

Isle of Man Government  
Department of Transport



# Poortown Quarry Development



**Environmental Impact Assessment –  
Volume G**

**Cultural Heritage**

**September 2003**



---

**CONTENTS**

---

<b>SUMMARY .....</b>	<b>2</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>3</b>
<b>1. INTRODUCTION .....</b>	<b>4</b>
1.1 Circumstances of the Project .....	4
1.2 Site Location .....	4
1.3 Physical Background .....	5
1.4 Archaeological and Historical Background .....	5
<b>2. METHODOLOGY.....</b>	<b>10</b>
2.1 Introduction.....	10
2.2 Geophysical Survey .....	10
2.3 Test Pitting.....	11
2.4 The Archive .....	12
<b>3. RESULTS OF THE GEOPHYSICAL SURVEY.....</b>	<b>13</b>
3.1 Field 1 .....	13
3.2 Field 3 .....	14
<b>4. RESULTS OF THE TEST PITS .....</b>	<b>16</b>
4.1 Introduction.....	16
4.2 Field 1 .....	16
4.3 Field 3 .....	17
4.4 The Finds .....	18
<b>5. CONCLUSIONS.....</b>	<b>20</b>
5.1 Discussion.....	21
5.2 Recommendations.....	21
<b>6. BIBLIOGRAPHY .....</b>	<b>22</b>
6.1 Primary Sources.....	22
6.2 Secondary Sources.....	22
<b>APPENDIX 1: PROJECT BRIEF.....</b>	<b>24</b>
<b>APPENDIX 2: PROJECT DESIGN.....</b>	<b>26</b>
<b>APPENDIX 3: TEST PIT DESCRIPTIONS .....</b>	<b>34</b>
<b>APPENDIX 4: CONTEXT LIST.....</b>	<b>45</b>
<b>APPENDIX 5: SUMMARY FINDS TABLE .....</b>	<b>47</b>
<b>ILLUSTRATIONS .....</b>	<b>49</b>
List of Figures .....	49
List of Plates .....	49

---

## SUMMARY

---

This report considers the potential archaeological impact on the existing environment from the proposed development of Poortown Quarry in an easterly direction. It has been prepared by Oxford Archaeology North (OA North) on behalf of the Isle of Man Department of Transport and forms Volume G of the Environmental Impact Statement.

Burroughs Stewart Associates, acting on behalf of the Isle of Man Department of Transport to compile an Environmental Impact Assessment for the extension of Poortown Quarry (NGR SC 275 834), commissioned OA North to undertake an archaeological assessment of the outlined development area known as the Rockmount Fields. Due to the presence of gorse, only two of the three fields outlined were investigated in the first phase (known here as Fields 1 and 3, Field 2 is to be investigated as a second phase). An archaeological desk-based assessment of the site had already been completed prior to the commencement of this project by Wardell Armstrong in 1999. A program of geophysical survey using magnetometry, conjoined with the excavation of 1m test pits, in accordance with an archaeological brief issued by Manx National Heritage, was undertaken to evaluate the site further.

The main archaeological site in the vicinity is the Neolithic burial chamber known as Giant's Grave located immediately to the north of the proposed extension. The program of evaluation did not identify any sites of archaeological significance. However, the presence of ridge and furrow was identified in Fields 1 and 3 by the geophysical survey. Large areas of magnetic disturbance were also located during the magnetometer survey together with feint linear anomalies. Test pitting of the features showed that these related to probable geological effects due to the presence of igneous intrusions. However, a small number of flints were located from the soil horizon, including two dated to the Neolithic; one arrowhead and one hollow scraper. No further archaeological features were identified in Fields 1 and 3 during this phase of work, although a number of geomorphological features were identified.

It is recommended that no further archaeological investigation be undertaken in Fields 1 and 3 prior to the development taking place, although a watching brief on the topsoil stripping will be employed due to the small sample of the field covered by the test pits. Field 2, the most promontory field in the study area, will be subject to the same or similar program of archaeological investigation once that the gorse has been removed and the area becomes available.

---

## ACKNOWLEDGEMENTS

---

Oxford Archaeology North would like to thank Piers Burroughs of Burroughs Stewart Associates for commissioning the project, and the staff of Poortown Quarry for their co-operation during the evaluation of the site. Oxford Archaeology North would also like to thank Andrew Johnson and Alison Fox of Manx National Heritage for their assistance prior to and during the project, and additional information provided from the Sites and Monuments Record.

The fieldwork was undertaken by Andy Bates, Karl Taylor and David McNichol. The flint finds were assessed by Dan Elsworth, and all other finds by Sean McPhillips. The drawings were compiled by Karl Taylor and Emma Carter, and the report written by Andy Bates and Karl Taylor. Emily Mercer managed the project, and also edited the report together with Jamie Quartermaine.

---

## 1. INTRODUCTION

---

### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Burroughs Stewart Associates, acting on behalf of the Isle of Man Department of Transport, are compiling an Environmental Impact Assessment as part of the planning application for a proposed extension to Poortown Quarry (NGR SC 275 834). A desk-based assessment of the area was completed by Wardell Armstrong in 1999 when recently consulted and following the conclusions of this report. Following the conclusions of this earlier report, Manx National Heritage (MNH) recommended the evaluation of the area using both geophysical techniques and archaeological test pitting over an area covering 4.7ha, as detailed in the project brief (*Appendix 1*). The area outlined for development is known as the Rockmount Fields (labelled Fields 1-3 in this report). Due to the presence of gorse only two of the fields were available for investigation (Fields 1 and 3) equating to 2.9ha. Field 2 will be investigated as a second phase at a later date. Following the submission of a project design (*Appendix 2*), Oxford Archaeology North (OA North) was commissioned to undertake this program of work in August and September 2003. This report forms the Cultural Heritage section of the Environmental Impact Assessment – Volume G.
- 1.1.2 The fieldwork for the first phase of this archaeological investigation was conducted between the 25th of August and the 4th of September 2003. This report sets out the results of both the geophysical survey and the test pits for this first phase of work. This is followed with summary conclusions and a statement of the archaeological potential of the site with recommendations for further work.

### 1.2 SITE LOCATION

- 1.2.1 The site is located on the west side of the Isle of Man to the east of Peel (Fig 1) on the foothills of the northern upland massif. It overlooks the western end of the central valley, which runs from Peel to Douglas (Dackcombe and McCarroll 1990, 10-17), at around 125m OD. The site is currently used as permanent grassland, with extensive areas of scrub dominated by European gorse (*Ulex europaeus*). The soils in the area are described as stoney silty loams, found over much of the Island (Fullen *et al* 1996, 20 and 26)
- 1.2.2 Field 1 slopes moderately from a fairly level area in the north-east down to the south and south-west where the slope steepens considerably. A slight ridge runs across the northern half of the field from west to east. Field 3 slopes fairly moderately from the north to the south. The slope lessens at the southern end to form a fairly level area.

### 1.3 PHYSICAL BACKGROUND

1.3.1 The site is located on the only outcrop of diabase or augite gabbro located on the island, hence the position of the quarry, known as Poortown Gabbro (Dackcombe and McCarroll 1990, 18-30). This rock forms one of a number of Caledonian, or Cambro-Ordovician (approximately 500 million years ago), igneous intrusions (*ibid*). The northern and southern massifs, to the north and south of the site, are formed from Manx slate creating north-east/south-west orientated ridges. The Manx slate is also thought to date from the lower Cambrian to upper Ordovician periods, although this is the subject of some debate (*ibid*). To the south and west lies the widest section of the central valley which, at its eastern end at least, lies along a fault line (*ibid*). At its western end the central valley is an area of alluvium and peat indicating the position of the former Curreghglass, a boggy lake which covered the area in post-glacial times (Dackcombe and McCarroll 1990, 10-17).

### 1.4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

1.4.1 **Mesolithic:** considerable interest has been shown in recent years in the Mesolithic hunter-gatherer colonisation of the Isle of Man. Excavations at Cass ny Hawin, Malew (Woodman 1987) confirmed that occupation had been established by 7500 BP. It has been suggested that the Isle of Man was at this time part of a peninsula extending from the Cumbrian coast, becoming an island around 9000 BP (McCarroll *et al* 1990, 55-6). The relative merits of this land-bridge hypothesis, and of a glaciomarine model (that is, rapid sea-level rise following ice retreat) requiring sea-borne colonisation, are the subject of continuing debate. A strong similarity has been noted between some of the Manx flint assemblages, particularly in the later Mesolithic 'heavy-bladed industries', with Irish material (McCartan 1990, 522-3). With few exceptions in the north of the island, the 18 known early Mesolithic 'narrow-blade' and microlithic sites are located close to the shore. 'Heavy-bladed' (Bann) sites, which are considerably more numerous, are spread more evenly up to c5km from the shore, and further inland in the low-lying northern parts of the Island. A total of six Mesolithic flint scatters were recorded within the vicinity of the study area by the original desk-based assessment (NGR SC 265839; 262832; 263834; 276827; 272821; 266826) (Wardell Armstrong 1999, 10).

1.4.2 **Neolithic:** until the work of Lancaster University Archaeology Unit (LUAU the former guise of OA North) and the University of Bournemouth at Billown, Malew (Darvill 1996), there had been relatively little study in recent years of the Manx Neolithic. Moffatt's (1978) review of the Ronaldsway Culture usefully re-appraises earlier excavations of both domestic and cemetery sites. The word 'culture' has now largely disappeared from the archaeological vocabulary in Britain, and the Ronaldsway Culture is now described as 'later Neolithic', with affinities to the assemblage from the Ronaldsway site. Radiocarbon determinations have been obtained for several 'Ronaldsway' cemetery sites and, with one early anomaly, these dates lie in the second half of the third millennium bc (uncalibrated dates). However, Moffatt (1978, 214) regards these dates as suspect, in part due to the presence of 'bog oak'. McCartan and Johnson (1992, 121) state that the most reliable assay for

Ronaldsway material is a date of 4140±50 BP (laboratory number not given) from Ballavarry, Andreas. This date falls within the spread of Irish Beaker dates, and is therefore transitional between late Neolithic and early Bronze Age.

- 1.4.3 The proposed quarry site is adjacent to a chambered long cairn called Giant's Grave (NGR SC 27438340). The monument has apparently been disturbed in antiquity, and comprises a series of orthostats defining a passage leading towards the site of a putative chamber beneath a broad, sub-oval mound. The mound and the line of orthostats passageway are divided by a modern field boundary and on the surface there is no direct relationship between the two elements of the monument. The monument is a type of Neolithic funerary cairn, designed so as to accommodate the deposition of remains from multiple inhumations over an extended period, hence the need for an open burial chamber. The best parallel for the cairn is the Bargrennan Cairn in Kirkcudbrightshire, Southern Scotland, Knowth, Co Meath in Ireland, Broadsands, Devon and the Breton Passage Graves such as Kercade and Ile Longue (Chartrand *et al* 2002, 47). These comprise a passageway defined by uprights leading to a single small chamber, little wider than the passage. The whole structure would have been beneath a large circular mound, and the fact that only a limited mound survives at Giant's Grave possibly indicates that the site has been subject to considerable disturbance (*op cit*, 37).
- 1.4.4 The monument type is rare across Britain and there are only two known on the Isle of Man. The site is of considerable importance, and although the monument will not be directly affected by the proposed development, recent work carried out around Giant's Grave and other Neolithic megalithic tombs has highlighted the potential for associated monuments, other funerary remains or settlement remains which could be affected by the proposed development (*ibid*).
- 1.4.5 A recent geophysical survey carried out over Giant's Grave combined four complementary techniques; magnetometry, resistivity, electromagnetics (EM) and magnetic susceptibility by Bournemouth University. The results were particular to the funerary monument and were of limited use to the surrounding area. The purpose of the survey was to investigate the composition of the burial mound, and confirmed that the orthostats were the remains of a passage leading to a chambered area in the centre of a roughly circular mound (*op cit*, 45-47).
- 1.4.6 Also within the vicinity of the study area is a chambered tomb cremation cemetery, which was reused for Bronze Age burials, near Ballatarra (NGR SC 26408241); a possibly Neolithic cist grave near Ballalough (NGR SC 26168343) (Wardell Armstrong 1999, 10). Two further Mesolithic or Neolithic flint sites are located within the vicinity, one at Ballakilmurray (NGR SC 270838) and the other to the south at NGR SC 267828 (*ibid*). A Neolithic to early Bronze Age artefact scatter, including flint tools, decorated pottery and cremated bone, was found to the north east of Ballalough (NGR SC 26228348) (*ibid*).

- 1.4.7 **Bronze Age:** the Bronze Age is largely represented in the Isle of Man by Beaker and Food-Vessel type burial sites (Wardell Armstrong 1999, 10). A number of round barrows, considered to be of this period, may be found near St Johns to the south-west of the site, such as ‘The Hump’, a bowl barrow located at NGR SC 27318240 (*ibid*). Another unconfirmed burial mound, sited on a natural mound, is suggested to the south west of Ballalough (NGR SC 26168343) (*ibid*). The settlement site Purt y Candas, near Ballacraigne, dates from the Bronze Age through to early Christian period and is located two kilometres south-east of the study area (NRG SC 28458170) (Andrew Johnson pers. comm.).
- 1.4.8 **Iron Age:** the climatic deterioration experienced by the rest of Britain during the Iron Age, from the seventh century BC onwards, was also felt on Mann (Freke 1990, 106). The presence of burnt mounds, or open air cooking sites, have been suggested to be the only evidence of settlement activity located on the island (*ibid*), although Barfield and Hodder (1987) have suggested a form of primitive steam bath or ‘sauna’, for pleasure or ritual, fumigation or cleansing. Both hypotheses can be supported from ethnographic parallels. This monument type also continues into the Iron Age, as shown by the radio carbon dates obtained samples excavated from the burnt mounds at Kerrowdhoo (Woodcock 1995, 17).
- 1.4.9 The Iron Age is a period which extends from c500BC to cAD500 as compared to the mainland where the Iron Age ceased with the Roman invasion when it then became the Roman period. On the Isle of Man no Roman Invasion meant the Iron Age continued in a similar way to Ireland in terms of trade and other contacts. The Iron Age monuments found on Mann principally comprise fortified sites, including promontory forts such as Cronk Meriu and Cass ny Hawin; fortified homesteads such as Ballanicholas, Castleward and Cronk Summark; and the later defences of South Barrule (Freke 1990, 106). Large round houses of this period are also known, such those excavated by Bersu at Ballacagan and Ballanorris measuring up to 30m in diameter (*ibid*). Cashtal Lajer, Manannan’s Chair and the Braid may also be included in this category, although none of these have been proved to be Iron Age by excavation (*ibid*). Seventeen such round houses are known on the island (Freeman *et al* 1966, 263). Excavations on St Patrick’s Isle, in Peel to the west of the study area, revealed a pre-Christian village. Amongst the structures identified was a large granary, suggested to represent central communal storage of food resources in a defended settlement, reflecting the centralised financial and political control of the period (Freke 1990, 106).
- 1.4.10 **Early Christian (cAD500-800) and Norse (cAD800-1266) periods:** although there is no evidence of this period from the study area it is noted as the island has produced much evidence. Early research on these periods has concentrated on the Christian decorated stone crosses. More recently the debate has centred, on the one hand, on the extent to which the native Celtic, Gaelic-speaking population were supplanted Norse settlers and invaders, and on the other hand the date of the *keeills* or small chapels, and the traditional land divisions of treens and quarterlands. The archaeological remains of these periods are often characterised by keeil (chapel) sites of the Celtic church, a tradition which

developed through missionary contact with the eastern Mediterranean desert tradition on both Ireland and Mann (Freke 1990, 107-110). Many of the 200 plus keeil sites found on the island are thought to have pre-Norse origins indicated by their close association with early Christian crosses, and also stratigraphically such as at Balladoole where the later Viking boat burial disturbed the lintel graves associated with the earlier keeil (*ibid*). One such keeil site is located to the south-west of the site, St Mary's Chapel or Cronk Keeillaune (Hill of the Church Bell) near Ballalough (NGR SC 26168343) (Wardell Armstrong 1999, 10). Early monastic settlements are considered to have existed at Maughold, from which the largest number of early Christian crosses have been located on the island, and a lost monastic settlement on the Calf of Man indicated by the recovery of an alter frontal piece depicting the crucifixion scene carved in slate (Freke 1990, 107-110). The only excavated village site from this period is that at Ronaldsway, an area which continued to be occupied through to the medieval period (*ibid*). Round houses from this period do not appear to differ greatly from those of the previous period (*ibid*).

- 1.4.11 It is assumed that the island had previously been the subject of Norse raids as had occurred elsewhere in the British Isles (Freke 1990, 133-119). The transition from raiders to settlers is unclear, but is thought to have taken place in the ninth century. There are a number of Norse pagan burial mounds attributed to this period (*ibid*; Kinvig 1950, 50). In 1079 Godred Crovan, or King Orree of Manx legend, defeated the Manx at Sky Hill and formed an extensive island kingdom including the western Scottish islands. The Norse customs and system of administrations became established on the island, the current Court of Tynwald being descended from the Scandinavian 'Thing' (Freke 1990, 133-119). However, the Gaelic-speaking population remained throughout the period of Norse rule, the Norse themselves becoming Gaelicised by the end of the thirteenth century (*ibid*).
- 1.4.12 **Medieval:** during the Scandinavian rule, Peel on the west coast of Mann became the capital of the Kingdom of the Isles, encompassing the Hebrides. The islands were granted to Scots by Norway in 1266, resulting in nearly 100 years of conflict between the English and Scots over possession of Mann following which a succession of different Lords were granted its ownership. Stable government was not re-established until the rule of the Stanleys in 1405, whose seat was at Peel, which continued almost unbroken until the end of their line in 1736 (Freke 1990, 115-119) when the lordship passed to the Dukes of Atholl (of Blair Castle, Perthshire) by descent. Castle Rushen became the centre of political power in the thirteenth century, Castletown continuing as the capital until 1869 when it was displaced by Douglas (*ibid*).
- 1.4.13 **Post-medieval:** historically there has always been a close connection between fishing and agriculture on Mann, the herring fishery clashed with the harvest on land resulting in the harvest being collected by the women. Since the nineteenth century the herring fisheries have collapsed, becoming almost extinct, although agriculture remains an important part of the islands economy. Mining of predominantly lead (containing silver) but also zinc, iron and copper took place on the island, with documentary sources referring to mining as far back as the thirteenth and fifteenth centuries (Kinvig 1950, 142-143). The

principal lead and silver workings are found in the Laxey and Foxdale mines, but old mine workings can also be seen in Bradda Head, Ballacorkish, Ballasherlogue, Langness and Maughold Head, Glenchass, and also a failed working at Glen Maye (*ibid*; Robinson 1990, 219-237). The Manx, as a seafaring nation, also practised trade in the seventeenth and, particularly, the eighteenth centuries, as well as smuggling (Kinvig, 1950 115-118). In the late Victorian era tourism led to the establishment of seaside resorts such as Ramsey and Douglas (Prentice 1990, 248).

---

## 2. METHODOLOGY

---

### 2.1 INTRODUCTION

2.1.1 Evaluation of the site consisted of a non-intrusive geophysical survey using magnetometry, followed by program of test pitting to investigate the results of the survey. The majority of the test pits were located at the 30m grid nodes used for the geophysical survey (Fig 7). A further eight test pits were excavated in order to target anomalies identified by the geophysical survey including five test pits in Field 1 and three test pits in Field 3.

### 2.2 GEOPHYSICAL SURVEY

2.2.1 **Magnetometry:** the preferred geophysical technique in the location of prehistoric remains is magnetometry which will usually locate ‘positively magnetic’ material such as iron-based features and objects, or those subjected to firing such as kilns, hearths, and even the buried remains of brick walls. The strength of the present geomagnetic field in Britain is approximately 50,000nT (nanotesla). Most buried archaeological features usually result in very weak changes of less than 1nT to the magnetic field. However, changes as low as 0.1nT can be detected by using a fluxgate gradiometer such as the Geoscan FM36/FM256 (Clark 1990, 65).

2.2.2 This technique is also widely used to locate the more subtle magnetic features associated with settlement and funerary remains, such as boundary or enclosure ditches and pits or postholes, which have been gradually infilled with more humic material. The breakdown of organic matter through microbiotic activity leads to the humic material becoming rich in magnetic iron oxides when compared with the subsoil, allowing the features to be identified. In addition variations in magnetic susceptibility between the topsoil, subsoil and bedrock have a localised effect on the Earth’s magnetic field. This enables the detection of features such as silted up or backfilled pits due to the fact that the topsoil has more magnetic properties than the subsoil or bedrock, resulting in a positive magnetic anomaly (*ibid*). Conversely, earthwork or embankment remains can also be identified with magnetometry as a ‘negative’ feature due to the action in creating the earthwork of turning the relatively low magnetic subsoil on top of the more magnetic topsoil. In this way, magnetometry is a very efficient technique and is recommended in the first instance by the English Heritage Guidelines (1995) for such investigations.

2.2.3 A Geoscan Research FM36 fluxgate gradiometer was employed in this survey which has a typical depth of penetration of approximately 0.5m-1.0m. However, this would increase with stronger magnetic anomalies. The Geoscan Research FM36 and the recently updated version known as the FM256 (so called due to its greater memory capacity) consists of two fluxgates held vertically at a distance of 0.5m apart. These are accurately aligned to nullify the effect of the earth's magnetic field and other potential effects such as

diurnal variations in order to take readings relating only to the difference in localised magnetic anomalies compared with the general magnetic background.

2.2.4 **Sampling interval:** the survey area was divided into 30m x 30m grids, to correlate with the grid to be used for test pitting, within which data collection was taken. Sampling was at 0.5m intervals with inter-transect distances of 1m, equating to 1800 sample readings per grid. The survey was carried out in ‘zig-zag’ mode with precautions to minimise the heading error on site.

2.2.5 **Data capture and processing:** the data was captured in the internal memory of the FM36 and then downloaded to a portable computer. The individual grids were combined to produce an overall plan of the surveyed area or composite. The results were analysed and basic processing was carried out using the Geoscan software *Geoplot 3*. Processing was undertaken in accordance with English Heritage guidelines (English Heritage 1995) to remove any instrument error or survey effects in order to enhance any more subtle anomalies associated with archaeological features:

- Zero mean grid was applied to remove grid ‘edge effects’.
- The data was ‘de-staggered’ to remove any displacement caused by surveying in zig-zag mode.
- The data was ‘de-spiked’ to remove any spurious high intensity anomalies such as spikes caused through ferrous objects

2.2.6 **Presentation of results and interpretation:** the presentation of the data for each site involves a print-out of the raw data both as grey-scale plot (Fig 2) and trace plots (Figs 3 and 4), together with a grey scale plot of the processed data (Fig 5). Magnetic anomalies have been identified and plotted onto the ‘Abstraction and Interpretation of Anomalies’ drawing for the site (Fig 6).

## 2.3 TEST PITTING

2.3.1 A total of 37 test pits were excavated, measuring 1m by 1m, in Fields 1 and 3. These were located on the grid node points at 30m intervals (Fig 7). A total of five additional test pits were excavated in Field 1 and three in Field 3 to examine the anomalies identified by the geophysical survey. All excavation proceeded by hand, removing the soil horizon down to the first archaeological deposits or natural geology. Sample sieving was conducted on site, where deposits were suitable, sieving one-third to one-half of each 0.1m spit. If archaeologically significant finds were located within the test pit, the entirety of the test pit was sieved. It was not feasible to excavate all five test pits along the southern edge of the site due to extensive areas of gorse in the area. Only two of these, Test Pits 10 and 11, were completed in this phase of work.

2.3.2 **Recording:** a complete record of all features and horizons was made, comprising a full description and preliminary classification of features or structures revealed on OA North *pro-forma* sheets and their accurate location in plan. A plan of the site was produced, showing the location of all test pits

(Fig 7). A photographic record in colour slide and monochrome formats was also compiled.

- 2.3.3 ***Finds:*** all finds recovered were bagged and recorded by context number; all significant finds have been retained and have been processed and stored according to standard practise (following current Institute of Field Archaeology (IFA) guidelines).

## **2.4 THE ARCHIVE**

- 2.4.1 A full professional archive has been compiled in accordance with the project design (Appendix 1) and in accordance with current IFA and English Heritage guidelines (English Heritage 1991). The archive will be deposited with Manx National Heritage, and the finds deposited for storage or display at the Manx Museum and National Trust.

---

### 3. RESULTS OF THE GEOPHYSICAL SURVEY

---

#### 3.1 FIELD 1

- 3.1.1 The results from the geophysical survey clearly show three large areas of magnetic disturbance (G1a, b and c; Fig 6). The levels of which can be seen on the trace plots (Figs 3 and 4) and are reminiscent of thermo-remnant responses. Trial trenches (Test Pits 10, 11, 16-20, 34 and 63) located within these areas revealed fragmented bedrock relating to igneous intrusions (*Section 1.3*) which may account for the magnetic enhancement.
- 3.1.2 An area of enhancement (G3; Fig 6) is located to the south-east of an area of magnetic disturbance discussed above (G1a; Fig 6). The general characteristics appear to point toward a possible archaeological interpretation. However, it may also relate to the area of magnetic disturbance and therefore be geological in origin. It is crossed by a positive linear anomaly interpreted as ridge and furrow (L1a below) at its south-eastern end, which appears to have caused a spread of material along the line of the furrow in a south-westerly direction
- 3.1.3 A number of positive and negative magnetic linear anomalies are present within Field 1 the majority of which run across the site from north-east to south-west (L1a and L3; Fig 6). Three distinct parallel alignments have been abstracted from the data and appear to relate to ridge and furrow. They are aligned at a distance of approximately five to seven metres apart and correlate with crop marks observed on the aerial photograph information supplied by the client. They are characterised by a negative magnetic linear anomaly flanked by two positive magnetic linear anomalies.
- 3.1.4 Other weak positive linear anomalies, not as extensive or distinctly aligned as L1a, have been abstracted (L1b; Fig 6). It is possible that they may be either archaeological in origin or due to recent agricultural practices. A trial trench located on one of these weak linear anomalies was not able to characterise it (Test Pit 84).
- 3.1.5 Located in the north-west corner of the survey area are two parallel strong positive magnetic linear anomalies (L2a; Fig 6), which are seen running in a south-west/north-east direction between the western field boundary and the area of general disturbance, G1a. It is probable that they are natural and relate to G1a or related to more recent agricultural activities.
- 3.1.6 A small negative magnetic linear anomaly (L4; Fig 6), approximately seven meters long, is located in the south east corner of the survey area and may be due to some form of embankment. Its limited extent makes interpretation difficult.
- 3.1.7 Scattered round the field are numerous discrete positive magnetic anomalies varying in size. They are mostly located in the north-western half of the field and can be divided into two distinct types; D1 and D2 (Fig 6). The D1 anomalies are isolated discrete anomalies and D2 are scattered smaller discrete

anomalies. D1 may be assigned a similar explanation to anomalies G1a, G1b and G1c, discussed previously, as it is possible that the stone deposit or outcrop identified in the test pits (Test Pit 83) in these areas lies at different depths across the site and that the discrete anomalies D1 may relate to stone located closer to the surface.

- 3.1.8 The D2 anomalies are reminiscent of pits or post-holes in their appearance, however, two test pits (Test Pit 81 and 85) located on these anomalies failed to locate any such evidence.
- 3.1.9 A discrete area of magnetic disturbance (D3; Fig 6) is located in the northern part of the survey area and can also be seen on the aerial photograph. This is due to the laying down of hardcore to form a modern trackway into the field, and exits the field via a gate on the northern field boundary.

## **3.2 FIELD 3**

- 3.2.1 The data collected from Field 3 reveals anomalies of similar appearance to those from Field 1. There is an area of magnetic disturbance located at the southern end of the survey area (G2; Fig 6). A trial trench (Test Pit 80) was excavated within this area which revealed a layer of clay beneath the topsoil with peat underlying the clay. This area was low lying and the build up of more humic material may account for the magnetic disturbance, but due to the limited nature of the trial trench it not possible to ascertain why this humic material was present.
- 3.2.2 A strong positive magnetic linear anomaly with a parallel area of negative magnetic activity running down its eastern edge was also located within the southern part of this field (L2b; Fig 6). This anomaly is reminiscent of a bank and ditch arrangement such as a relict field boundary. This was tested with a trial trench (Test Pit 79) which revealed a stone lens extending into the trench.
- 3.2.3 A weak positively magnetic enhanced area (G4; Fig 6) located close to the western edge of the field is reminiscent of a cut feature of possible archaeological origin. However, its proximity to a steep escarpment would suggest that is due to the effects of hillwash. A trial trench (Test Pit 78) located on this anomaly revealed deposits of colluvium.
- 3.2.4 Running almost down the centre of the field (and down slope) is a negative magnetic linear anomaly flanked by two positive linear anomalies (L1a and L3; Fig 6). This arrangement is very similar to those anomalies identified in Field 1 which were interpreted as ridge and furrow. This explanation can also probably be assigned to these anomalies. No trace of these in Field 3 could be identified in the aerial photograph.
- 3.2.5 Two weak positive magnetic linear anomalies identified (L5; Fig 6), may represent field drainage exiting towards the east of the site or some other form of agricultural activity. Evidence of a stone culvert within a cut and backfilled trench was located in a trial trench (Test Pit 2 and Fig 8).

- 3.2.6 An area of strong magnetic response was located at the extreme northern end of the survey area (M2; Fig 2). This probably reflects the presence of large metallic objects noted on site such as a cast iron bath being used as a water trough.

---

## 4. RESULTS OF THE TEST PITS

---

### 4.1 INTRODUCTION

4.1.1 Below is presented the summary results of the test pits. Detailed results for each individual test pit can be found in *Appendix 3*. Test Pits 78 to 85 were located over magnetic anomalies detected by the geophysical survey. Of the 37 test pits excavated the vast majority had the same stratigraphic sequence, that of the soil horizon, layer **1**, above glacial till, deposit **2**. Variations in this theme are briefly described below, although they largely relate to quaternary geology or geomorphology. Three of the test pits also contained worked flint (*Section 4.4*).

### 4.2 FIELD 1

4.2.1 ***Test pits containing the soil horizon above glacial till or bedrock only:*** these include Test Pits 16, 17, 18, 19, 20, 36, 37, 38, 41, 42, 43, 44, 45, 60, 61, 62, 82, 84 and 85, excavated down to a glacial till (Plate 1), and Test Pits 34, 35, 67, 68, 81, and 83, which were excavated down to bedrock (Plate 2). Test Pit 82 contained a north-east/south-west aligned plough scar identified in the geophysical survey as relating to ridge and furrow (L1a; Fig 6). From the results of the test pitting it appears that there is a correlation between the close proximity of the bedrock to the surface and the areas of magnetic disturbance seen in the geophysical survey. No further archaeological features were located within these test pits.

4.2.2 ***Test pits containing scree:*** Test Pits 10, 11 and 63 contained a scree deposit, directly below the soil horizon, deposit **1**. These were described as deposits **8** and **9** in Test Pit 10, deposit **10** and **11** in Test Pit 11 and deposit **4** in Test Pit 63. Typically where an upper layer of scree existed, it comprised a mid-grey-orange coarse sandy-clay with 40% to 50% sub-angular and angular stone inclusions up to 70mm x 70mm x 50mm in size, layers **8** and **10**, which was 0.23 to 0.25m thick. Below this was a layer of mid-grey orange coarse sandy clay with 80% to 90% angular stone inclusions of a maximum size of 0.27m x 0.20m x 0.17m. In each case there was a degree of natural sorting of the fragmented gabbro, with concentrations of larger stones located at a greater depth. The upper layer of stone was really the interface between the lower scree deposits and the soil horizon (Plate 3).

4.2.3 In each case the test pits were located in close association with, now scrub covered, escarpments which are considered to have been the source of this material. The bedrock in these areas appear to have been eroded by freeze-thaw action, and subsequently loose stones were moved by solifluxion. The end result of this process was peri-glacial features associated with the glacial retreat from this region in the form of escarpment slopes with associate scree deposits (Plate 4). As such, these deposits would date to the final stages of the last glacial period in this region, approximately 18,000 years before present

(McCarroll 1990, 50). None of these test pits contained deposits of any archaeological significance.

- 4.2.4 ***Test pits containing colluvial deposits:*** a colluvial deposit was found in Test Pit 59 only in Field 1. It was described as a thin layer of mid-greyish red medium sandy-clay, with 10% to 15% sub-rounded and sub-angular stone inclusions of a maximum size of 0.11m by 0.08m by 0.07m. It measured 0.12m thick, and was located stratigraphically between the soil horizon, deposit **1**, and the glacial till, deposit **2**. This test pit contained no archaeological features or deposits.

### 4.3 FIELD 3

- 4.3.1 ***Test pits containing colluvial deposits:*** colluvial deposits were located in Test Pits 3, 26, 28, and 78, found in a line at the base of the steep escarpment slope, deposits **15**, **14**, **16** and **17** respectively. The depth of the colluvial deposits varied between 0.13m to 0.50m, and was typically a dark reddish-grey fine sandy-clay with 1% to 10% sub-rounded and sub-angular stone inclusions of a maximum size of 80mm x 70mm x 70mm. In Test Pit 28 occasional charcoal fragments were noted within the deposit, although these could have been the remains of burnt roots and therefore intrusive to the deposit. Within the colluvial material located in Test Pit 79 was a stone lens, deposit **19**, described as having an identical matrix to the colluvium, but with 80% to 90% sub-rounded stone inclusions of a maximum size of 0.20m by 0.15m by 0.12m. This stone lens is thought more likely to be of natural origin, eroded from the escarpment to the west (Plate 5), although it may conceivably form the remains of a clearance cairn or similar feature. This accumulation of stone, thought to be the cause of the geophysical anomaly located in this area (L2b; Fig 6), suggests that this material is more extensive than indicated by the test pit results alone (see Section 3.2.2).
- 4.3.2 ***Test pits containing gravel:*** this deposit was found in Test Pit 27 only. Below 0.33m of the soil horizon, deposit **1**, a dark grey coarse sand with 70% to 80% angular slate inclusions of a maximum size of 20mm by 10mm by 1mm was located, deposit **12** (Plate 6). This was interpreted as a fluvial gravel, noted to be found elsewhere in the region. These post-glacial flood gravels form terraces on the fringe of the basin formerly covered by the Curraghglass, a boggy lake located at the western end of the central valley (Dackcombe and McCarroll 1990, 16). Nothing of any archaeological significance was located within this test pit.
- 4.3.3 ***Test pits containing clay and peat:*** included within this category are Test Pits 2 and 80. In Test Pit 80, located on geophysical anomaly G2 (Fig 6), below 0.50m of soil horizon, deposit **1**, a mid-grey fine sandy-clay was located measuring 0.23m thick with only occasional very small stone inclusions, layer **24**. Beneath this was 0.41m of decayed peat, deposit **25**, above the glacial till located at the base of the test pit at a depth of 1.14m (Plate 7). This clay deposit was also noted in Test Pit 2 at a depth of 0.52m, recorded as deposit **33**. It appears to have formed within still water; hence its pale grey colour indicating the lack of oxidised iron particles. These deposits suggests that a

natural hollow was created in the glacial tills within which water logged sediments accumulated. Initially this was dominated by peat formation, followed by a water lain clay. This sequence of events is reminiscent of the Curraghglass previously mentioned. Deposits associated with the Curraghglass are recorded at around 45m above sea level, approximately 65m lower than these test pits, suggesting this area was a separate localised boggy area. The locality appears to have been seasonally waterlogged in the present day, with rushes (*Juncus sp*) found within the immediate vicinity of the test pits. In Test Pit 2, cutting the sub-soil of the soil horizon, two stone field drains were recorded. These were evidently still in use and probably of post-medieval date at the earliest (Fig 8; Plate 8). They were left in situ, and the test pit was excavated to a depth of 0.87m into the clay deposit.

#### 4.4 THE FINDS

- 4.4.1 **The Flints:** Test Pit 18 produced one leaf shaped arrowhead of a translucent pale-brown flint with the tip missing. The noticeable S-shaped curve of the original flake has been reworked to produce an almost flat piece. Very similar examples from the Island are published in Darvill (1996, 34) and are dated to the Neolithic: they are '*traditionally associated with the Ronaldsway Culture on the Isle of Man but in fact they have a wider spatial and chronological distribution over much of northern England, Scotland and Ireland*'.
- 4.4.2 One large waste flake, also from Test Pit 18, was recovered in two pieces. One very large fragment and a small piece snapped from its distal end, was dark grey to black in colour. The proximal end shows the remains of the striking platform and a very pronounced bulb of percussion. Some secondary working on the upper side of the proximal end suggests that it may have formed a large blade which was later broken, although it is very thick. Considerable damage was found to the distal end which may have been intentional, but is more likely accidental or recent. This flake is considered undateable, although perhaps it was Neolithic. Superficially it is similar to butt trimmed points of Late Mesolithic date (McCartan 1994, 102), but not convincingly so.
- 4.4.3 Recovered from Test Pit 59 was one undated large waste, pale-cream flint, which was possibly patinated. It clearly originates from a deliberately worked piece, and was possibly the remains of a core. Numerous flake scars and a possible striking platforms are visible on its surface.
- 4.4.4 Test Pit 85 produced one flake of mid-orange-brown translucent flint with a thick cortex remaining on one end forming a triangular point. The two sides of the 'triangle' are without cortex and have been steeply retouched; creating a hollow scraper with an opposed blunted edge possibly to make it easier to hold. The hollow scraper edge has abrasion marks on the underside. This tool is difficult to date, but McCartan and Johnson (1992, 117) describe hollow scrapers as typical of the late Neolithic Ronaldsway period.
- 4.4.5 **Other finds:** these included a selection of post-medieval material, dominated by pottery but also including fragments of glass vessels and clay pipe. The earliest material may date to the seventeenth century, but this small collection

comprises mainly nineteenth century ceramics, which may be found in most areas.

---

## 5. CONCLUSIONS

---

### 5.1 DISCUSSION

- 5.1.1 The only feature of archaeological significance found during this phase of the program of works in Fields 1 and 3 was ridge and furrow, clearly seen in both Fields 1 and 3 in the magnetometer data (Fig 2 and L1a and L3; Fig 6), and also in the aerial photograph of the site supplied by the client in Field 1. The earthworks visible in the photograph correlates with those found in the geophysical survey. Test Pit 82, located over one of the geophysical anomalies, found some plough disturbance of the natural aligned in the same direction as the geophysical anomalies.
- 5.1.2 The distance between the individual ridges and furrows in both fields appears to be in the region of 5m, although in Field 1 the distance may be measured at up to 7m. This accords well with that of medieval ridge and furrow, although dating purely on the basis of width is unreliable (Rachael Newman *pers. comm.*). No aratral curve in the strips or headlands at the end of the strips, a typical feature of medieval ridge and furrow, was noted in either the geophysical plot or the aerial photograph. Therefore a later post-medieval date, associated with horse ploughing, seems more likely despite the fact that ridge and furrow of this period is typically at a distance of approximately 3.5m apart (*ibid*). The use of ridge and furrow in this instance may have been simply to aid drainage in post-medieval cultivation of the land, and is unlikely, therefore, to be representative of medieval open field ploughland. The present field boundaries are known to have been in existence by 1839 (Wardell Armstrong 1999), although they could be of greater antiquity than this.
- 5.1.3 No other features of archaeological significance were located during the investigation. Anomalies identified as possible archaeological features in the geophysics results were found to be, in the majority, associated with geological features or recent agricultural marks. The large areas of magnetic disturbance were excavated and shown to be caused by the occurrence of igneous intrusions which, by their very nature, possess magnetic properties.
- 5.1.4 During the program of test pitting most of the finds recovered from the topsoil date to the post-medieval or modern periods. However, of greater archaeological significance are the flints recovered from Test Pits 18, 59 and 8. Amongst a few waste flakes within this small assemblage was one Neolithic arrowhead and one late Neolithic hollow scraper. These finds attest to the Neolithic activity in the environs. The predominance of tools as oppose to waste would suggest casual loss rather than the presence of working and is not thought to indicate settlement.
- 5.1.5 The small number of flakes contrast with that found at Ballyfayle (LUAU 2000) where there were very large numbers of predominantly waste flakes of mainly Mesolithic but also Neolithic date, which implied settlement in the vicinity.

## **5.2 RECOMMENDATIONS**

- 5.2.1 Two of the three fields were covered within the current program of works, Fields 1 and 3. Whilst it is not recommended that any further archaeological investigation be carried out in these two fields, it is advisable that a watching brief is maintained during the topsoil stripping of these fields considering the small sample of the total area excavated by the test pitting.
- 5.2.2 It is recommended that Field 2 be subjected to the same level of archaeological investigation as Fields 1 and 3 in terms of geophysical survey and test pitting. It is evident that Neolithic activity is present within the immediate vicinity. This appears to take the form of a funerary landscape rather than one of settlement activity, indicated by the presence of Giant's Grave and potentially additional Neolithic cist graves (Wardell Armstrong 1999, 10). Therefore, there exists the possibility of remains or structures associated with the Neolithic or other periods in this, the most prominent field. A program of trial trenching may also be considered as an alternative to test pitting in Field 2, which is more effective at locating sub-surface features but less effective at locating topsoil finds.

---

## 6. BIBLIOGRAPHY

---

### 6.1 PRIMARY SOURCES

OS 1986: *Landranger 95, Isle of Man*, Ordnance Survey

### 6.2 SECONDARY SOURCES

Chartrand, J, Cheetham, P, Darvill, T, and Hayes, T, 2002 *The Giant's Grave, Kew, German*, unpubl rep

Clark, A, 1990 *Seeing Beneath the Soil*, London

Darvill, T, 1996 *Billown Landscape Project, Isle of Man, 1995*, Bournemouth University School of Conservation Sciences, Research Report 1, Bournemouth

Dackcombe, R, and McCarroll, D, The Manx Landscape, in V Robinson and D McCarroll (eds) *The Isle of Man: celebrating a sense of place* 1990, 55-76, Liverpool

English Heritage 1991 *Management of Archaeological Projects*, 2nd edn, London

English Heritage 1995 *Geophysical Survey in Archaeological Field Evaluation*, AML Research and Professional Services Guidelines No 1

Freeman, TW, Rodgers, HB, and Kinvig, RH, 1966 *Lancashire, Cheshire, and the Isle of Man*, London

Freke, D, 1990 History, in V Robinson and D McCarroll (eds) *The Isle of Man: celebrating a sense of place* 1990, 55-76, Liverpool

Fullen, MA, Harris, J, and Kear, BS 1996 *Soils of the Isle of Man*, Centre for Manx Studies Research Report 5, Douglas

Kinvig, RH, 1950 *A History of the Isle of Man*, Liverpool

LUAU, 2000 *Ballyfayle, Bride, Isle of Man. Assessment Report* unpubl rep

McCarroll, D, 1990 The Quaternary Ice Age in the Isle of Man: an historical perspective, in V Robinson and D McCarroll (eds) *The Isle of Man: celebrating a sense of place* 1990, 55-76, Liverpool

McCarroll, D, Garrad, L, and Dackcombe, R, 1990 Lateglacial and Postglacial environmental history, in V Robinson and D McCarroll (eds) *The Isle of Man: celebrating a sense of place* 1990, 55-76, Liverpool

McCartan, S, 1990 The early prehistoric colonisation of the Isle of Man: Mesolithic hunter-gatherers, *Proc Isle of Man Nat Hist and Antiq Soc*, 9(4), 517-34

McCartan, S, 1994 A Later Mesolithic Site at Rhendhoo, Jurby, Isle of Man, *Proc Isle of Man Nat Hist Antiq Soc*, 10, 2, 87-117

McCartan, S and Johnson, A, 1992 A Rescue Excavation at Ballachrink, Jurby, *Proc Isle of Man Nat Hist Antiq Soc*, 10, 1, 105-122

Moffatt, P J, 1978 The Ronaldsway Culture: a review, in Davey (ed) 1978, i, 177-217

Prentice, R, 1990 Tourism, in V Robinson and D McCarroll (eds) *The Isle of Man: celebrating a sense of place* 1990, 55-76, Liverpool

Robinson, V, 1990 Extractive and manufacturing industries, in V Robinson and D McCarroll (eds) *The Isle of Man: celebrating a sense of place* 1990, 55-76, Liverpool

Wardell Armstrong 1999, *Isle of Man Dept of Transport: Proposal Extension to the Poortown Quarry, Peel, Isle of Man, Archaeological Assessment*, unpubl rep

Woodcock, J J 1995 The excavation of a burnt mound at Kerrowdhoo, July 1992, in PJ Davey, DA Higgins, NC Johnson, SB McCartan, and JJ Woodcock 1995 *Kerrowdhoo, Bride, Isle of Man: field work and excavations, 1992-1994*, Centre for Manx Studies Res Rep 4, Douglas

Woodman, P C, 1987 Excavations at Cass ny Hawin, a Manx Mesolithic site, and the position of the Manx microlithic industries, *Proc Prehistoric Soc*, 53, 1-22

---

## APPENDIX 1: PROJECT BRIEF

---

Your Ref: 1457/PB

30<sup>th</sup> July, 2003

Piers Burroughs  
Burroughs Stewart Associates  
17A Victoria Street  
Douglas  
IM1 2LW

**Dear Piers**

### **Poortown Quarry Extension: Outline Brief for Archaeological Works**

Following my recent email to you of 17<sup>th</sup> July, and our meeting today, I set out below an outline brief for archaeological works necessary to meet requirements for environmental assessment ahead of a scheme for the further development of the Poortown Quarry into the two fields overlooking Rockmount.

1. Manx National Heritage (MNH) considers the Wardell Armstrong Report of November 1999 competent inasmuch as it is a desk-based assessment.
2. However, the report only assesses known archaeological features recorded in the IoM National Monuments Record maintained by MNH.
3. Since then, additional work by Bournemouth University both around the site (the Giant's Grave) and at other Neolithic megalithic tombs has highlighted potential for additional archaeological features in the areas surrounding such monuments.
4. At the Giant's Grave site, electromagnetic (EM) survey was found to give good results.
5. These features are often only amenable to discovery by geophysical survey, and do not generally manifest themselves as surface remains.
6. The area to be investigated, whilst enclosed as farmland, is not in agricultural use, and no assessment is possible based on artefact recovery resulting from ploughing and fieldwalking.
7. The area surrounding the Giant's Grave has been shown to give a good response to geophysical survey of the superficial drift wherein most archaeological deposits are located.

- 8 A geophysical survey should be commissioned for the area now proposed for quarrying. The survey grid should be at a maximum of 1m intervals.
9. Due consideration should be given to extending the survey area for the purposes of forward planning and adequate assessment and preparation of appropriate mitigation.
10. The survey results should be tested by small-scale sample excavation by hand of 1m test-pits on any major anomalies.
11. This sample should be reinforced by the excavation of an additional number of test pits across the site in order to record ground conditions. These additional test pits must be excavated whether or not anomalies are detected.
12. These additional test pits should be placed to maximise understanding of ground conditions, for instance to investigate the degree of agricultural erosion on the summit, and the depth of hill-wash downslope. These additional test pits should be spaced on a grid giving an effective overall interval of not more than 30m.
13. The results of the geophysical survey and test-pitting must be reported on, and an appropriate mitigation proposal prepared based on them.
14. This report must be made available to Manx National Heritage in order for MNH to assess and advise on the proposed mitigation that is to be included in any planning application.

These points form an outline brief for works to be put out to tender as appropriate by the Department of Transport as developer.

MNH must approve any resulting specification prepared by the preferred tenderer (though costs will remain confidential to the Department). Providing the specification meets the brief outlined above, MNH will provide a licence for archaeological fieldwork, under the terms of the Manx Museum and National Trust Act 1959-86. MNH expects to be kept informed of fieldwork as it progresses.

The developer should make use of a qualified archaeological contractor, and the works must be under the overall charge of a member of the Institute of Field Archaeologists. MNH does not maintain a 'register' of approved contractors, but the following are known to MNH, have undertaken work on the Isle of Man, and have previously met the standards expected and required by MNH under the terms of the aforementioned Act.

---

## APPENDIX 2: PROJECT DESIGN

---

**August 2003**

*Revised 13/08/03*

**Oxford  
Archaeology  
North**

### **POORTOWN QUARRY, ISLE OF MAN**

### **GEOPHYSICAL SURVEY AND ARCHAEOLOGICAL EVALUATION**

#### ***Proposals***

*The following project design is offered in response to a request from Burroughs Stewart Associates on behalf of the Isle of Man Government and their Department of Transport for a geophysical survey and an archaeological evaluation prior to the development of Poortown Quarry site.*

## **1. INTRODUCTION**

### **1.1 CONTRACT BACKGROUND**

1.1.1 Oxford Archaeology North (OA North) has been invited by Burroughs Stewart Associates (hereafter the client) to submit a project design and costs for a geophysical survey and archaeological evaluation in the area of the proposed extension of Poortown Quarry, Isle of Man (centred on SC 275 834). The quarry site is situated on the west side of the island and to the east of Peel in an area of archaeological potential. It is divided between three adjacent fields with the western most field approximately 2.5ha, the centre field approximately 2.2ha and the eastern most field being 0.4ha.

### **1.2 ARCHAEOLOGICAL BACKGROUND**

1.2.1 The proposed quarry site is adjacent to a chambered long cairn called The Giants Grave. The monument has apparently been disturbed in antiquity, and comprises a series of orthostats defining a passage leading towards the site of a putative chamber beneath a broad, sub-oval mound. The mound and the line of orthostats passageway are divided by a modern field boundary and there on the surface there is no direct relationship between the two elements of the monument. The monument is a type of Neolithic funerary cairn, designed so as to accommodate the deposition of remains from multiple inhumations over an extended period, hence the need for an open burial chamber. The best parallel for the cairn is the Bargrennan Cairn in Kirkcudbrightshire, Southern Scotland, and there is a further example at Knowth, Co Meath in Ireland. These comprise a passageway defined by uprights leading to a single small chamber, little wider than the passage. The whole structure would have been beneath a large circular mound, and the fact that only a limited mound survives at The Giants Grave indicates that the site has been subject to considerable disturbance.

1.2.2 The monument type is very rare across Britain and there are only two known on the Isle of Man. The site is of considerable importance, and although the monument will not be directly affected by the proposed development, recent work carried out around Giant's Grave and other Neolithic megalithic tombs has highlighted the potential for associated monuments such as an avenue, other funerary remains or settlement remains which will be affected by the proposed development.

1.2.3 A recent geophysical survey carried out over Giant's Grave combined four complementary techniques; magnetometry, resistivity, electromagnetics (EM) and magnetic susceptibility (Chartrand, *J et al*, 2002). The results were particular to the funerary monument and were of limited use to the surrounding area. However, they were successful in showing the advantages of combining two or more techniques. It has therefore been recommended that a programme of investigation be undertaken to examine the environs of the site that will be impacted by the proposed development through the use of geophysical survey and evaluation trenching.

### **1.3 OA NORTH**

1.3.1 OA North has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 23 years. Evaluations and assessments have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North has undertaken archaeological research in the Isle of Man, having undertaken work at Billown Quarries, Malew, and has also undertaken a programme of assessment and evaluation of a prehistoric lithic site at Ballafayle site.

1.3.2 OA North has two members of staff, who formerly worked as project managers for Stratascan and who have between them over ten years of experience of undertaking geophysical survey work throughout the UK. OA North is in a privileged position of having considerable expertise of both geophysical survey work and evaluation trenching within a single team and who can therefore provide a direct interaction between the two disciplines.

This both makes for an efficient recording programme and also ensure the most appropriate targeting for the trial pitting.

- 1.3.3 OA North has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. OA North and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct.

## 2. OBJECTIVES

- 2.1 The following programme has been designed in accordance with a brief from the Manx National Heritage (MNH), to provide an accurate archaeological investigation of the proposed quarry extraction, and will follow on from a desk based assessment by Wardell Armstrong (1999). This is required to investigate the potential for sub-surface remains within the environs of the Giants Graves and which would be impacted by the proposed development. The required stages to achieve these ends are as follows:
- 2.2 **Geophysical Survey:** it is required that 4.7ha of geophysical survey will be undertaken within the three fields that will be impacted by the quarry extension. The purpose of the survey is to identify the sub-surface character of the site using non-intrusive methods in order to identify any archaeological anomalies and hence to provide a precise locations for the test pitting programme that will follow.
- 2.3 **Test Pitting:** a series of 1m x 1m test pits will be excavated on a 30m grid across the study area. Additional pits will be excavated to explore anomalies identified by the geophysical survey.
- 2.4 **Evaluation Report:** a written evaluation report will assess the significance of the data generated by this programme within a local and regional context. It will advise on the requirements for further evaluation or recording measures as necessary.

## 3. METHODS STATEMENT

- 3.1 The programme will be undertaken in two stages: the first will involve both geophysical survey and test pitting of the western and eastern fields and the second will be undertaken following the removal of gorse across the centre field. The following work programme is submitted in line with these stages:

### 3.2 GEOPHYSICAL SURVEY

- 3.2.1 The western and eastern fields will be surveyed first equating to approximately 2.9ha in extent. The easternmost field is 2.2ha in extent. The survey will examine the full extent of the fields as they become cleared of vegetation.
- 3.2.2 The preferred geophysical technique in the location of prehistoric remains is magnetometry which will easily locate ‘positively magnetic’ material such as iron-based features and objects, or those subjected to firing such as kilns, hearths, and even the buried remains of brick walls. This technique is also widely used to locate the more subtle magnetic features associated with settlement and funerary remains, such as boundary or enclosure ditches and pits or postholes, which have been gradually infilled with more humic material. The breakdown of organic matter through microbiotic activity leads to the humic material becoming rich in magnetic iron oxides when compared with the subsoil, allowing the features to be identified. Conversely, earthwork or embankment remains can also be identified with magnetometry as a ‘negative’ feature due to the action in creating the earthwork of upturning the relatively low magnetic subsoil on to the more magnetic topsoil. In this way, magnetometry is a very efficient technique and is recommended in the first instance by the English Heritage Guidelines (1995) for such investigations.
- 3.2.3 The complementary technique of resistivity should also be considered as an additional option. An earth resistance meter relies on the moisture retained within the soil to pass an electrical current through the ground from a pair of mobile probes to a pair of remote probes.

The resistance is measured between the probes and can identify buried remains when compared to the background resistance. Cut features which have been subsequently infilled are less resistant to the current where as structural remains or buried megaliths are more resistant. Therefore, the a resistivity survey can provide more information and aid in the interpretation of magnetometer results. More importantly, non-magnetic stone structures or megaliths can be identified where magnetometry cannot.

- 3.2.4 The costs for the geophysical survey for each field are defined separately with the resistivity included as a contingency should it be requested. The two techniques are defined below and will be carried out according to English Heritage Guidelines (1995):
- 3.2.5 **Magnetometer Survey:** the survey area will be divided into 30m x 30m grids, to correlate with the grid to be used for test pitting, within which data collection is taken. Sampling will be at 0.5m intervals with inter-transect distances being 1m, equating to 1800 sample readings per grid. The survey will be carried out in a 'zig-zag' mode with precautions to minimise the heading error on site.
- 3.2.6 A Geoscan Research FM36 fluxgate gradiometer will be employed which has a depth of penetration of approximately 0.5m-1.0m with subtle magnetic anomalies. However, this would increase with more strongly magnetic anomalies. The Geoscan Research FM36 consists of two fluxgates held vertically at a distance of 0.5m. These are accurately aligned to nullify the effects of the earth's magnetic field in order to take readings relating only to the difference in localised magnetic anomalies compared with the general magnetic background.
- 3.2.7 The data are captured in the internal memory of the FM36 and then downloaded to a portable computer. The individual grids are matched together to produce an overall plan of the surveyed area. The results will be analysed and any processing carried out using Geoplot (versions 2 and/or 3). A report, including diagrams, text and interpretation on a CAD system, will then be prepared.
- 3.2.8 **Resistivity Survey:** the survey area will be divided into the same 30m x 30m grid system used for the magnetometer survey and the test-pitting, within which data is collected. Sampling will be at 1m by 1m intervals equating to 900 sample readings per grid. The survey will be carried out in zig-zag mode.
- 3.2.9 The survey will employ a Geoscan Research RM15 resistivity meter. Two mobile probes are mounted horizontally on a frame 0.5m apart. This will produce a depth of penetration of approximately 0.5m-1.0m. The data are captured in the internal memory of the RM15 and then downloaded to a portable computer.
- 3.2.10 The individual grids are matched together to produce an overall plan of the surveyed area. The results will be analysed and any processing carried out using Geoplot (versions 2 and/or 3). A report, including diagrams, text and interpretation on a CAD system, will then be prepared.

### 3.3 TEST PIT EVALUATION

- 3.3.1 An evaluation will be undertaken simultaneous with the geophysical survey involving the manual excavation of test pits across the extent of the site. The test pits will be 1m x 1m in size and will be located at 30m intervals; this would require the excavation of approximately 35 test pits across the western field and approximately 32 test pits in the eastern field. Additional test pits will be excavated on anomalies identified by the geophysical survey and this would entail the excavation of potentially a further eight test pits.
- 3.3.2 This programme of test pitting will establish the presence or absence of suspected archaeological deposits and artefacts and, if established, will then briefly test their date, nature, and quality of preservation of the deposits. In addition, they will maximise the understanding of ground conditions, for instance to investigate the degree of agricultural erosion on the summit and depth of colluvium. Excavation will assess the character of all archaeological deposits and will be continued to the depth of natural sub-soils.

- 3.3.3 **Methodology:** excavation will be by manual techniques and will be excavated in a stratigraphical manner. Each deposit will be investigated sufficiently to establish its character but the full depth of the deposits to natural sub-soils will not necessarily be established across the whole trench. Particular care will be taken to search for artefacts in the course of the excavation. The soil will be subject to sample sieving in order to recover artefacts, and the proportion of the soil that will be sieved will depend on the moisture content of the soil and how appropriate it will be for dry-sieving.
- 3.3.4 **Evaluation Recording:** all elements of the work will, as a matter of course, be recorded in accordance with current English Heritage guidelines (*Management of Archaeological Projects, 2nd edition 1991*) and the best practices formulated by English Heritage's Central for Archaeology. All excavation, by whatever method, will be recorded by the compilation of context records, and of object records for any finds, and the production of manually drawn accurately scaled plans and section drawings (probably at scales of 1:20 and/or 1:10). A photographic record will be maintained within 35mm black and white and colour transparency formats and a photographic gazetteer will be maintained. The stratigraphy of all trenches will be recorded irrespective of whether archaeological deposits have been identified.
- 3.3.5 It is proposed to use Differential Global Positioning System (GPS) techniques to record the locations of the test pits. GPS instrumentation uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can be converted mathematically to the National Grid. It uses a post-processed system by comparing a roving station with a similar station on a fixed known point in order to achieve high levels of accuracy, which are typically between  $\pm 0.25\text{m}$ .
- 3.3.6 **Finds Processing:** finds recovery and sampling programmes will be in accordance with best practice (current IFA guidelines for finds work). All typologically significant and closely datable finds will be contextually recorded. All artefacts and ecofacts will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration. Finds storage during fieldwork and any post-excavation assessment and analysis (if appropriate) will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North. Any discard policy for finds should be formulated with care, and with advice from the Manx National Heritage. All finds will be washed, marked and packaged as appropriate. Small finds will be individually packaged, in a manner appropriate to the find type.
- 3.3.7 The artefact assemblage will be examined by the OA North finds specialist, and the potential for further examination will be assessed. A summary report on the significance, character and date range of the assemblage will be generated.

### 3.4 EVALUATION REPORT

- 3.4.1 **Archive:** the results of Stage 3 above will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of archaeological projects, 2nd edition, 1991*). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly quantified, ordered, and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the Institute of Field Archaeologists in that organisation's Code of Conduct. This archive will be provided in the English Heritage Central for Archaeology format, as a printed document, and a synthesis (the evaluation report and index of the archive) will be submitted to the relevant Sites and Monuments Record. The archive will be deposited with the Manx National Heritage within 6 months of the end of the fieldwork.
- 3.4.2 The archive will be formed of all the primary documentation, including the following:
- Survey Information
  - Context Records

- Finds Records
- Sample Records
- Field Drawings and digital copies of CAD data
- Photographic negatives, prints and colour transparencies
- Written report
- Administrative records

3.4.3 **Report:** ten copies of a written synthetic report will be submitted to the client. The report will present, summarise, and interpret the results of the programme detailed in Stage 3 above, and will include an index of archaeological features identified in the course of the project, with an assessment of the sites development. It will incorporate appropriate illustrations, including a location map, copies of the site plans and section drawings, and the trench location plan all reduced to an appropriate scale. The report will consist of an acknowledgements statement, list of contents, executive summary, introduction summarising the brief and project design and any agreed departures from them, methodology, results of the geophysical survey, interpretative account of the archaeological stratigraphy and details of the features and stratigraphy recorded from each trench, table of contexts, a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work. If required the report will make recommendations for further mitigative recording.

### 3.5 GENERAL CONDITIONS

3.5.1 **Access:** it is understood that access there will be unrestricted access for pedestrian traffic to the site. It would be appropriate for any haylage or similar to have been removed prior to the fieldwork so as to minimise disruption.

3.5.2 **Health and Safety:** full regard will, of course, be given to all constraints (services) during the survey, as well as to all Health and Safety considerations. The OA North Health and Safety Statement conforms to all the provisions of the SCAUM (Standing Conference of Unit Managers) Health and Safety manual. Risk assessments are undertaken as a matter of course for all projects. The Unit Safety Policy Statement will be provided to the client, if required. Trenches will be excavated up to one metre away from any standing walls to present any risk of de stabilisation of structures.

3.5.3 **Confidentiality:** the report is designed as a document for the specific use of the client for the particular purpose as defined in this project design, and should be treated as such. Any requirement to revise or reorder the material for submission or presentation to third parties or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

3.5.4 **Project Monitoring:** any proposed changes to this project design will be agreed with the client, and Manx National Heritage. If required, a meeting with the archaeological curator and the client can be established at the outset of the project.

3.5.5 **Insurance:** the insurance in respect of claims for personal injury to or the death of any person under a contract of service with the unit and arising out of an in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North, in respect of personal injury or damage to property by negligence of OA North or any of its employees, there applies the insurance cover of £10m for any one occurrence or series of occurrences arising out of one event.

- 3.5.6 **Reinstatement:** it is understood that there will be no requirement for reinstatement of the ground beyond backfilling. The ground will be backfilled so that the topsoil is laid on the top. It is presumed that the Client will have responsibility for site security.

### 3.6 PROJECT MONITORING

- 3.6.1 OA North will consult with the Client regarding access to land within the study area. This consultation will include, if required, the attendance of a representative of Manx National Heritage. Any proposed changes to the project brief or the project design will be agreed with Manx National Heritage in conjunction with the client.

## 4. WORK TIMETABLE

- 4.1 The following programme is proposed for Phase 1 on the west and eastern fields. Phase 2 will be subject to clearance of the gorse and the results from Phase 1:

### 4.2 FIELDWORK

- 4.2.1 The fieldwork will commence on Tuesday 26<sup>th</sup> August 2003 and will be completed by the week ending 5<sup>th</sup> September 2003. It will consist of the following elements;
- 4.2.3 **Geophysical survey:** approximately five person days will be required to complete the magnetometer survey and finalise number and location of test pits on anomalies of potential.
- 4.2.4 **Evaluation:** approximately eighteen person days are required to undertake the test pits on both the 30m grid and up to eight additional test pits on geophysical anomalies.

### 4.3 REPORTING

- 4.3.1 **Interim Report:** approximately one week will be required following completion of all archaeological fieldwork to provide a short document summarising the results. This will be submitted to the client by 12<sup>th</sup> September 2003.
- 4.3.2 **Draft Report:** approximately three weeks will be required following completion of the archaeological fieldwork to submit a draft report to the Client and the Quarry Manager for comment. This will be submitted to the Client by 26<sup>th</sup> September 2003.
- 4.3.3 **Final Report and Archive:** the report and archive will be produced following the completion of all the fieldwork. Ten copies of the final report will be submitted to the client within two weeks upon receipt of comments with regards to the draft report. The archive will be deposited within six months.

## 5. STAFFING

- 5.1 The project will be under the management of **Emily Mercer BA (Hons) MSc AIFA** (OA North Senior Project Manager) to whom all correspondence should be addressed.
- 5.2 The geophysical survey will be undertaken by **Karl Taylor BA (Hons) AIFA** (OA North assistant). Karl has a great deal of experience of geophysical survey techniques and the logistics of survey having varied out geophysical surveys nationwide and abroad.
- 5.3 The evaluation will be supervised in the field by **Andrew Bates** (OA North supervisor) who is experienced in evaluations and excavations. Andrew is an experienced field archaeologist capable of carrying out projects of all sizes.
- 5.4 Assessment of the finds from the evaluation will be undertaken by OA North's in-house finds specialist **Sean McPhillips BA** (OA North project supervisor). Sean acts as OA North's in-

house finds specialist and has extensive knowledge of all finds of all periods from archaeological sites in northern England.

#### REFERENCES

English Heritage, 1991 *Management of Archaeological Projects*, 2<sup>nd</sup> ed, London

English Heritage 1995 *Guidelines to Geophysical Techniques* London

Wardell Armstrong 1999 *Proposed extension to Poortown Quarry, Peel, Isle of Man, Archaeological Assessment*, unpubl rep

---

## APPENDIX 3: TEST PIT DESCRIPTIONS

---

### INTRODUCTION

Listed below are the detailed descriptions and interpretation for each excavated test pit. The Test Pit numbers correspond directly to the grid number applied to each 30m geophysical survey grid square and was located adjacent to the north-west grid node. However, not all of the grids possessed test pits and therefore, the numbering of the Test Pits is intermittent. The stratigraphic sequence of the soil horizon over the glacial till was largely consistent in all trenches, and descriptions of these deposits are given below. Only detail of any variation on this sequence is provided in the Test Pit descriptions.

The soil horizon, deposit *I*, excavated at the site varied in depth from 0.25m to 0.55m in Field 1 and 0.25m to 0.50m in Field 3. The composition of the soil horizon was consistent throughout site, with some minor differences in description due to the presence of different recorders on site. It principally comprised a mid orangey-brown fine sand-silty-clay sub-soil, with 1% to 10% sub-rounded and sub-angular stone inclusions of a maximum size of 70mm x 50mm x 50mm. It had a thin upper layer, 0.10 to 0.20m thick, of a very dark grey top soil or turf layer.

The natural geology consisted of a thin layer of glacial till, deposit *2*. It comprised of a mid-brown-orange medium to coarse sandy-clay, with typically 20% to 30% sub-angular and sub-rounded stone inclusions of a maximum size of 0.12m x 0.11m x 0.08m (Plate 1). In some trenches natural bedrock, Poortown Gabbro, was also visible, deposit *3* (Plate 2).

---

**Test Pit:** 2  
**Field Number:** 1  
**Maximum depth:** 0.8m

#### **Description**

The upper topsoil of the soil horizon, *I*, was excavated to a depth of 0.25m. Below this was a subsoil, *26*, still part of the soil horizon measuring 0.21m thick. It comprised of a mid-orangey-grey fine sand silty-clay, with 30% to 40% sub-rounded stone inclusions of a maximum size of 50mm x 50mm x 5mm. Cut into this layer of sub-soil were two field drains.

Field drain *28* comprised of a culvert 0.85m wide formed from irregularly shaped stone of a maximum size of 0.30m x 0.30m x 0.25m. It was located within a straight sided cut, *29*, at least 0.43m deep and backfilled with a light-grey clay with less than 1% angular stone inclusions of a maximum size of 0.10m by 0.10m by 0.10m, deposit *27*. Field drain *31* formed a culvert 0.60m in width, comprising of irregular stone, measuring at maximum of 0.20m x 0.20m x 0.10m, with a slate base with slates measuring a maximum of 0.20m x 0.15m x 0.05m. It was also located within a straight sided cut, *32*, and backfilled with material identical in character to deposit *27*, layer *30*. Field drain *28* was orientated in a north-east/south-west direction, and field drain *31* in an east-west direction. Neither of the field drains were removed.

Located stratigraphically below subsoil *26* deposit *33*. This comprised of a mid-grey clay, with 1% to 5% angular stone inclusions of a maximum size of 50mm by 50mm.

#### **Interpretation**

Although no direct dating evidence was recovered from the cuts of the field drains, they are thought to be at the earliest post-medieval in date and appear to be in current use (Plate 8). The underlying clay, deposit *33*, is considered to be a water lain sediment identical to deposit *24* located in Test Pit 80. Nothing of real archaeological significance was.

---

---

<b>Test Pit:</b>	<b>3</b>
<b>Field Number:</b>	3
<b>Maximum depth:</b>	0.84m

**Description**

The soil horizon, deposit **1**, was excavated to a depth of 0.40m. Below this was a layer of dark-reddish-grey fine sandy-clay, 0.18m thick, with 1% to 10% sub-rounded and sub-angular stone inclusions of a maximum size of 80mm x 70mm x 70mm, layer **15**. Beneath this, layer **16** comprised a mid-reddish brown-clayey medium sand, 0.36m thick, with sub-rounded and sub-angular stone inclusions of a maximum size of 60mm x 50mm x 50mm and one outsized slate measuring 0.48m x 0.20m x 0.16m. Below this lay the glacial till, deposit **2**.

**Interpretation**

Deposits **16** represents colluvium eroded from sediments further upslope. Deposit **15** represents limited weathering of this lower material. Nothing of any archaeological significance was located.

---

<b>Test Pit:</b>	<b>10</b>
<b>Field Number:</b>	1
<b>Maximum depth:</b>	1.1m

**Description**

The soil horizon, **1**, was excavated to a depth of 0.27m to reveal the underlying deposit, layer **8**. This comprised a mid-grey-orange coarse sandy-clay, with 40% to 50% angular and sub-angular stone inclusions of a maximum size of 70mm x 70mm x 50mm, 0.23m thick. Stratigraphically below this was deposit **9**, a mid-grey-orange coarse sandy-clay with 80% to 90% angular stone inclusions of a maximum size of 0.27m x 0.20m x 0.17m. It was noted that the stone size increased with depth. This material was excavated a further 0.60m, where further excavation was abandoned due to the depth beyond health and safety recommendations.

**Interpretation**

Deposits **8** and **9** form a layer of fragmented natural bedrock, such as in a scree slope, undoubtedly originating from a now buried outcrop of Poortown Gabbro to the north. The test pit is located at the top of what is now a steep grass and scrub covered gradient. Nothing of any archaeological significance was located.

---

<b>Test Pit:</b>	<b>11</b>
<b>Field Number:</b>	1
<b>Maximum depth:</b>	1.0m

**Description**

The soil horizon, **1**, was excavated to a maximum depth 0.35m. Stratigraphically below this was a mid-grey-orange silty-sand, with 40% to 50% angular and sub-angular medium to large sized stone inclusions, deposit **10**. This lay above a layer comprising of the same matrix as deposit **10**, but with 80% to 90% angular and sub-angular large stone inclusions, deposit **11**, which was excavated a further 0.40m. The Test Pit was then abandoned for health and safety reasons.

**Interpretation**

Deposits **10** and **11** form a layer of fragmented natural bedrock, such as in a scree slope, originating from a now buried outcrop of Poortown Gabbro to the north. The Test Pit is located at the top of what is now a steep grass covered gradient. Nothing of any archaeological significance was located.

---

---

**Test Pit:** 16  
**Field Number:** 1  
**Maximum depth:** 0.4m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.25m, to reveal the underlying glacial till, deposit 2. A sondage was excavated in the eastern half of the test pit to test the natural.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 17  
**Field Number:** 1  
**Maximum depth:** 0.5m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.30m to reveal the underlying layer, deposit 7. This comprised of a mid-brown-orange coarse sandy-clay, with 5% to 10% sub-rounded and sub-angular stone inclusions of a maximum size of 80mm x 70mm x 70mm. This was excavated a further 0.20m down to the underlying glacial till, deposit 2.

**Interpretation**

Deposit 7 represent the interface between the soil horizon and the underlying glacial till. Nothing of archaeological significance was located.

---

**Test Pit:** 18  
**Field Number:** 1  
**Maximum depth:** 0.38m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.38m down to the underlying glacial till, 2.

**Interpretation**

A Neolithic arrow head and two undated waste flakes were recovered from the soil horizon, but no archaeological features were identified.

---

**Test Pit:** 19  
**Field Number:** 1  
**Maximum depth:** 0.25m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.25m down to the underlying glacial till, 2.

**Interpretation**

Nothing of archaeological significance was located.

---

---

**Test Pit:** 20  
**Field Number:** 1  
**Maximum depth:** 0.3m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.30m down to the underlying glacial till, *2*.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 26  
**Field Number:** 3  
**Maximum depth:** 0.8m

**Description**

The soil horizon, *I*, was excavated to a maximum depth of 0.25m to reveal the underlying deposit, *14*. This comprised of a mid-brown-orange sandy-silt with 10% to 15% small angular and sub-angular stone inclusions. It was excavated a further 0.55m down to natural glacial till, deposit *2*.

**Interpretation**

The Test Pit was directly located below a steep escarpment, and deposit *14* was considered to be a scree material. Nothing of archaeological significance was located.

---

**Test Pit:** 27  
**Field Number:** 3  
**Maximum depth:** 0.65m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.33m to reveal the underlying layer, deposit *12*. This comprised of a dark-grey clay coarse sand with 70% to 80% angular slate inclusions of a maximum size of 20mm by 10mm by 1mm. This formed a layer of fragmented slate gravel, containing lenses of mid-orange-grey clay identical in character to deposit *2* (Plate 6).

**Interpretation**

This deposit represents post-glacial flood gravels found elsewhere in the area. Nothing of archaeological significance was located.

---

**Test Pit:** 28  
**Field Number:** 3  
**Maximum depth:** 0.41m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.33m to reveal the underlying layer, deposit *16*. This comprised of a mid-reddish-brown silty clay, with approximately 40% angular stone inclusions of a maximum size of 0.10m x 0.10m x 0.10m and rare charcoal fragments. It measured 0.13m thick, stratigraphically overlying the glacial till, deposit *2*.

**Interpretation**

Layer *16* was interpreted as a layer of colluvial material originating from eroding topsoils of the steep gradient immediately to the east of the Test Pit.

---

**Test Pit:** 34  
**Field Number:** 1  
**Maximum depth:** 0.5m

**Description**

The soil horizon was excavated to a depth of 0.25m to reveal the underlying deposit, 5. This comprised of a layer of 60% to 80% medium to large angular stone, within a matrix originating from the soil horizon. A sondage was excavated in the western half of the test pit, 0.25m deep, to reveal the underlying bedrock.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 35  
**Field Number:** 1  
**Maximum depth:** 0.6m

**Description**

The soil horizon was excavated to a maximum depth of 0.40m, to reveal the underlying deposit 6 below. This comprised of a mid-orangey-grey medium to coarse sandy clay, with 50% to 60% angular stone inclusions of a maximum size of 0.12m x 0.08m x 0.08m. This was excavated to a further 0.20m to reveal the underlying bed rock, deposit 3.

**Interpretation**

Layer 6 comprises a thin layer of eroded bedrock, best described as an area of scree. Nothing of archaeological significance was located.

---

**Test Pit:** 36  
**Field Number:** 1  
**Maximum depth:** 0.55m

**Description**

The soil horizon, 1, was excavated to a depth of 0.55m to reveal the underlying glacial till, 2.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 37  
**Field Number:** 1  
**Maximum depth:** 0.43m

**Description**

The soil horizon, 1, was excavated to a depth of 0.43m to reveal the underlying glacial till, 2.

**Interpretation**

Nothing of archaeological significance was located.

---

---

**Test Pit:** 38  
**Field Number:** 1  
**Maximum depth:** 0.44m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.44m to reveal the underlying glacial till, *2*.

**Interpretation**

Nothing of any archaeological significance was located within this test pit.

---

**Test Pit:** 41  
**Field Number:** 1  
**Maximum depth:** 0.32m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.32m to reveal the underlying glacial till, *2*.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 42  
**Field Number:** 1  
**Maximum depth:** 0.45m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.45m to reveal the underlying glacial till, *2*.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 43  
**Field Number:** 1  
**Maximum depth:** 0.25m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.25m to reveal the underlying glacial till, *2*.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 44  
**Field Number:** 1  
**Maximum depth:** 0.32m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.32m to reveal the underlying glacial till, *2*.

**Interpretation**

---

Nothing of archaeological significance was located.

---

**Test Pit:** 45  
**Field Number:** 1  
**Maximum depth:** 0.7m

**Description**

The soil horizon, **1**, was excavated to a depth of 0.37m to reveal the underlying glacial till, **2**. A sondage was excavated in the eastern half of the test pit to reveal natural bedrock, **3**, at a depth of 0.70m.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 59  
**Field Number:** 1  
**Maximum depth:** 0.7m

**Description intermittent**

The soil horizon was excavated to a depth of 0.40m, to reveal the underlying deposit, **23**. This comprised of a mid-greyish-red medium sand-clay with 10% to 15% sub-rounded and sub-angular stone inclusions of a maximum size of 0.11m x 0.08m x 0.07m. A sondage was excavated in the south-eastern quarter of the Test Pit to a depth of 0.62m to reveal natural glacial till deposit **2**.

**Interpretation**

Layer **23** was initially thought to represent an oxidised layer of glacial till resulting from the weathering of the natural. However, in hindsight and in light of the deposits located in Test Pits 26 and 28 which include similar deposits below the soil horizon, it is more likely to represent a thin layer of colluvial material. One undated flint waste flake was recovered from the soil horizon, but no archaeological features were located.

---

**Test Pit:** 60  
**Field Number:** 1  
**Maximum depth:** 0.48m

**Description**

The soil horizon, **1**, was excavated to a maximum depth of 0.48m to reveal the underlying glacial till, **2**.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 61  
**Field Number:** 1  
**Maximum depth:** 0.41m

**Description**

The soil horizon, **1**, was excavated to a depth of 0.41m to reveal the underlying glacial till, **2**. In the southern 0.32m of the test pit an area of root disturbance was located in the natural, excavated a further 0.05m.

---

---

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 62  
**Field Number:** 1  
**Maximum depth:** 0.5m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.5m to reveal the underlying glacial till, *2*.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 63  
**Field Number:** 1  
**Maximum depth:** 1.10m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.50m to reveal the underlying deposit, *4*. This comprised of a mid-brownish-grey medium to coarse sandy-silt-clay, with 80% to 90% angular and sub-angular stone inclusions of a maximum size of 0.17m x 0.14m x 0.06m. This was excavated a further 0.60m, at which point the test pit was abandoned due to health and safety reasons. It was evident that there was some degree of sorting in the stone inclusions, the larger clasts being located at greater depth.

**Interpretation**

Layer *4* represents an accumulation of fragmented stone, undoubtedly originating from the steep, gorse covered, escarpment to the west and north; not dissimilar to a scree slope (Plate 3). A possible interpretation as debris from a quarry was considered, but discarded in favour of a natural accumulation of fragmented Poortown Gabbro due to the natural sorting visible in the inclusions. On the basis of this interpretation, the Test Pit is not considered to have located anything of archaeological significance.

---

**Test Pit:** 67  
**Field Number:** 1  
**Maximum depth:** 0.30m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.30m to reveal the underlying glacial till, *2*.

**Interpretation**

Nothing of archaeological significance was located.

---

**Test Pit:** 68  
**Field Number:** 1  
**Maximum depth:** 0.25m

**Description**

The soil horizon, **1**, was excavated to a depth of 0.25m to reveal the underlying layers. These included glacial till, **2**, visible over the north-west quarter of the test pit, stratigraphically above the bed rock, **3**, visible over the rest of its base.

#### **Interpretation**

Nothing of archaeological significance was located.

**Test Pit:** 78  
**Field Number:** 3  
**Maximum depth:** 0.75m

#### **Description**

The soil horizon, **1**, was excavated to a depth of 0.40m to reveal the underlying layer **17**. This comprised of a dark-reddish-grey clayey medium sand, with 10% to 20% sub-rounded and sub-angular stone inclusions of a maximum size of 90mm x 85mm x 80mm. This was excavated a further 0.30m down to the glacial till, layer **2**. Here the till contained 30% to 40% sub-angular stone inclusions of a maximum size of 0.15m x 0.15m x 0.06m, and it was considered that natural bedrock, **3**, was not at a significantly greater depth.

#### **Interpretation**

This Test Pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (G4; Fig 6), although nothing was identified during the excavation of the Test Pit which was obviously the cause of this anomaly. Layer **17** is considered to represent a colluvial deposit originating from the steep escarpment located to the west of this location. Nothing of archaeological significance was located.

**Test Pit:** 79  
**Field Number:** 3  
**Maximum depth:** 0.64m

#### **Description**

The soil horizon, **1**, was excavated to a depth of 0.25m to reveal the underlying deposit, layer **18**. This comprised of a mid-reddish-orangey-grey sandy-clay with 1% to 10% small sub-angular stone inclusion, 0.25m thick. In the north-west corner, extending 0.35m into the Test Pit, was a stone lens within deposit **18**. This deposit, **19**, comprised of the same matrix, but with 90% to 95% sub-rounded stone inclusions of a maximum size of 0.20m x 0.15m x 0.12m and measured 0.25m thick. At a depth of 0.64m lay the glacial till, **2**.

#### **Interpretation**

This Test Pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (L2b; Fig 6). Deposit **18** is considered to be a colluvial deposit originating from the steep escarpment located to the west of this location. Interpretation of the stone lens within this layer, **19**, was unclear. Although it may be a natural accumulation of stony material, it may also represent something in the nature of, or similar to, a clearance cairn. This is considered most likely the cause of the geophysical anomaly.

**Test Pit:** 80  
**Field Number:** 3  
**Maximum depth:** 1.14m

#### **Description**

The soil horizon, *I*, was excavated to a maximum depth of 0.50m down to the underlying layer, deposit **24**. This comprised of a mid-grey fine sandy-clay, with sand forming only a very small part of the matrix, with less than 1% stone inclusions of a maximum size of 0.15m x 0.12m x 0.10m. This was excavated a further 0.23m down to deposit **25**, a very dark-grey clayey medium sandy-silt, a decayed peat. Layer **25** measured 0.41m thick, below which was located glacial till, deposit **2**.

#### **Interpretation**

This test pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (G2; Fig 6). This area has evidently been a waterlogged area due to the post-dating of the deposition of the glacial till. Today it remains at least, seasonally wet with an area dominated by rushes (*Juncus sp*) within the immediate vicinity. Post-glacial waterlogging in this location have led to the formation of a peat deposit, layer **25**, followed by a layer of water lain clay, deposit **24** (Plate 7). This latter deposit was also recorded in Test Pit 2, as deposit **33**. Although perhaps of palaeoenvironmental interest, neither deposits are considered significant within the archaeological brief of this report. Whether these deposits were the cause of the geophysical anomaly is unclear.

**Test Pit:** 81  
**Field Number:** 1  
**Maximum depth:** 0.18m

#### **Description**

The soil horizon, *I*, was excavated to a depth of 0.18m to reveal the underlying bedrock, **3** (Plate 2).

#### **Interpretation**

This Test Pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (D2; Fig 6), which appears to be the natural igneous bedrock which is located close to the surface in this location. Nothing of archaeological significance was located.

**Test Pit:** 82  
**Field Number:** 1  
**Maximum depth:** 0.50m

#### **Description**

The soil horizon, *I*, was excavated to a depth of 0.50m down to the glacial till, layer **2**. Across the south-western half of the Test Pit was an area of disturbed till, a plough scar orientated in a north-east/south west direction.

#### **Interpretation**

This trench was located over a geophysical anomaly initially thought to represent ridge and furrow (L1a; Fig 6). The plough scar located within the trench would appear to confirm this, although a date for this activity was not obtained.

**Test Pit:** 83  
**Field Number:** 1  
**Maximum depth:** 0.5m

#### **Description**

The soil horizon, *I*, was excavated to a depth of 0.43m down to the glacial till, **2**. A sondage was excavated in the eastern half of the trench to a depth of 70mm to reveal the underlying bedrock, deposit **3**.

#### **Interpretation**

---

This Test Pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (D1; Fig 6), which would appear to be caused by the bedrock being located close to the surface. Nothing of archaeological significance was located.

---

**Test Pit:** 84  
**Field Number:** 1  
**Maximum depth:** 0.4m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.4m to reveal the underlying glacial till, *2*.

**Interpretation**

This test pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (L1b; Fig 6), although no obvious reasons for the anomaly were located within the Test Pit. Nothing of archaeological significance was located.

---

**Test Pit:** 85  
**Field Number:** 1  
**Maximum depth:** 0.37m

**Description**

The soil horizon, *I*, was excavated to a depth of 0.25m down to the natural glacial till, deposit *2*. A sondage was excavated into the glacial till in the eastern half of the trench a further 0.12m, to test the natural.

**Interpretation**

This Test Pit was located to identify and describe the cause of an anomaly identified by the geophysical survey (D2; Fig 6), although nothing was located during its excavation which could be identified as the cause. One Neolithic flint scraper was recovered from the excavation of the soil horizon, but no archaeological features were located.

## APPENDIX 4: CONTEXT LIST

<b>Context</b>	<b>Test Pit</b>	<b>Description</b>
<b>1</b>	-	Topsoil
<b>2</b>	-	Natural clay till
<b>3</b>	-	Bedrock, Poortown Gabbro
<b>4</b>	62	Stone layer
<b>5</b>	34	Stone layer
<b>6</b>	35	Stone layer
<b>7</b>	17	Layer
<b>8</b>	10	Colluvial layer
<b>9</b>	10	Stone layer
<b>10</b>	11	Colluvial layer
<b>11</b>	11	Stone layer
<b>12</b>	27	Glacial till
<b>13</b>	16	Colluvial layer
<b>14</b>	26	Layer
<b>15</b>	3	Layer
<b>16</b>	3	Colluvial layer
<b>17</b>	78	Colluvial layer
<b>18</b>	79	Layer
<b>19</b>	79	Stone lens
<b>20</b>	79	Natural clay
<b>21</b>	82	Cut of plough scar
<b>22</b>	82	Fill of <b>21</b>
<b>23</b>	59	Colluvial layer
<b>24</b>	80	Clay natural
<b>25</b>	80	Peat layer
<b>26</b>	2	Subsoil
<b>27</b>	2	Fill of <b>29</b>
<b>28</b>	2	Fill of <b>29</b> , stone culvert
<b>29</b>	2	Cut of field drain

---

<b>30</b>	2	Fill of <b>32</b>
<b>31</b>	2	Fill of <b>32</b> , stone culvert
<b>32</b>	2	Cut of field drain
<b>33</b>	2	Clay natural

## APPENDIX 5: SUMMARY FINDS TABLE

<b>Context</b>	<b>Test Pit</b>	<b>Quantity</b>	<b>Material</b>	<b>Description</b>	<b>Date Range of Context</b>
<i>1</i>	18	3	Flint	1 Neolithic arrowhead and 1 undated, broken, waste flake	Neolithic
<i>1</i>	59	1	Flint	Large waste chunk of pale cream flint, possibly patinated	Undated
<i>1</i>	18	1	Flint	Hollow scrapper	Neolithic
<i>1</i>	11	1	Pottery	Dark red glazed earthenware Pottery	17th - 19th century
<i>1</i>	11	1	Pottery	Glazed white earthenware	17th - 19th century
<i>1</i>	11	1	Pottery	19th century black printed ware	17th - 19th century
<i>1</i>	19	5	Pottery	Willow pattern	18th - 19th century
<i>1</i>	19	1	Clay pipe	Stem	18th - 19th century
<i>1</i>	26	1	Glass	Vessel, wine bottle	19th century
<i>1</i>	34	1	Pottery	Glazed white earthenware	19th century
<i>1</i>	36	1	Pottery	German stone ware	17th - 19th century
<i>1</i>	36	1	Pottery	Glazed white earthenware	17th - 19th century
<i>1</i>	41	1	Pottery	Dark glazed red earthenware	mid 18th - 19th century
<i>1</i>	41	1	Pottery	Brosely black printed ware	mid 18th - 19th century
<i>1</i>	41	1	Pottery	Glazed white earthenware	mid 18th - 19th century
<i>1</i>	41	1	Glass		mid 18th - 19th century
<i>1</i>	42	1	Pottery	Black printed transfer ware	19th century
<i>1</i>	42	1	Pottery	Black printed transfer ware	19th century
<i>1</i>	42	1	Pottery	Black printed transfer ware	19th century

<i>I</i>	44	3	Pottery	Glazed red earthenware	late 18th - mid 19th century
<i>I</i>	44	2	Pottery	Black transfer printed ware, Brosely?	late 18th - mid 19th century
<i>I</i>	44	2	Pottery	Willow pattern	late 18th - mid 19th century
<i>I</i>	45	4	Pottery	Willow patter	19th century
<i>I</i>	45	5	Pottery	White earthenware	19th century
<i>I</i>	59	1	Pottery	English porcelain	19th century
<i>I</i>	59	1	Pottery	Glazed white earthenware	19th century
<i>I</i>	60	1	Pottery	Dark glazed red earthenware	17th - 19th century
<i>I</i>	60	1	Pottery	Glazed white earthenware	17th - 19th century
<i>I</i>	60	5	Pottery	Sponge painted ware	18th - 19th century
<i>I</i>	60	1	Pottery	Red earthenware	18th - 19th century
<i>I</i>	62	2	Pottery	Glazed red earthenware	19th century
<i>I</i>	62	1	Glass	Vessel	19th century
<i>I</i>	63	2	Pottery	Willow pattern	19th century
<i>I</i>	67	1	Pottery	Enamelled brown transfer ware, with cobbled patter. Soup plate.	19th - 20th century
<i>I</i>	67	1	Pottery	Glazed white earthenware	19th - 20th century
<i>I</i>	67	1	Glass	Vessel, wine bottle	19th - 20th century
<i>I</i>	79	2	Pottery	Willow pattern	18th - 19th century
<i>I</i>	84	1	Pottery	18th century cream ware	18th - 19th century
<i>I</i>	84	1	Pottery	Willow pattern	18th - 19th century
<i>I</i>	85	1	Pottery	Black transfer printed ware, Brosely?	18th - 19th century
<i>I</i>	85	1	Glass	Vessel	18th - 19th century

---

## ILLUSTRATIONS

---

### LIST OF FIGURES

Figure 1: Sites location

Figure 2: Plot of raw magnetometer data

Figure 3: Trace plot of raw magnetometer data showing negative values

Figure 4: Trace plot of raw magnetometer data showing positive values

Figure 5: Plot of processed magnetometer data

Figure 6: Abstraction and interpretation of magnetometer anomalies

Figure 7: Plot of Test pit locations

Figure 8: Plot of Test Pit locations over geophysical anomalies

Figure 9: Plan and south facing section of Test Pit 2

### LIST OF PLATES

Plate 1: Test Pit 34, showing natural till **2**

Plate 2: Natural bedrock in Test Pit 81

Plate 3: Test Pit 63, showing scree deposit **4**

Plate 4: Escarpment slope to the north-east of Test Pit 63

Plate 5: Escapement slope in Field 3

Plate 6: Gravel, **12**, in Test Pit 27

Plate 7: Section showing clay, **24**, and peat, **25**, in Test Pit 80

Plate 8: Field drains **29** and **32** in Test Pit 2

Plate 9: Sieving on site





Oxford Archaeology North  
Storey Institute  
Meeting House Lane  
Lancaster  
LA1 1TF

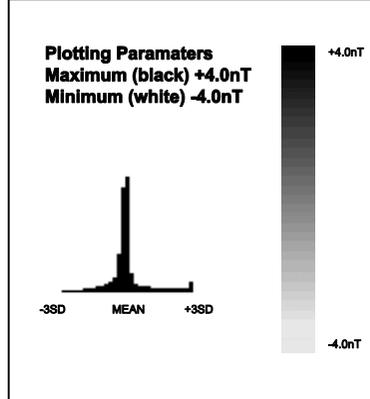
Tel 01524 541000  
Fax 01524 848606



PROJECT:  
**Poortown Quarry**

Scale 1:2000

KEY



TITLE:  
**Plot of Raw Magnetometer Data**

COMMISSIONED BY:  
**Burroughs Stewart Associates**

Figure 2: Plot of Raw Magnetometer Data



Oxford Archaeology North  
Storey Institute  
Meeting House Lane  
Lancaster  
LA1 1TF

Tel 01524 541000  
Fax 01524 848606



PROJECT:  
**Pootown Quarry**

Scale 1:2000

KEY

**Plotting Parameters -40nT/cm**  
**Negative values are displaced above the line**

TITLE:  
**Trace Plot of Raw Magnetometer Data Showing Negative Values**

COMMISSIONED BY:  
**Burroughs Stewart Associates**

Figure 3: Trace plot of raw magnetometer data showing negative values



**Oxford Archaeology North**  
Storey Institute  
Meeting House Lane  
Lancaster  
LA1 1TF

Tel 01524 541000  
Fax 01524 848606



PROJECT:  
**Poortown Quarry**

Scale 1:2000

KEY

Plotting Parameters +40nT/cm  
Positive values  
are displaced above the line

TITLE:  
**Trace Plot of Raw Magnetometer Data  
Showing Positive Values**

COMMISSIONED BY:  
**Burroughs Stewart Associates**

Figure 4: Trace plot of raw magnetometer data showing positive values



Oxford Archaeology North  
Storey Institute  
Meeting House Lane  
Lancaster  
LA1 1TF

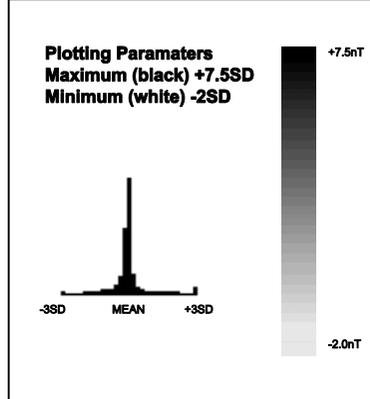
Tel 01524 541000  
Fax 01524 848606



PROJECT:  
**Poortown Quarry**

Scale 1:2000

KEY



TITLE:  
**Plot of Processed Magnetometer Data**

COMMISSIONED BY:  
**Burroughs Stewart Associates**

Figure 5: Plot of processed magnetometer data

PROJECT:

**Poortown Quarry**

Scale 1:2000

KEY

	General areas of magnetic enhancement - probably geological in origin
	General areas of magnetic enhancement - unknown origin
	Weak positive linear anomalies - associated with ridge and furrow/plough marks
	Positive linear anomalies - unknown origin
	Negative linear anomalies - associated with ridge and furrow
	Negative linear anomaly - unknown origin
	Discrete positive anomalies - possibly archaeological in origin
	Small discrete positive magnetic anomalies - unknown origin
	Discrete area of magnetic disturbance - associated with construction of track
	Magnetic spike - probably due to small buried metallic object
	Area of strong magnetic anomalies - due to proximity of fence and water trough

TITLE:

**Abstraction and Interpretation of Magnetometer Data**

COMMISSIONED BY:

**Burroughs Stewart Associates**

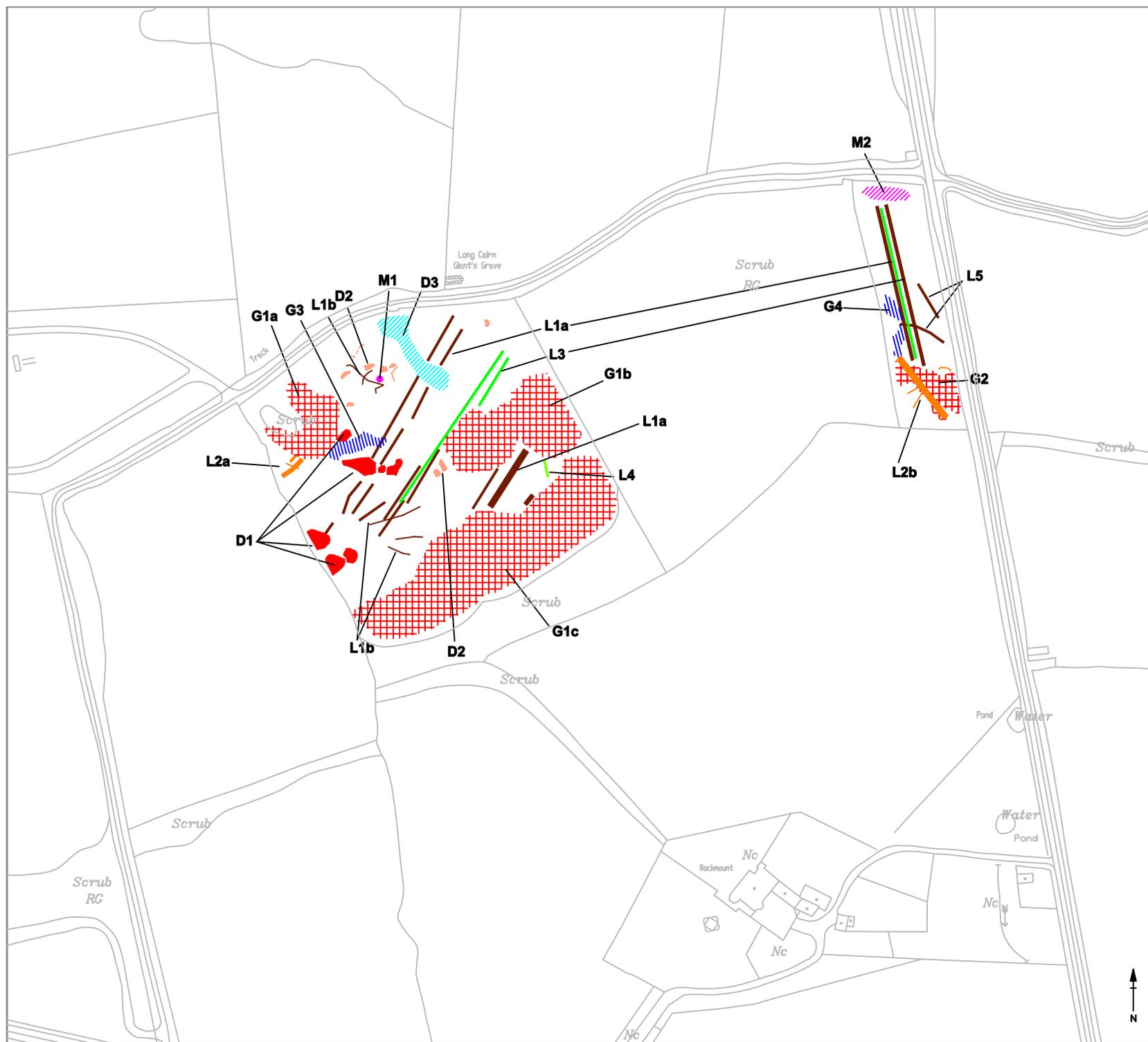
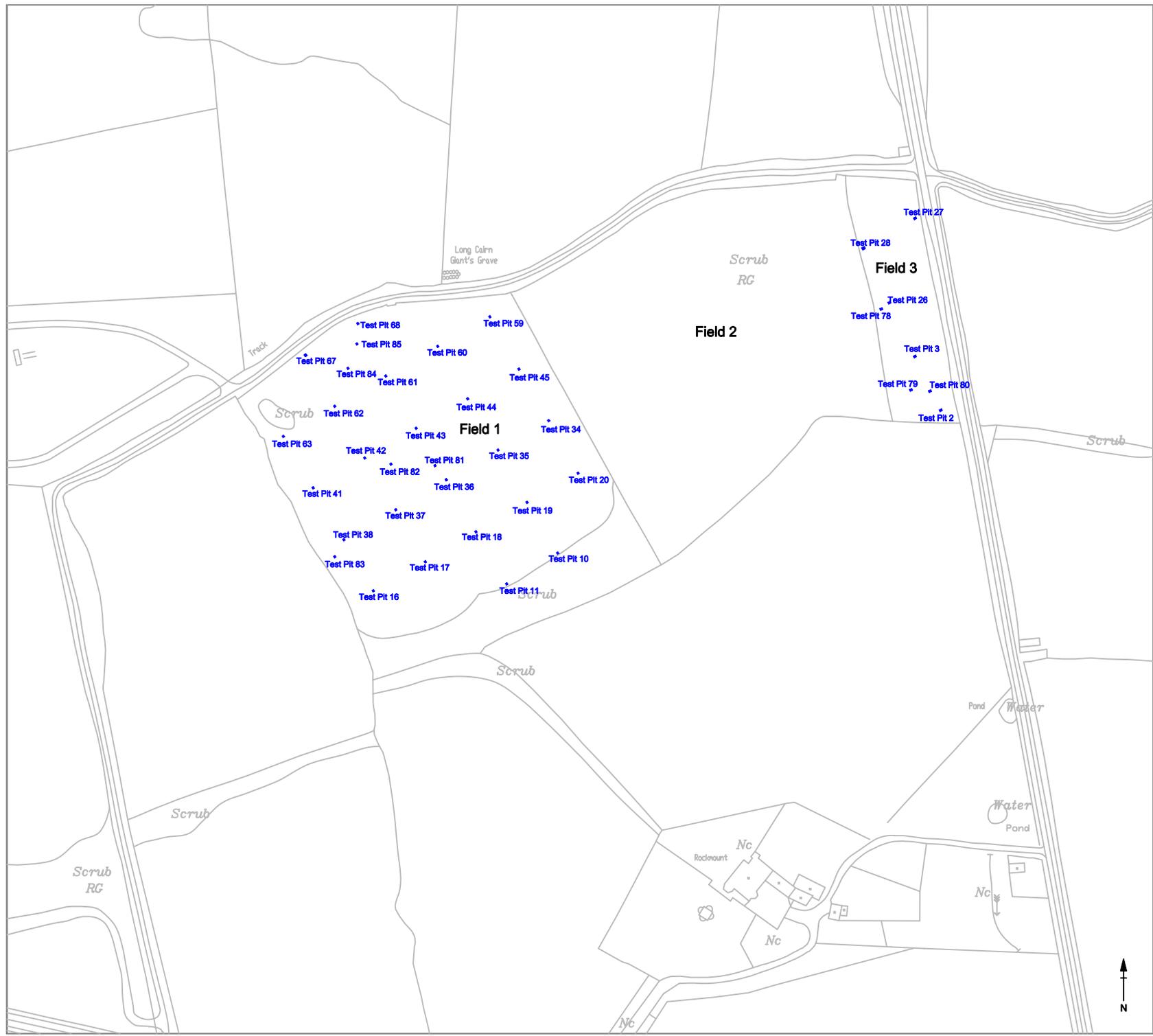


Figure 6: Abstraction and interpretation of magnetometer data



**Oxford Archaeology North**  
 Storey Institute  
 Meeting House Lane  
 Lancaster  
 LA1 1TF

Tel 01524 541000  
 Fax 01524 848606



PROJECT:  
**Poortown Quarry**

Scale **1:2000**

KEY

TITLE:  
**Plot of test pit locations**

COMMISSIONED BY:  
**Burroughs Stewart Associates**

Figure 7: Plot of test pit locations

PROJECT:

**Poortown Quarry**

Scale 1:2000

KEY

	General areas of magnetic enhancement - probably geological in origin
	General areas of magnetic enhancement - unknown origin
	Weak positive linear anomalies- associated with ridge and furrow/plough marks
	Positive linear anomalies - unknown origin
	Negative linear anomalies - associated with ridge and furrow
	Negative linear anomaly - unknown origin
	Discrete positive anomalies - possibly archaeological in origin
	Small discrete positive magnetic anomalies - unknown origin
	Discrete area of magnetic disturbance - associated with construction of track
	Magnetic spike - probably due to small buried metallic object
	Area of strong magnetic anomalies - due to proximity of fence and water trough

TITLE:

**Plot of test pit locations over  
geophysical anomalies**

COMMISSIONED BY:

**Burroughs Stewart Associates**

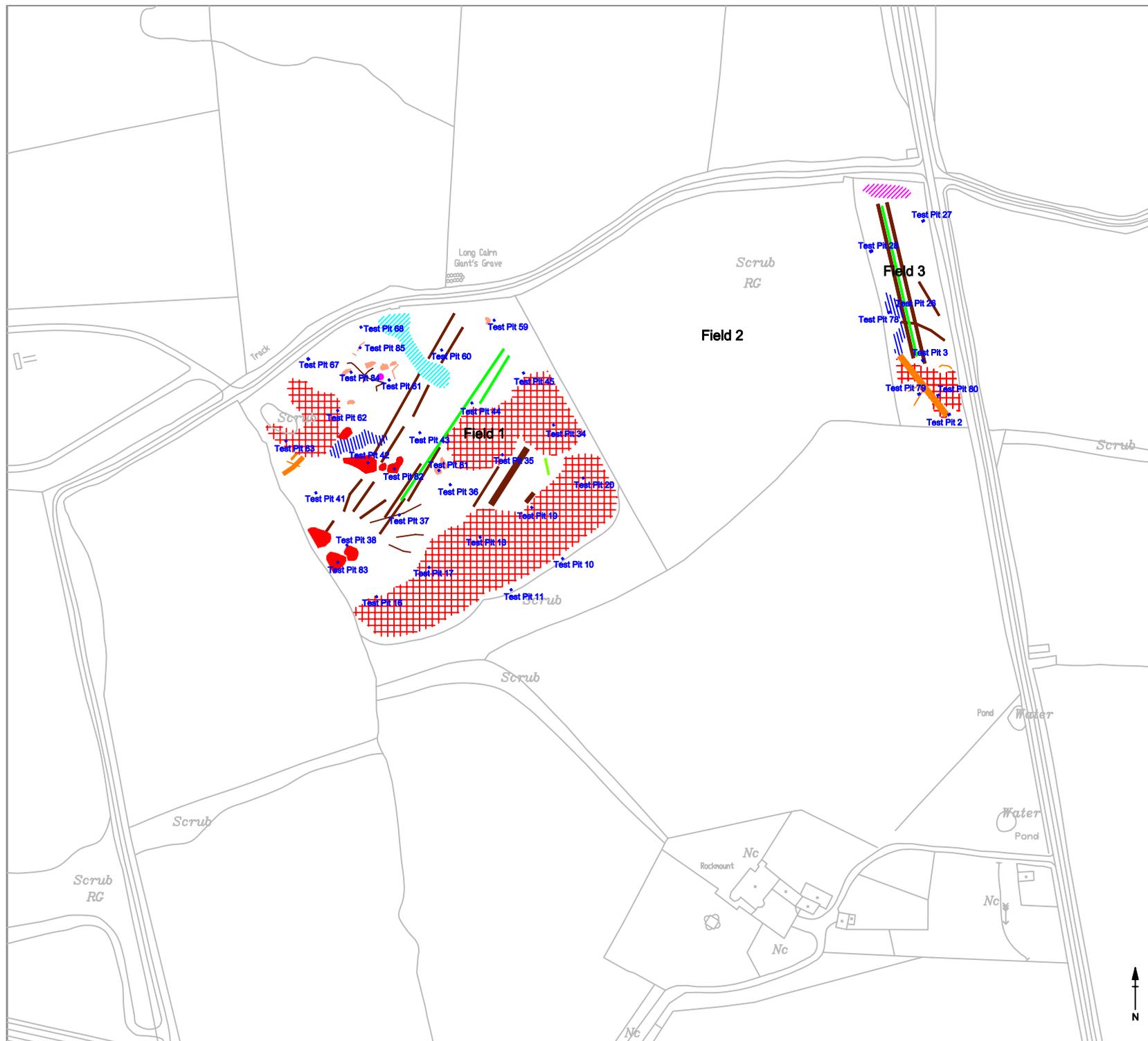
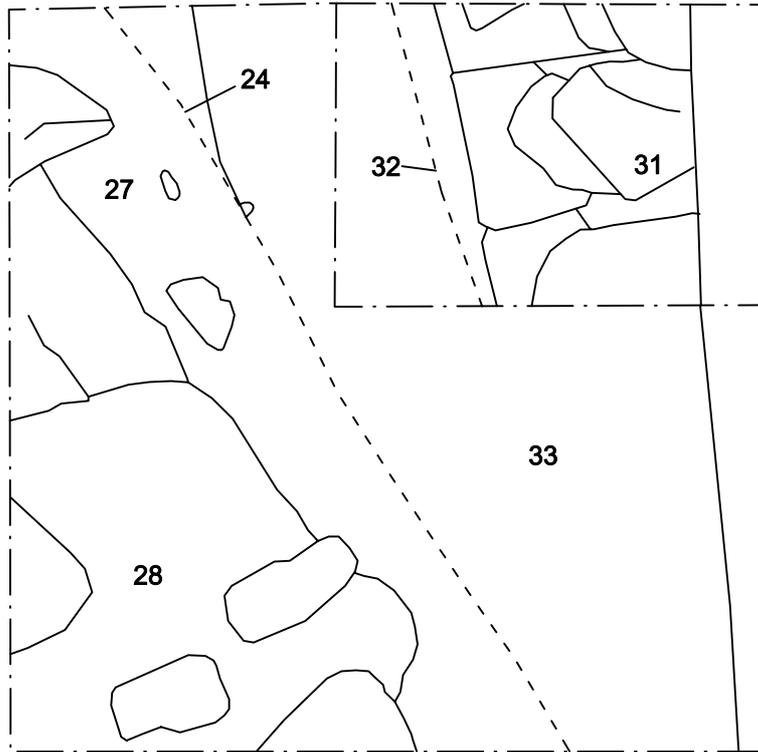
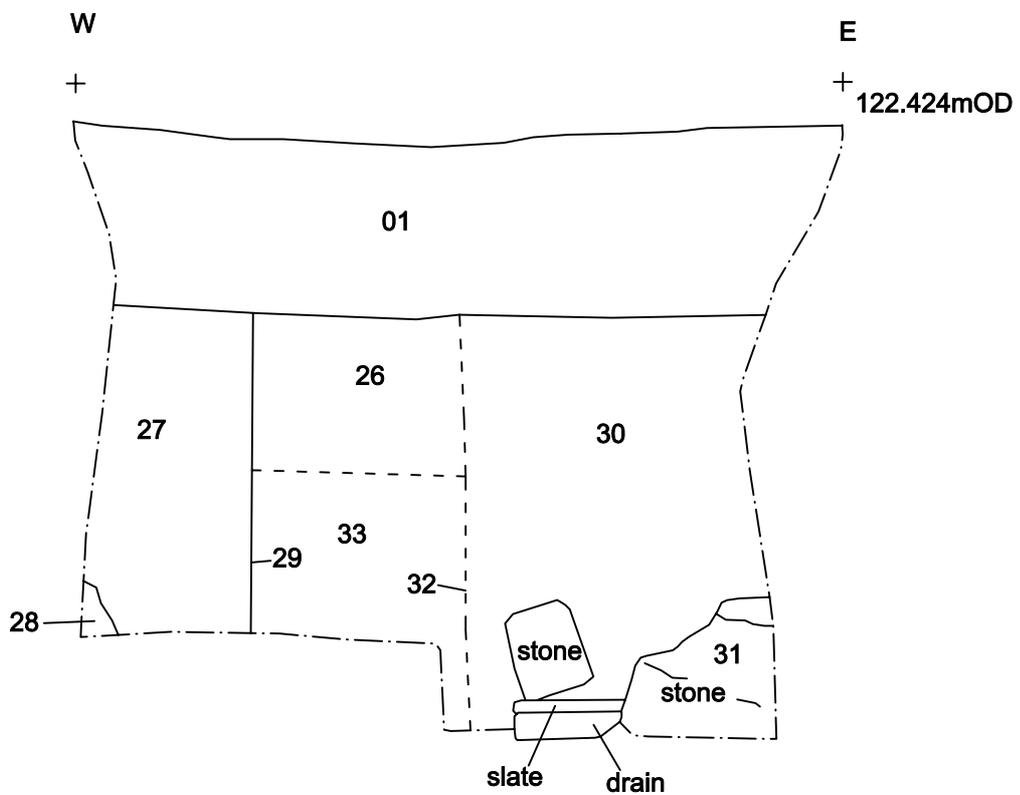


Figure 8: Plot of test pit locations over geophysical anomalies



0 0.5m



0 0.25m



Figure 9 : Plan and south facing section of test pit 2



Plate 1: Test Pit 35, showing natural till 2



Plate 2: Natural bedrock in Test Pit 81



Plate 3: Test Pit 63, showing scree deposit 4



Plate 4: Escarpment slope to north-east of Test Pit 63



Plate 5: Escarpment slope in Field 3



Plate 6: Gravel in base of Test Pit 27

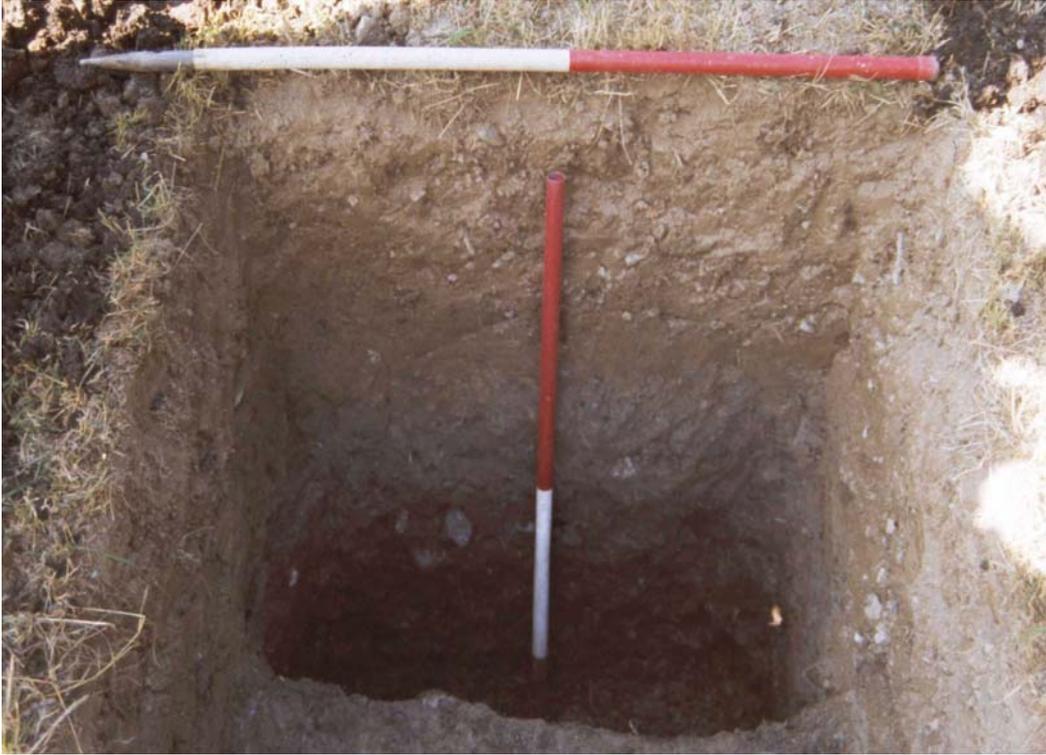


Plate 7: Section showing clay, *24*, and peat, *25*, in Test Pit 80



Plate 8: Field drains *29* and *32* in Test Pit 2



Plate 9: Sieving on site