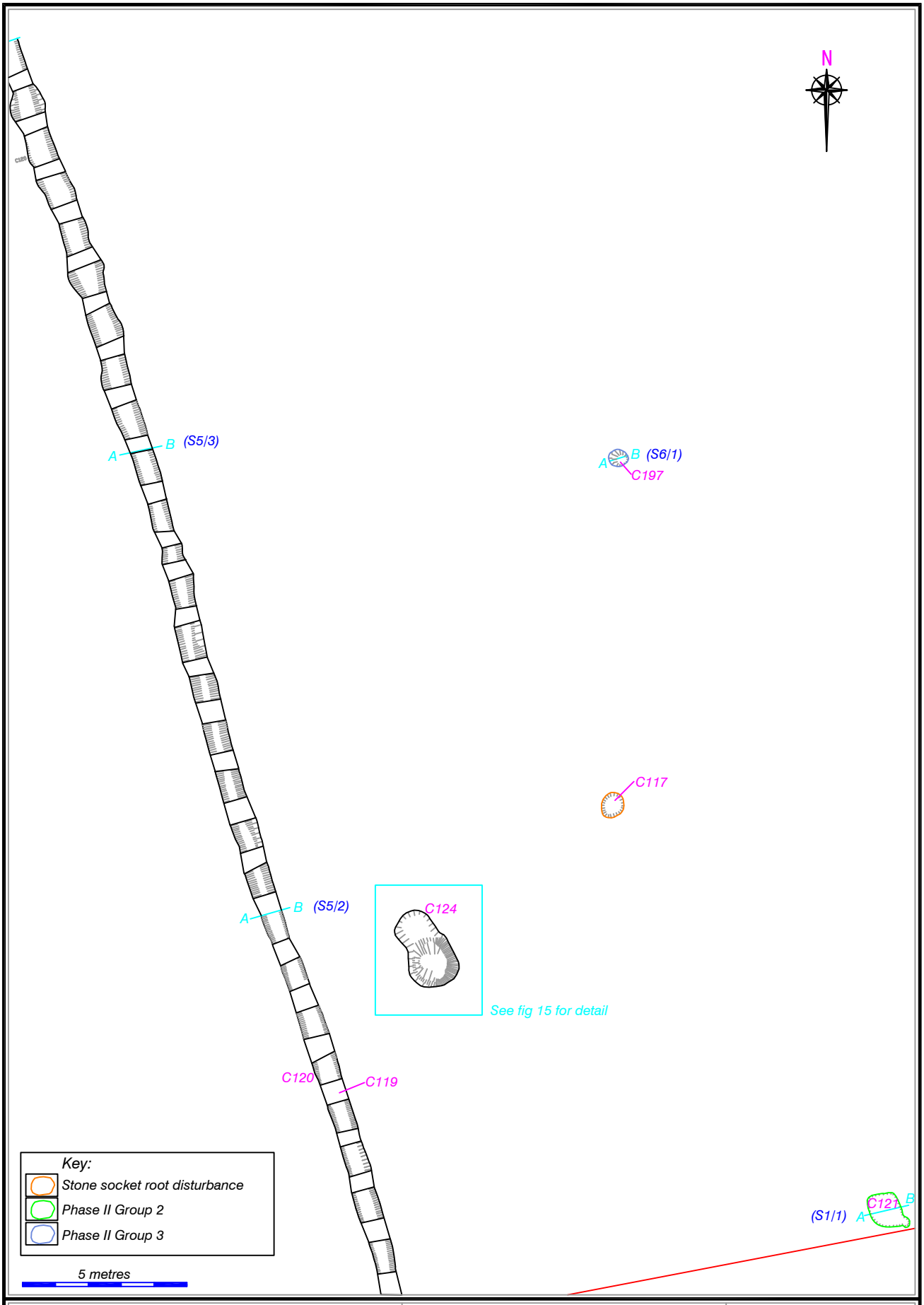
	Issued for: Archaeological Excavation Final Report	Date: Apr '06
	Client: Cork County Council	Origin: ACS Ltd
		Drawing no.: 02_14_C397

Figure 6: Location of detail plans



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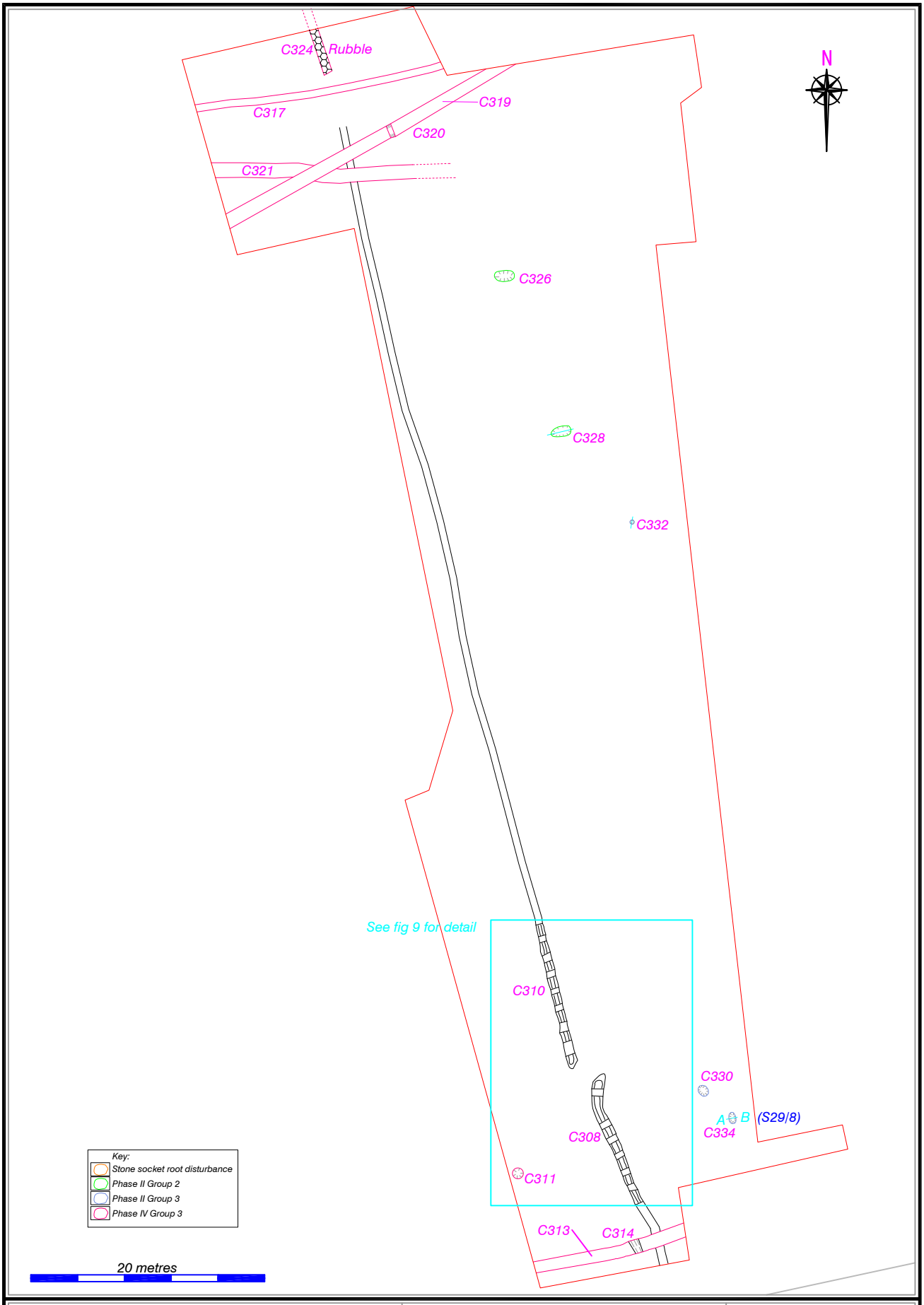
	Issued for: Archaeological Excavation Final Report	Origin: ACS Ltd
	Client: Cork County Council	Drawing no.: 02_14_C398

Figure 7: Northern Sector



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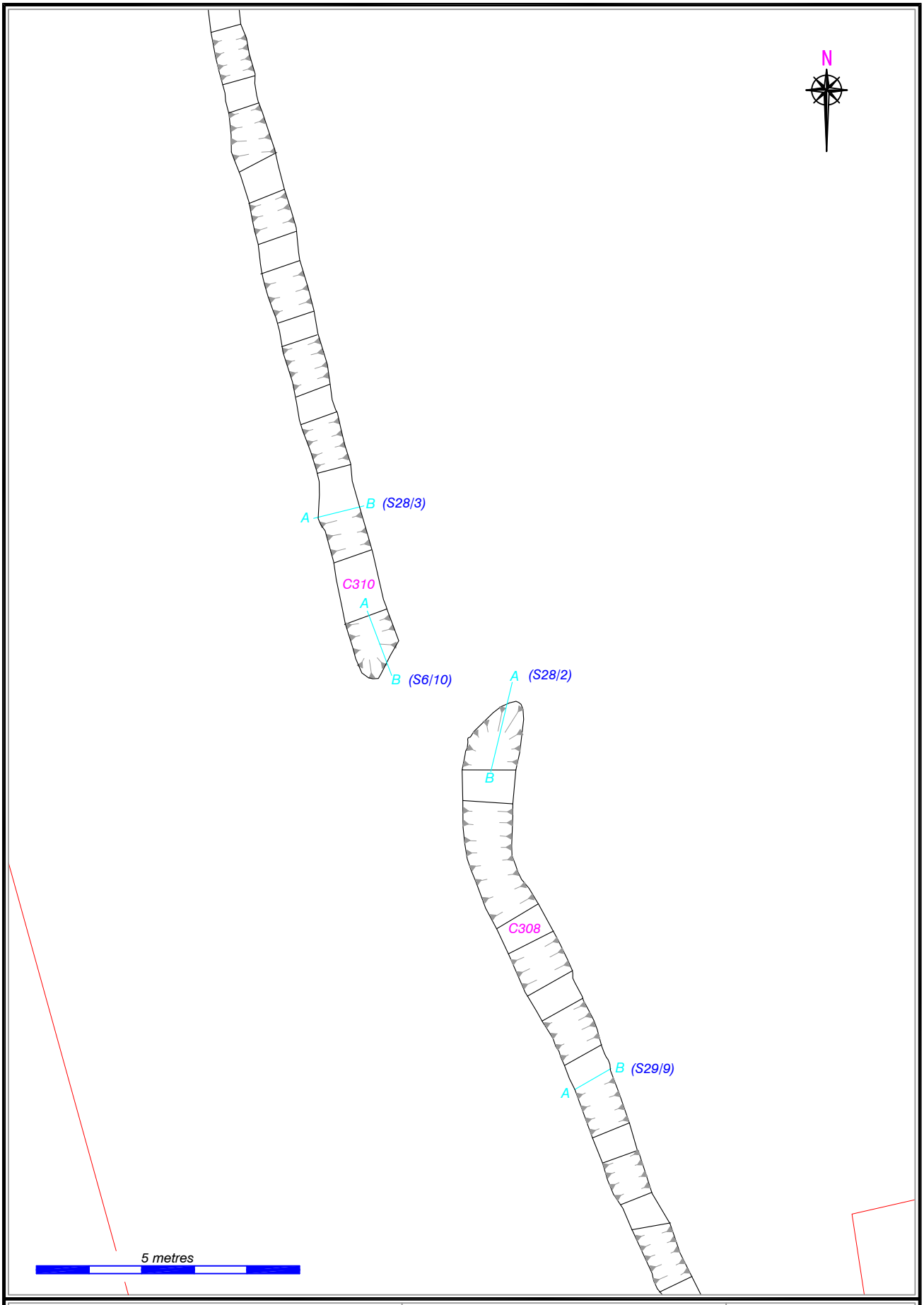
	Issued for: Archaeological Excavation Final Report	Origin: ACS Ltd
	Client: Cork County Council	Drawing no.: 02_14_C399

Figure 8: Northern Extension



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: Rath-Healy 1, N8 Rathcormac-Fermoy Bypass, Co. Cork	Scale: 1:100 A4
		Date: Apr '06
	Issued for: Archaeological Excavation Final Report	Origin: ACS Ltd
	Client: Cork County Council	Drawing no.: 02_14_C400

Figure 9: Northern Extension, post-excavation detail of enclosure ditches C308 and C310

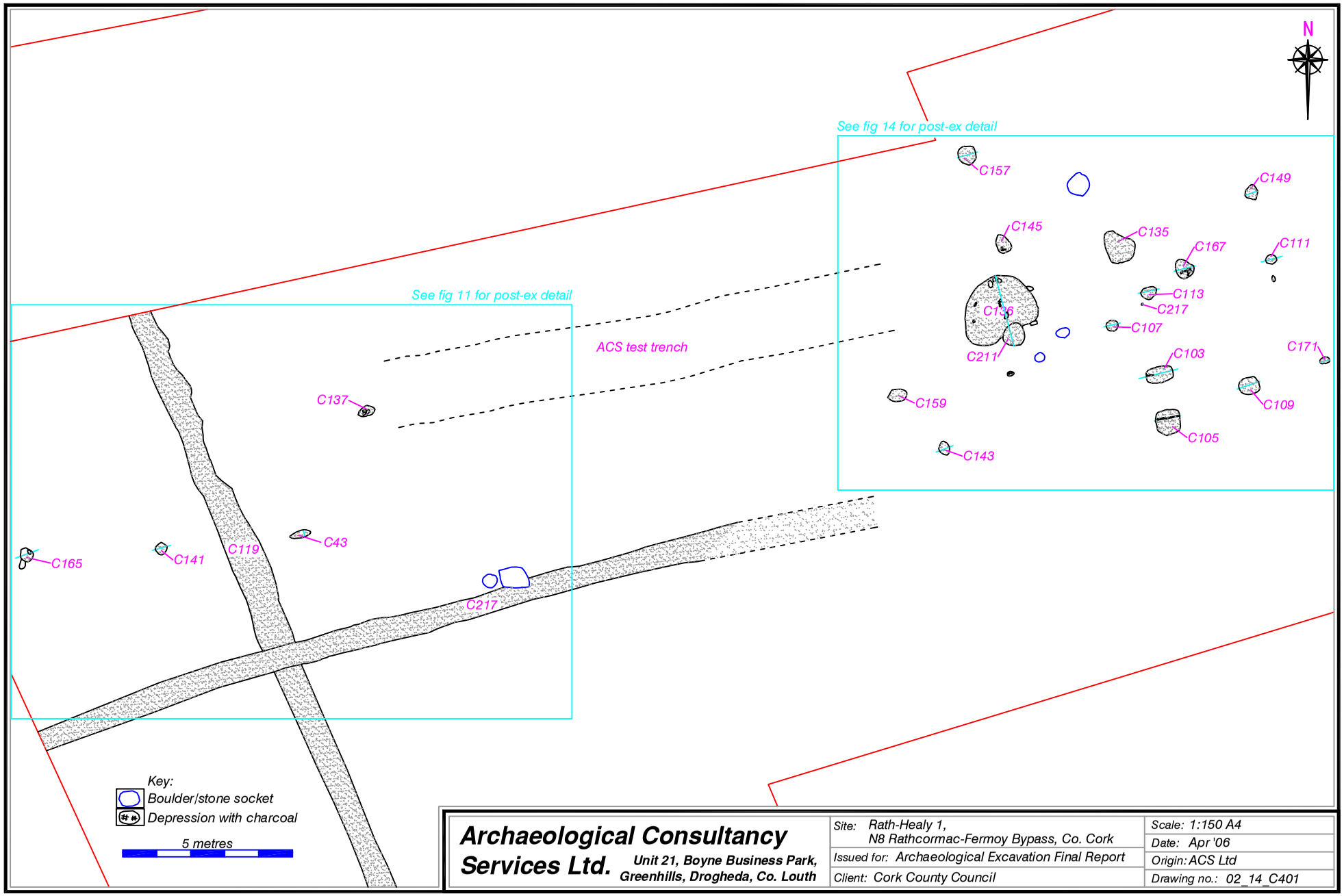


Figure 10: Southern Sector

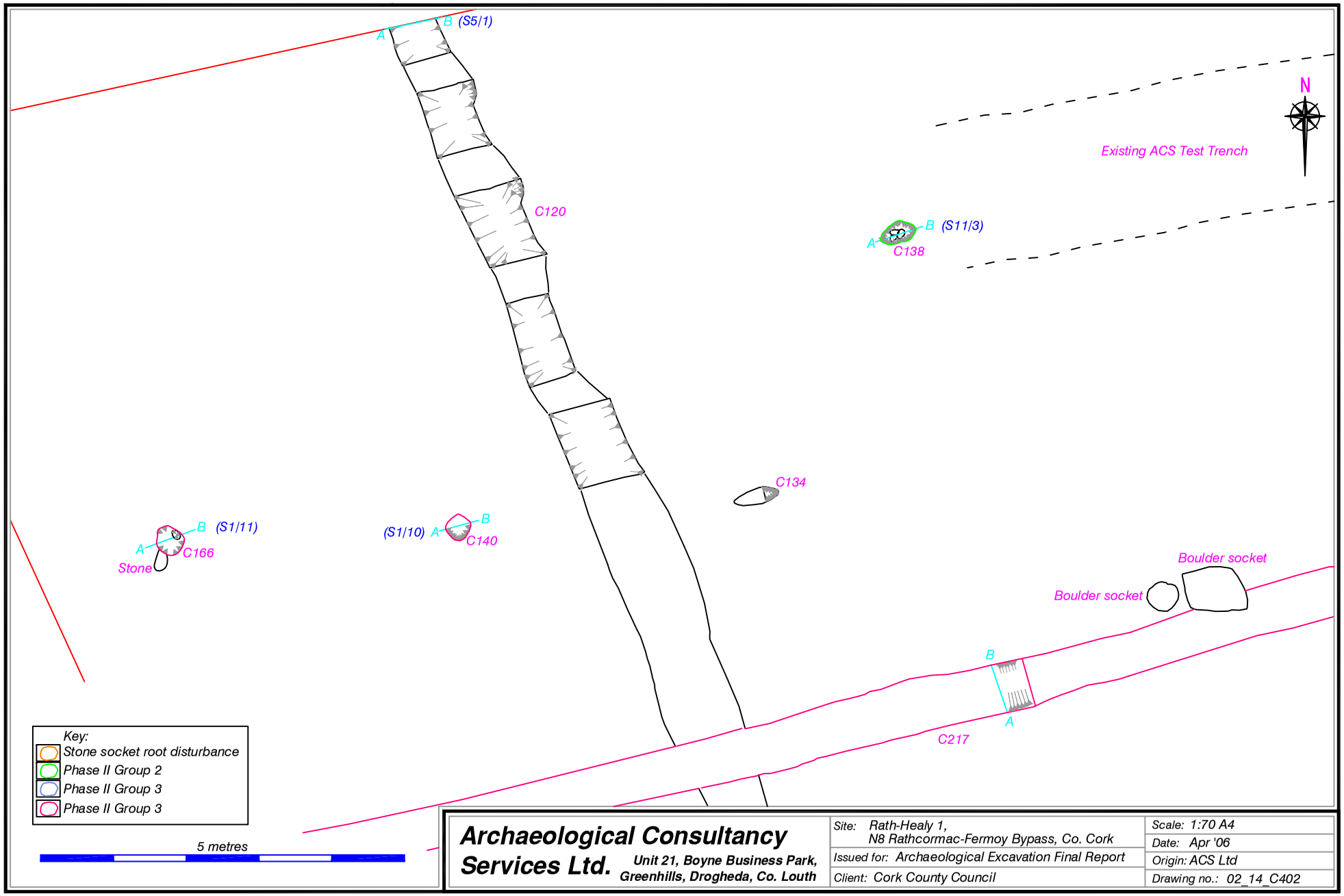
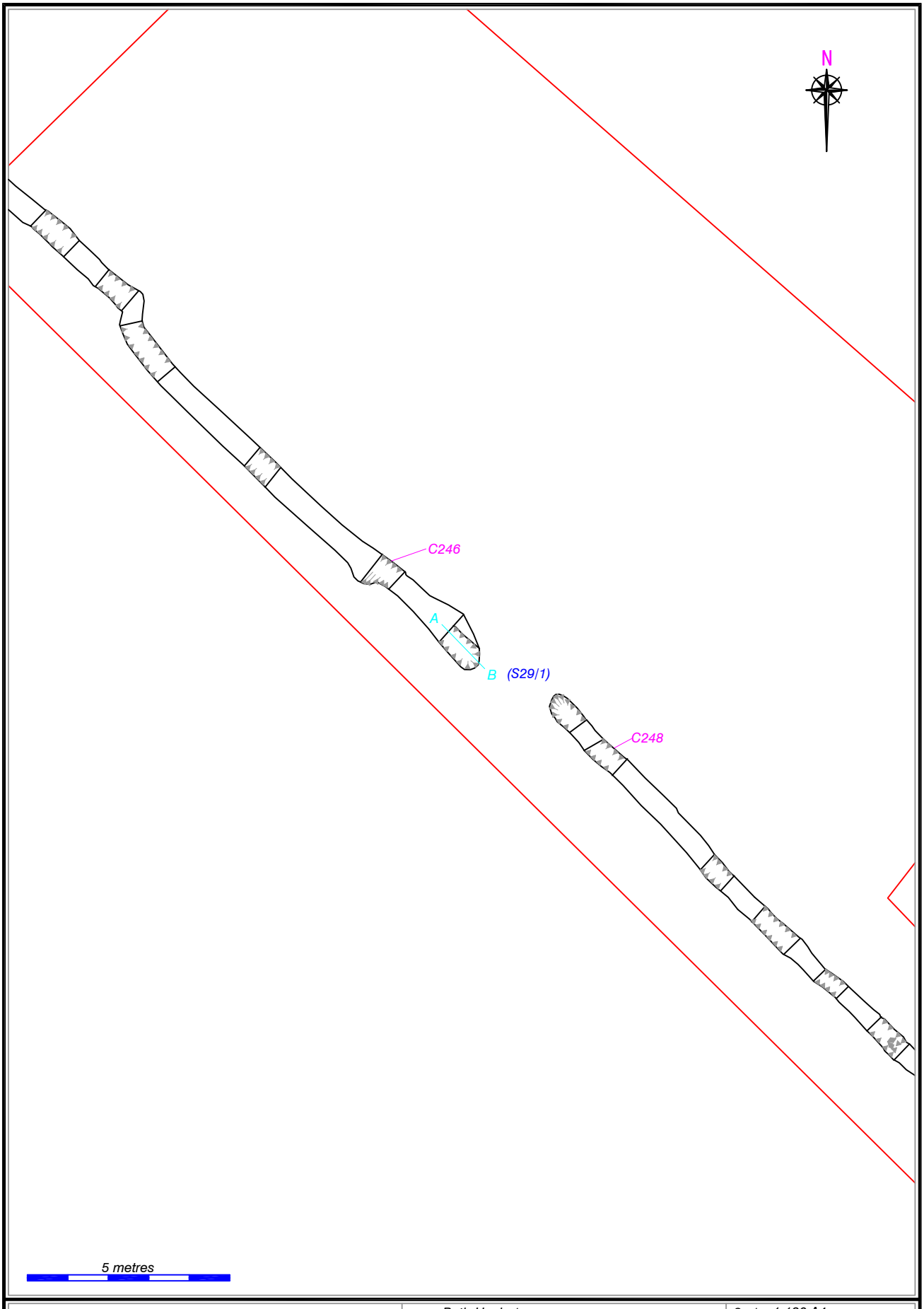


Figure 11: Southern Sector, post excavation detail of ditch C120



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	Issued for: Archaeological Excavation Final Report	Date: Apr '06
	Client: Cork County Council	Origin: ACS Ltd
		Drawing no.: 02_14_C403

Figure 12: Southern Extension, detail of enclosure ditches C246 and C248

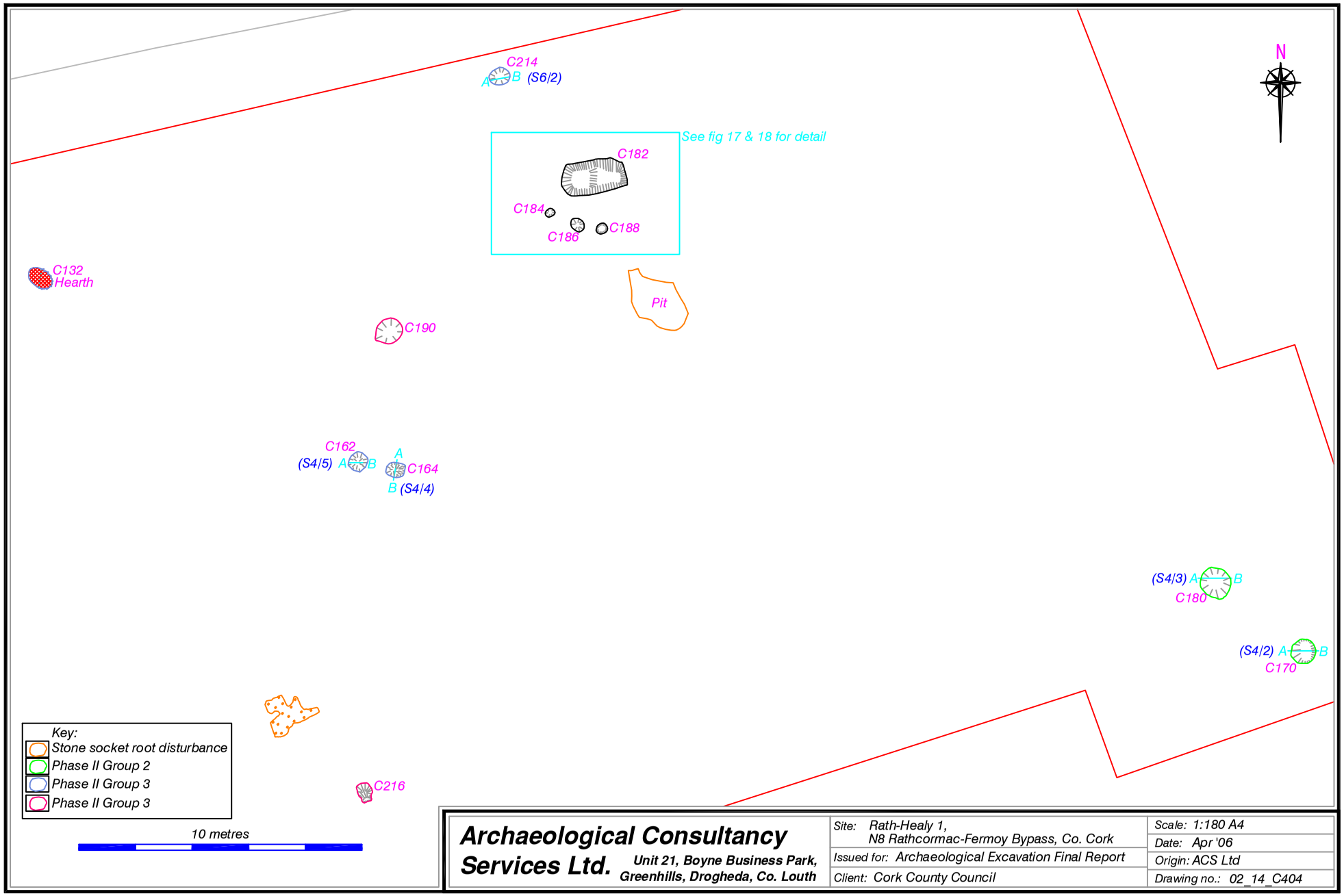


Figure 13: Northern Sector

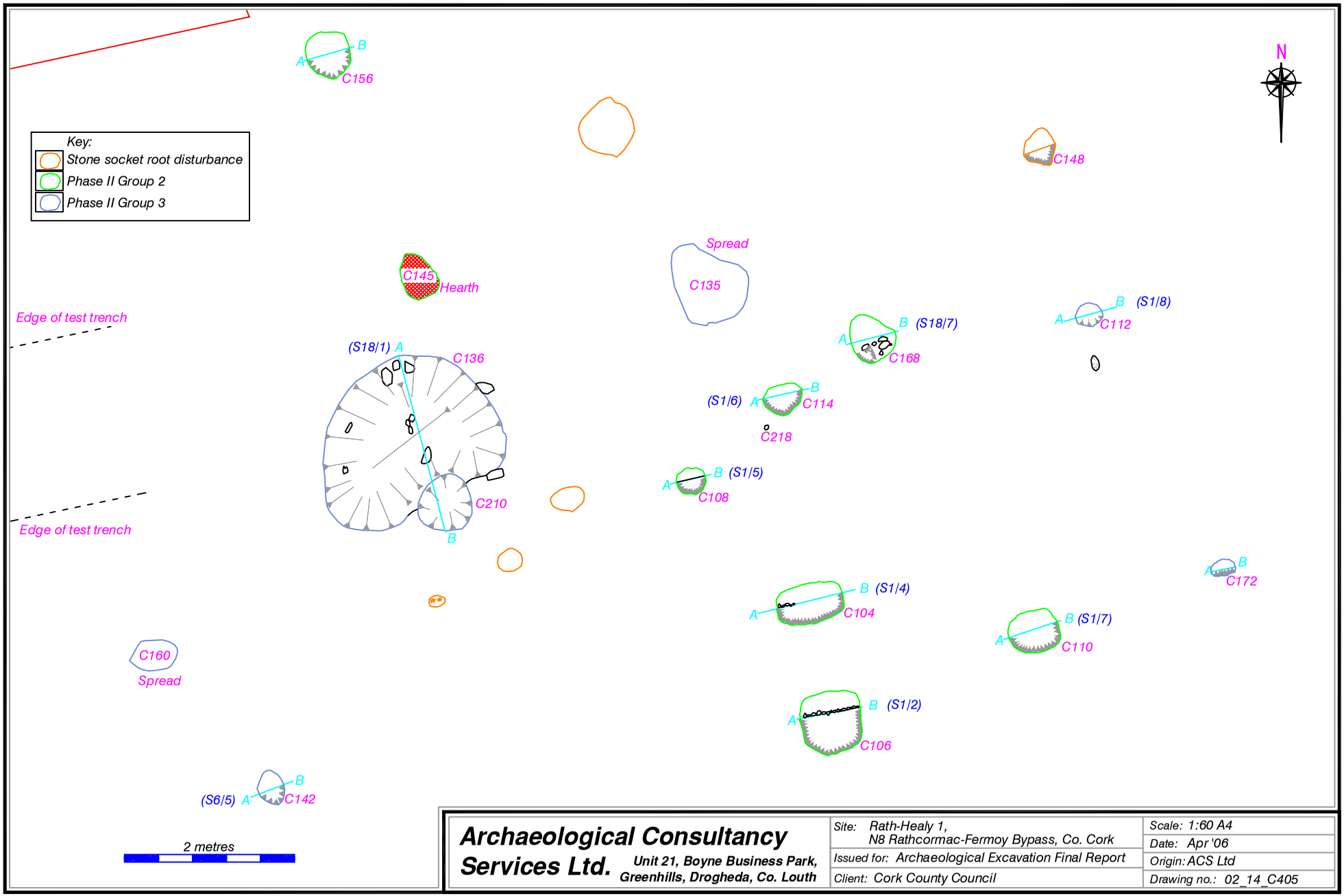
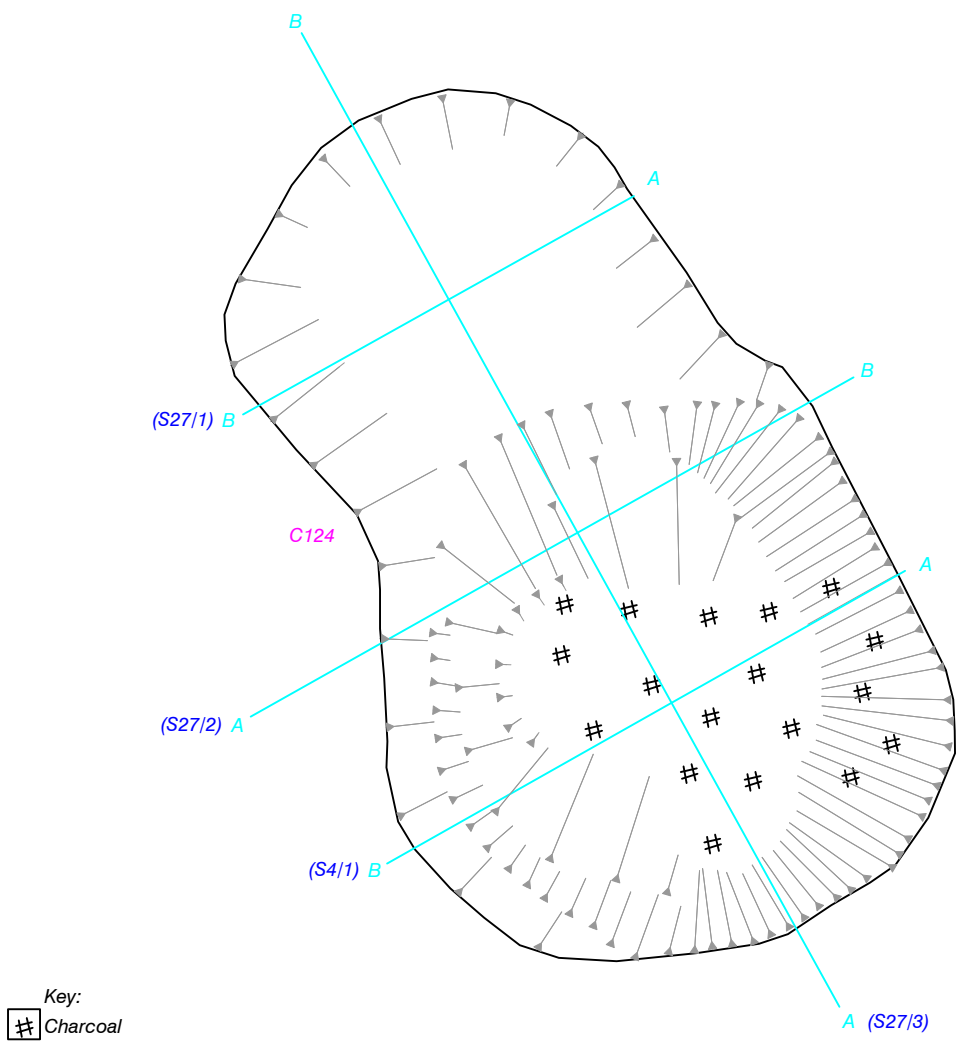
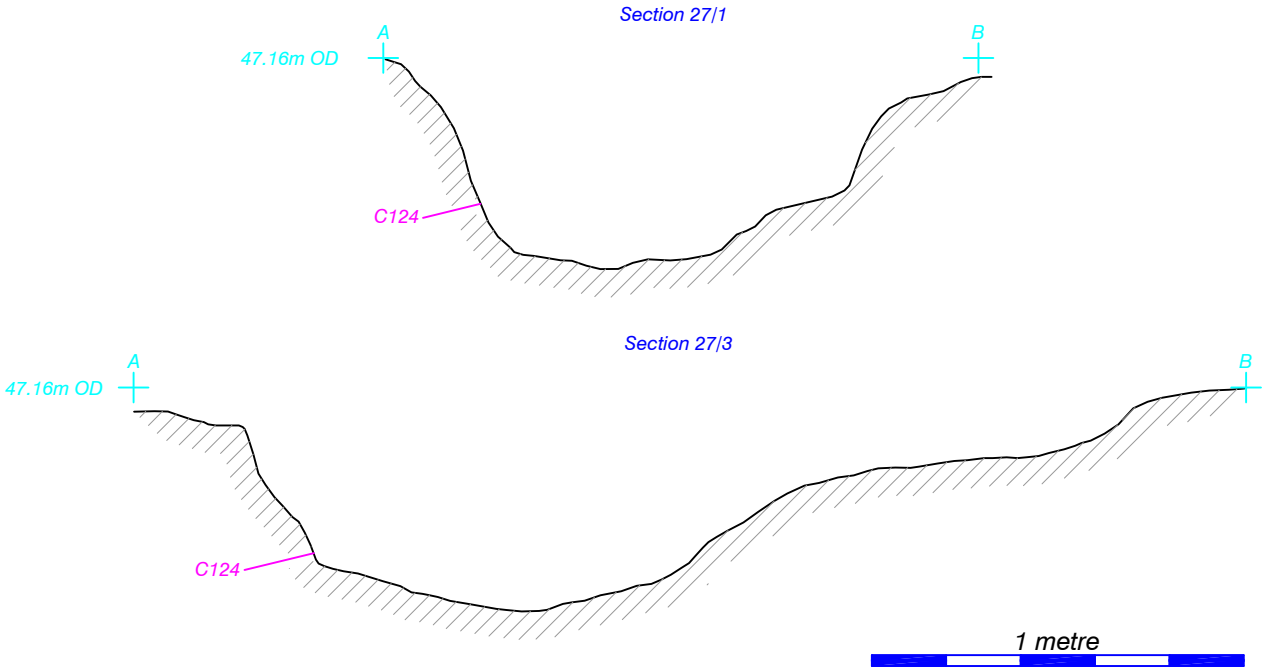


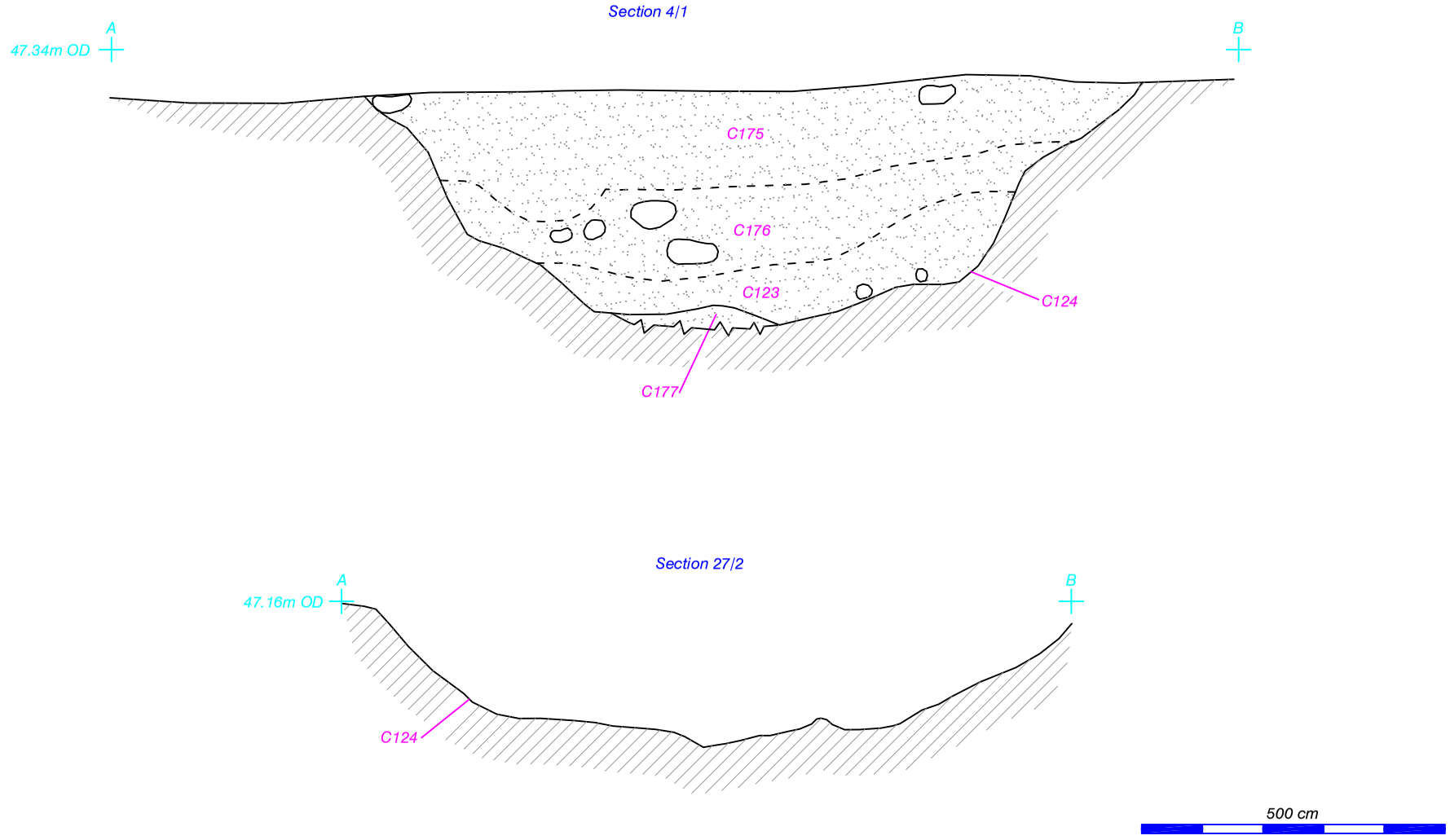
Figure 14: Southern Sector, post-excavation detail of pit cluster





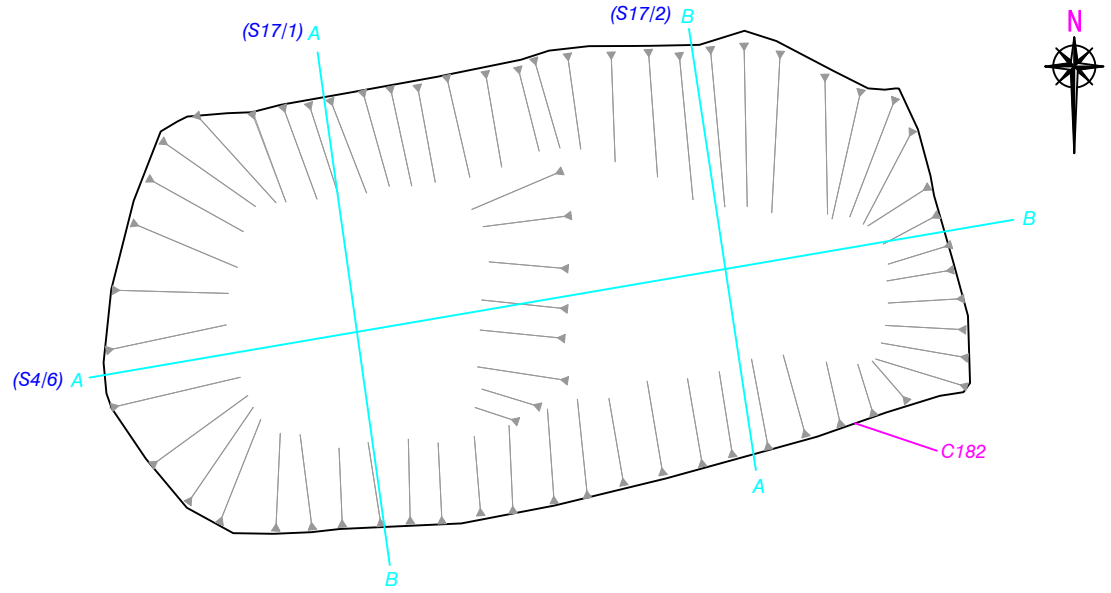
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: Rath-Healy 1, N8 Rathcormac-Fermoy Bypass, Co. Cork	Scale: 1:20 A4
	Issued for: Archaeological Excavation Final Report	Date: Apr '06
	Client: Cork County Council	Origin: ACS Ltd
		Drawing no.: 02_14_C406

Figure 15: Cereal drying kiln C124, plan and sections

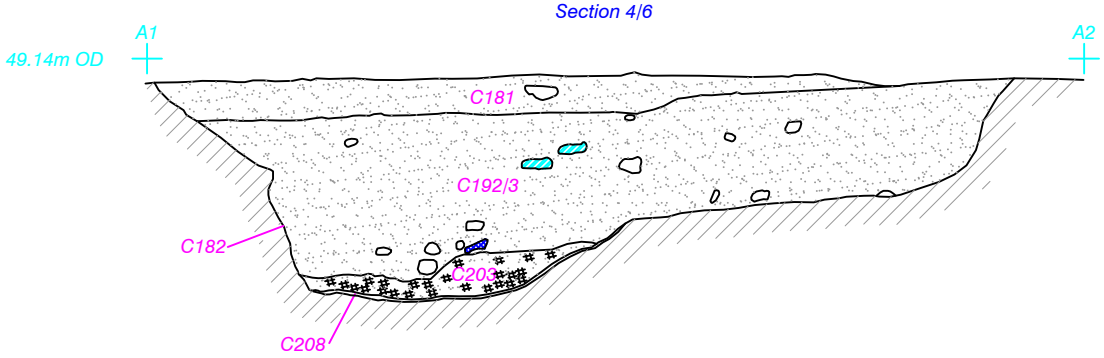


Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: Rath-Healy 1, N8 Rathcormac-Fermoy Bypass, Co. Cork	Scale: 1:10 A4
		Date: Apr '06
	Issued for: Archaeological Excavation Final Report	Origin: ACS Ltd
	Client: Cork County Council	Drawing no.: 02_14_C407

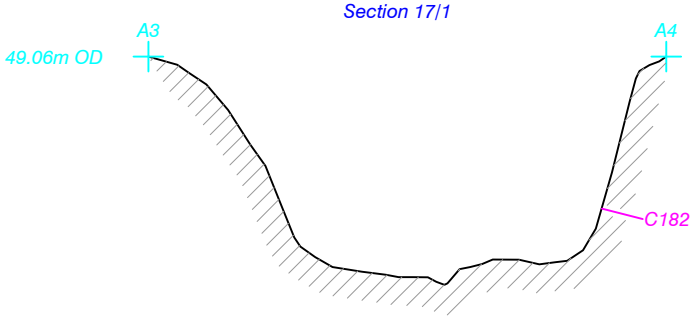
Figure 16: Cereal drying kiln C124, sections



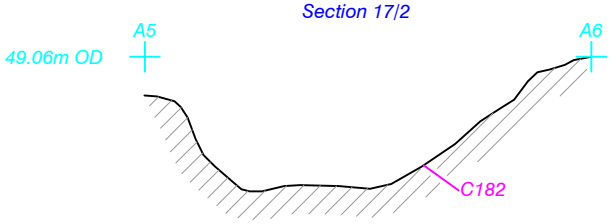
Section 4/6



Section 17/1



Section 17/2



Key:
Slag
Burnt Area
Burnt Limestone

1 metre

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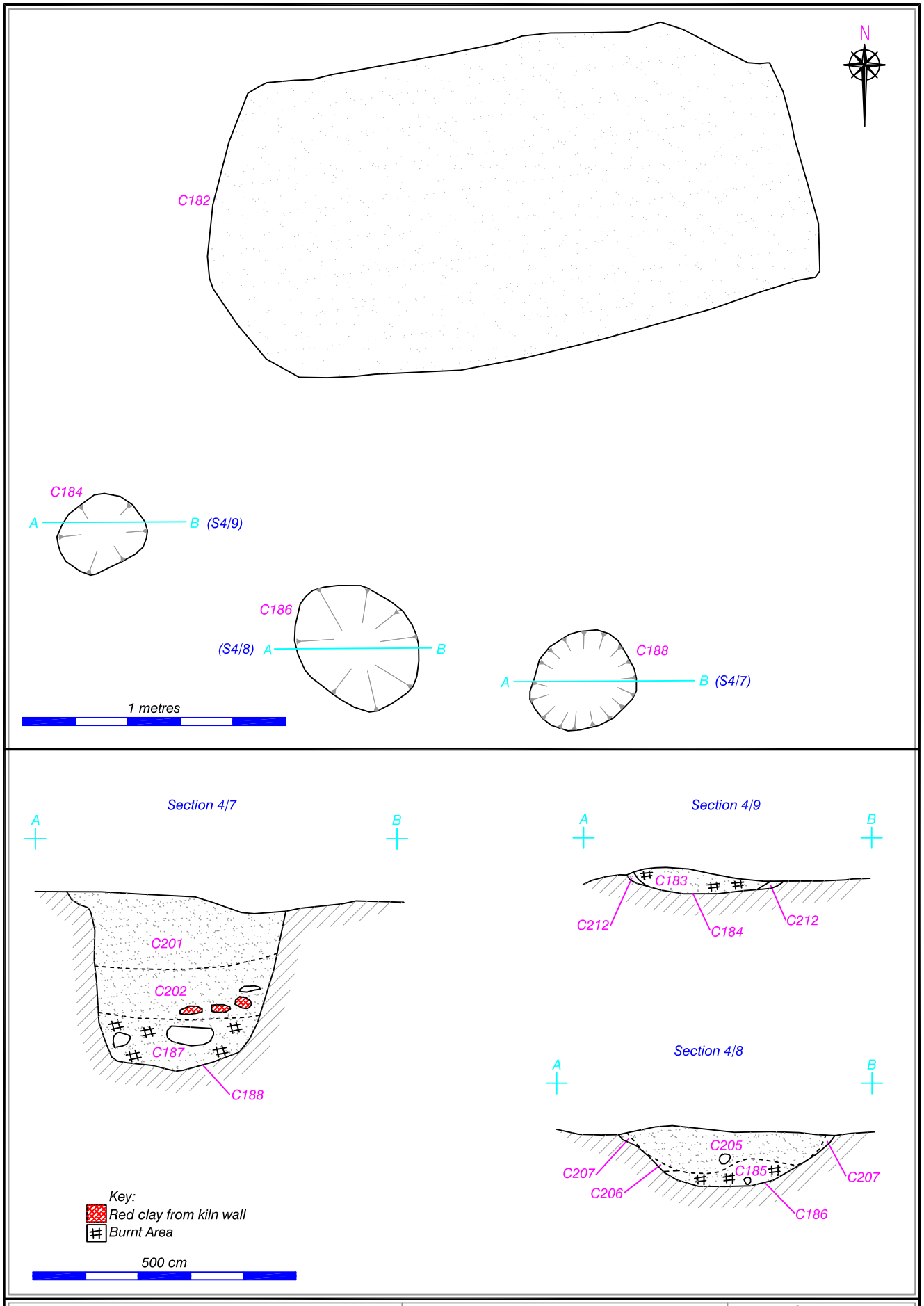
Figure 17: Cereal drying kiln C182, plan and sections



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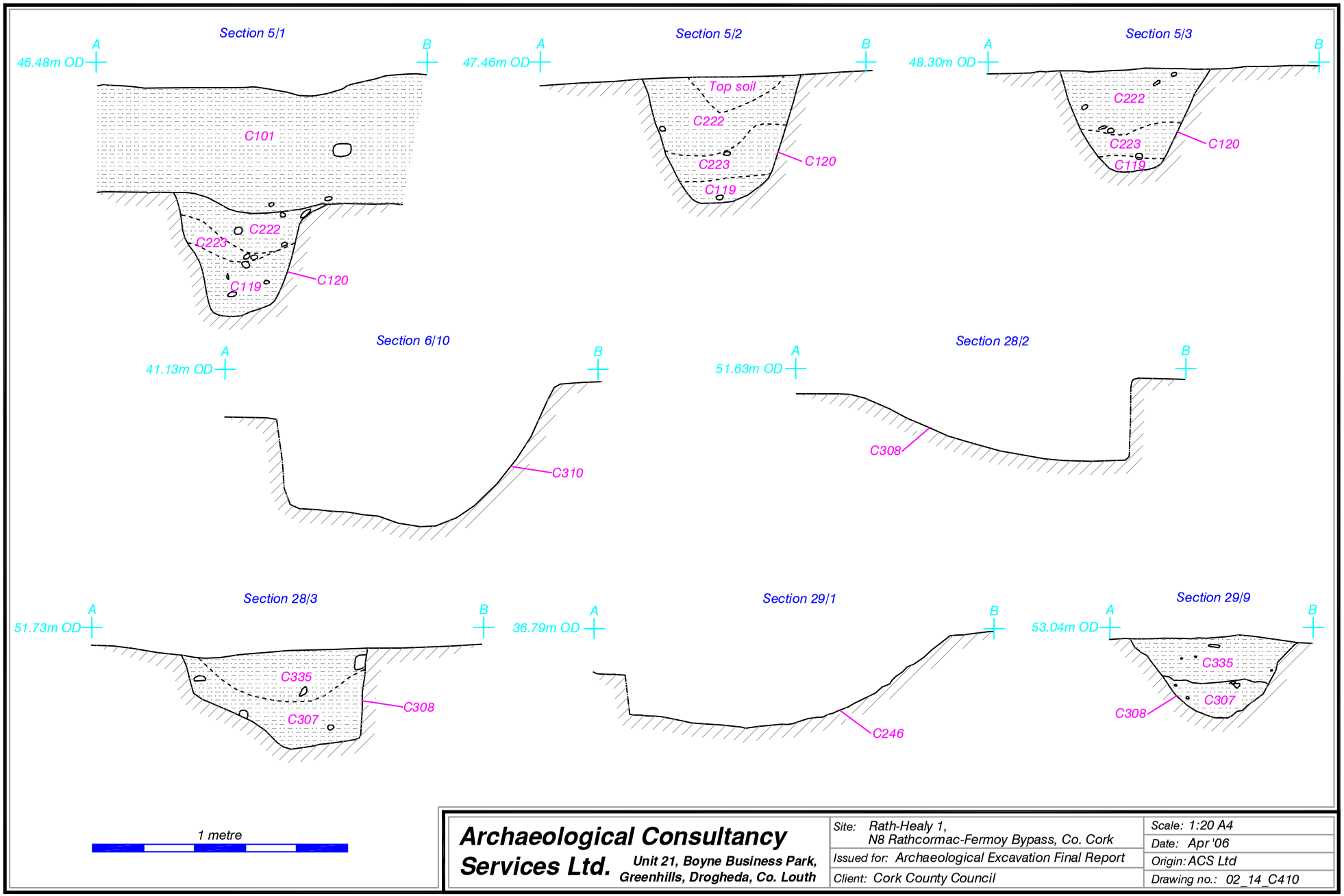
		Drawing no.: 02_14_C409

Figure 18: Bowl hearths C184, C186 and pit C188, plan and sections



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	Client: Cork County Council	Origin: ACS Ltd
		Drawing no.: 02_14_C410

Figure 19: Sections of enclosure ditch C120 etc., all areas

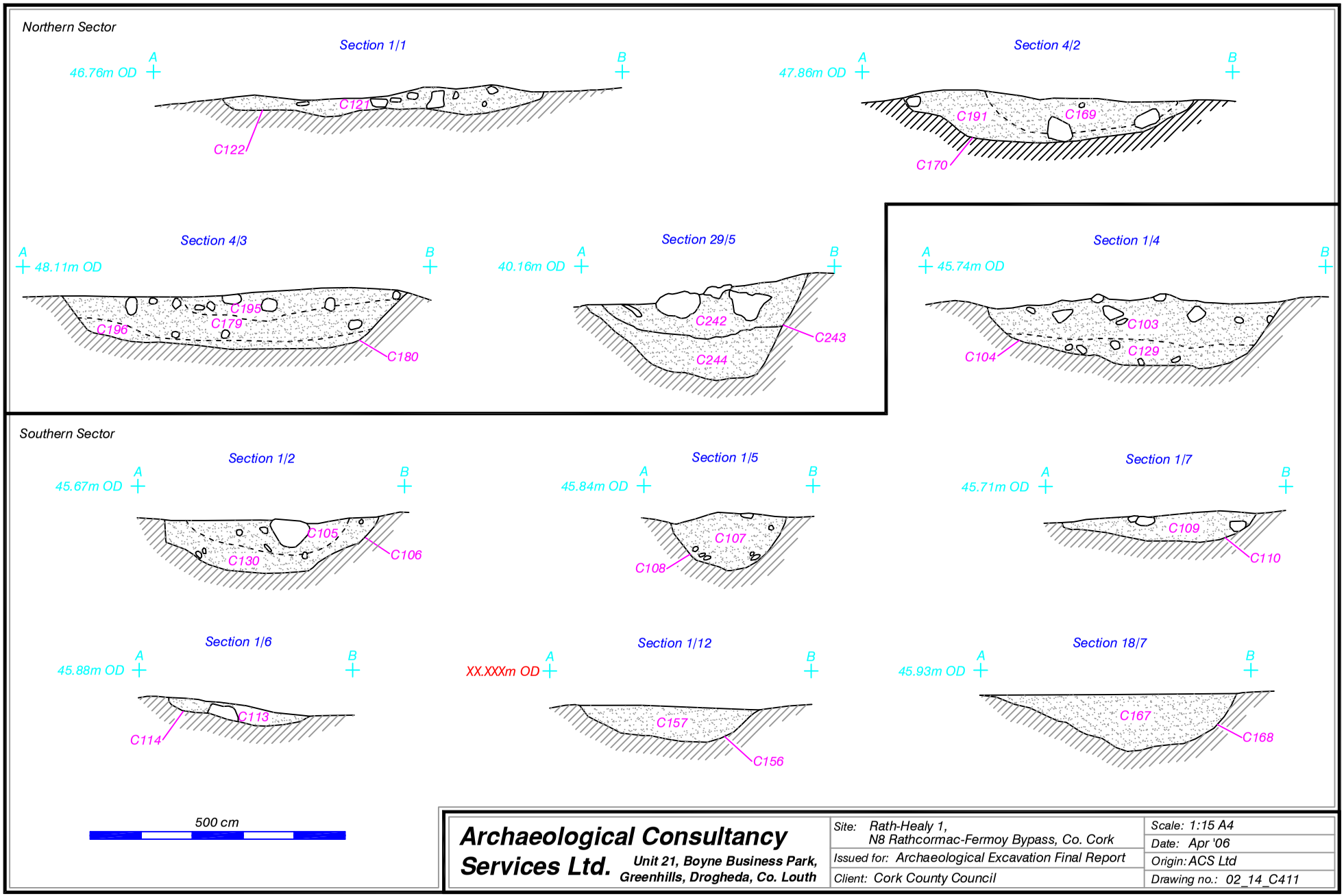

Figure 20: Sections of pits containing burnt stone, all areas

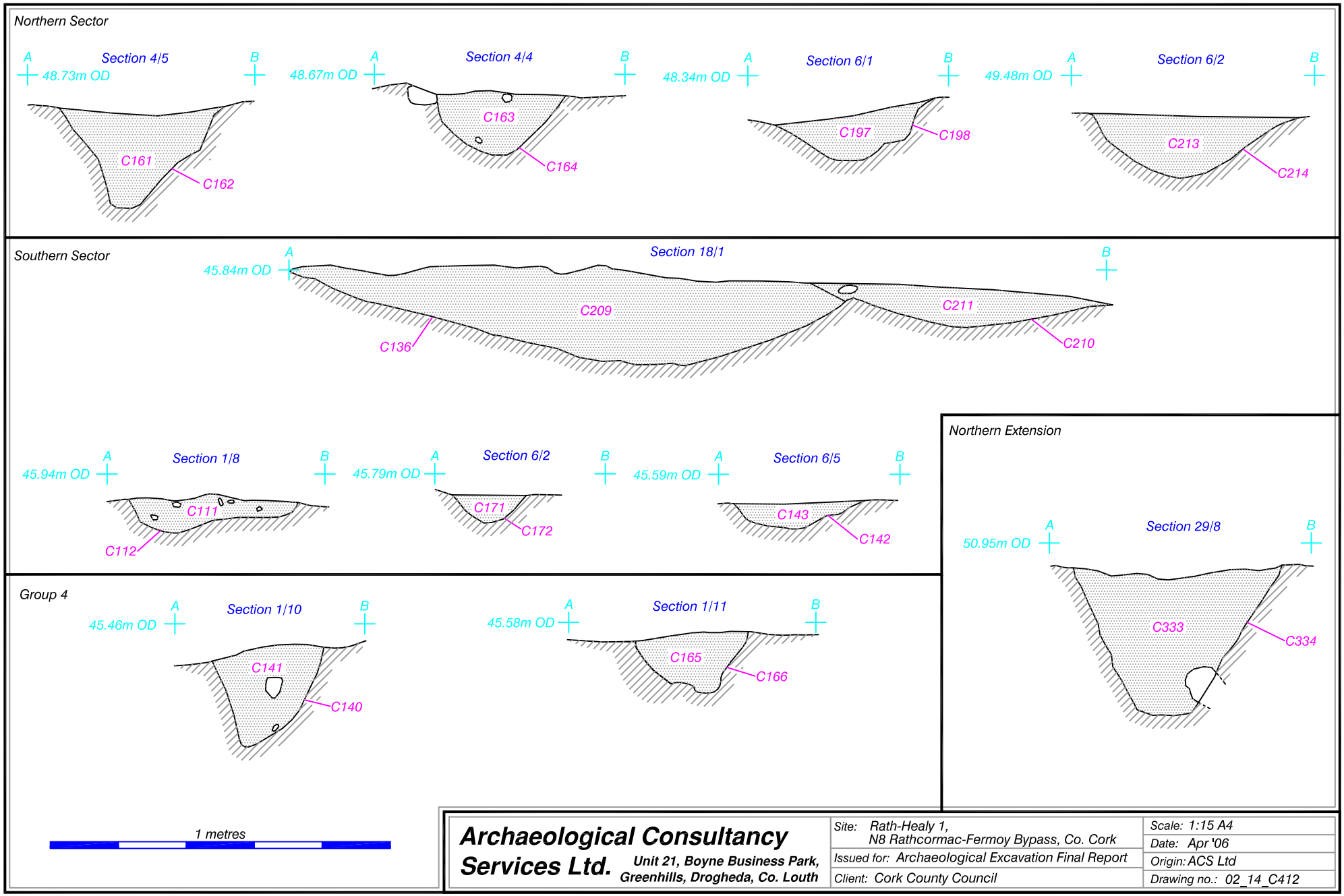

Figure 21: Sections of pits, all areas

Plate 1: Aerial view, with River Blackwater to South (courtesy of Cork County Council)

Plate 2: Looking south across the site and the valley of the River Blackwater towards site Fermoy 2 (02_14:CP1406:8A)

Plate 3: Ditch C120, sectioned, looking north (02_14:CP1404:8)

Plate 4: Ditch C120, section S2, looking north (02_14:CP1404:9)

Plate 5: Ditches C308 and C310, sectioned, looking north (02_14:CP1407:1)

Plate 6: Ditch C246, sectioned, looking southeast (02_14:CP1408:25)

Plate 7: Pit C180, sectioned, looking north (02_14:CP1403:5A)

Plate 8: Pit C104, pre-excavation, looking north (02_14:CP1401:5)

Plate 9: Pit C104, sectioned, looking north (02_14:CP1401:13)

Plate 10: Pit C106, pre-excavation, looking north (02_14:CP1401:4)

Plate 11: Pit C106, sectioned, looking north (02_14:CP1401:14)

Plate 12: Pit C328, sectioned, looking north (02_14:CP1407:17)

Plate 13: Pit C136, sectioned, looking north (02_14:CP1405:14)

Plate 14: Southern Sector, pit cluster, sectioned, looking north (02_14:CP1404:26)

Plate 15: Cereal-drying kiln C124, sectioned, looking north (02_14:CP1402:17A)

Plate 16: Cereal-drying kiln C124, post-excavation, west (02_14:CP1406:3A)

Plate 17: Cereal-drying kiln C122, sectioned, looking north (02_14:CP1403:15)

Plate 18: Cereal-drying kiln C122, post-excavation, looking south (02_14:CP1405:10)

Plate 19: Bowl hearth C184, sectioned, looking north (02_14:CP1405:22)

Plate 20: Bowl hearth C184, post-excavation, looking north (02_14:CP1403:9A)

Plate 21: Bowl hearth C 186, sectioned, looking north (02_14:CP1403:14A)

Plate 22: Bowl hearth C186, post excavation, looking north (02_14:CP1405:24)

Plate 23: Pit C188, sectioned, looking north (02_14:CP1403:8)

Plate 24: Pit C188, post-excavation, looking north (02_14:CP1405:13)

Plate 25: Ditch C236, sectioned, looking north (02_14:CP1407:13)

Plate 26: Hearth C311, pre-excavation, looking north (02_14:CP1407:31)

Plate 27: Ditch C314, sectioned, looking west (02_14:CP1407:28)

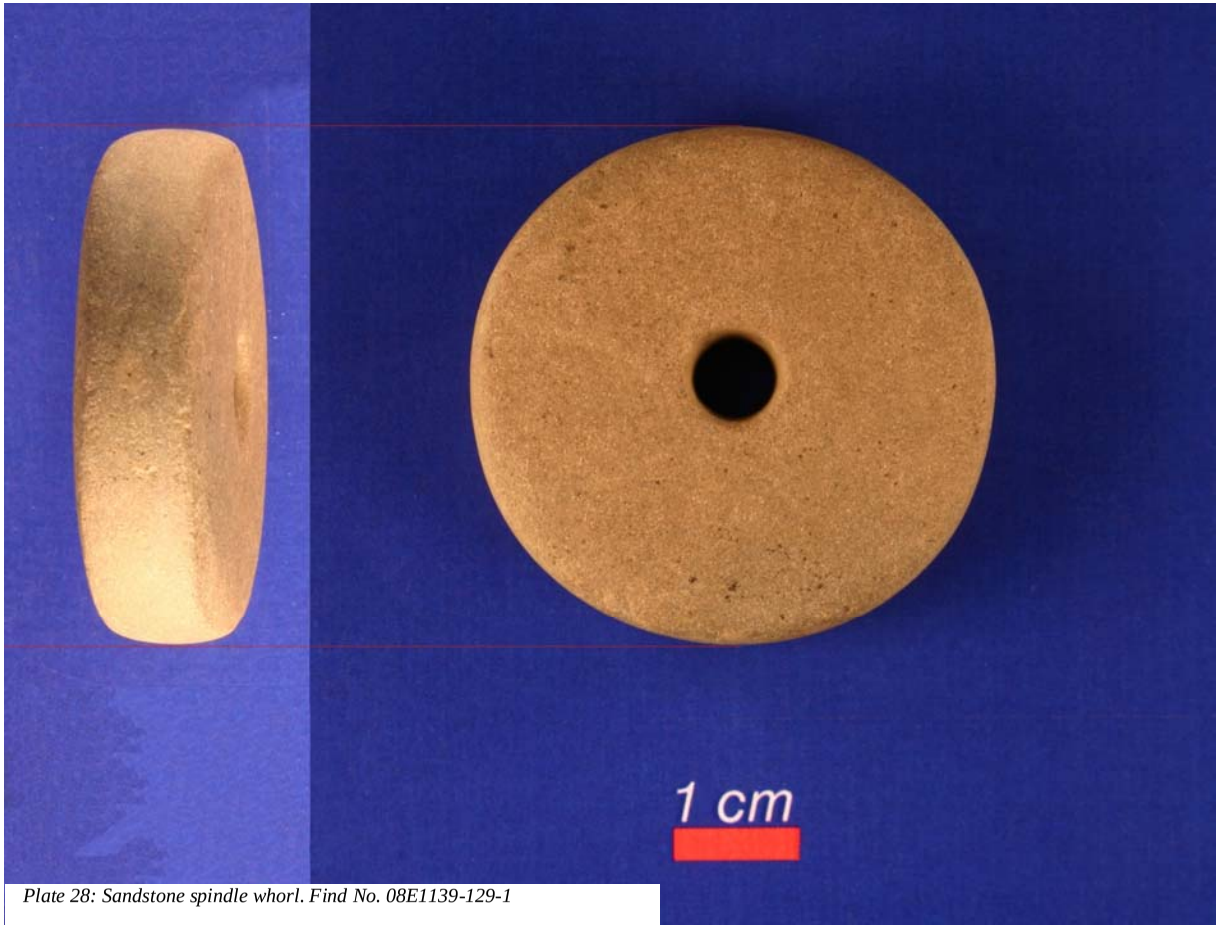

Plate 28: Sandstone spindle whorl. Find No. 08E1139-129-1