AN ARCHAEOLOGICAL EVALUATION AT WHITBURN CoE SECONDARY SCHOOL, NICHOLAS AVENUE, WHITBURN, SOUTH TYNESIDE, TYNE AND WEAR

An Archaeological Evaluation at Whitburn CoE Secondary School, Nicholas Avenue, Whitburn, South Tyneside, Tyne and Wear

Central National Grid Reference: NZ 410 619

Site Code: NAW 07

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June 2007

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1. NON-TECHNICAL SUMMARY

1.1 An archaeological evaluation was undertaken ahead of the re-development of Whitburn Church of England Secondary School, Nicholas Avenue, Whitburn, South Tyneside. The site covers *c.* 5.8 hectares and its central National Grid Reference is NZ 410 619.

1.2 The project, commissioned by Silvester Ashton Partnership on behalf of the Durham Diocesan Board of Education, was undertaken February-April 2007 by Pre-Construct Archaeology Limited. The work was undertaken according to a Specification prepared by the Tyne and Wear Specialist Conservation Team.

1.3 The site is located east of the A183 on the south-eastern margin of the village of Whitburn and overlooking the North Sea coast, *c*. 4.5km north of Sunderland. It is bounded to the north by Rackly Way and Ash Grove, to the west by Holly Avenue and East Fields, to the south by Nicholas Avenue and Markham Avenue and by open ground overlooking the coastal cliffs to the east.

1.4 At the time of the work, the site was divided into three different types of use. The buildings and playing fields of the secondary school occupied the southern and eastern portions, respectively, while the northern portion was open ground that was formerly occupied by 20th century housing.

1.5 The evaluation was preceded by an archaeological desk-based assessment and standing building recording exercise in 2006. The building recording concerned a brick building to the north of the school, off Rackly Way, the majority of which was formed by a structure associated with late 19th-early 20th century maritime life-saving. The desk-based assessment concluded that the site had low to moderate potential for prehistoric, Roman and medieval remains.

1.6 The evaluation comprised geophysical survey of the eastern playing fields, followed by the investigation of seven trial trenches. Five trenches (Trenches 1-5) were sited on the playing fields, two specifically located to test a geophysical anomaly possibly indicative of a curvilinear archaeological feature, with the remaining two (Trenches 6 and 7) sited on the open ground to the north of the school. The specific aims of the evaluation were to determine the extent, nature, date and degree of preservation of any archaeological remains at the site.

1.7 Trenches 1–5 exposed natural boulder clay along the length of each trench, with an overlying sub-soil recorded only in Trench 1. These trenches recorded nine shallow, east-west orientated, plough furrows of probable post-medieval origin. Trenches 3 and 4, sited to test for the geophysical anomaly, did not record any archaeological features to account for the anomaly, which was probably the result of a variation in the underlying geology. In sum, no archaeological remains of significance were recovered in Trenches 1-5.

1.8 Trenches 6 and 7 exposed natural boulder clay along the length of both trenches. Modern levelling deposits were exposed throughout each trench, these probably derived from demolition of former residential housing along Rackly Way. In sum, no archaeological remains of significance were encountered in Trenches 6 and 7.

2. INTRODUCTION

2.1 This report details the methodology and results of an archaeological evaluation undertaken by Pre-Construct Archaeology Limited (PCA) at Whitburn Church of England (CoE) Secondary School, Nicholas Avenue, Whitburn, South Tyneside. The work was undertaken February-April 2007 ahead of re-development of the school, which will involve demolition of existing buildings, construction of a new school and associated playing fields, general landscaping and alterations to the road configuration to the north of the site.

2.2 The site lies on the south-eastern margin of the village of Whitburn, *c*. 4.5km north of Sunderland, with a central National Grid Reference of NZ 410 619 (Figure 1). The site is bounded to the north by Rackly Way and Ash Grove, to the west by Holly Avenue and East Fields, to the south by Nicholas Avenue and by open ground overlooking the coastal cliffs to the east. At the time of evaluation, the site comprised the buildings, open areas and playing fields of the school and an area of grassed-over open ground to the north.

2.3 The archaeological evaluation was commissioned by Silvester Ashton Partnership, on behalf of the Durham Diocesan Board of Education, and was undertaken on the recommendation of the Tyne and Wear Archaeology Officer (T&WAO), part of the Tyne and Wear Specialist Conservation Team (T&WSCT) attached to Newcastle County Council (NCC).

2.4 The work was required due to the potential for prehistoric, Roman and medieval archaeology at the site, as highlighted by an initial stage of archaeological work, comprising a desk-based assessment, undertaken in 2006.[1] In association with the assessment, a programme of standing building recording was undertaken of a brick building on Rackly Way, which was to be demolished as part of the re-development scheme and mostly comprised a former 'Rocket Apparatus House' associated with late 19th-early 20th century maritime life-saving.

2.5 The evaluation comprised an initial geophysical survey of the school playing fields forming the easternmost portion of the site, followed by trial trenching (Trenches 1-5) in that area, with additional trenches (Trenches 6 and 7) sampling the open ground in the northern part of the development area (Figure 2). Specifications for both elements of the evaluation were prepared by the T&WAO.[2] The broad aim of the work was to allow the impact of the re-development proposals upon the archaeological resource to be assessed.

2.6 The completed project archive, comprising written, drawn, and photographic records, will be deposited with Tyne and Wear Museums Service, under the site code NAW 07. The Online Access to the Index of Archaeological Investigations (OASIS) reference number for the project is: preconst1-27198.

[1] PCA 2006.
[2] Tyne and Wear Specialist Conservation Team 2007a and 2007b.

Figure 1. Site location
Scale 1:25,000

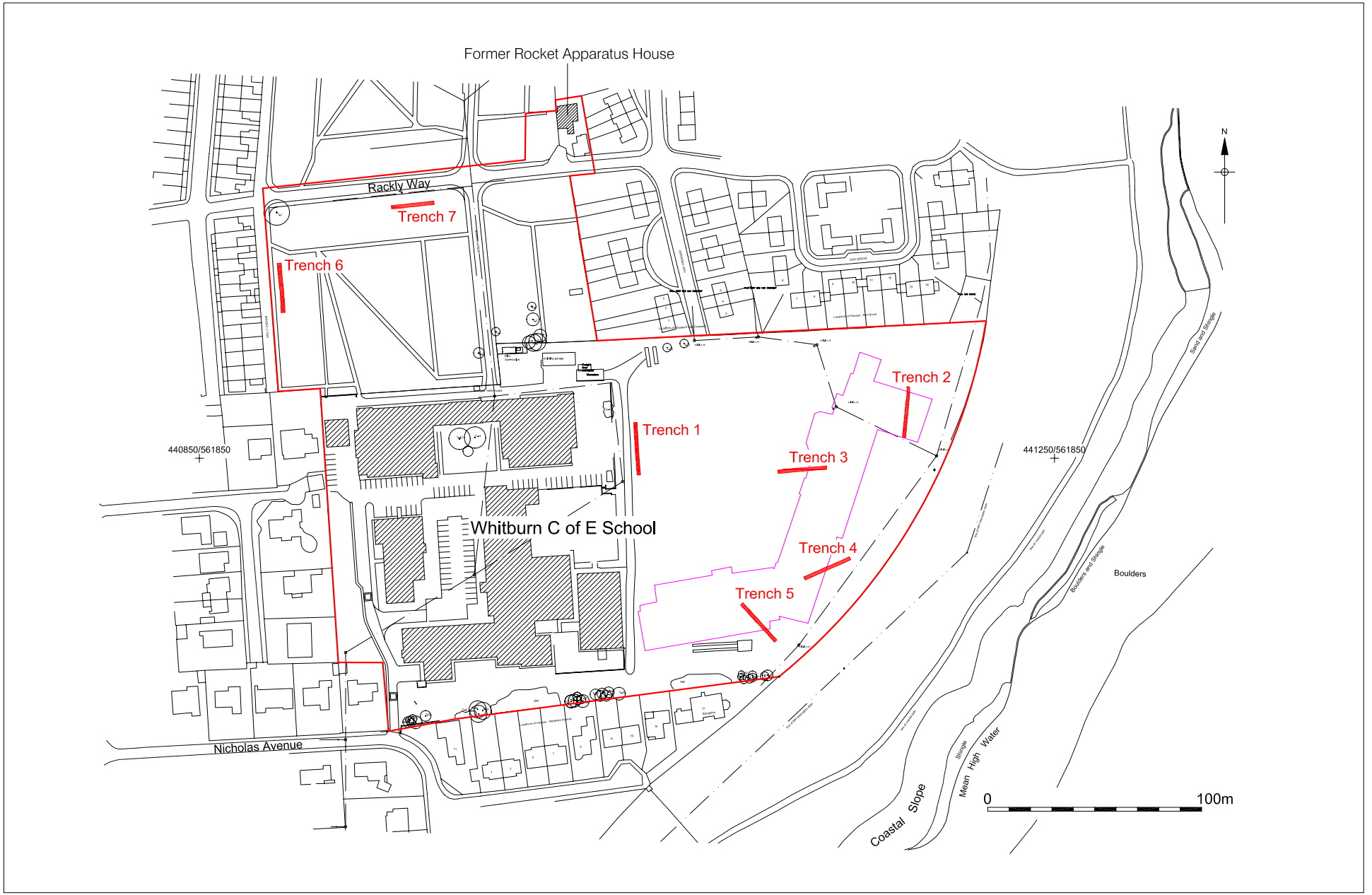


Figure 2. Trench location
Scale 1:2,500

3. PLANNING BACKGROUND AND RESEARCH OBJECTIVES

3.1 Planning Background

3.1.1 Planning permission for the re-development of Whitburn CoE Secondary School was granted by the Local Planning Authority (LPA), South Tyneside Metropolitan Borough Council (STMBC) in April 2006. The scheme will involve demolition of the existing secondary school, construction of a new three-storey secondary school with associated playing fields, including all weather pitch and hard surface courts, provision of new car parking areas, general landscaping and alterations to the road configuration at Rackly Way, this requiring demolition of a brick building, a former 'Rocket Apparatus House'. The planning application reference number for the scheme is ST/3143/05/FUL.

3.1.2 At a national level, the need for early consultation in the planning process in order to determine the impact of development schemes upon the archaeological resource is identified in *'Planning Policy Guidance Note 16: 'Archaeology and Planning'* (PPG 16).[3] At a local level, Policies ENV6 '*Historic Buildings*', ENV8 '*Archaeology*' and ENV9 *'Archaeological Finds on Unidentified Sites*' in the adopted STMBC Unitary Development Plan (UDP) are of relevance to this scheme.[4] Policy ENV8/2, relating to *'Archaeology - Other Important* [*i.e*. not scheduled] *Remains*' states:

> *'The LPA will only grant planning permission for development affecting other important archaeological remains where, in its opinion, a) sufficient knowledge of the character and extent of the site's archaeological interest has been obtained (through a field evaluation survey if necessary); and b) appropriate protective and mitigatory strategies to protect this interest, within the scheme of development, can be agreed.'*

3.1.3 The T&WSCT at NCC has responsibility for development control issues relating to cultural heritage throughout Tyne and Wear. The archaeological interests of this site were secured, on the recommendation of the T&WAO, when a condition (numbered 18) was attached to the aforementioned planning permission stating:

> '*No development or preparatory work shall take place on the site until the applicant has secured the implementation of a programme of archaeological work, beginning with a desk-based assessment of the existing playing fields and recording of the 'Rocket House', in accordance with a written Specification prepared by the County Archaeologist. The resulting archaeological reports shall be submitted to and agreed in writing by the Local Planning Authority before development works commence. The site is located adjacent to areas of potential archaeological importance identified in the adopted South Tyneside Unitary Development Plan. The investigation will ensure that any archaeological remains on the site are recorded and preserved where possible, in accordance with Policies ENV8 and ENV9 of the adopted South Tyneside Unitary Development Plan*'.

[3] Department of the Environment 1990.
[4] Available online at www.planningportal.gov.uk.

3.1.4 The initial desk-based assessment was required in order to appraise the likelihood that important archaeological deposits survive at the site and to assess the impact on those deposits by construction work associated with the proposed development. The assessment, including the results of the required building recording exercise of the former 'Rocket House', was undertaken in December 2006. This concluded that the site was of potential archaeological importance, firstly due to its proximity to the historic village core and, secondly, because of numerous discoveries of prehistoric artefacts, and a lesser number of Roman ones, on the Whitburn coast.

3.1.5 Accordingly, the T&WAO advised that the scheme of work herein described be undertaken in order to evaluate the archaeological potential of the site. Separate Specifications for the geophysical survey and trial trenching elements of the evaluation were compiled. The layout of the evaluation trenches was agreed between the T&WAO and PCA in advance of the fieldwork.

3.2 Research Objectives

3.2.1 The broad aim of the evaluation was to ascertain the nature, date and significance of archaeological remains at the site, as evidenced by any buried deposits and features and any artefactual and ecofactual evidence contained within them in order to assess the impact of the development on the archaeological resource. In this way, an informed decision can be made regarding the future treatment of the remains and identify any mitigation measures appropriate either in advance of and/or during development.

3.2.2 Geophysical survey was used as an initial investigative tool to test the archaeological potential of playing fields located east of the school buildings. The aims of the geophysical survey were:

- to establish the presence/absence and nature of any geophysical anomalies within the area proposed for development;
- to define the extent of any such anomalies, and to characterise them, if possible.

3.2.3 This was followed by archaeological trial trenching undertaken to characterise a possible archaeological feature represented by a geophysical anomaly and to provide a representative sample of the re-development site. The overall aims of the trial trenching were:

- to establish the presence/absence, nature, depth and character of any archaeological features identified by geophysical survey;
- to establish the archaeological potential of the site as whole, but particularly the easternmost portion, which is proposed for the bulk of new build within the re-development scheme;
- to make recommendations, where possible, about further mitigation which may be necessary to preserve archaeological features *in situ*, or
- to make recommendations to preserve archaeological features by record, where necessary;
- to determine if no further archaeological interventions are required.

3.2.4 Additional objectives of the evaluation were:

- to compile a site archive consisting of all site and project documentary and photographic records, as well as artefactual and palaeoenvironmental material recovered;
- to compile a report that contains an assessment of the nature and significance of the stratigraphic, artefactual, and palaeoenvironmental data.

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The full archaeological and historical background to the site is set out in PCA's desk-based assessment, which should be consulted for full details, including illustrations. An outline summary is included below.

4.1 Prehistoric

4.1.1 Although there is considerable evidence to indicate that the coastal zone of South Tyneside was occupied in the prehistoric eras, there are no known prehistoric sites within the school site and no objects from the prehistoric eras have been found within its boundaries.

4.1.2 The earliest recorded evidence of human occupation at Whitburn is a Mesolithic harpoon head of deer antler (Tyne and Wear Historic Environment Record (HER) 851) found on the shore at South Bents in 1852. In March 1989, a Mesolithic site (HER 1998) was identified in an eroding cliff face at Potters Hole, to the north-east of the village, which yielded a small number of flints associated with structural features, including a spread of burnt daub and a pit.

4.1.3 Also of note is a summary from 1935 detailing flint material recovered from several sites along the Whitburn coast (HER 841, 843 and 844). These sites produced lithics including microliths, points, blades and waste cores. Unfortunately only one of these sites was given an accurate location, HER 844, at Souter Point. A flint blade or flake (HER 858) is recorded in an area of modern residential housing, *c.* 100m north of the school site.

4.1.4 In 1929, a cist burial of late Neolithic origin (HER 847) was recorded during road widening near Wheatall Farm, less than 1km north of the school site. The burial consisted of two side stones, two end stones, a stone base with a contracted inhumation and associated worked flints inside.

4.2 Roman

4.2.1 The school site lies *c.* 6km to the south of the Roman fort at South Shields, which overlooks the mouth of the Tyne, with no known site of the period in the area between. Although no evidence of Roman occupation or land-use is recorded within the school site, there have been isolated finds of Roman artefacts in the general vicinity. The County HER lists antiquarian finds of Roman coins on the Whitburn coast (HER 871), while Roman metallic harness fittings (HER 6801) were found during landscaping close to Whitburn Hall, *c.* 0.3km west of the site.

4.3 Medieval

4.3.1 No evidence of medieval occupation or land use is recorded within the school site, although it lies only *c.* 0.1km to the east of the historic core of Whitburn village, which is of medieval origin. The village core is a Conservation Area, as defined in the STMBC UDP, but the boundary of the Conservation Area follows the line of the A183 through the modern village, along East Street/Whitburn Bents Road and does not include any of the ground east of the road, including the school site.

4.3.2 The earliest documentary reference for medieval Whitburn (HER 108) dates from the 1183 listing in the Bolden Book, at which time it was described as a small agricultural community. The late 14th century survey commissioned by Bishop Hatfield provides a list of named inhabitants, with 30 separate holdings listed, along with a windmill (HER 962). In terms of its layout, medieval Whitburn is likely to have been a two-row green village with a central green.

4.3.3 The parish church of St. Mary at Whitburn (HER 882) lies on the south side of the village core, consisting of an aisled five-bay nave, with west tower, a three bay chancel without aisles and a south porch. The main fabric of this structure originally dates to the early 13th century but it was altered during the 15th and 19th centuries.

4.3.4 Evidence of medieval agriculture, in the form of broad ridge and furrow earthworks (HER 887), has been identified on former fields at Whitburn Rifle Ranges, *c.* 500m north of the school site. The 1st edition of the Ordnance Survey map annotates this area as 'East Field', which is likely to be a name of long-standing.

4.3.5 Several medieval artefacts have been found at Glebe Farm (HER 4613) on the western margin of the historic village core, including a silver finger ring, bronze belt buckle and a bronze plaque, which date to the 12th to 14th centuries.

4.4 Post-medieval, Early Modern and Modern

4.4.1 Land at Whitburn was enclosed during 1718. In 1719, Sir William Williamson married into the Hedworth family, who owned some small freehold at Whitburn. By the early 19th century, the Williamsons had greatly increased their holdings, including land at the school site.

4.4.2 Whitburn Mill (HER 1029), to the north-west of the village core, dates to the 1790s, although it has possible medieval origins and was in use until the late 19th century. During the Second World War, it was used as an observation post. There is also a photographic record of a tithe barn, on the south side of the village core, which may have had medieval or early post-medieval origins (HER 881).

4.4.3 Industrial development of Whitburn, as elsewhere in the region, was closely related to the coal trade, although mining occurred here later than elsewhere due to the depths at which workable seams occur there. Numerous mine workings and features associated with the coal trade are recorded in the area, including Whitburn Colliery (HER 2493) sunk in 1874 by Belgian miners for the Whitburn Coal Company. It was open until the mid 20th century, using the Marsden and Whitburn Colliery Railway (HER 2466) to transport coal. Numerous quarries, mostly for limestone extraction, were exploited in the vicinity of the village during the 19th century.

4.4.4 The earliest cartographic evidence to feature the school site is a plan from 1811 showing the estate of Sir William Williamson within the parishes of Whitburn and Monkwearmouth. The majority of the site lies within an open area annotated as 'Mr Burdon's Ground', with the southernmost fringe extending into an agricultural field system, part of an area annotated as 'The Banks'. The Tithe map for the parish of Whitburn from 1839 shows the study site entirely within a field system, with the lane that would become Rackly Way in place to the north.

4.4.5 The 1st edition Ordnance Survey map of 1855 again shows the site within a field system east of the road through the village, with the various land parcels having been renumbered since the Tithe map. A pond is shown in the north-western portion of the site and the east-west lane Rackly Way is in place to the north, and is named as such. A second track or lane runs east-west across the southern margin of the site.

4.4.6 The 2nd edition Ordnance Survey map of 1896 shows the site essentially unchanged since the 1st edition, with renumbering of some land parcels. This edition shows the earliest significant development on the east side of East Street. A 'Rocket House' is shown within this eastern development area, evidently a small detached building at the corner of East Street and Rackly Way. This structure may have been the first building associated with maritime life-saving in Whitburn; the map evidence indicates that the Rocket Apparatus House further along Rackly Way and associated with the school site was not present at this date. Also shown is a 'Rocket Post' to the south-east of the school site.

4.4.7 The 3rd edition Ordnance Survey map of 1919 shows further residential development west of the school site, most notably terraced housing along Aldophus Street and William Street. The site itself essentially remained as undeveloped fields, although three buildings were present. The first is a rectangular building south of the pond in the central portion of the site, which survives within the school complex; a two-storey gable-ended brick building with pitched slate roof, it is used as a garage/store.

4.4.8 The other buildings shown within the school site on the 3rd edition Ordnance Survey map lay on the north side of Rackly Way, at the north-eastern corner extent of the development area. The northernmost structure, annotated 'Rocket Apparatus House', survives, although it has been extended since the 3rd edition map. The other building, to the south-east of the Rocket Apparatus House, was a rectangular structure, which had gone by the 1942 edition of the Ordnance Survey map.

4.4.9 The coastal location of Whitburn inevitably meant that it was important in the defence of Britain during the two world wars of the 20th century. The County HER lists numerous sites related to such activity in the vicinity of the site. Whitburn Rifle Ranges (HER 2587) to the north comprises a group of five firing ranges, the earliest of which dates to the early 20th century and First World War practice trenches are visible on aerial photographs of that area. Along the coast are numerous Second World War defensive features including pillboxes, bombing decoys, search light batteries and road blocks.

4.4.10 The Ordnance Survey map of 1942 shows Whitburn Church of England School and associated playing field in place in the south-western portion of the site. The exact date of construction is uncertain, but the school is shown on a 1930's Ordnance Survey map. The northernmost portion of the site had been developed for housing by this date, with an extensive housing estate set out either side of Rackly Way and divided north-south by Beech Avenue. The south-eastern portion of the site, east of the school and its playing field, was an undeveloped field extending towards the coastal cliffs.

4.4.11 Since the Second World War, the area of the original school playing field has been developed for additional school buildings, with the former open fields to the east - within the south-eastern portion of the development site - now used as playing fields. Although residential housing now surrounds the site on all sides except to the east, the estate shown either side of Rackly Way on the 1942 Ordnance Survey map has since been demolished and, at the time of the evaluation herein described, this area was open space, mostly grassed-over. Nicholas Avenue now skirts the southern boundary of the school grounds, this being one of the residential streets on its periphery.

5. GEOLOGY AND TOPOGRAPHY

5.1 Geology

5.1.1 The solid geology of the Whitburn coast area is characterised by Upper and Lower Magnesian strata of Late Permian age, principally comprising dolomite and limestone. The overlying drift geology comprises glacial boulder clays and sands.

5.2 Topography

5.2.1 The study site lies on the south-eastern margin of Whitburn village, which itself lies on the South Tyneside coast between South Shields and Sunderland. The village core occupies undulating ground at *c*. 20m OD, rising to the north-west to the Cleadon Hills and Beacon Hill, at *c*. 82-83m OD, which lie *c*. 1.5km distant.

5.2.2 Across the site, the ground continues to fall away generally to the south-east, towards the coastal cliffs. At its north-western corner, on Rackly Way, ground level is at *c*. 26m OD, with the existing school buildings occupying ground in the south-western portion of the site between *c.* 23m OD and *c*. 18.50m OD. The playing fields forming the south-eastern portion fall away from *c*. 20.50m OD to *c*. 14m OD at the easternmost point on the site boundary.

6. ARCHAEOLOGICAL METHODOLOGY

6.1 Geophysical Survey

6.1.1 The aforementioned Specification for the geophysical survey set out the required schedule of works. Geophysical survey was undertaken across the area, *c.* 2 hectares in size, currently occupied by playing fields, this the easternmost portion of the school site. The survey was undertaken on 23rd February 2007. The methodology and results of this work, which were used to guide some of the trial trenches in the subsequent phase of the evaluation, are described in Appendix C to this report.

6.2 Trial Trenching

6.2.1 The aforementioned Specification for trial trenching set out the required schedule of works. The layout of the evaluation trenches was agreed between the T&WAO and PCA in advance of the fieldwork. Seven trial trenches, Trenches 1-7, were investigated, all rectangular in plan, measuring *c.* 25m x 1.70m. Trenches 1-5 were located on the eastern playing fields, with Trenches 3 and 4 sited specifically to test a geophysical anomaly (f3) possibly indicative of a roughly north-south orientated, curvilinear ditch or gully. Trenches 6 and 7 were situated in the northernmost portion of the site, the grassed-over open ground off Rackly Way, with the main aim of testing for possible medieval activity closer to the historic village core.

6.2.2 The archaeological evaluation fieldwork was undertaken in accordance with the relevant standard and guidance document of the Institute of Field Archaeologists.[5] PCA is an IFA-Registered Archaeological Organisation.

6.2.3 In Trenches 1-5, grassed areas were de-turfed, where possible, for later reinstatement, with turves and excavated spoil stored on geotextile. Ground reduction within Trenches 1-5 was undertaken using a 360^{o} tracked 'mini-excavator' of 5-tonnes size, while a back-acting 'JCB-type' excavator was used for Trenches 6 and 7. In all cases machines utilised wide-blade ditching (non-toothed) buckets. All machine work was directed by the supervising archaeologist. In each trench, topsoil/archaeologically insignificant overburden/sub-soil, where present, were removed by the machine, in spits of approximately 100mm thickness, down to either the first significant archaeological horizon or natural sub-stratum. Spoil was mounded away from the edge of each trench.

6.2.4 Subsequent excavation and recording was undertaken in accordance with recognised archaeological practice and following methodology set out in PCA's '*Field Recording Manual*'.[6] Following machine clearance, the sections and the base each trench were cleaned using appropriate hand tools. One long section in each trench was drawn at a scale of 1:20 and the base of each trench was planned at a scale of 1:50 relative to a baseline established along the trench, which was then located relative to the Ordnance Survey grid.

[5] IFA 1999.
[6] PCA 1999.

6.2.5 Archaeological deposits were recorded using a 'single context recording' system. Features, deposits and structures were recorded on *pro forma* context record sheets. The height of all principal strata and features were calculated relative to Ordnance Datum and indicated on the appropriate plans and sections. A 'Harris Matrix' stratification diagram to record stratigraphic relationships was compiled and fully checked during the course of the fieldwork.

6.2.6 Within appropriate archaeological horizons, partial excavation, the recovery of dating evidence or cleaning and recording of deposits was preferred to full excavation, and was practised wherever possible.

6.2.7 A photographic record of the investigations was compiled using SLR cameras. This comprised black and white prints and colour transparencies (on 35mm film), illustrating in both detail and general context the principal features and finds discovered. The photographic record also included 'working shots' to illustrate more generally the nature of the archaeological operation mounted. All photographs included a graduated metric scale.

6.2.8 Temporary Bench Marks (TBMs) were established on the site from the Ordnance Survey Bench Mark (value 21.67m OD) located on the south-eastern corner of a terraced building on the corner of Rackly Way and Oak Crescent.

6.3 Post-Excavation

6.3.1 The stratigraphic data generated by the project is represented by the written, drawn and photographic records. A total of 65 archaeological contexts were defined in the trenches (Appendix B). Post-excavation work involved checking and collating site records, grouping contexts and phasing the stratigraphic data (Appendix A). A written summary of the archaeological sequence was then compiled, as described below in Section 7.

6.3.2 The palaeoenvironmental sampling strategy of the project was to recover bulk samples where appropriate, from well-dated (where possible), stratified deposits covering the main periods or phases of occupation and the range of feature types represented, with specific reference to the objectives of the evaluation. To this end, no appropriate deposits were encountered and therefore no bulk samples were recovered.

6.3.3 No artefactual material was recovered during the evaluation.

6.3.4 Survival of all materials from archaeological fieldwork depends upon suitable storage. The complete project archive, comprising written, drawn and photographic records (including all material generated electronically during post-excavation) will be packaged for long term curation according to relevant guidelines.[7] The depositional requirements of the receiving body, in this case Tyne and Wear Museums Service, will be met in full.

[7] UKIC 1990.

7. THE ARCHAEOLOGICAL SEQUENCE

7.1 Phase 1: Natural Sub-stratum

7.1.1 The natural sub-stratum exposed in Trenches 1-7 generally comprised yellow to pinkish brown clayey silts and silty clays. This material was the boulder clay (till) glacial 'drift' that is typical of the region.

7.1.2 The maximum height recorded on the upper interface of the natural sub-stratum was 24.46m OD, this at the northern end of Trench 6, and the minimum height recorded was 14.79m OD, this towards the northern end of Trench 2. These values reflect the overall topography of the site set on ground sloping downwards to the south-east, towards the coastal cliffs.

7.2 Phase 2: Sub-soil

7.2.1 Layer, [101], encountered throughout Trench 1, has been interpreted as a sub-soil. It comprised friable sandy clay, up to 0.25m thick, and was recorded at a maximum height of 19.60m OD, this towards the northern end of the trench, *c.* 0.30m below ground level. This was the only trench in which a developed sub-soil was recorded, although its period of origin is uncertain.

7.3 Phase 3: Post-medieval

7.3.1 Nine linear features were recorded in Trenches 1-5 on the eastern playing fields of the school. All were orientated roughly east-west, with shallow U-shaped profiles, and each had a single fill, generally comprising mid greyish brown clayey silt. All nine features have been interpreted as the remains of plough furrows of probable post-medieval origin.

7.3.2 A single east-west orientated furrow, [110], was recorded at the northern end of Trench 1, truncating sub-soil [101]. It was at least 2.56m wide, north-south, continuing to the north beyond the limit of excavation, and was at least 0.20m deep.

7.3.3 Three east-west orientated furrows, [202], [204] and [206], were recorded in Trench 2 cutting into the natural sub-stratum, [207]. They measured up to *c.* 3.80m in width, north-south, and were at least 0.34m deep, with the centres of the three features spaced *c.* 8m apart.

7.3.4 A single east-west orientated furrow, [305], was recorded skirting along the southern edge of Trench 3, cutting into natural-substratum [301]. It was traced for *c.* 25m east-west and was at least 0.45m wide, north-south, but with the majority lying beyond the limit of excavation, and was up to 0.16m deep.

7.3.5 Two east-west orientated furrows, [407] and [409], were recorded in Trench 4, cutting into natural sub-stratum [401]. They measured up to 3.10m wide, north-south, and at least 0.10m deep. Again, the centres of the furrows were spaced *c.* 8m apart.

7.3.6 Two east-west orientated furrows, [505] and [507], were recorded in Trench 5, cutting into natural sub-stratum, [501]. They were at least 2.30m wide, north-south, up to 0.30m deep, and the centres of the two features were *c.* 5m apart.

7.3.7 Although no datable material was recovered from any of these features, they have, as stated above, been interpreted as furrows of probable post-medieval origin.

7.4 Phase 4: Modern

7.4.1 In Trenches 1-5, on the school playing fields, a total of eight east-west orientated field drains, [104], [106], [108], [209], [211], [303], [403] and [405], were recorded. These were generally located along the lines of earlier furrows, as is often found to be the case with such features.

7.4.2 Two layers, [602] and [603], were recorded in section extending across Trench 6 and with a combined thickness of up to *c.* 0.98m. Two similar deposits, [702] and [703], were recorded in section extending across Trench 7, these having a combined thickness of *c.* 0.80m. These deposits have been interpreted as levelling deposits derived from demolition of housing shown fronting onto Rackly Way on the 1942 Ordnance Survey map.

7.4.3 Five service trenches, [605], [607] and [609], orientated east-west, and [613] and [611], orientated north-south, were recorded in Trench 6. These services were probably associated with buildings that formerly fronted onto Adolphus Street.

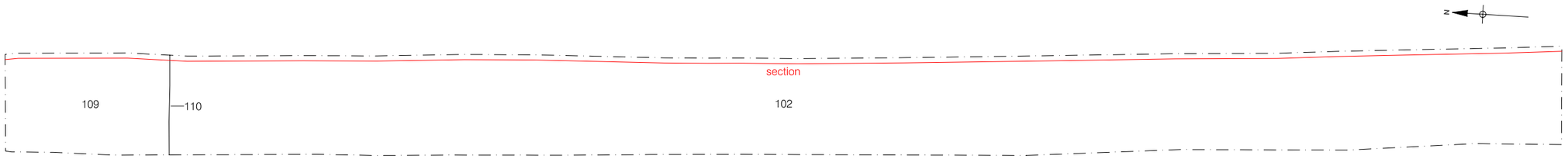
7.5 Phase 5: Topsoil

7.5.1 Topsoil was recorded as the uppermost deposit in all seven trenches and generally comprised dark greyish grey brown sandy silt. The maximum recorded thickness was 0.40m and the minimum recorded thickness was 0.12m.

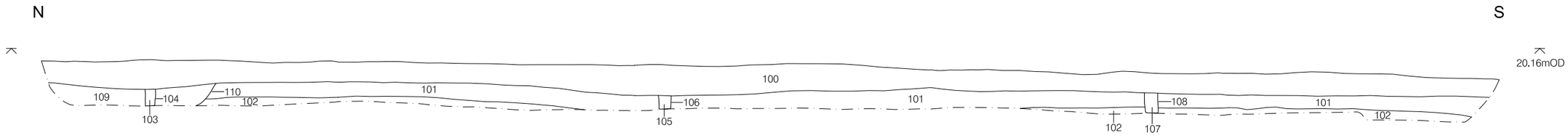
7.5.2 The maximum recorded height of topsoil was 25.32m OD at the northern end of Trench 6 and the minimum recorded height was 15.07m OD, at the northern end of Trench 2.

7.6 Phase 6: Modern

7.6.1 A rectangular feature, [503], was recorded in section truncating topsoil, [500], in Trench 5. Its single fill, [502], comprised loose sand. This feature was a disused long jump pit, the earthwork of which was still evident on the surface of the playing field.



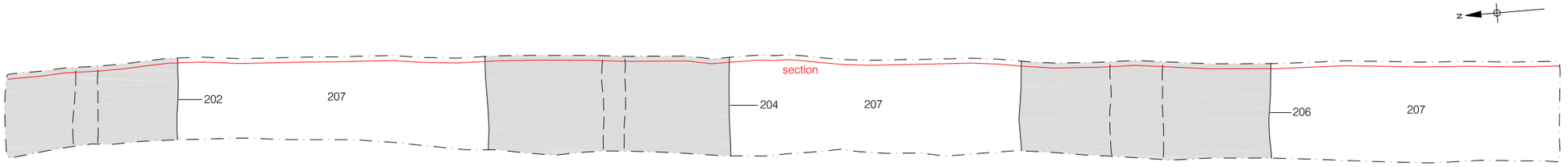
Trench 1. Plan.



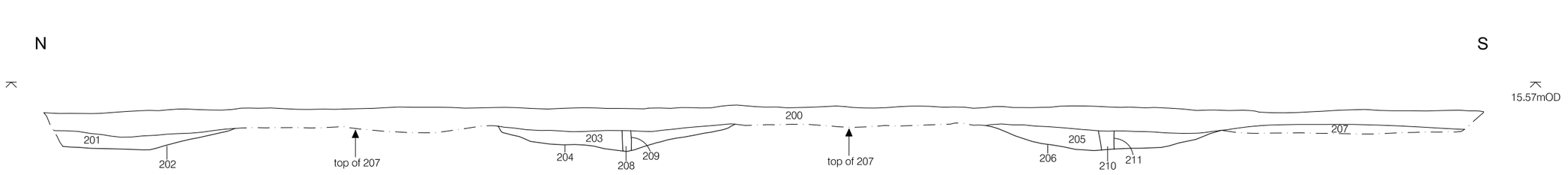
Trench 1. West facing section.

0 5m

Figure 3. Trench 1, plan and section
Scale 1:75



Trench 2. Plan.

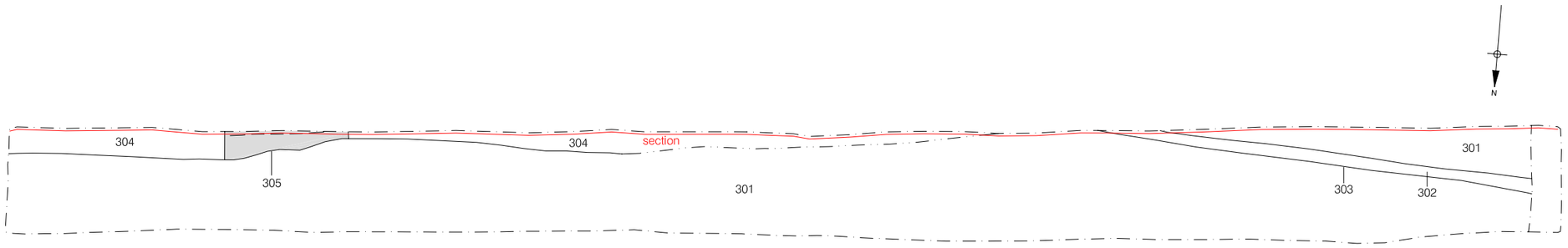


Trench 2. West facing section.

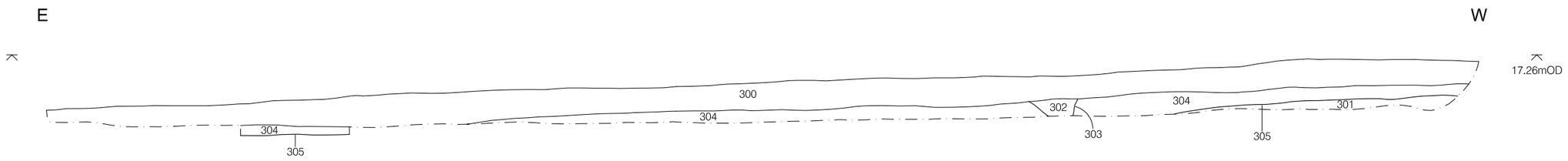
excavated portion

0 5m

Figure 4. Trench 2, plan and section
Scale 1:75



Trench 3. Plan.

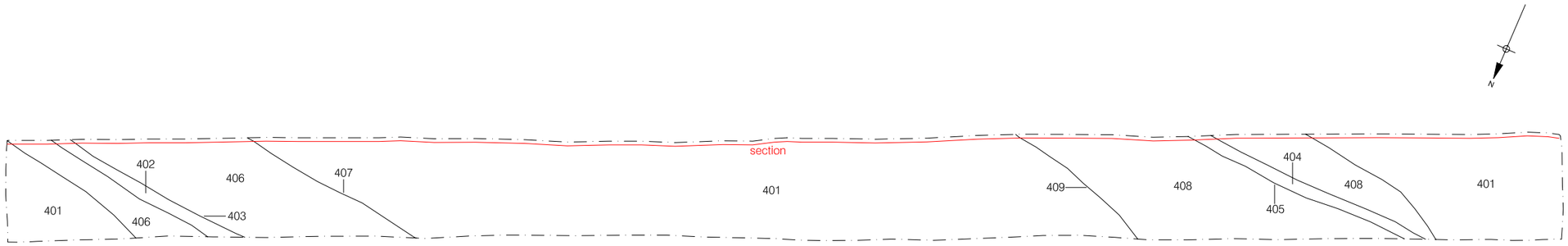


Trench 3. North facing section.

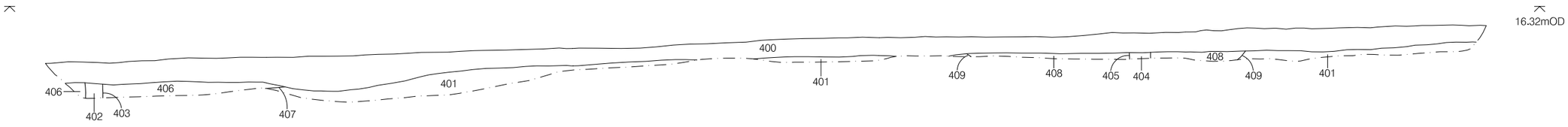
excavated portion

0 5m

Figure 5. Trench 3, plan and section
Scale 1:75

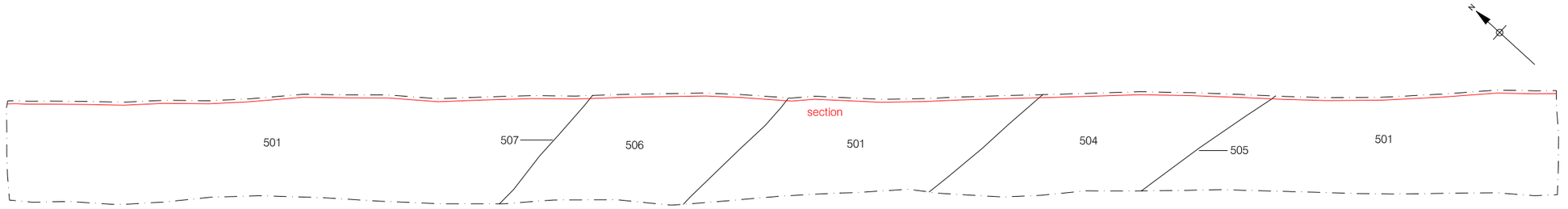


Trench 4. Plan.

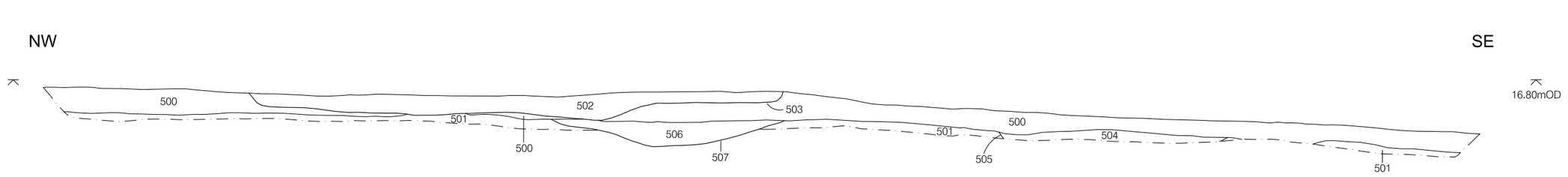


Trench 4. North-west facing section.

Figure 6. Trench 4, plan and section
Scale 1:75

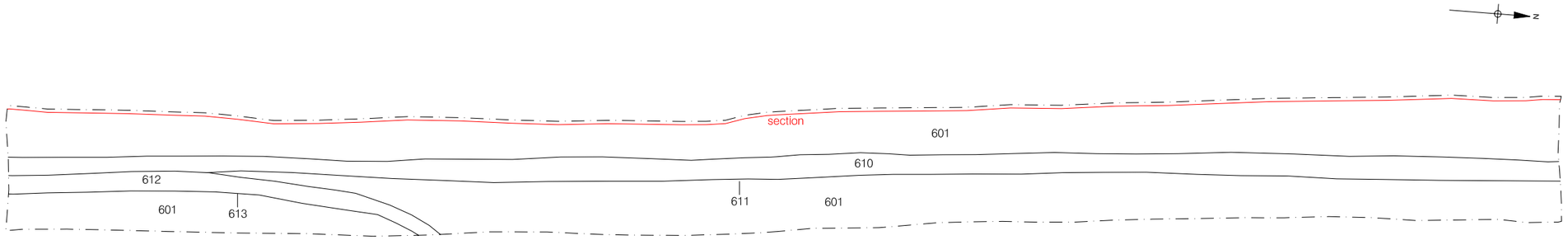


Trench 5. Plan.

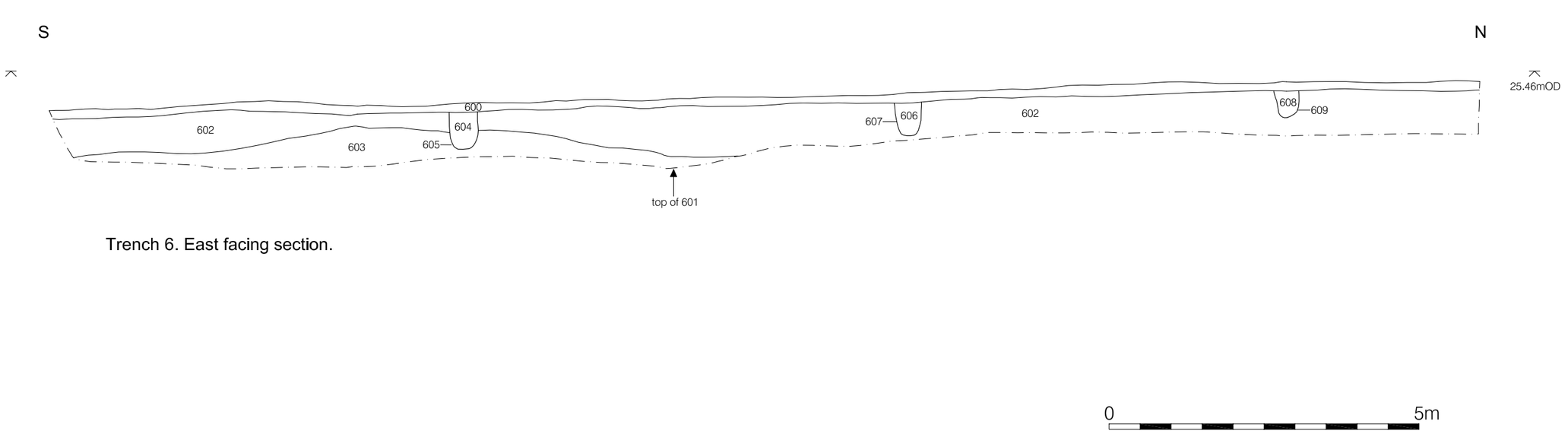


Trench 5. South-west facing section.

Figure 7. Trench 5, plan and section
Scale 1:75

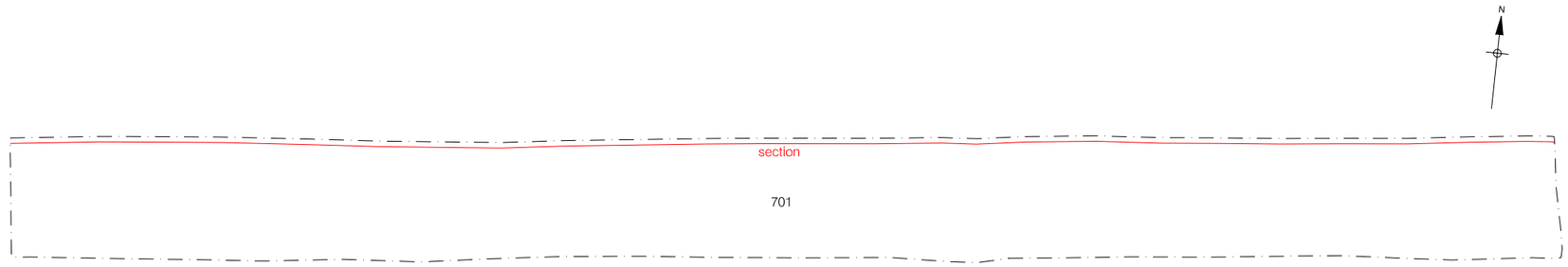


Trench 6. Plan.

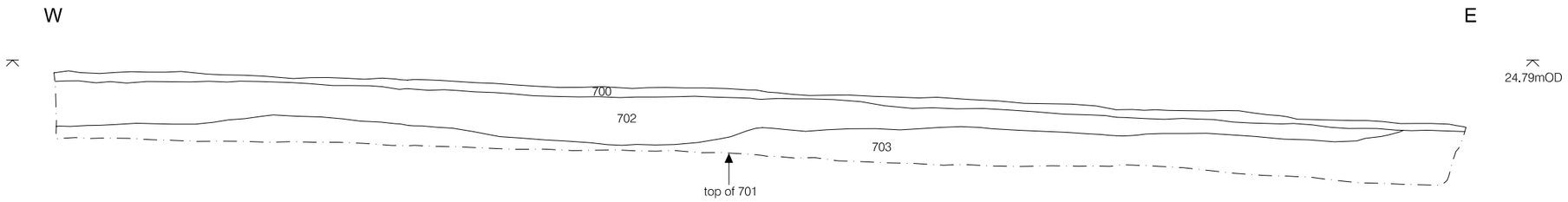


Trench 6. East facing section.

Figure 8. Trench 6, plan and section
Scale 1:75



Trench 7. Plan.



Trench 7. South facing section.

Figure 9. Trench 7, plan and section
Scale 1:75

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 Deposits and features encountered during the archaeological evaluation have been assigned to six phases of activity:

- Phase 1 comprised natural boulder clay, recorded in each of the trenches.
- Phase 2 was represented by a sub-soil recorded in Trench 1. No datable material was recovered, therefore its period of origin is uncertain.
- Phase 3 comprised a series of plough furrows derived from ridge and furrow cultivation. Evidence of this former agricultural activity was restricted to Trenches 1-5, sited on the eastern playing fields. The geophysical survey had identified the potential for such remains by recording a distinctive series of parallel east-west orientated anomalies. No datable material was recovered from any furrow, although they are, as a group, considered to be of probable post-medieval origin.
- Phase 4 comprised modern activity, including land drains recorded in Trenches 1-5 and demolition levelling deposits recorded in Trenches 6 and 7, these probably derived from demolition of 20th century housing which formerly occupied the northern part of the school site.
- Phase 5 comprised topsoil forming the ground surface in each trench.
- Phase 6 was represented by the remains of a former long jump pit from the school.

8.1.2 No features or deposits of archaeological significance were recorded during the evaluation. The geophysical anomaly tested by Trenches 3 and 4 did not manifest itself in the form of an archaeological feature and, therefore, it can perhaps be most reasonably attributed to a variation in the underlying geological material.

8.2 Recommendations

8.2.1 No significant archaeological remains were encountered during the evaluation. Therefore, based on the results of the geophysical survey and trial trenching, it is recommended that no further work be undertaken on the data collected during the evaluation at Whitburn CoE Secondary School.

9. REFERENCES

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10. ACKNOWLEDGEMENTS AND CREDITS

Acknowledgements

Pre-Construct Archaeology would like to thank Silvester Ashton Partnership, Chartered Architects, for commissioning the work described in this report on behalf of the Durham Diocesan Board of Education. The liaison role of Kevin Ashton is particularly acknowledged.

The curatorial role of Jennifer Morrison, the Tyne and Wear Archaeology Officer, is acknowledged.

PCA Credits

Field evaluation: Aaron Goode (Site Supervisor), Kate Downey, Clare Henderson

Report: Aaron Goode

Project Manager: Robin Taylor-Wilson

CAD: Adrian Bailey

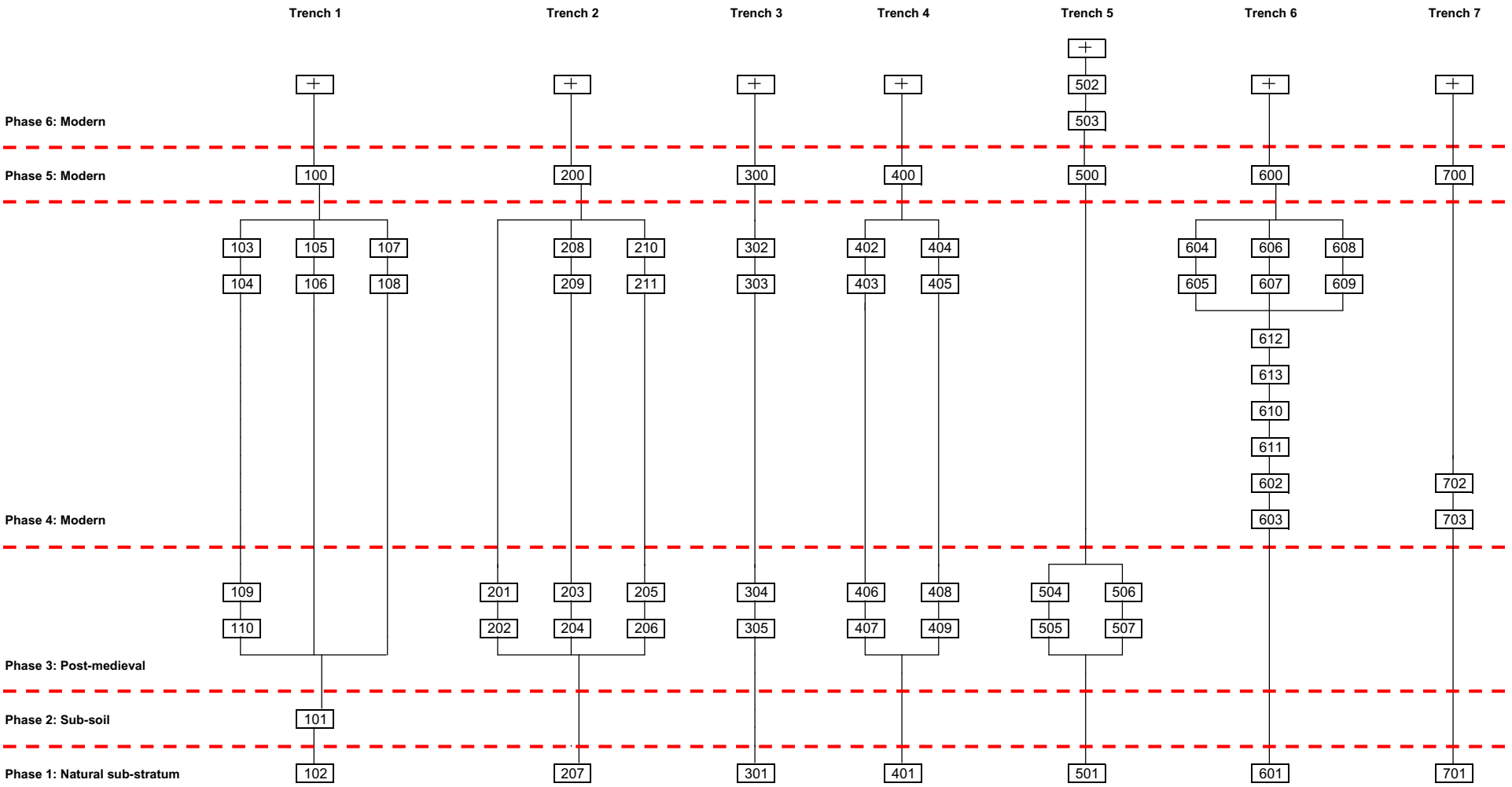
Other Credits

Geophysical Survey: GeoQuest Associates

Survey: Jim Wright

APPENDIX A
STRATIGRAPHIC MATRICES

NAW 07: STRATIGRAPHIC MATRICES



APPENDIX B
CONTEXT INDEX

NAW 07: CONTEXT INDEX

Context	*Phase*	*Trench*	*Type*	*Type*	*Description*	*Interpretation*
100	5	1	deposit	layer	friable; dark greyish brown; sandy silt; very occasional small sub-angular stones (<0.10m); extends across Trench 1, up to 0.35m thick	topsoil
101	2	1	deposit	layer	friable; mid yellowish brown; sand clay; very occasional charcoal flecks, very occasional small sub-angular stones (<80mm), occasional shell fragments; extends across Trench 1, up to 0.25m thick	sub-soil
102	1	1	deposit	layer	stiff; mid yellow; clay; very occasional small rounded stones (<55mm); extends across Trench 1, thickness not established	natural
103	4	1	deposit	fill	friable; dark grey; sandy silty clay; very occasional small angular stones, ceramic pipes laid in base; measures at least 1.40m east-west x 0.16m north-south x 0.28m thick	fill/pipe in [104]
104	4	1	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base; flat base; orientated east-west; measures at least 1.40m east-west x 0.16m north-south x 0.28m deep	field drain
105	4	1	deposit	fill	friable; dark grey; sandy silty clay; very occasional small angular stones, ceramic pipes laid in base; measures at least 1.50m east-west x 0.20m north-south x 0.22m thick	fill/pipe in [106]
106	4	1	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base; flat base; orientated east-west; measures at least 1.50m east-west x 0.20m north-south x 0.22m deep	field drain
107	4	1	deposit	fill	friable; dark grey; sandy silty clay; very occasional small angular stones, ceramic pipes laid in base; measures at least 1.50m east-west x 0.22m north-south x 0.34m thick	fill/pipe in [108]
108	4	1	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base; flat base; orientated east-west; measures at least 1.50m east-west x 0.22m north-south x 0.34m deep	field drain
109	3	1	deposit	fill	firm; mid yellowish brown; sandy clay; very occasional shell fragments, very occasional charcoal flecks, very occasional sub-rounded stones (<0.50mm); measures at least 1.50m east-west x 2.56m north-south x at least 0.20m thick	fill of [110]
110	3	1	cut	linear	linear; gradual break of slope at top, moderately shallow concave sides, imperceptible break of slope at base; orientated east-west; measures at least 1.50m east-west x 2.56m north-south x at least 0.20m deep	furrow
200	5	2	deposit	layer	friable; dark grey; clayey sandy silt; very occasional small angular stones; extends across Trench 2, up to 0.35m thick	topsoil
201	3	2	deposit	fill	friable; mid greyish brown; clayey silt; very occasional charcoal flecks, very occasional small angular and round stones (<0.10m); measures at least 1.20m east-west x 2.60m north-south x at least 0.25m thick	fill of [202]
202	3	2	cut	linear	linear; gradual break of slope at top, moderately shallow sloping concave sides, imperceptible break of slope at base; shallow concave base; orientated east-west; measures at least 1.20m east-west x 2.60m north-south x at least 0.25m deep	furrow
203	3	2	deposit	fill	friable; mid greyish brown; clayey silt; very occasional charcoal flecks, very occasional small angular and round stones (<0.10m); measures at least 1.55m east-west x 3.70m north-south x at least 0.34m thick	fill of [204]
204	3	2	cut	linear	linear; gradual break of slope at top, moderately shallow sloping concave sides, imperceptible break of slope at base; shallow concave base; orientated east-west; measures at least 1.55m east-west x 3.70m north-south x at least 0.34m deep	furrow
205	3	2	deposit	fill	friable; mid greyish brown; clayey silt; very occasional manganese flecks, very occasional small sub-round stones (<0.10m); measures at least 1.40m east-west x 3.80m north-south x up to 0.30m thick	fill of [206]
206	3	2	cut	linear	linear; gradual break of slope at top, moderately shallow sloping concave sides, imperceptible break of slope at base; shallow concave base; orientated east-west; measures at least 1.40m east-west x 3.80m north-south x up to 0.30m deep	furrow
207	1	2	deposit	layer	stiff; mottled mid grey and mid yellow; clay; very occasional small sub-rounded stones (<25mm); extends across Trench 2, thickness not established	natural
208	4	2	deposit	fill	firm; dark grey; clayey silt; ceramic pipes laid in base; measures at least 1.50m east-west x 0.16m north-south x 0.30m thick	fill/pipe in [209]
209	4	2	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base; flat base; orientated east-west; measures at least 1.50m east-west x 0.16m north-south x 0.30m deep	field drain
210	4	2	deposit	fill	firm; dark grey; clayey silt; ceramic drain; measures at least 1.40m east-west x 0.20m north-south x 0.30m thick	fill/pipe in [211]
211	4	2	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base; flat base; orientated east-west; measures at least 1.40m east-west x 0.20m north-south x 0.30m deep	field drain
300	5	3	deposit	layer	friable; dark brownish grey; sandy silt; occasional shell fragments; extends across Trench 3, up to 0.40m	topsoil
301	1	3	deposit	layer	firm; light pinkish yellow; silty clay; one large patch of mid brownish yellow firm silty sand; extends across Trench 3, thickness not established	natural
302	4	3	deposit	fill	firm; dark greyish brown; clayey silt; very occasional small sub-round stones, ceramic drain; measures at least 6.40m east-west x 0.15m north-south x at least 0.28m thick	fill/pipe in [303]
303	4	3	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base and base not excavated; orientated east-west; measures at least 6.40m east-west x 0.15m north-south x at least 0.28m deep	field drain
304	3	3	deposit	fill	firm; mid greyish brown; clayey silt; very occasional small manganese flecks, very occasional small to medium sized sub-round stones (<0.15m); measures at least 25m east-west x at least 0.45m north-south x 0.16m thick	fill/pipe in [305]
305	3	3	cut	linear	linear; gradual break of slope at top, moderately shallow sloping concave sides, break of slope at base and base not excavated; orientated east-west; measures at least 25m east-west x at least 0.45m north-south x 0.16m deep	furrow
400	5	4	deposit	layer	friable; dark brownish grey; friable sandy silt; extends across Trench 4 up to 0.30m	topsoil
401	1	4	deposit	layer	firm; light pinkish brown and yellowish brown; silty clay; extends across Trench 4, thickness not established	natural
402	4	4	deposit	fill	firm; mid greyish brown; clayey silt; very occasional charcoal flecks, very occasional CBM flecks; measures at least 3.20m east-west x 0.20m north-south x at least 0.10m thick	fill of [403]
403	4	4	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base and base not excavated; orientated east-west; measures at least3.20m east-west x 0.20m north-south x at least 0.10 deep	field drain
404	4	4	deposit	fill	firm; mid greyish brown; clayey silt; very occasional charcoal flecks, very occasional CBM flecks; measures at least 3.35m east-west x 0.20m north-south x at least 0.10m thick	fill of [405]
405	4	4	cut	construction	linear; sharp break of slope at top, vertical sides, sharp break of slope at base and base not excavated; orientated east-west; measures at least 3.35m east-west x 0.20m north-south x at least 0.10m deep	field drain
406	3	4	deposit	fill	firm; mid greyish brown; clayey silt; very occasional small sub-round stones (<30mm); measures at least 1.75m east-west x 2.45m north-south x at least 0.10m thick	fill of [407]
407	3	4	cut	linear	linear; sharp break of slope at top, moderately shallow concave sides, break of slope at base and base not excavated; orientated east-west; measures at least 1.75m east-west x 2.45m north-south x at least 0.10m deep	furrow
408	3	4	deposit	fill	firm; mid greyish brown; clayey silt; very occasional small sub-rounded stones (<30mm); measures at least 1.70m east-west x 3.10m north-south x at least 0.10m thick	fill of [409]
409	3	4	cut	linear	linear; sharp break of slope at top, moderately shallow concave sides, break of slope at base and base not excavated; orientated east-west; measures at least 1.70m east-west x 3.10m north-south x at least 0.10m deep	furrow
500	5	5	deposit	layer	firm; mid greyish brown; clayey sandy silt; occasional small angular stones (<0.10m); extends across Trench 5, up to 0.40m	topsoil
501	1	5	deposit	layer	stiff; mottled mid brownish yellow and mid grey; sandy clay; occasional small rounded stones (<50mm); extends across Trench 5, thickness not established	natural
502	6	5	deposit	layer	loose; mid yellowish grey; medium sand; very occasional lenses of mid grey medium sand, occasional shell fragments, very occasional small rounded stones; measures at least 1.50m east-west x 8.70m north-south x up to 0.30m thick	fill of [503]
503	6	5	cut	structure	rectangular; sharp break of slope at top, steep sloping sides, gradual break of slope at base; uneven base; measures at least 1.50m east-west x 8.70m north-south x up to 0.30m deep	disused long jump pit
504	3	5	deposit	fill	firm; mid greyish brown; clayey silt; very occasional small sub-rounded stones(<30mm); measures at least 2m east-west x 2.25m north-south x 0.30m thick	furrow
505	3	5	cut	linear	linear; sharp break of slope at top, vertical sides, sharp break of slope at base and base not excavated; orientated east-west; measures at least 2m east-west x 2.25m north-south x 0.30m deep	furrow
506	3	5	deposit	fill	firm; mid greyish brown; clayey silt; very occasional small sub-round stones(<50mm); measures at least 2m east-west x 2.30m north-south x at least 0.10m thick	furrow
507	3	5	cut	linear	linear; sharp break of slope at top, moderately shallow concave sides, break of slope at base and base not excavated; orientated east-west; measures at least 2m east-west x 2.30m north-south x at least 0.10m deep	furrow
600	5	6	deposit	layer	friable; mid brownish grey; sandy silt; extends across Trench 6, up to 0.12m	topsoil
601	1	6	deposit	layer	firm; mid pinkish brown; clayey silt; extends across Trench 6, thickness not established	natural
602	4	6	deposit	layer	firm; mid greyish brown; clayey silt; frequent fragments of brick and slate, frequent angular and round stones (<0.20m); extends across Trench 6 up to 0.82m thick	demolition dump
603	4	6	deposit	layer	friable; dark brownish grey; sandy silt; occasional small sub-angular and sub-round stones, occasional charcoal flecks, occasional small brick fragments; measures at least 11.20m north-south x at least 1.70m east-west x up to 0.64m thick	levelling dump
604	4	6	deposit	fill	firm; mid greyish brown; clayey silt; frequent brick and slate fragments, frequent medium angular stone (<0.20m), modern service pipe; measures at least 1.70m east-west x 0.44m north-south x 0.58m thick	fill of [605]

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605	4	6	cut	construction	linear; sharp break of slope at top, steep sloping sides, sharp break of slope at base; concave base; orientated east-west; measures at least 1.70m east-west x 0.44m north-south x 0.58m deep	service trench
606	4	6	deposit	fill	firm; mid greyish brown; clayey silt; frequent brick and slate fragments, frequent medium angular stone (<0.20m), modern service pipe; measures at least 1.70m east-west x 0.42m north-south x 0.52m thick	fill of [607]
607	4	6	cut	construction	linear; sharp break of slope at top, steep sloping sides, sharp break of slope at base; concave base; orientated east-west; measures at least 1.70meast-west x 0.42m north-south x 0.52m deep	service trench
608	4	6	deposit	fill	firm; mid greyish brown; clayey silt; frequent brick and slate fragments, frequent medium angular stone (<0.20m), modern service pipe; measures at least 1.70m east-west x 0.40m north-south x 0.42m thick	fill of [609]
609	4	6	cut	construction	linear; sharp break of slope at top, steep sloping sides, gradual break of slope at base; concave base; orientated east-west; measures at least 1.70m east-west x 0.40m north-south x 0.42m deep	service trench
610	4	6	deposit	fill	firm; dark greyish; silty clay; occasional angular small stones (<0.10m), very occasional small brick fragments, remnants of service pipe; measures at least 23.10m north-south x 0.30m east-west, thickness not established	fill of [611]
611	4	6	cut	construction	linear; break of slope at top not perceptible, sides, break of slope at base and base not established; measures at least 23.10m north-south x 0.30m east-west, depth not established	service trench
612	4	6	deposit	fill	firm; dark grey; clayey sandy silt; occasional small stones, occasional brick fragments; measures at least 6.45m north-south x 0.30m east-west, thickness not established	fill of [613]
613	4	6	cut	construction	linear; break of slope at top not perceptible, sides, break of slope at base and base not established; measures at least 6.45m north-south x 0.30m east-west, depth not established	service trench
700	5	7	deposit	layer	friable; dark grey; sandy silt; very occasional small sub-rounded and sub-angular stones (<0.10); extends across Trench 7, up to 0.16m thick	topsoil
701	1	7	deposit	layer	firm; mid yellowish brown and mid pinkish brown; clayey silt and silty clay; extends across Trench 7, thickness not established	natural
702	4	7	deposit	layer	firm; mid grey; clayey silt; moderate crushed concrete, moderate brick and brick fragments, very occasional large concrete fragments; extends across Trench 7, up to 0.70m	demolition dump
703	4	7	deposit	layer	friable; mid greyish brown; clayey silt; very occasional small sub-round stones, very occasional charcoal flecks, very occasional CBM flecks; extends across Trench 7, up to 0.74m	levelling dump

APPENDIX C
GEOPHYSICAL SURVEY REPORT

GEOPHYSICAL SURVEY AT WHITBURN CHURCH OF ENGLAND COMPREHENSIVE SCHOOL, NICHOLAS AVENUE, WHITBURN, SOUTH TYNESIDE

A programme of research carried out on behalf of

Pre-Construct Archaeology Limited

by

GeoQuest Associates

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1 INTRODUCTION

1.1 This report describes the results of an archaeological geophysical survey on an area of grass sports pitches at Whitburn Church of England Comprehensive School, Nicholas Avenue, South Tyneside (Figure 1). Planning permission has been granted for the construction of a new secondary school and associated playing fields, car parking, fencing and landscaping. The aim of the survey was to test for the presence of subsoil archaeological features for which mitigation may be required prior to the development.

1.2 The research was carried out by GeoQuest Associates on behalf of Pre-Construct Archaeology Ltd (PCA) who are acting as archaeological consultants to the scheme. The survey was conducted in accordance with a Specification prepared by Jennifer Morrison, Tyne and Wear Archaeology Officer, which called for survey of all accessible parts of the existing sports field (*circa* 2ha).

1.3 PCA have already undertaken a desk-based assessment of the development area and concluded that the archaeological potential for remains dating from the prehistoric, Roman and medieval periods ranges from low to moderate. In particular, the assessment noted that prehistoric flint tools have been found along the adjacent coastline, while the site itself may once have comprised medieval fields (Whitburn being medieval in origin). In this context, the majority of subsurface features are likely to comprise pits, postholes, ridge and furrow, and trackways, each manifest by significant contrasts in magnetic susceptibility compared to the subsoil. Hence, a geomagnetic survey was judged to be the most appropriate technique to use in this instance.

1.4 Geophysical survey was carried out by staff from GeoQuest Associates on 23rd February 2007. There were no sampling pits, boreholes or other forms of disturbance within the survey area, with the exception of the concrete slabs, iron inspection covers and the sandpit marked in Figure 1. Drawing no. 1263(01)001 supplied to PCA by the Silvester Ashton Partnership indicated that a system of drains runs between inspection covers shown in the western part of the sports field.

2 THE GEOPHYSICAL SURVEY

2.1 A baseline for the geophysical survey was constructed parallel to the wicket fence which forms the northern boundary of the sports field, with an origin 12.0m from a square concrete post supporting the end of this fence. This baseline was offset to the S a distance of 3.0m to reduce interference from magnetic debris and garden equipment along this boundary. Figure 1 provides an exact definition of the baseline position and origin of the geophysical survey block. Coordinates of features detected by the survey can be determined relative to this baseline or OS detail by extraction from the associated CAD file that forms part of the site archive.

2.2 Measurements of vertical geomagnetic field gradient were recorded using a Geoscan FM36 fluxgate gradiometer with 0.05nT/m resolution. A zig-zag traverse scheme was employed and data were logged in grid units of 20x20m at 1.0x0.25m intervals, thus providing 1600 measurements per grid. An area of approximately 2ha was surveyed.

2.3 Data obtained from the survey were downloaded on-site into a portable graphics computer for quality checks and initial processing. These data were subsequently transferred to a laboratory computer for final processing, interpretation and archiving.

2.4 The GeoQuest InSite® software was used to process the gridded geophysical data and thus convert the field readings into a continuous-tone grey-scale image. In Figure 2 a convention has been used that shows positive magnetic anomalies as dark grey and negative magnetic anomalies as light grey. Further details of the data processing procedures are given in Appendix A.

2.5 An archaeological interpretation of the geophysical survey is presented in Figures 3 and 4. A key defines the colours and fill styles used in these drawings, while feature codes **f1** and **f2**, etc, are included in Figure 4 for reference in the discussion below.

3 INTERPRETATION

General

3.1 Geomagnetic anomalies in the study area are intense and significantly above the detection limit of the instrument used (about ±0.5nT/m). The dominant feature in the data image (Figure 2) is a high density of small magnetic dipoles, scattered randomly over much of the sports field: this indicates that the soil is contaminated with ferrous litter, a feature that may have hindered detection of weaker anomalies of archaeological interest. Very intense magnetic anomalies have also been found in the vicinity of steel goal posts, concrete slabs and E of the steel-clad temporary classrooms (shaded grey in Figs. 1 - 4).

Features of Archaeological Interest

3.2 **f1**: A striking pattern of curvilinear, positive magnetic lineations, spaced at regular intervals of about 8.5m, is a key feature of the geophysical image. These anomalies provide convincing evidence for a medieval ridge and furrow field system, oriented E-W, which appears to continue beyond the sports field towards the coastal footpath. In conditions of low-angle sunlight this field system can just be seen as 5-10cm high ripples in the area between the goal posts in Figure 1.

3.3 **f2**: A weak and diffuse negative magnetic lineation has been detected parallel to, and about 10m from, the wicket fence along the northern site boundary. Unfortunately, interpretation of this feature is hampered by a strong geophysical response to the ferrous litter and inspection covers. Possible interpretations include a gravel surfaced trackway or a land drain.

3.4 **f3**: In the SE part of the survey block the results show a NNW-SSE oriented chain of magnetic dipoles, superimposed on a weak and diffuse positive lineation. Again, a reliable interpretation is greatly hindered by noise in the geophysical data, plus strong field gradients from the steel boundary fence. In the table below it is tentatively suggested that the anomalies reflect a silted ditch or tile land drain.

3.5 No further geophysical anomalies of archaeological or geotechnical interest have been detected in the study area.

4 SUMMARY AND CONCLUSIONS

4.1 A fluxgate magnetometer was used to carry out an archaeological geophysical survey on the site of a proposed new secondary school and associated facilities at Whitburn Church

of England School in South Tyneside. The site was found to be characterised by very strong geomagnetic anomalies arising from a high density of ferrous litter and remains of a ridge and furrow field system in the subsoil. The geophysical data also provide tentative suggestions for a trackway and ditch, although either could also be accounted for by land drains. Further site investigation may be warranted in order to fully characterise features revealed by the survey.

5 CONFIDENCE LIMITS

5.1 The following are the levels of confidence which we assign to the features inferred from the geophysical data:

FEATURE	INTERPRETATION	CONFIDENCE LEVEL, %									
		10	20	30	40	50	60	70	80	90	100
Entire site	Ferrous litter										
f1	Ridge & furrow										
f2	Drain or path										
f3	Ditch or drain										

6 CREDITS

Survey & Report: M. J. Noel PhD, FRAS
Date: 26th February 2007

Note: Whilst every effort has been taken in the preparation and submission of this report in order to provide as complete an assessment as possible within the terms of the brief, GeoQuest Associates cannot accept any responsibility for consequences arising as a result of unknown and undiscovered sites or artefacts.


OAK CRESCENT
Timber fence
12.0 m
Post
3.0 m
Concrete
Steel goal posts
Whitburn
C of E
School
Tarmac
play area
Gravel track
Temporary
building
Steel goal posts
Concrete strips
Sandpit
Shrubs
Timber fence
13
15
Steel fence
Steel fence
Line of NW Intercepter Drain
Coastal Footpath
441250/561850
N
SETTING OUT
Origin of baseline is a point 12.0m from concrete post at end of wicket fence and 3.0m S of this fence, at right angles. Baseline is then oriented towards end of fence between nos. 13 & 15 Markham Av.
KEY
Survey area
Survey baseline
WHITBURN CHURCH OF ENGLAND SCHOOL, WHITBURN, SOUTH TYNESIDE
Location of Survey Area
0
30m
SURVEY BY
GeoQuest
FOR
Pre-Construct Archaeology Limited

FIGURE 1


OAK CRESCENT
Timber fence
Post
IC
Whitburn
C of E
School
Tarmac
play area
Gravel track
Temporary
building
Steel fence
441250/561850
Line of NW Interceptor Drain
Coastal Footpath
Shrubs
Timber fence
13
15
N
ANOMALIES, nT/m
-12.4 -1.4 0.0 1.4 12.4
WHITBURN CHURCH OF ENGLAND SCHOOL, WHITBURN, SOUTH TYNESIDE
Results of Geophysical Survey
0
30m
SURVEY BY
GeoQuest
FOR
Pre-Construct Archaeology Limited

FIGURE 2

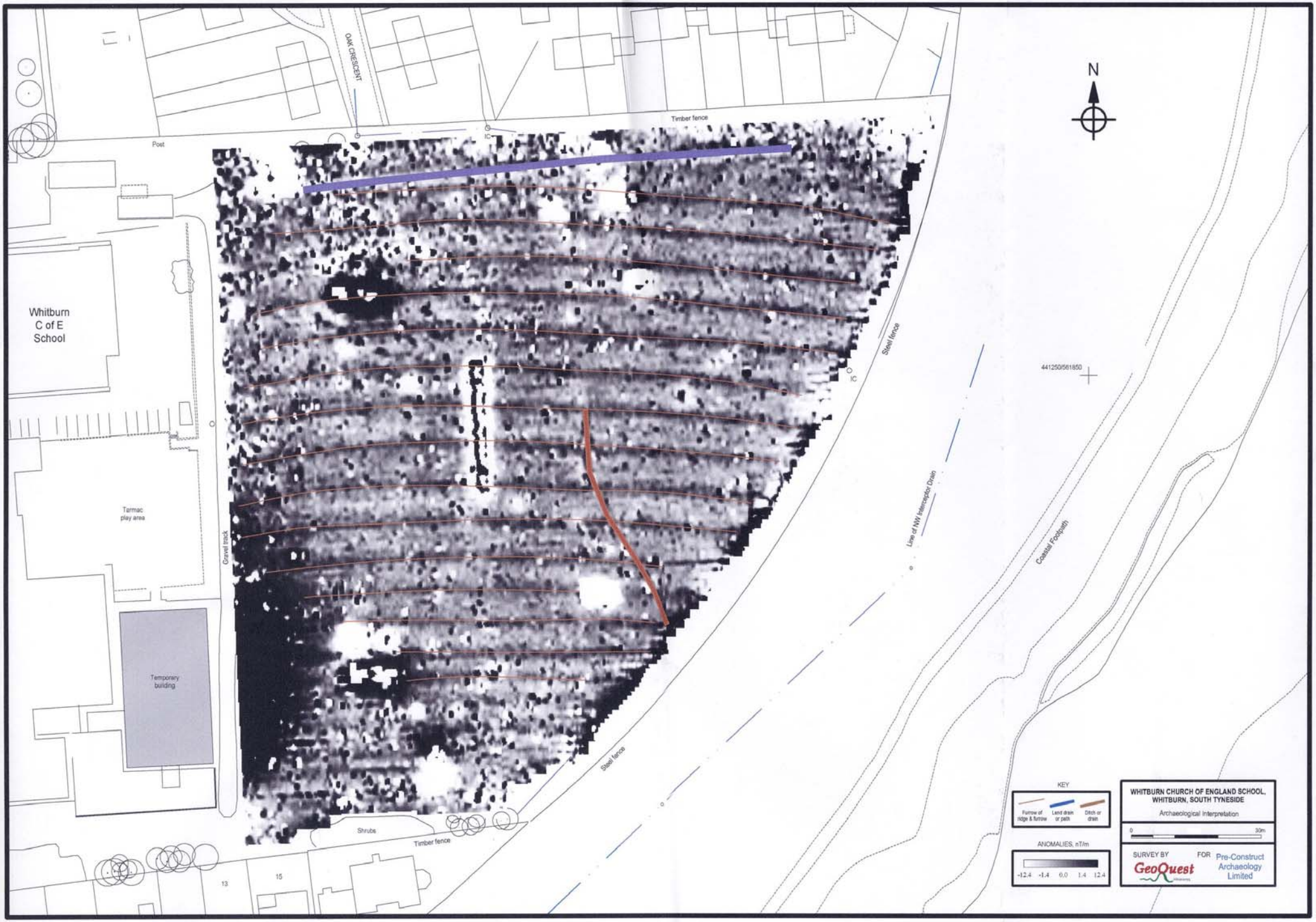
N
OAK CRESCENT
Timber fence
Post
IC
Whitburn
C of E
School
Tarmac
play area
Culvert Inlet
Temporary
building
Shrubs
Timber fence
Steel fence
441250/561850
IC
Line of NW Interceptor Drain
Coastal Footpath
Steel fence
13
15
KEY
Furrow of ridge & furrow
Land drain or path
Ditch or drain
ANOMALIES, nT/m
-12.4 -1.4 0.0 1.4 12.4
WHITBURN CHURCH OF ENGLAND SCHOOL, WHITBURN, SOUTH TYNESIDE
Archaeological Interpretation
0
30m
SURVEY BY
GeoQuest
FOR
Pre-Construct Archaeology Limited

FIGURE 3


N
OAK CRESCENT
Timber fence
Post
IC
f2
Concrete
f1
Whitburn
C of E
School
Tarmac
play area
Gravel track
Temporary
building
f3
Steel fence
441250/561850
Line of NW Interceptor Drain
Coastal Footpath
Concrete strips
Sandpit
Shrubs
13
15
WHITBURN CHURCH OF ENGLAND SCHOOL,
WHITBURN, SOUTH TYNESIDE
Archaeological Interpretation
0
30m
KEY
Furrow of ridge & furrow
Land drain or path
Ditch or drain
SURVEY BY
GeoQuest
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FIGURE 4