CARLISLE FLOOD RELIEF SCHEME CARLISLE
Cumbria

Archaeological Watching Brief

Oxford Archaeology North

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Atkins Water

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SUMMARY

A watching brief was undertaken by Oxford Archaeology North between April and May 2004 at Carlisle, Cumbria (centred on NY 42000 56000), on a series of geotechnical test pits. The work was commissioned by Atkins Water following proposed improvements to the local flood defence system. To complement the watching brief results, data from geotechnical boreholes was also required by Oxford Archaeology North for palaeoenvironmental purposes.

Of the 33 geotechnical test pits that were opened, seven contained significant archaeological horizons. The finds included many bottles and jars, mostly complete, as well as drinking glasses and other tableware, both glass and ceramic. The context from which they came is interpreted as a midden dating from between the late nineteenth century through to the early twentieth, including the First World War. No horizons of earlier date were encountered.

No further archaeological work was recommended as a result of the watching brief. However, the results from of the palaeoenvironmental element will be the subject of a separate, forthcoming, report.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Simon Keys of Atkins Water for commissioning the project, and to Simon Hiskins of Norwest Holst for his assistance on site.

The watching brief was undertaken by Jason Clarke and the report was written by David Tonks. The finds were processed by Jo Dawson with the finds photographs being taken by Adam Parsons. The drawings were compiled by Mark Tidmarsh. The project was managed by Alison Plummer who also edited the report along with Emily Mercer.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 Following a verbal brief from Atkins Water, Oxford Archaeology North (OA North) formulated a project design (*Appendix 1*) for a programme of archaeological works during the opening of geotechnical test pits being excavated in advance of flood relief improvements on the river Eden, Carlisle, Cumbria (centred on NY 42000 56000). The programme of works comprised a permanent presence archaeological watching brief during the excavation of the geotechnical test pits, and required access to further geotechnical borehole data for palaeoenvironmental purposes.

1.1.2 Atkins Water subsequently commissioned OA North to undertake the programme of works and the watching brief was carried out between 20th April and 7th May 2004. The results of the watching brief are presented in this report. The results of the palaeoenvironmental element will be the subject of a separate, forthcoming, report.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The work undertaken followed the method statement detailed in the project design (*Appendix* 1) and complied with current legislation and accepted best practice, including the Code of Conduct and the relevant professional standards of the Institute of Field Archaeologists (IFA).

2.2 WATCHING BRIEF

2.2.1 The test pits were systematically opened to ascertain soil profiles in the area. The programme of field observation recorded the location, extent, and character of any surviving archaeological features observed within them. Any finds recovered were returned to OA North for analysis and a photographic record in colour slide and monochrome formats was compiled.

2.2.2 The test pits were excavated by a mechanical excavator using a 0.6m toothed bucket and close liaison between OA North staff and the site contractors was maintained

2.3 ARCHIVE

2.3.1 A full archive of the work undertaken has been produced to a professional standard in accordance with current English Heritage guidelines (English Heritage 1991). The archive will be deposited in the Cumbria County Record Office in Carlisle, and a copy of the report will be forwarded to the Cumbria Sites and Monuments Record.

2.4 REPORT

2.4.1 This report sets out the background to the project and incorporates a method statement, a background history of the site, the results, a discussion of the results and a summary of the results. The test pit numbers referred to in the text are those allocated by Atkins Water.

3. BACKGROUND

3.1 LOCATION AND TOPOGRAPHY

3.1.1 Carlisle is sited within the Eden Valley at the meeting point of three rivers. These are the Eden, which runs from east to west; the Caldew, which runs into the Eden from the south, to the west of the modern city centre, and the Petteril, which runs into the Eden from the south, to the east of the modern city centre (OA North, 2004) (Fig 1).

3.1.2 In the neighbourhood of Carlisle, the Eden Valley consists of a broad floodplain with higher ground to the north comprising mostly boulder clay, shale and sandstone, but the modern city has extended far beyond the outcrop onto the floodplain (*ibid*).

3.1.3 The underlying geology of the general area of the Solway Plain comprises mainly mudstones and sandstones of Permo-Triassic age. The most important sandstone formation, the St Bees Sandstone, has been much quarried for use as building stone, and has imparted a distinctive character to much of the area's architecture (Countryside Commission 1998, 20). During the last glaciation, thick ice-sheets crossed the area, carrying with them vast quantities of rock debris, which was deposited as boulder clay (*ibid*). As a result of the extensive mantle of glacial deposits, exposures of the solid geology are few, although significant exposures occur in some of the deeper valley sides to the south and east of Carlisle.

3.2 HISTORICAL BACKGROUND

3.2.1 The following historical background presents an outline summary of the known archaeological resource within the study area.

3.2.2 ***Prehistoric Period***: a limited amount of evidence for prehistoric activity has been found at a number of sites in the Carlisle area, including Annetwell Street (Caruana forthcoming), Blackfriars Street (McCarthy 1990, 13-4), 46-52 Lowther Street (Flynn 1995), and the Northern Lanes (Zant forthcoming *a*), but little is known of any prehistoric settlement within the affected area.

3.2.3 ***Roman Period:*** in AD 72-3 a fort was established by the Romans on the site of the later medieval castle. By the end of the first century the fort formed part of the Tyne-Solway isthmus frontier known as the Stanegate; indeed, the presence in Carlisle, known as *Luguvalium* in the Roman period, of an official known as the *centurio regionarius* suggests that Carlisle may have been the command centre for this early northern frontier (Shotter 1997, 49). The area continued to be important strategically in the following century, and though the focal point of the emperor Hadrian's new frontier moved to the nearby fort of Stanwix, the recent millennium project excavations (Zant forthcoming *b*) have shown that the fort at Annetwell Street in Carlisle continued to be occupied into the post-Roman period.

3.2.4 A large civilian settlement grew up around the fort at Carlisle and by the early third century the town may have formed the *civitas capital* of the Carvetii, the indigenous tribal unit in the area. The full extent of this extramural settlement is not known but, though considered to be large in comparison to other Roman settlements in the North West, it was thought largely to be confined to the approximate area of the later medieval walled city (McCarthy 1991, 53).

3.2.5 ***MedievalPeriod:*** the fate of Carlisle at the end of the Roman occupation is less clearly defined, although scattered traces of late fourth and fifth-century occupation have been identified (McCarthy 1990, 4) and archaeological evidence suggests the presence of an important church below the Cathedral in the tenth century (*ibid*). Other churches are also suspected to have existed between the seventh and eleventh century, although the supporting evidence is slight (*ibid*). The archaeological evidence for this period is largely based on coin-finds, notably a *sceatta, stycas,* and pennies of Aethelstan, Edgar, and Aethelred II (*op cit*, 5). Following the arrival of the Normans in 1092, and the construction of the medieval castle and town walls, Carlisle became a major frontier city on the borders of England and Scotland, continuing in this role until the Jacobite rebellion of 1745.

3.2.6 ***Post-medieval Period***: little work has been carried out on the archaeology of post-medieval Carlisle. Documentary and cartographic sources suggest a recovery of fortunes in the city with a gradual rise in population from the sixteenth and eighteenth century. For most of this period, Carlisle was a small county town whose inhabitants included a significant proportion of merchants, lawyers and gentry. By the end of the 18th century the population of the city may have grown to around 4000-5000 (McCarthy 1993, 84).

3.2.7 In common with many other English towns and cities, Carlisle expanded rapidly during the nineteenth century with the onset of the Industrial Revolution. Textile manufacture had been growing in importance since the mid-eighteenth century, and Carlisle continued to be a major centre of textile production to the middle of the nineteenth century. By this time other industries such as brickworks, ironworks, and engineering works were well established, following the arrival of the railways in the 1830s (OA North 2004).

3.2.8 By the middle of the century census records indicate the population of the city had increased seven or eightfold in little more than 50 years, and the size of the built-up area increased accordingly. Within the former walled area (most of the city walls, together with the gates, were demolished in the early ninteenth century), land to the rear of the street frontages, much of which had been occupied by gardens or other open spaces for centuries, was infilled with new housing, workshops, and light industrial buildings. This also happened in the suburban tenements and the suburbs themselves were greatly enlarged (OA North 2004).

4. WATCHING BRIEF RESULTS

4.1 OBSERVED ARCHAEOLOGY

4.1.1 ***Introduction***: a total of 33 test pits were opened (Fig 2) and seven of these (102, 106, 108, 110, 111, 122 and 130) contained archaeological deposits, including contexts ***2***, ***8***, ***47*** and ***54*** which are detailed in Table 1, below.

Context Number	TEST PIT NUMBER	DESCRIPTION
2	102	A 1.2m layer of loose, mixed rubble comprising *c*90% brick, and 10% assorted glass, plastic, tile, metal and cable fragments.
8	106	A 1.1m layer of made ground comprising building material with assorted brick, glass, plastic, tile and cable fragments.
47	110	A 1.2m midden layer comprising soft, dark greyish black sandy ash containing glass bottles, shell, animal bone and ceramic fragments.
54	108	A 1.0m midden layer comprising soft, dark greyish black sandy ash containing glass bottles and ceramic fragments.

Table 1: Table of Significant Archaeological Contexts

4.1.2 ***Test Pit 102:*** (Plate 1) sealed by topsoil, a midden layer ***2*** was observed and found to contain finds of glass and ceramic building material.

4.1.3 ***Test Pit 106:*** (Plate 2) sealed by 0.5m of topsoil, a 1.1m thick layer of rubble ***8*** was observed above the clay natural. The layer comprised an assortment of building material with inclusions of glass, plastic, insulated cable and tile.

4.1.4 ***Test Pit 108***: (Plate 3) sealed by 0.3m of topsoil, a 1.2m thick layer of midden waste ***54*** was observed in all sections. The layer comprised a deposit of glass bottles, pottery, animal bone, shell and clay pipe within a black, ash-rich fill.

4.1.5 ***Test Pit 110***: (Plate 4) sealed by 0.3m of topsoil, a 1.0m thick layer of midden waste ***47*** was observed in all sections. The layer comprised a deposit of glass bottles, pottery, animal bone, shell and clay pipe within a black, ash-rich fill. The north section collapsed revealing the northern extent of the deposit to be 0.5m north of the original section.

4.1.6 ***Test Pit 111***: (Plate 5) at 1.5m below ground surface, a 0.1m thick lens of black ashy material containing clinker was observed in the north section.

4.1.7 ***Test Pit 122***: (Plate 6) at 1.9m below ground surface, a 0.8m thick layer of greyish black, organic rich material was observed. The layer produced several finds including glass, pottery and brick.

4.1.8 ***Test Pit 130***: (Plate 7) at 0.5m below ground surface and sealed only by the topsoil, a dark, very compacted ash-rich deposit was observed. This was probably archaeological in nature, but not sampled for health and safety reasons and no diagnostic material was recovered.

4.2 FINDS

4.2.1 ***Introduction:*** in total, 101 artefacts and ecofacts were recovered from the site, most of which were glass bottles and jars. The remainder comprised ceramic building material, clay tobacco pipe, cork, glass tableware and window glass, pottery, stone, shell, and bone. The bulk of the finds were retrieved from a midden deposits (***47***) and (***54***) in Test Pits 110 and 108 respectively. In addition, finds were retrieved from rubble layers ***2*** and ***8***. The type of finds found in the rubble layers and midden deposit is summarised in Table 2, below.

	Rubble layers (*2* and *8*)	**Midden (*47* and *54*)**	***Total***
Bone	0	1	*1*
Ceramic building material	10	1	*2*
Clay tobacco pipe	0	2	*2*
Cork	0	3	*3*
Glass	4	44	*48*
Pottery	0	42	*42*
Shell	0	2	*2*
Stone	0	1	*1*
Total	*5*	*96*	***101***

Table 2: Type of finds from different contexts

4.2.2 All artefacts fell into a date range between the nineteenth and twentieth century, with the glass and pottery providing the most reliable dating evidence. Details of the glass and pottery are set out below, followed by a brief record of the other categories of finds. Whilst these finds, where they are dateable, corroborate the pottery and glass evidence, they have little other relevance for the site.

4.3 GLASS

4.3.1 ***Introduction:*** the assemblage of glass included many bottles and jars, mostly complete, as well as drinking glasses and other tableware, all of which dated to the nineteenth or twentieth century. With the exception of the milk bottles, which were recovered from rubble layer ***2*** and rubble layer ***8***, and the window glass fragment, which came from rubble layer ***8***, all of the glass was recovered from the midden deposits (***47*** and ***54***).

4.3.2 ***Bottles:*** the bottles were produced in multipart moulds, and although some had embossed writing on the sides, most were plain and would originally have had paper labels. Plain bottles were cheaper to produce than bottles which had text specially added for the company using them, and the remains of a paper label found on one of the sauce bottles showed the use of multi-coloured printing to produce a more eye-catching product. There were no glass stoppers found with the bottles, although it is possible that some of them may have been sealed in this manner. A few of the bottles had cork stoppers inside them, and two cork stoppers and one cork washer were found separately. None of the bottles had screw-top mechanisms, either internally or externally.

4.3.3 It was possible to identify the functions of some of the bottles, in spite of the fact that most of them were plain. Possible ink bottles were identified due to their sheared lip (Blakeman 2002, 30). It was noticeable that there was no evidence for mineral water bottles, such as Codd bottles, or any other type of bottle using a marble stopper mechanism. The only drinks containers identified were beer bottles and milk bottles (see Table 2, below). Joseph Iredale founded High Brewery in Currock Street, Carlisle, in the 1830s, and the building was not demolished until 1975 (Anon n.d.). It is unclear which company the initials 'P & S, D' represent, but it is likely to be another brewery, due to the presence of the text 'Imperial Pint'.

4.3.4 Perhaps the most interesting bottle, from a social history perspective, bears the text 'Central Control Board, Liquor Traffic, Carlisle' (Plates 8 and 9). The bill to set up the Central Control Board (Liquor Traffic) received the Royal Assent on 19th May 1915 (Anon n.d.). In 1916, the drink problem in Carlisle was so severe that between July 1916 and the end of that year the Board purchased all licensed premises in the city, including four breweries (but excluding certain hotels and licensed restaurants) (*ibid*). These drastic measures, aimed at reducing drunkenness amongst the First World War munitions workers in Carlisle, and so helping the war effort, have become known as The Carlisle Experiment (*ibid*). Although responsibility for the breweries and pubs remained with the Home Office until 1974 (Pittam 1982), it is likely that a bottle bearing the text mentioned above dates to the First World War, and not to a later period.

Bottle type	**Example**
Beer	'Iredale, Carlisle'
Beer	'Central Control Board, Liquor Traffic, Carlisle'
Beer?	'P & S, D, Imperial Pint'
Furniture cream	Stephenson Brothers Furniture Cream
Ink	Sheared lip bottle
Milk	'C.W.S Pasteurised Milk'
Sauce	'Holbrook & Co'
Tonic	'Owbridge's Lung Tonic, Hull'
Tonic	'Califig, California Fig Syrup Co. San Francisco, Cal.'

Table 3: Examples of different types of bottles from the midden deposits ***47*** and ***54***.

4.3.5 Both the milk bottles recovered were marked C.W.S, the initials of the Co-operative Wholesale Society, which was established in 1872 and did not change its name until 2001 (Co-op n.d.). The first British milk bottles were

produced in 1880, and the first pasteurisation of milk took place in 1894 (Poulter 2001), meaning that the bottles cannot date to before 1894.

4.3.6 No additional information was available for Stephenson Brothers Furniture Cream, and the date of establishment of the California Fig Syrup Co could not be found. A small amount of information was gathered about the lung tonic bottle, however. It was produced by Walter Tom Owbridge, Lung Tonic Manufacturer, who was listed at 50 Marmaduke Street, Hull in 1892, and who at that time also owned a chemist's shop at 76 Porter Street, Hull (Hinson and Johnson 1999). Due to the advertising of the lung tonic on a ladies vanity mirror, probably dating to *c*1923-4, information was gained as to the purpose of the lung tonic, and its possible date of establishment: 'Owbridge's Lung Tonic for Coughs and Colds Used for 50 Years' (Paddington Ticket Auctions Limited 2003). The bottle can therefore be roughly dated to some time after 1873.

4.3.7 There were several sauce bottles recovered, both with embossed writing and with paper labels. The only one where a manufacturer was clearly identifiable was in the case of Holbrook & Co, although it is possible that since the name of the product did not appear on the bottle it may have contained something else. There are records of Holbrook & Co producing a sauce that it called Yorkshire Relish, but eventually the House of Lords ruled that only Goodall Backhouse was entitled to use the term Yorkshire Relish (Stockton 1981, 64).

4.3.8 It was not possible to identify any of the glass bottle manufacturers, so a list of the marks from the bases of the bottles is given in Table 3, below. There is currently no book listing the bottle makers' marks used by different companies, and such a work could be produced only with great difficulty from trade directories, due to the abbreviated nature of the marks.

Manufacturer's mark
PLCo Ltd
N & Co Ltd
M Super
SBL
B (or R or K?) & Co Ld

Table 4: Manufacturers marks on bases of bottles from the midden deposit (***47*** and ***54***)

4.3.9 A small number of jars were recovered, most of which would have had glass lids and paper labels. Two of the jars recovered had external screw-top mechanisms. The jars were not marked, but it is useful to note that Kilner jars, which had screw top lids with a rubber ring seal, were first launched to the British public in 1861 at the National Exhibition (Bishop 1995, 16).

4.3.10 ***Tableware and window glass:*** a small piece of press-moulded tableware was recovered, as were some drinking vessels. The drinking vessels included wine glasses and soft-drinks glasses. There was a single piece of window glass.

4.4 POTTERY

4.4.1 The numbers of fragments of different fabric types are summarised in Table 4, below. All of these date to the nineteenth or twentieth century, and were retrieved from the midden deposit (***47*** and ***54***). Many of the pottery fragments were relatively large but, unlike the bottles, there were no complete vessels present. The pottery included tea or breakfastware (tea pot, tea cups, saucers, and side plates), dinner ware (gravy boat and dinner plates), and bedroom ware (part of a possible chamber pot). Also present were a number of marmalade or jam jars, several oval pie dishes, a paste pot, a crock or large bowl, and a flagon, possibly for ginger beer (Plate 10). There was one ornamental piece - a black-and-orange-glazed ceramic shoe.

Pottery type	**Quantity**
Beige-glazed white earthenware	1
Black-and-orange-glazed white earthenware	1
Brown-glazed red earthenware (coarseware)	2
Brown-glazed red earthenware (fineware)	1
Porcelain	9
Red earthenware (flower pots)	2
Stoneware	12
White-glazed white earthenware	14

Table 5: Types of pottery recovered from the midden deposit

4.4.2 There were a number of marks present on the pottery, although many of them proved little use in dating. A marmalade or jam jar had an impressed mark 'Maling, K, 1906, Newcastle', and it is possible that 1906 was the year of its manufacture. It was manufactured by the firm C.T. Maling and Sons, who were in operation between 1890 and 1963 (Godden 1991, 409). A pie dish was found with the mark 'Burleigh Ware, Burslem, England', and was manufactured by Burgess and Leigh, who had a factory at Burslem from 1889, who used marks incorporating the name 'Burleigh' from at least as early as the 1930s (*op cit*, 116-8). A second pie dish bore the distinctive Church Gresley mark of TG Green and Co, and the inclusion of 'England' in the mark indicates it dates from 1892 onwards (*op cit*, 290).

4.4.3 One of the dinner plates recovered had a black transfer-printed pattern, and was marked on the base with the pattern name 'Indian Star', but there were no manufacturer's initials. The possible ginger beer flagon, mentioned above, had an applied mark, but the company name of '…right & Co, Carlisle' was incomplete, and it was not possible to determine what the full name was (Plate 10). Overall, the dating evidence for the pottery indicates that it dates from the late nineteenth or early twentieth century.

4.5 OTHER FINDS

4.5.1 The single piece of large mammal bone and the two oyster shells recovered probably represent food waste. Three fragmentary pieces of building material were recovered - a slate roof tile, a white-glazed wall or floor tile, and a brick. Finally, two clay tobacco pipe bowls were retrieved, one of which had a rouletted rim, and had part of a maker's name 'C. G…' and a pattern number

'149'(?). Both bowls were very heavy and plain, and were presumably intended for workmen.

5. CONCLUSIONS

5.1 DISCUSSION

5.1.1 As a result of dating evidence from the finds, it is possible to provide approximate dates for the rubble and midden deposits encountered in Test pits 108 and 110. From the presence of Co-operative Wholesale Society milk bottles in the rubble deposits it can be suggested that these contexts date to the late nineteenth or early twentieth century. Finds from the midden deposit were dated to the late nineteenth or early twentieth century. It is possible that the whole deposit dates to around the time of the First World War, although deposition may have taken place over a slightly longer period of time.

5.1.2 No finds were recovered from the dark, clinker rich lens observed in Test pit 111**,** so its precise date is uncertain. It is, however, considered to represent a single deposition event of industrial waste and is probably comparable in date to the midden layers observed in Test pits 108 and 110.

5.1.3 The finds within the dark organic layer observed within Test pit 122 were not recovered, but were thought to date from the late nineteenth to early twentieth centuries. This is comparable in date for the archaeology found as a whole and correlates well with the other midden deposits and layers observed.

5.1.4 The finds, in general, are of interest and local significance as a late nineteenth to early twentieth century domestic assemblage. This has remained relatively undisturbed since deposition, leading to a large number of complete bottles and jars being preserved. Although this was only a small sample of the deposits, it nevertheless provides interesting information about the range of bottles and pottery vessels in use at the time in Carlisle.

5.1.5 The archaeology encountered, whilst of interest, is of local significance only and no recommendations were made for further archaeological assessment of the site.

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APPENDIX 1: PROJECT BRIEF

APPENDIX 2: PROJECT DESIGN

1.3 OXFORD ARCHAEOLOGY NORTH

1.3.1 Oxford Archaeology North (OA North) has considerable experience of excavation, evaluation and watching brief of sites of all periods, having undertaken a great number of small and large scale projects throughout Northern England during the past 20 years, including Liverpool. Evaluations, assessments, watching briefs and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

2.1 The following programme has been designed to provide for accurate recording of any archaeological deposits that are disturbed by the excavation of the proposed geotechnical pits.

2.2 A written client report will assess the significance of the data generated by the watching brief, within a local and regional context, and will make recommendations for further publication of any discoveries that are made should they warrant a wider dissemination.

3 METHOD STATEMENT

3.1 WATCHING BRIEF

3.1.1 ***Methodology:*** A programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits within the excavations in the course of the proposed development works. This work will comprise observation during the excavation for these works, the systematic examination of any subsoil horizons exposed during the course of the groundwork's, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

3.1.2 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid coordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large scale plan provided by the Client. A photographic record will be undertaken simultaneously.

3.1.3 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more dimensioned sketch sections will be produced per cut or test pit.

3.1.4 A watching brief will be conducted of all topsoil stripping and all below ground works. Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (ie.

selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

3.1.5 It is assumed that OA North will have the authority to stop the works for a sufficient time period to enable the recording of important deposits. It may also be necessary to call in additional archaeological support if a find of particular importance is identified or a high density of archaeology is discovered. In normal circumstances, field recording will also include a continual process of analysis, evaluation, and interpretation of the data, in order to establish the necessity for any further more detailed recording that may prove essential.

3.1.6 Environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from suitable deposits (i.e. the deposits are reasonably well dated and are from contexts the derivation of which can be understood with a degree of confidence). Where such deposits are encountered, an appropriate sampling strategy will be agreed with the Assistant Archaeologist.

3.1.7 Samples will also be collected for technological, pedological and chronological analysis as appropriate. If necessary, access to conservation advice and facilities can be made available. OA North maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

3.1.8 Full regard will, of course, be given to all constraints (services etc.), as well as to all Health and Safety regulations. OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Unit Managers.

3.2 ARCHIVE/REPORT

3.2.1 ***Archive:*** The results of all archaeological work carried out will form the basis for 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 ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the Cumbria Sites and Monuments Record (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office, and a full copy of the record archive (microform or

microfiche) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum. Wherever possible, OA North recommends the deposition of such material in a local museum approved by the Museums and Galleries Commission, and would make appropriate arrangements with the designated museum at the outset of the project for the proper labelling, packaging, and accessioning of all material recovered.

3.2.2 ***Report:*** One bound copy of a written synthetic report will be submitted to the Client, and a further two copies submitted to CCCAS within three months of completion of fieldwork. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, with an assessment of the overall stratigraphy, together with appropriate illustrations, including detailed plans and sections indicating the locations of archaeological features. Any finds recovered will be assessed with reference to other local material and any particular or unusual features of the assemblage will be highlighted and the potential of the site for palaeoenvironmental analysis will be considered. The report will also include a complete bibliography of sources from which data has been derived.

3.2.3 This report will identify areas of defined archaeology. An assessment and statement of the actual and potential archaeological significance of the identified archaeology within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings, and plans. This report will be in the same basic format as this project design; a copy of the report can be provided on 3.5" disk (IBM compatible format), if required.

3.2.4 ***Confidentiality:*** All internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

4 PROJECT MONITORING

4.1 Monitoring of this project will be undertaken by CCCAS, who will be informed by the client of the start and end dates of the work.

5 WORK TIMETABLE

5.1 OA North could commence the watching brief within one week of receipt of written notification from the client.

5.2 The client report will be completed within three months following completion of the fieldwork.

6 STAFFING

6.1 The project will be under the direct management of **Alison Plummer** (Project Manager) to whom all correspondence should be addressed.

6.2 Present timetabling constraints preclude detailing at this stage exactly who will be undertaking the watching brief.

6.3 Assessment of the finds from the evaluation will be undertaken by OA North's in-house finds specialist **Christine Howard-Davis BA MIFA** (OA North project officer). Christine 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. However, she has specialist knowledge regarding Roman glass, metalwork, and leather, the recording and management of waterlogged wood, and most aspects of wetland and environmental archaeology.

6.4 Assessment of any palaeoenvironmental samples which may be taken will be undertaken by **Elizabeth Huckerby MSc** (OA North project officer). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey.

7 INSURANCE

7.1 OA North has a professional indemnity cover to a value of £2,000,000; proof of which can be supplied as required.

BIBLIOGRAPHY

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

Museums' and Galleries' Commission, 1992 *Standards in the museum care of archaeological collections*, London

United Kingdom Institute for Conservation (UKIC), 1990 *Guidelines for the preparation of archives for long-term storage*, London

APPENDIX 3: RESULTS TABLE

TEST PIT	DIMENSIONS (M)	DETAILED DESCRIPTION OF STRATIGRAPHY	ARCHAEOLOGICAL DEPOSITS
100	3.0 x 0.6 x 3.5	A 0.25m hardcore surface lay over a 0.3m layer of mid-grey sandy clay which sealed a 1.45m layer of rubble backfill. This lay above a 0.85m layer of dark grey clay which sealed a 0.65m layer of natural sand. The water table was encountered at 2.6m.	None observed
101	3.0 x 0.6 x 3.2	A 0.5m deposit of mid grey brown sandy clay topsoil lay over a 0.7m layer of dark brown to black slightly sandy gravel with some cobbles and comprising the rubble backfill layer. This lay above a 0.4m layer of soft grey brown slightly sandy clay which sealed a 1.1m layer of soft red brown sandy clay which lay over a 0.5m layer of red brown sand.	None observed
102	3.0 x 0.6 x 2.6	A 0.6m deposit of mid grey brown sandy clay topsoil lay over a 1.25m layer of rubble backfill. This sealed a 0.75m layer of grey sand. The water table was encountered at 2.4m.	Context ***2***, containing milk bottles and ceramic building material.
103	3.0 x 0.6 x 2.7	A 0.5m deposit of mid-greyish brown sandy clay topsoil lay over a 1.9m layer of rubble backfill. This sealed a 0.3m layer of sand.	None observed
104	2.5 x 0.6 x 2.0	A 0.3m deposit of topsoil lay above a 1.7m layer of sand and gravel. This was probably made ground.	None observed
105	2.0 x 0.6 x 2.7	A 0.1m deposit of topsoil lay over a 1.0m layer of made ground comprising building waste. This sealed a 1.6m layer of mid-reddish brown gravelly sand backfill containing tarmac fragments. The pit collapsed at 2.7m and was abandoned.	None observed
106	3.0 x 0.6 x 2.85	A 0.5m layer of mid-grey brown sandy clay lay over a 1.1m layer of building rubble. This sealed a 0.8m layer of dark grey clay which lay above a 0.45m layer	Context ***8***, containing finds of glass.

		of grey sand. The water table was encountered at 2.63m	
107	Not Excavated	Not Excavated	Not Excavated
108	2.5 x 0.6 x 3.0	A 0.3m deposit of topsoil lay over a 1.3m layer of midden deposit. This sealed a 1.0m layer of light grey sandy clay which was above a 0.4m layer of light grey sand. The water table was encountered at 2.4m.	Midden deposit ***54*** containing glass bottles and pot
109	3.0 x 0.6 x 2.5	A 0.4m deposit of mid-greyish brown sandy clay topsoil lay over a 0.4m layer of dark greyish brown sandy clay which sealed a 0.2m layer of grey sand, mottled orange and yellow. This was above a 0.5m layer of sandy gravel which lay over a 1.0m layer of dark grey sandy clay. The water table was encountered at 2.4m.	None observed
110	3.0 x 0.6 x 2.3	A 0.4m deposit of mid-greyish brown sandy clay topsoil lay over a 1.0m layer of black, ashy midden which included finds. This lay over a 0.4m layer of light orangey brown clay natural which sealed a 0.5m layer of sand and gravel. The water table was encountered at 2.3m.	Midden deposit ***47*** containing glass, pottery, animal bone and clay pipe
111	2.9 x 0.6 x 1.9	A 0.4m deposit of light orangey brown sandy clay topsoil with 1% poorly sorted small stones lay over a 0.8m layer of orangey brown sandy clay with 5% poorly sorted small stones. This lay above a 0.4m layer of grey gravelly clay which sealed a 0.3m layer of light orangey brown sand. The water table was encountered at 1.8m.	A 0.1m lens of possible industrial waste was observed in the north facing section.
112	3.0 x 0.6 x 2.6	A 0.54m deposit of mid-grey brown sandy clay topsoil lay over a 0.29m layer of 20th century rubble. This lay above a 1.15m layer of dark grey peaty clay which sealed a 0.62m layer of clean grey sand. The water table was encountered at 2.0m.	None observed
113	3.0 x 0.6 x 3.1	A 0.3m layer of topsoil lay over a 0.5m layer of light brown slightly clayey sand. This lay above a 0.8m layer of soft orange brown clayey sand beneath which was a 0.3m layer of brown gravelly coarse sand.	None observed

		This lay above a 1.05m layer of sandy clay which sealed a 0.15m layer of orange brown brown sand and gravel with cobbles and occasional boulders.	
114	2.5 x 0.6 x 2.5	A 0.2m layer of topsoil lay over a 1.1m layer of mid reddish brown sandy clay. This lay above a 1.2m layer of sand. The water table was encountered at 2.0m.	None observed
115	2.5 x 0.6 x 3.0	Topsoil overlay a layer of reddish sandy clay subsoil which lay over a layer of grey sand encountered at 1.5m. The water table was encountered at 2.0m	None observed
116	3.0 x 0.6 x 1.5	A 0.3m layer of mid-grey brown sandy clay topsoil lay over a 0.76m layer of mid-reddish brown sandy clay subsoil. This lay above a 0.44m layer of mid grey gravel with small sub-rounded pebbles which were a possible alluvial deposit from the River Petterill's former course.	None observed
117	2.0 x 0.6 x 2.9	A 0.1m layer of topsoil lay over a 1.0m layer of sand and gravel. This was probably made ground and overlay a 0.4m layer of dark brown redeposited clay which sealed a 1.4m layer of reddish brown clay sand and sandy gravel.	None observed
118	3.0 x 0.6 x 2.4	A 0.4m mid-grey brown sandy clay topsoil above a 0.3m orangey brown silty clay subsoil. This sealed a 1.7m alluvial deposit of 100% small subrounded pebbles (<0.01m in diameter). Water table encountered at 2.4m which obscured the mid-orangey clay being extracted below that level.	None observed
119	2.5 x 0.6 x 2.8	A 0.2m layer of topsoil lay over a 0.4m layer of light brown slightly gravelly sandy clay. This lay above a 0.8m layer of loose orangey brown gravelly sand which sealed a 0.4m layer of mid orange mottled brown clayey sand and gravel with occasional cobbles above a 0.5m layer of loose mid orange	None observed

		sand and gravel. This lay above a 0.5m layer of dark grey brown gravelly clayey sand with some organic inclusions. The water table was encountered at 2.23m.	
120	2.5 x 0.6 x 2.8	A 0.3m layer of light grey brown sandy clay topsoil lay over a 0.7m layer of mid orangey brown sandy clay. This lay above a 1.7m layer of sub-rounded pebbles and cobbles. These represented a possible alluvial deposit from the river. The water table was encountered at 2.1m.	None observed
121	Not Excavated	Not Excavated	Not Excavated
122	2.5 x 0.6 x 2.7	A 1.3m layer of sand with *c*5% pebbles lay over a 0.6m layer of grey clayey sand with occasional pebble <0.01m in diameter. This lay above a 0.8m layer of greyish black organic material containing finds. The water table was encountered at 2.1m.	A greyish black organic matrix was observed to contain fragments of brick, glass and pottery.
123	2.5 x 0.6 x 2.6	A 0.3m layer of sandy clay topsoil lay over a 0.4m layer of grey sandy clay subsoil. This lay above a 1.1m layer of reddish brown sandy clay which sealed a 0.8m layer of gravel. The water table was encountered at 1.8m.	None observed
124	2.5 x 0.6 x 3.5	The excavated material comprised entirely modern (twentieth to twenty-first century) building rubble and domestic waste.	A layer of 20th to 21st century domestic waste and building rubble was encountered.
125	2.5 x 0.6 x 2.0	A 0.8m layer of made ground comprising hardcore lay over a further 1.2m layer of made ground comprising modern building rubble.	None observed
126	2.0 x 0.6 x 2.8	A 0.8m layer of made ground comprising hardcore lay over a 0.4m layer of mid-blackish grey re-deposited clay containing some modern rubble. This lay over a 0.4m layer of light grey peaty clay with occasional rounded stones which sealed a 1.2m layer of gravel. The water table was encountered at 2.5m.	None observed
127	2.0 x 0.6 x 3.0	A 0.45m layer of topsoil lay	None observed

		over a 1.95m layer of red-brown slightly gravelly slightly clayey medium to fine sand. This lay over a 0.1m layer of red-brown medium grain sandstone. The water table was encountered at 2.5m.	
128	2.0 x 0.6 x 3.5	A 0.4m layer of topsoil lay over a 1.1m layer of re-deposited grey sand. This lay above a 0.8m layer of mid-reddish brown clay-sand which sealed a 1.2m layer of mid brownish grey clay-sand. The water table was encountered at 3.5m.	None observed
129	Not Excavated	Not Excavated	Not Excavated
130	2.5 x 0.6 x 2.6	A 0.5m topsoil lay over a dark layer, 0.3m deep. It was a dark concretion of material which remained largely un-identified. It sealed a 0.7m layer of mid-reddish grey sandy clay which lay above a 1.1m layer of greyish brown gravel with large pebbles. The water table was encountered at 1.6m	Possible archaeological deposit directly beneath topsoil. No diagnostic material was retrieved
131	2.5 x 0.6 x 2.6	A 0.7m layer of topsoil lay over a 0.4m layer of mid-orangey brown clay-sand. This sealed a 1.5m layer of greyish brown sandy gravel. The water table was encountered at 2.3m.	None observed
132	2.5 x 0.6 x 3.5	A 0.6m layer of topsoil lay over a 0.9m layer of made ground comprising orange brown gravelly clayey sand. This lay above 2.0m of thinly laminated red brown gravelly clay. The water table was encountered at 3.4m.	None observed
133	Not Excavated	Not Excavated	Not Excavated
134	2.5 x 0.6 x 3.0	A 0.5m layer of greyish brown sandy clay topsoil lay over a 0.7m layer of dark reddish brown redeposited clay. This lay over a 0.6m layer of dark grey clay-sand which sealed a 1.2m layer of sand and gravel. Clay encountered at 3.0m.	None observed
135	Not Excavated	Not Excavated	Not Excavated
136	2.5 x 0.6 x 2.8	A 0.23m layer of mid greyish brown topsoil lay over 1.17m of made ground comprising building rubble. This lay over a further 0.43m layer of made	None observed

		ground comprising contaminated mid-orangey brown clay which sealed a 0.47m layer of blackish grey peaty clay. This lay above 0.5m of natural sand. The water table was encountered at 2.3m.	
137	3.0 x 0.6 x 2.3	A 0.3m layer of mid greyish brown sandy clay lay over a 0.8m layer of made ground comprising building rubble. This lay above a 0.7m layer of greyish brown, probably contaminated, clay which sealed a 0.4m layer of blackish grey peaty clay. This lay above clean mid-brownish grey sand.	None observed

APPENDIX 4: FINDS SUMMARY

Test Pit	Context	Quantity	Material	Description	Date Range
102	***2***	1	Ceramic building material	White-glazed tile	Nineteenth - twentieth century
103	***2***	2	Glass	Colourless (bottles)	Nineteenth - twentieth century
106	***8***	1	Glass	Flat (window pane)	Nineteenth - twentieth century
106	***8***	1	Glass	Colourless (bottle)	Nineteenth - twentieth century
108	***54***	15	Glass	Various colours (bottles)	Nineteenth - twentieth century
108	***54***	2	Glass	Colourless (tableware)	Nineteenth - twentieth century
108	***54***	1	Glass	Colourless (jar)	Nineteenth - twentieth century
108	***54***	3	Cork	Corks and cork washer for bottles	Nineteenth - twentieth century
108	***54***	2	Pottery	Brown-glazed red earthenware (coarseware)	Late seventeenth - early twentieth century
108	***54***	1	Pottery	Brown-glazed red earthenware (fineware)	Nineteenth - twentieth century
108	***54***	2	Pottery	Stoneware	Nineteenth - twentieth century
108	***54***	5	Pottery	White-glazed white earthenware	Nineteenth - twentieth century
108	***54***	1	Pottery	Black-and-orange-glazed white earthenware	Nineteenth - twentieth century
108	***54***	2	Pottery	Porcelain	Nineteenth - twentieth century
108	***54***	2	Shell	Oyster	Undated
110	***47***	1	Bone	Large mammal	Undated
110	***47***	1	Stone	Roof slate	Undated
110	***47***	5	Glass	Various colours (jars)	Nineteenth - twentieth century
110	***47***	18	Glass	Various colours (bottle)	Nineteenth - twentieth century

Test Pit	Context	Quantity	Material	Description	Date Range
110	***47***	2	Glass	Colourless (drinking glasses)	Nineteenth - twentieth century
110	***47***	1	Glass	Cullet	Nineteenth - twentieth century
110	***47***	7	Pottery	Porcelain	Nineteenth - twentieth century
110	***47***	9	Pottery	White-glazed white earthenware	Nineteenth - twentieth century
110	***47***	1	Pottery	Beige-glazed white earthenware	Nineteenth - twentieth century
110	***47***	2	Pottery	Red earthenware (flower pots)	Nineteenth - twentieth century
110	***47***	10	Pottery	Stoneware	Nineteenth - twentieth century
110	***47***	1	Ceramic building material	Brick	Post-medieval
110	***47***	2	Clay tobacco pipe	Bowls	Nineteenth - twentieth century

ILLUSTRATIONS

LIST OF FIGURES

LIST OF PLATES

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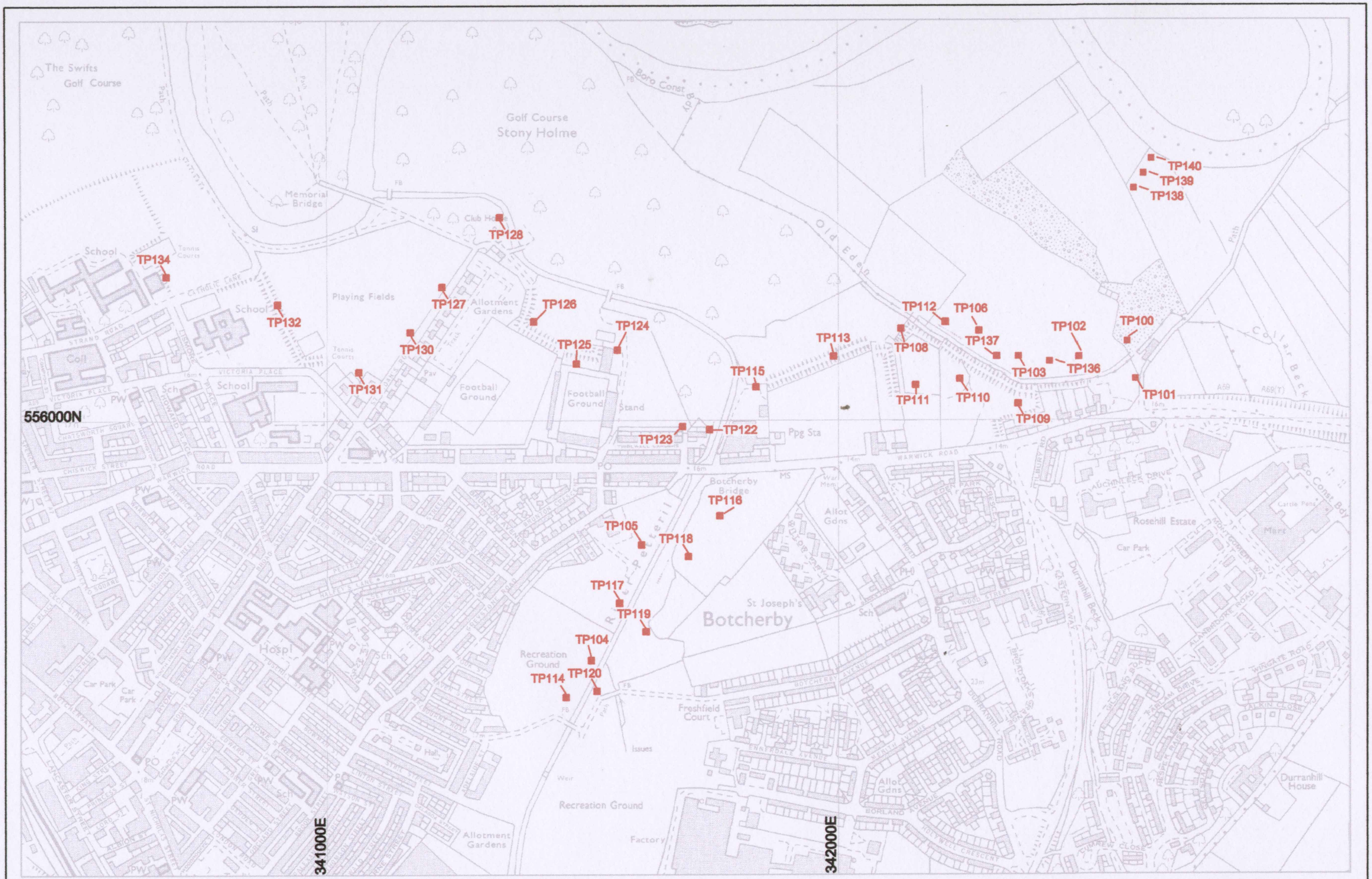
Figure 1: Location Map



based upon the Ordnance Survey 1:10,000
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TP124 = test pit

0 200m

Scale 1:10,000 @ A4

Figure 2: Test pit location plan

Plate 1 : Test Pit 102, facing north

Plate 2 : Test Pit 106, facing north-west

Plate 3 : Test Pit 108, facing west

Plate 4 : Test Pit 110, facing north

Plate 5 : Test Pit 111, facing west

Plate 6 : Test Pit 122, facing east

Plate 7 : Test Pit 130, facing north-west

Plates 8 and 9: 'Central Control Board, Liquor Traffic, Carlisle' beer bottle, probably dating from the First World War, recovered from midden deposit ***54***

Plate 10: Flagon, possibly for ginger beer, recovered from midden deposit ***47***