

THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

Borras Quarry extension, Wrexham

ARCHAEOLOGICAL WATCHING BRIEF



CPAT Report No 896

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Report for Tarmac Ltd

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1 INTRODUCTION

- 1.1 In August 2007, the Field Services section of the Clwyd-Powys Archaeological Trust (hereafter CPAT) was commissioned by Sloane Mead, acting on behalf of Tarmac Ltd, to undertake a watching brief during soil stripping of a conveyor route related to the extension of the Borrás Quarry into the Holt Estate, near Wrexham (SJ 357533).
- 1.2 Borrás Quarry and its immediate locality has been subject to a number of archaeological assessments relating to planning applications firstly in 1995 to carry out mineral extraction at the Holt Estate (Hankinson, 1995), and then in 2000 to extend the depth of workings and determine new conditions (Jones, 2000a; 2000b) at the quarry. An assessment of a proposed quarry extension was carried out in 2003 (Jones and Hankinson, 2003), which was subsequently updated owing to a revision of the proposals (Owen and Silvester, 2005). The 2005 assessment formed part of the Environmental Statement submitted by Tarmac Ltd to the local planning authority-Wrexham County Borough Council-in support of their application to extend the quarry. The subsequent grant of planning consent was subject to a number of conditions, one of which was that an archaeological watching brief was to be carried out during all soil stripping operations. This report concerns the initial phase of topsoil removal in the quarry extension area, which is required for the conveyor route.
- 1.3 The first site visit was carried out on 5 September 2007, with further visits taking place intermittently thereafter, linked to the progress of topsoil removal. During the machining, the planned conveyor route was extended to encompass a further part of the overall quarry extension area, this being examined in the same manner, up to the final visit on 24 October. The schedule of visits is given in Appendix 1.

2 GEOGRAPHICAL BACKGROUND

- 2.1 Borrás Quarry lies 13km south of Chester, and locally some 3.5km north-east of the centre of Wrexham and 2.5km south of Gresford. The quarry lies next to Borrás Road, a minor route which mirrors that of the A534 further south between Wrexham and the village of Holt.
- 2.2 The quarry is situated on a plateau, at a height of approximately 75m OD. Land to the north-west, lying between the quarry and Gresford, is primarily undulating, agricultural land (75-81m OD), containing a number of depressions, known as 'kettle holes'. Mineral extraction has taken place nearby at Caia Farm, which, until recently, formed part of Borrás Quarry, but this area has recently been reinstated following the completion of quarrying activity.
- 2.3 The published Sand and Gravel Resource Map, and its associated memoir (BGS Sheet SJ35), shows that the quarry extension and its immediate surroundings are located in an area of glacial sand and gravel. This is composed predominantly of pebbles and cobbles of quartzite, with limestone and igneous rocks. Some quartz, sandstone, siltstone, chert, ironstone and coal is also present.

3 ARCHAEOLOGICAL BACKGROUND

- 3.1 This summary of the archaeology of the Borrás Quarry locality is drawn from the previous archaeological assessments that have been carried out. It includes information collected by both desk-based study and field survey methods.

3.2 Prehistory

- 3.2.1 There are three recorded prehistoric sites within the vicinity of the quarry: a Mesolithic flint scatter (PRN 101653) adjacent to Borrass Farm (SJ 350525), a Neolithic axe head (PRN 101692) from Bryn Gryfydd (SJ 35035235), and a hoard of Bronze Age metalwork (PRN 100386) found just to the west. These provide an indication that the general area was occupied from the Mesolithic period onwards, although no prehistoric occupation sites have yet been discovered.

3.3 Roman

- 3.3.1 There are no known Roman sites within the immediate area, although recent discoveries at Plas Coch, Wrexham (Greuter *et al.* 1994 and 1995; Wait 1996), some 6km to the south-west of the quarry, indicate the presence of Roman occupation in the wider area around Wrexham.

3.4 Medieval

- 3.4.1 The only recorded medieval site is that of a rabbit warren (PRN 101542) to the south of the quarry extension, while a seal of c. 1300 (PRN 19377) found at Borrass Hall suggests that the site may have been occupied during this period. In addition to these sites, some of the field names recorded in the Tithe Surveys (see below) reveal the presence of medieval open-field agriculture; one called 'Two Butts' lies within the extension area, to the north of Walnut Tree Farm.

3.5 Post-medieval

- 3.5.1 There are numerous post-medieval sites recorded within the area surrounding the quarry, the majority of which are boundary stones, together with several buildings, including a farm, a smithy and an inn. Borrass Hall (PRN 102853), an early 17th-century former manor house occupying the site of a house dating from at least the 16th century, lies immediately to the east of the quarry extension. Borrass Hall was owned by the Brereton family until 1789, when it was sold to Lord Kenyon. Borrass Head House (PRN 102854) also dates from the 17th century, and was bought by Lord Kenyon in 1803.
- 3.5.2 The earliest available cartographic source for the quarry extension is an estate map of 1767 (CROH D/GW/661). A house, apparently the dwelling associated with a smallholding called 'Hesketh's Tenement', is depicted on the map within the extension area, as is 'Walnut Tree Farm'. The remaining feature of interest depicted on the map is a field called 'Brick Kiln Field', which is likely to define the site of a kiln used to produce bricks that were then used to build local residences. Some of the nearby hollows (e.g. that at SJ 3622 5341) are likely to be pits from which clay was extracted to be used in the brick-making process.
- 3.5.3 The Tithe Surveys of the earlier 19th century provide further information regarding the extension area, which lay within the townships of Gourton, Borrass Hovah and Borrass Riffe. Details from the Tithe Surveys indicate that the majority of the area was owned by Lord Kenyon and Sir William Lloyd, with recorded land-use suggesting a mixed farming regime of arable and pasture. One house, called 'White House', is depicted within the Site area, though its location falls outside the area of the 1767 map and its date of origin is therefore uncertain. Later Ordnance Survey mapping suggests that the house went out of use and was demolished between 1872 and 1899. Some of the field names recorded in the Tithe Apportionments suggest further archaeological features, including a possible rabbit warren and a trackway. Confirmation of the location of the Hesketh's Tenement house is provided by the naming of the surrounding field as 'Old House field', though the house itself is not depicted and therefore appears to have been abandoned by the end of the 18th century.
- 3.5.4 The Ordnance Survey 1st edition 6" map, surveyed in 1871-2, and the 2nd edition map, revised in 1897-8 and published in 1900, show much the same picture for the area, the whole of which was divided into fairly regular fields with a few tracks and some small areas of woodland. Only two buildings consisting of three tied cottages built some time after the Tithe Survey, and White House, are depicted in the Site. A small amount of gravel quarrying is evident on the second edition map.

3.6 Modern

- 3.6.1 The modern history of the area is dominated by the development of Borrass Airfield, which has been documented in detail by Pratt and Grant (2002), from which the following summary is derived. Outside the area of the Airfield, modern land-use appears to have been almost entirely restricted to agricultural pasture.
- 3.6.2 The origins of the Airfield date back to 1917-20 when fields at Borrass Lodge were used by Nos 4 and 51 Training Squadrons/Schools of the RFC/RAF based at Shotwick (Sealand) and Hooton Park for 'circuits and bumps', to practice emergency landings etc. The same fields were also used for regular flying by both the Lancashire Aero Club and the Liverpool and District Aero Club, and for a series of air displays during the 1930s.
- 3.6.3 By early 1940 the fields at Borrass were again pressed into service for training flights. The removal of several hedges and limited levelling initially provided three grass runways of some 550-600yds. Accommodation was originally limited to tents, then replaced by timber huts situated alongside Borrass Head Farm. A 'Bellman' hangar was erected in the north-east corner of the landing ground to replace or supplement the World War I Bessoneau timber-framed and canvas hangar that had been erected alongside New Buildings.
- 3.6.4 The main period of construction for the Airfield was, however, between December 1940 and June 1941, and was undertaken by Alfred McAlpine. The foundation material for the runways and perimeter tracks was largely shale brought from Bersham and Hafod Collieries, Plas Power and other disused pits within the area, along with coarse ash from the Warrington power stations and stone from the Hendre quarries. The concrete surfacing was produced by a large batch plant constructed on site. This was an early example of the use of concrete in the construction of the runways. The perimeter defences were built on an *ad hoc* basis and eventually consisted of three 'defended localities' incorporating camouflaged and concealed pill boxes, 'mushrooms', seagull trenches, 'retractable forts', LAA guns and searchlights.
- 3.6.5 The Airfield was built primarily to accommodate a night-fighter squadron for the air defence of Liverpool and Manchester and eventually came under 9 Group Fighter Command, with 96 Squadron in residence. The plan of the Airfield consisted of three runways with a perimeter track, around which the various buildings were arranged. The Control Tower was located on the north-west side of the Airfield, beyond which numerous buildings formed the Instructional and Technical Site. The 'Bellman' hangar had been relocated to the north-east side of the site in 1942 at the end of a trailing taxi-way running from the underground fuel tanks at the rear of Borrass Hall. There were three dispersal areas on the south and north-east sides of the perimeter track, each with a series of single or double dispersal pens and each with its own self-contained 'defended locality'. The location of a battlefield headquarters lies just within the extension area, on the north-west side of Borrass Road.
- 3.6.6 The Airfield closed after the war and was eventually sold on 22 October 1959, being described as 'A Valuable Block of Accommodation Land, together with the useful buildings erected thereon . . . , formerly Borrass Airfield Wrexham, extending to a total area of 255 acres or thereabouts'. The sale plan and catalogue (CROH, D/E/2739) describe four lots as follows:

Lot 1. 5 acres, 2 roods, 11 perches in area. A 'Bellman' type hanger c. 117ft long, 96ft wide and 18ft to eaves; other buildings include a nissen hut and concrete ablutions block.

Lot 2. Numerous permanent and semi-permanent buildings, 13 brick, concrete and asbestos roofed buildings ranging from 190ft x 29ft to 21ft x 18ft, 23,600 sq ft floor area in total.

Lot 3. Includes the derelict farm house and buildings known as Borrass Lodge.

Lot 4. 7 brick, concrete and asbestos roofed buildings with concrete floors ranging from 87ft x 29ft to 21ft x 19ft, approx. 6,000 sq ft floor area. Buildings include two with central heating and an open fronted building of similar construction. Numerous smaller buildings are in the area.

- 3.6.7 The purchasers were United Gravel Company, a subsidiary of Alfred McAlpine, who paid £23,000 for the site. Following the sale there was little development for some time, although the north-west corner was compulsorily purchased in 1961 in order to build protected accommodation for Headquarters, No. 17 (North Wales) Group, Royal Observer Corps.
- 3.6.8 Quarrying operations did not commence until the mid 1970s and by 1977, Borrass Quarry was the largest sand and gravel pit in the former county of Clwyd, accounting for almost one third of the county's total sand and gravel production.

4 WATCHING BRIEF

- 4.1 The watching brief comprised a series of site visits during the removal of topsoil and overburden from the line of the conveyor route. Standard procedures were adopted for any archaeological features observed. They were located in relation to the Ordnance Survey mapping and were photographed, drawn and described, as appropriate to their nature. A checklist of the visits undertaken is presented in tabulated form in Appendix 1.
- 4.2 The conveyor route, as finally planned and excavated, commenced within the existing Borrass Quarry site and ran beneath Borrass Road (at SJ 35895291), before entering the Holt Estate. It continued in a north-westerly direction for 280m to SJ 35665308, then turned to run north for a further 460m to SJ 35675354, where the topsoiled area widened into a broad strip, up to a maximum width of approximately 90m at the northern end of the conveyor route.
- 4.3 Partial topsoil removal had also taken place along two short lengths of trackway used to construct protective bunds, running respectively east and south of the main area. No evidence of significant archaeological features or finds were revealed in either area.
- 4.4 The archaeology of the immediate locality relates to two distinct periods. Approximately 50m to the west of the change in conveyor direction (*i.e.* of SJ 35665308), a group of cropmarks consisting of overlapping circles has been recorded from aerial photographs. This is possibly related to a rabbit warren which operated in this area in the 16th century. No evidence relating to such a warren was revealed by the watching brief.
- 4.5 The remaining archaeological features in the locality are related to Borrass Airfield, specifically the remains of a radio station, comprising an aerial and the associated buildings, which was used for morse, speech and direction finding, and was also capable of sending a homing signal (M. Grant, pers comm). The aerial had been long since removed, but its concrete base remained on the edge of the conveyor area at SJ 35665321. The aerial was linked to two brick buildings at SJ 35705310, which provided staff accommodation and backup power.
- 4.6 Removal of topsoil from around the aerial base allowed its method of construction to be recorded in more detail. The base had an irregularly octagonal shape, 6m in overall diameter, and sat on a foundation of three courses of brick, 0.25m in height, itself set on a concrete footing which projected 0.2m beyond the outer edge of the base. A concrete strip on the top of the base commenced at the north-west edge and ran along the north, north-east and east sides. In addition to the surviving structures, a length of cable which ran between the aerial and the service buildings was revealed during the machining; this was 2.5cm thick and was used as a permanent power circuit supply cable. It had a lead-armoured outer sheath with a copper core, and could carry both DC and AC current (M. Grant, pers comm).



Plate 1 The base of the direction finding (DF) aerial (Photo CPAT 2371-003)

- 4.7 The installation of the conveyor required the construction of a tunnel beneath the Borrass Road, work for which commenced around the beginning of October. In the process of removing the quarry bund at this point, a structure related to the airfield was revealed at SJ 3590952925. CPAT were promptly informed, which allowed time to be taken to photograph and record the structure prior to further machining. The entrance to the structure was carefully cleared of later soil infill to allow access, then the structure was examined. It proved to be an air raid shelter of 'Stanton' type, and was subjected to a detailed photographic and drawn survey (see Fig 2).



Plate 2 The 'Stanton' shelter and its entrance (Photo CPAT 2371-014)

- 4.8 The 'Stanton' shelter was constructed of concrete sections bolted together to form an arched tunnel, which would have been partly sunken into the ground and then covered in soil. The overall area occupied by the structure was 10.6m north-east/south-west by 4.2m, the tunnel measuring approximately 9.2m long by 2.2m wide and 2.1m high, internally. At the south-west end, a set of concrete steps led down a brick passage to the entrance, but the door was not present and spoil had entered through this gap into the south-western part of the interior. Spoil had also entered the interior through an open hole at the north-east end, which would have functioned as an escape hatch if the entrance became blocked. A series of concrete blocks were regularly spaced along both sides, these having provided the base for simple wooden planks that acted as seating.



Plate 3 The interior of the 'Stanton' shelter (Photo CPAT 2371-019)

- 4.9 Examination of the 1953 Ordnance Survey map of the airfield revealed that the Stanton shelter was depicted as an elongated earth mound. This observation allowed five other shelters to be identified in this locality, which originally constituted the Instructional and Technical Site when the airfield was in operation. The shelter lay within the immediate area of the conveyor tunnel beneath Borrass Road, and so could not be retained in-situ. Following detailed recording, most of the structure was removed by machine. Only the north-eastern end remains, where it was covered by the quarry bund.
- 4.10 In the process of examining the topsoiled areas for archaeological features, various small finds were observed, both in the conveyor area and in the heaps of soil that had been removed. Most of the finds were pottery of post-medieval date, which was probably imported during agricultural manuring of the soil and has therefore not been retained. A single flint flake was recovered from spoil at SJ 3568553237, but this showed no evidence of retouch and was possibly natural.

5 CONCLUSIONS

- 5.1 No evidence of any previously unrecorded archaeological features was found during the topsoil removal operations on the Holt Estate. Only a single flint flake was observed, which might relate to prehistoric activity in the locality, though there is a possibility that is of natural origin.
- 5.2 Evidence was forthcoming regarding the use of the airfield in the Second World War. The 'Stanton' shelter that was found during works to construct a tunnel for the conveyor beneath Borrass Road represents one of a type commonly used to provide protection for airfield staff during raids. Evidence from later Ordnance Survey mapping demonstrates that there were at least another five shelters in this part of the airfield. The shelter was described, drawn and photographed in detail prior to its partial removal.
- 5.3 The base of a communications aerial which lay on the edge of the conveyor area was examined and recorded. As well as being used for normal communications, the aerial provided a means of determining the location of aircraft which had lost position, a function of some significance owing to the use of the airfield as the base for a night-fighter squadron. A section of armoured cable was examined and it was concluded that it provided a permanent power supply for the aerial, connecting it to the extant buildings which were occupied by the operating staff and a backup power plant.

6 ACKNOWLEDGEMENTS

- 6.1 The writer would like to thank the following people for their help assistance during the project: Mr A Baker, the quarry manager, and his staff; the site staff of the contractors, Stokey Plant and Wildgoose (Bonsall) Ltd; and Mr M Grant for information relating to the airfield. The writer would also like to thank his colleagues at CPAT, Mr B Silvester and Mr N W Jones, for their assistance with the watching brief.

7 REFERENCES (relating to Section 3)

7.1 Documentary sources

Grenter, S, Jones, N, & Slater, W, 1994. Plas Coch, Wrexham, *Archaeology in Wales* 34, 54.

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Jones, N W, 2000a, *Application to Extend the Depth of Workings, Land at Borrass Airfield and Borrass Hall Farm, Borrass Quarry, Wrexham, Application Code CB3637: Archaeological Assessment*. CPAT Report No. 343.2

Jones, N W, 2000b, *Application for Determination of New Conditions, Land at Borrass Airfield and Borrass Hall Farm, Borrass Quarry, Wrexham, Application Code CB2180: Archaeological Assessment*. CPAT Report No. 343.2

Palmer, A N, 1907. Town of Holt in the County of Denbigh: Its Castle, Church, franchise and demesne, *Archaeologia Cambrensis* 6th series, 7.

Pratt, D, & Grant, M, 2002. *Wings Across the Border: A History of Aviation in North Wales and Northern Marches, Volume Two*. Wrexham: Bridge Books.

Smith, P, 1988, *Houses of the Welsh Countryside*, London: HMSO.

Wait, G A, 1996. Plas Coch, Wrexham, *Archaeology in Wales* 36, 73-4.

7.2 Cartographic Sources

a) Held by the County Record Office, Hawarden
1767 Estate map of lands near Wrexham (D/GW/661)
1823 Acton Hall Estate records (D/AH/24)
Sale plan and details of Borrass airfield, 1959. D/E/2739

b) Held by the National Library of Wales, Aberystwyth
Tithe Survey of Gourton Township 1838
Tithe Survey of Borrass Hovah Township 1839-40
Tithe Survey of Borrass Riffe Township 1842-3
Ordnance Survey 1st edition 6" Denbighshire 29, 1871
Ordnance Survey 2nd edition 6" Denbighshire 29, 1900
Ordnance Survey Provision edition 6" Denbighshire 29 NW, 1949

c) Other Cartographic Sources
Ordnance Survey 1953 1:2,500

APPENDIX 1

VISITS UNDERTAKEN DURING THE TOPSOIL STRIPPING

Visit date	Actions/results
05/09/07	Topsoil removal observed. Single flint flake found in spoil heap at SJ 3568553237.
07/09/07	Topsoil removal observed. Limited excavation to reveal methods used in construction of direction finding aerial base. Cable linking aerial and service buildings noted.
10/09/07	Topsoil removal observed. No archaeological features identified.
20/09/07	Topsoil removal observed. No archaeological features identified.
24/09/07	Topsoil removal observed. No archaeological features identified.
02/10/07	Air raid shelter revealed by machining associated with conveyor tunnel beneath Borrás Road. Excavation to remove some of later soil infill. Detailed drawn and photographic recording carried out. Remainder of original topsoil removal area observed but no archaeological features identified.
22/10/07	Topsoil removal observed over northern extension to the original conveyor route. Also examined sections of trackway cut to allow construction of protective bunds to east and south of conveyor route. No archaeological features or significant finds identified.
24/10/07	Topsoil removal observed over northern extension to the original conveyor route. No archaeological features identified.

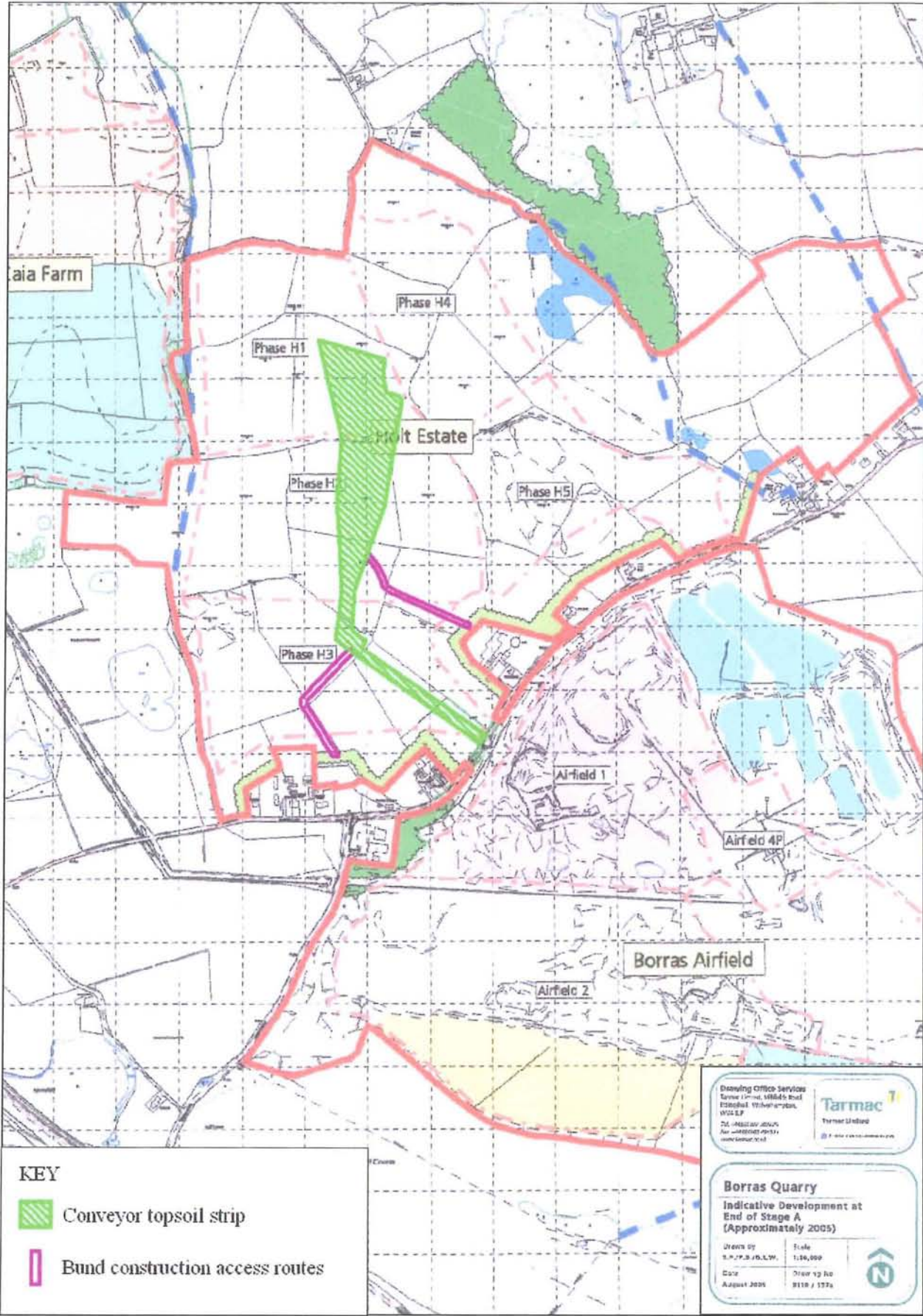


Fig 1 Location plan showing the topsoil strip areas for the conveyor route

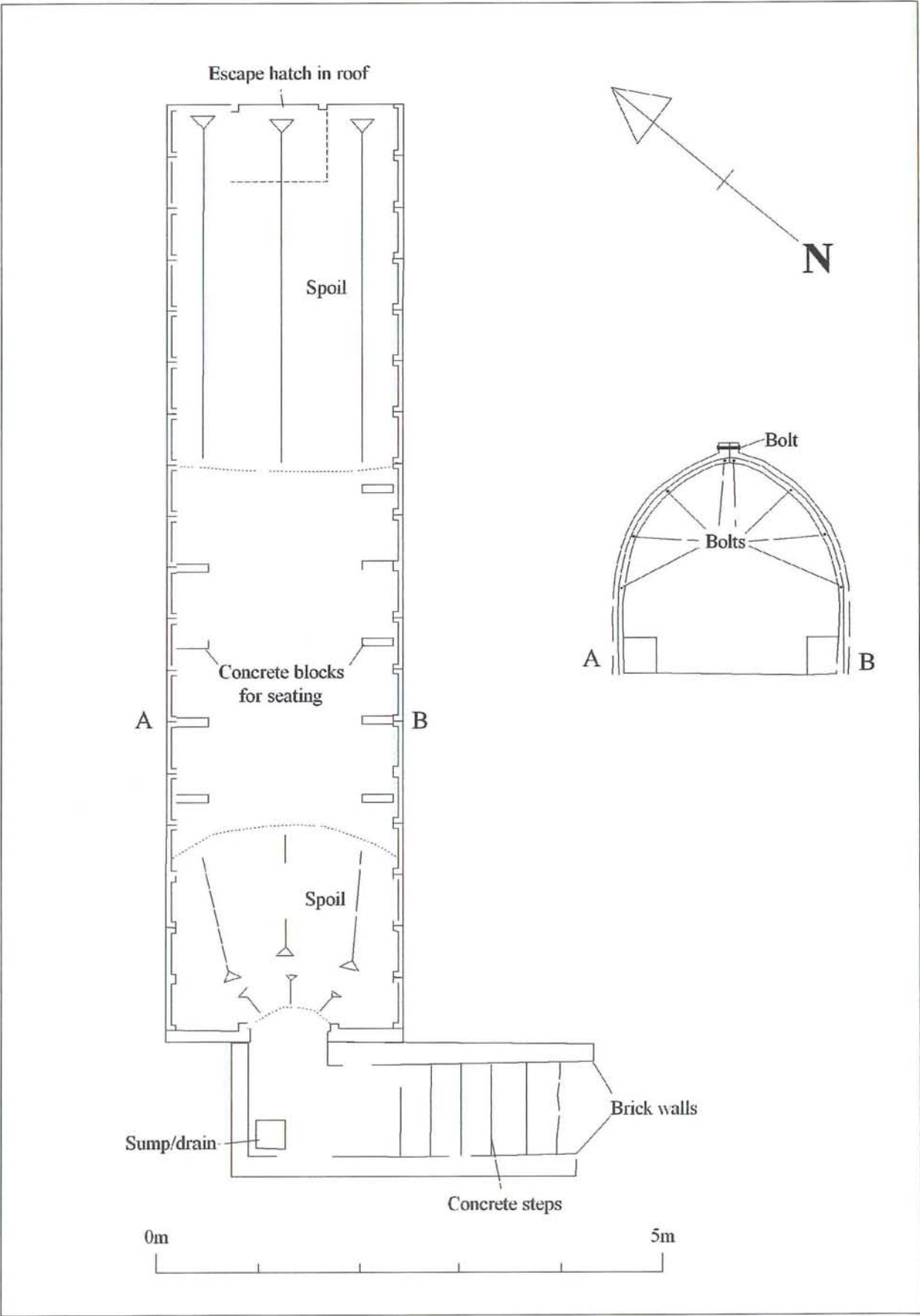


Fig 2 Plan and cross-section of the 'Stanton' air raid shelter at SJ 3590952925