BIRMINGHAM UNIVERSITY
FIELD ARCHAEOLOGY UNIT

An Archaeological Evaluation at Manor Farm, Wall, Staffordshire

by

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B.U.F.A.U.

MANOR FARM, WALL, STAFFORDSHIRE

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1. Introduction (Figs. 1, 2 and 3)

In May 1989 Birmingham University Field Archaeology Unit was commissioned by Mr. W.J. Ryman, the landowner, to carry out an archaeological evaluation on the proposed site of a new pig-breeding unit in a field immediately to the north west of Manor Farm, Wall. The proposed building would cover an area 36.6m in length and 12.2m in width which lies within the bounds of a Scheduled Ancient Monument (Staffordshire No.15, NGR SK101 066).

The evaluation, for which Scheduled Monument Consent was obtained, was to consist of:

1. Geophysical survey, carried out over the area of the proposed building only.
2. Field walking and surface collection of finds over the whole field.
3. An evaluation trench 1.5m wide running along the axis of the proposed building; this would be extended into an H-shape if necessary, to further expose any complex features encountered in the main trench.

The field being considered was at the time planted with winter wheat, and, as will be described below, this necessitated alterations to evaluation proposals 1 and 2 cited above.

2. Archaeological Background (Figs. 1 and 2)

The village of Wall, 3km to the south-west of Lichfield, overlies an extensive and important archaeological monument of Roman date, the core of the site being a Scheduled Monument but much of the Roman civil settlement, which has only been glimpsed in previous excavations, does not have statutory protection at present (Meeson 1987, 3).

The first military presence at Wall was probably in AD 51 when it is believed all or part of the XIV Legion was based here, followed by a succession of military enclosures through the Neronian and Flavian periods. A further substantial civilian enclosure was laid out in the late third or fourth century. (For the most complete summary of knowledge about the archaeology of Wall see Meeson 1987.)

3. The Evaluation Trench (Figs 3 and 4)

The purpose of this trench was to identify any areas where archaeological features might survive or be expected to be present, and, if possible, to examine, in a selected area, the depth of deposits above the natural subsoil. As with the excavations carried out at The Butts, Wall (B.U.F.A.U. May 1988), and in accordance with the terms of the Scheduled Monument Consent, the purpose of the trench was to evaluate, rather than to excavate the archaeology.

In order to accomplish this, and to gain the maximum possible information, a trench 37m by 1.5m was opened by machine, running centrally along the length of the building plot, the features encountered below the ploughsoil were recorded in plan, certain areas being further lowered or sectioned in order to understand the stratigraphy of the site.

On machining through the ploughsoil (a grey-brown loam containing large quantities of Roman pottery, (1000, 1001)) at the western end of the trench a large spread of loose, small cobbling was contacted at a depth of 0.20m. After further examination and cleaning, this was revealed as being derived from a compacted pebble road surface (F1, 1004) of Roman date running approximately north-south across the trench, 5m in width, with straight but slightly sloping sides. A slot (F2), 0.26m deep with a U-shaped profile, had been cut centrally along its length. Artefacts recovered from the brown silt/clay fill of the slot (1006) included sherds of locally produced grey and white wares of the 3rd/4th century, and two sherds of heavily abraded samian ware. Also recovered was a small copper alloy stud and a fragment of a glass jug handle. This road surface (F1) can be seen to correspond well with anomaly A1 (Fig. 5c) on the geophysical survey plot.

Associated with the road were two ditches or gulleys. The eastern ditch (F3) was clearly defined, bordered on its east side by a pebble spread (1005), whereas, due to the small size of the area exposed to the west of the road, the characteristics of the western ditch could not be determined satisfactorily.

The eastern ditch (F3) was filled with a very fine silt/sand mixture (1006) with a strong brown silty deposit (1026) along its edges and bottom.

Possibly contemporary with, and to the east of, the road, a large deposit of a red clay silt (1018) was contacted, again immediately beneath the ploughsoil. It covered an area approximately 11m in length, from the centre of the trench into the eastern section face. This red clay layer had, in one place, a small plough mark (1017) running north-south across its upper surface which, although only 0.10m in depth, showed that deep ploughing had taken place at some time, which would also account for the disturbance of cobbles on the upper surface of the road.

A section through this layer revealed that it was a wedge-shaped levelling dump, a mere skim in the west but in the east extending down to a depth of 0.90m from the surface. Revealed below was a dark brown/black soil (1015), through which a shallow ditch or scoop (F10) had been cut. Finds recovered from the clay included fragments of a large grey-ware lid, and a few fragments of a Dressel 20 amphora.

Lying in the area between the clay and the road were a series of mixed dumped soils (1010) which were sectioned in places to reveal an oven (F8) and associated floor surfaces (1030, 1039) at a depth of 0.80m below the surface. The oven and its associated contexts correspond well with anomaly A2 (Fig. 5C) on the geophysical survey.

The sealing deposit (1010), 0.12m in depth, produced a large quantity of finds, given that only a small area approximately 3m in length and 0.70m in width was sectioned. Finds included a large percentage of local wares, a sherd of a Derby kilns(?) lead glazed ware, and a noticeable quantity of rusticated ware, again possibly from a Derby source.

The oven's edges were defined in plan and although it continued under the southern section was approximately 3m in length and 1m in width.

The road surface (1004) revealed in the section through the central disturbance was seen to overlie a foundation deposit of brown loam/clay (1024), while clearance of a disturbance to the east revealed a possible earlier floor layer (1025) 0.75m below the surface. This red/orange compacted clay surface had features cut into and through it. Two small stake holes (F5, F6) 0.06m and 0.10m in diameter, and a straight sided beam slot (F4) 0.15m - 0.17m deep, were exposed in a small section.

On the western side of the road, where red clay (1002) identical to deposit 1018 in the east lay beneath the ploughsoil, a small sondage was dug by hand in an attempt to test the sequence and contact the

natural subsoil; however, this had to be abandoned when a small drain-like feature (F7), 0.12m in width, was seen to be cut into a lower buff clay/silt surface (1035) at a depth of 0.90m below the present ground surface.

Finally, a 1m square sondage was dug, again by hand, at the far eastern end of the trench to contact the natural subsoil (1037), a layer of compact clean grey/buff sand at a depth of 1.20m below the surface.

In summary, it would appear that the latest activity encountered in the trench is 3rd/4th century in date and is represented by two distinct phases, the first consisting of a road or track, to the east of which is an oven and rough working surfaces, the second represented by the levelling of, and dumping on, these features the road remained in use. Earlier activity was noted in one or two places only, mere glimpses afforded by sections through disturbances, and consists of floor surfaces, stakeholes and slots, perhaps for Roman military timber buildings.

4. Fieldwalking and Geophysical Survey

It had been originally intended that the whole of the field in which the proposed building was to be constructed be fieldwalked, but unfortunately as the field was under crop at the time of the survey conditions were unsuitable for this work to be properly carried out.

Casual fieldwalking at the time of the first site inspection in January had turned up a few Roman pot sherds, probably brought up by ploughing, and a similar random scatter was recovered in May, despite the presence of the crop.

The geophysical survey was, however, more successful, clearly picking up the two main features that appeared in the evaluation trench, these being the road (F1) and the oven (F8). These can be seen in both in the plan of the trench (Fig. 4) and the plotted geophysical survey (Fig. 5), the latter described in detail below.

6. The Geophysical Survey (by Alex Jones) (Fig. 5)

A geophysical survey was undertaken to investigate the character and survival of archaeological deposits within the entire area of the proposed development. The information thus obtained was intended to complement the results of excavation derived from the more limited area: particularly valuable given the limits set on the excavation of the deposits encountered.

In this instance a resistivity survey was considered to be the most appropriate method of examination, given the nature of the subsoil and the features anticipated. Resistivity surveying involves the application of a small electrical current into the ground and measurement of the soil's resistance to the flow of electricity (Tite. 1972). Soils vary considerably in resistivity, depending on their content and wetness, and thus detailed and accurate measurements of variation in ground resistance from place to place can detect quite subtle changes (anomalies) in the near subsurface which may be due to natural processes, or manmade features, such as walls or ditches. Water-retentive materials, such as the surrounding natural clay, are of notably low resistivity, whilst stone walls and floors have a higher resistivity, due to their lower water content, which impedes the flow of electricity. Resistivity survey can be particularly successful in the recognition of stone filled features, such as walls and roads. The technique cannot distinguish between differing soils of similar resistivity, and climatic conditions may cause anomalies to reverse, or even disappear.

Field techniques and data processing

Because of the density and height of the crop cover, the Archres device, developed at Birmingham University, was preferred to the use of a movable Square Array comprising four electrodes at the base of a rigid frame. The Archres employs a computer control box and Epson HX 20 computer to direct current from an Atlas Copco SAS 300 Terrameter along a line of 25 electrodes inserted into the topsoil at 1m intervals. Individual readings were obtained by employing four electrodes in a Wenner configuration (Aitken, 1974). Current was injected into the ground via the outer pair, the potential differences or ground resisitivity being measured between the inner pair. A line of readings was obtained by advancing the point of measurement along the line by one electrode per reading. Full coverage of the area was obtained by recording data along contiguous lines 1m apart. Soil resistivity was measured at a depth of c.0.6m below the surface (Edwards, 1977).

Data was logged onto a micro-computer. A graphics programme (Whizplot) was employed to provide on-screen interpretation, and the illustrations for this report. These computer-generated plots highlight the areas of anomalies which are represented by darker shading, in the case of areas of higher resistivity, and light shading in areas of lower than average resistivity (Fig. 5B). Stonier areas are emphasised by the use of logarithmic, rather than arithmetic progression in shading. The interpretative plot (Fig. 5C) uses inverse shading on a logarithmic scale to highlight areas of low resistivity. A contour plot of resistivity provides a useful counterpart to the dot density plots (Fig. 5A). The dot density plots (Fig. 5B-C), present values ranged from 60-250 Ohm Metres: omitting only a few readings of exceptionally high resistivity.

After recognition and definition, anomalies may be interpreted as natural or manmade features. During interpretation the anomalies spatial characteristics are analysed, and compared with the

resistivity of the surrounding area (background resistivity), that of other anomalies, and any distinct pattern of values within the anomaly itself. Single point anomalies derive from machine error and should be disregarded.

The results

Readings of background resistivity fall largely within the range 60-100 Ohm Metres. Background readings were notably lower to the west and north-east of the survey area, where the standing crop of winter wheat was notably shorter and less dense than elsewhere. The pattern of resistivity is more distinct away from the east of the survey area, where a localised change in background resistivity, combined with a generally erratic pattern of readings, make interpretation difficult (Fig. 5B).

The most distinct anomaly, A1 (Fig. 5C) actually runs at a slight angle across the plot, measures up to 6m in width and contains resistivity values between 130-340 Ohm Metres: higher values (250-340) are concentrated at the north and south edges of the survey area (Fig. 5A). The western edge of the anomaly is sharply defined, but the eastern edge is less distinct (Fig. 5B), possibly due to the position of the ditch or gulley (F6) bordered by a pebble spread (1005). In the area of the trench, the highest resistivity values are concentrated at the edges of A1 (Fig. 5A). The values recorded suggested a stone filled feature, and this was proved to be correct when excavation revealed the Roman road surface (F1).

To the west of A1 an irregularly shaped anomaly (A2: Fig. 5C) measuring c.5m by up to 10m, may be distinguished by resistivity values 25-50% higher than those of the surrounding area. Within A2 is a concentration of higher values to the north east. This area could be the oven (F8), its full size only guessed at during the excavation.

A linear anomaly (A3: Fig. 5C), c.8m in length aligned west-east following the grid, is represented by high values up to 140 Ohm Metres. To the east of A1, an anomaly of similar narrow width (A5: Fig. 5C) and c.20m in length contained resistivity readings up to 25% lower than those of the surrounding area. The band of high resistivity parallel with A5 is typical of the response of this electrode configuration in a traverse across a negative linear feature. A high resistivity anomaly of indistinct outline (A4: Fig. 5C) containing values up to 150 Ohm Metres may be distinguished from the surrounding values, which are about 50% lower.

The information from the excavated trench may be combined with the results of the geophysical survey to produce a picture of deposits over the wider area covered by the geophysical survey. However it must be borne in mind that geophysical survey is only an indirect method of site evaluation, not capable of the same precision in definition and interpretation as excavation.

The linear, alternative high/low resistivity anomaly A3/A5 is the most difficult to interpret. It may represent a drain or wall footings (A3); its counterpart negative anomaly (A5) may be formed by the robbed-out cut for such a feature. Anomaly A2, (the oven) extends beyond the confines of the excavated area: A4 is located wholly outside the excavated area. The recognition of a further, negative anomaly (A6), located between A2 and A4, is uncertain as its true shape is difficult to define. Unfortunately all of these anomalies were not excavated, so their true identities remain uncertain.

The results of more recent agricultural activity are also represented in the dot-density plots. The tendency of values to increase towards the south-east corner may derive from an accumulation of stones in this corner of the field due to repeated ploughing. A gradual decrease in values to the north-west may be caused by a localised increase in the depth of overburden here.

6 Finds

At the time of writing the finds from the site have not been sorted into their respective stratigraphic groups, but a few general conclusions can be offered about the assemblage as a whole.

1. There is a large assemblage of Roman pot sherds from the trench, approximately 400-500 in total.
2. Very little or no medieval or post-medieval pot has been recovered from the top layers (1000 1001), nor were disturbances of this period identified.
3. There is a distinct lack of fine wares, samian and mortaria.
4. 90% of the pot sherds recovered are probably locally made grey and white wares, heavily abraded and of late 3rd-4th century date.

7. Summary and Conclusion

The evaluation exercise revealed evidence that archaeological deposits remain intact, and in a good state of preservation, over the whole length of the excavated area, from as little as 0.20m below the present surface to a maximum depth of 1.20m at the eastern end of the trench. There was evidence for intensive late Roman civilian occupation, perhaps representing two distinct periods, and a possible glimpse of an earlier military phase, was provided by the emptying of features to either side of the road. With such a limited brief, and the minimum of excavation undertaken to confirm date and identification of the horizons, to relate this activity to the wider knowledge of the history of Roman Wall is not a viable academic exercise at this stage.

8. Acknowledgements

Many thanks to Ed Newton, Laurence Jones, Steve Litherland, and Iain McCraith for their work on the excavation, with special thanks to Martin Lightfoot who worked as part of a university work experience placement. Iain Ferris monitored the project and edited the report. Alex Jones undertook the geophysical survey and prepared the relevant section of this report: Laurence Jones and Said Ali Said Al Farsi assisted in the field. Thanks to Ann Humphries for typing, and finally thanks to Bob Meeson for permission to use one of his excavation plans.

9. Bibliography

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Edwards, L.S. 1977 'A modified pseudosection for resistivity and IP' Geophysics 42.

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Figures

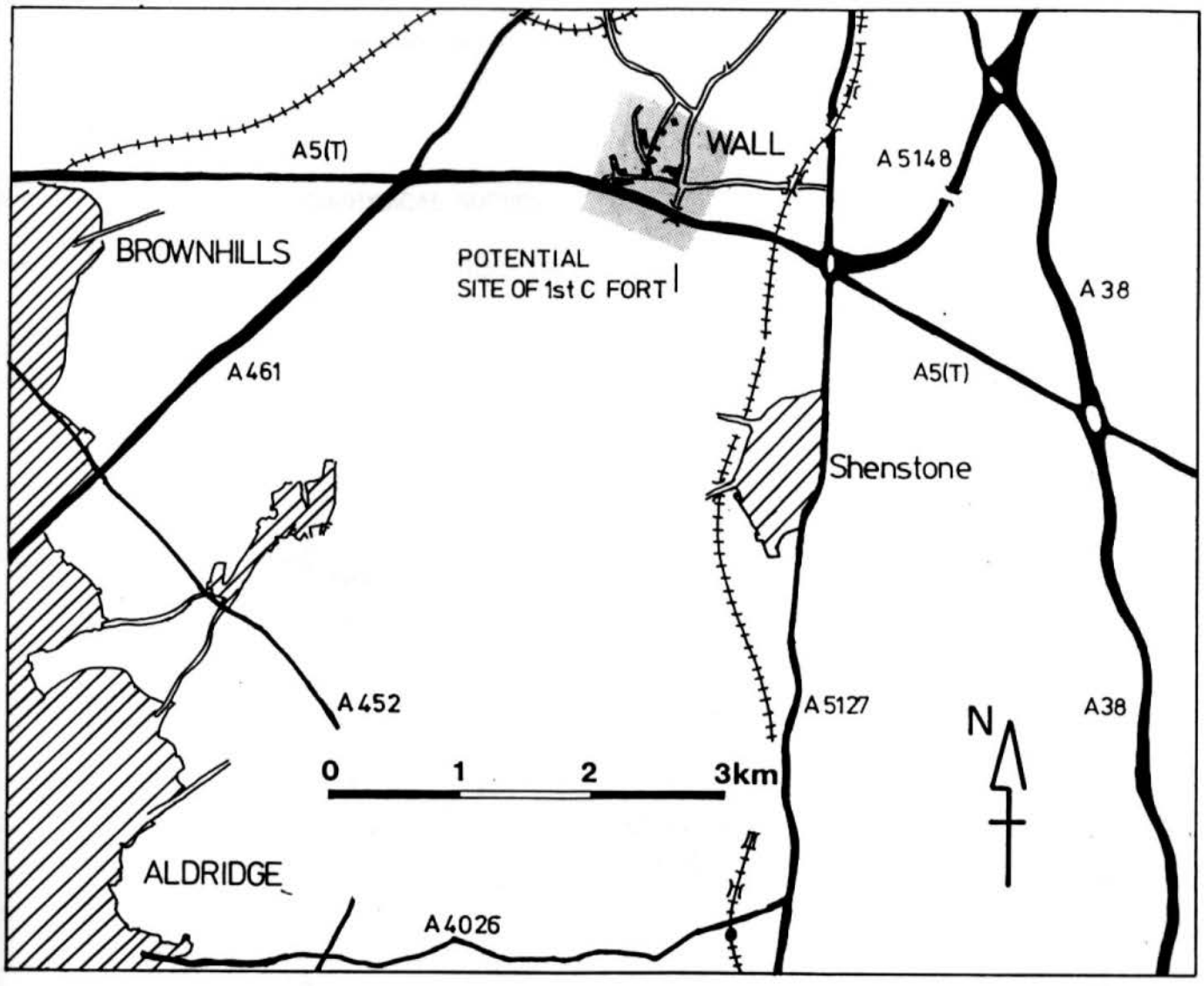


FIG 1 **Location plan**

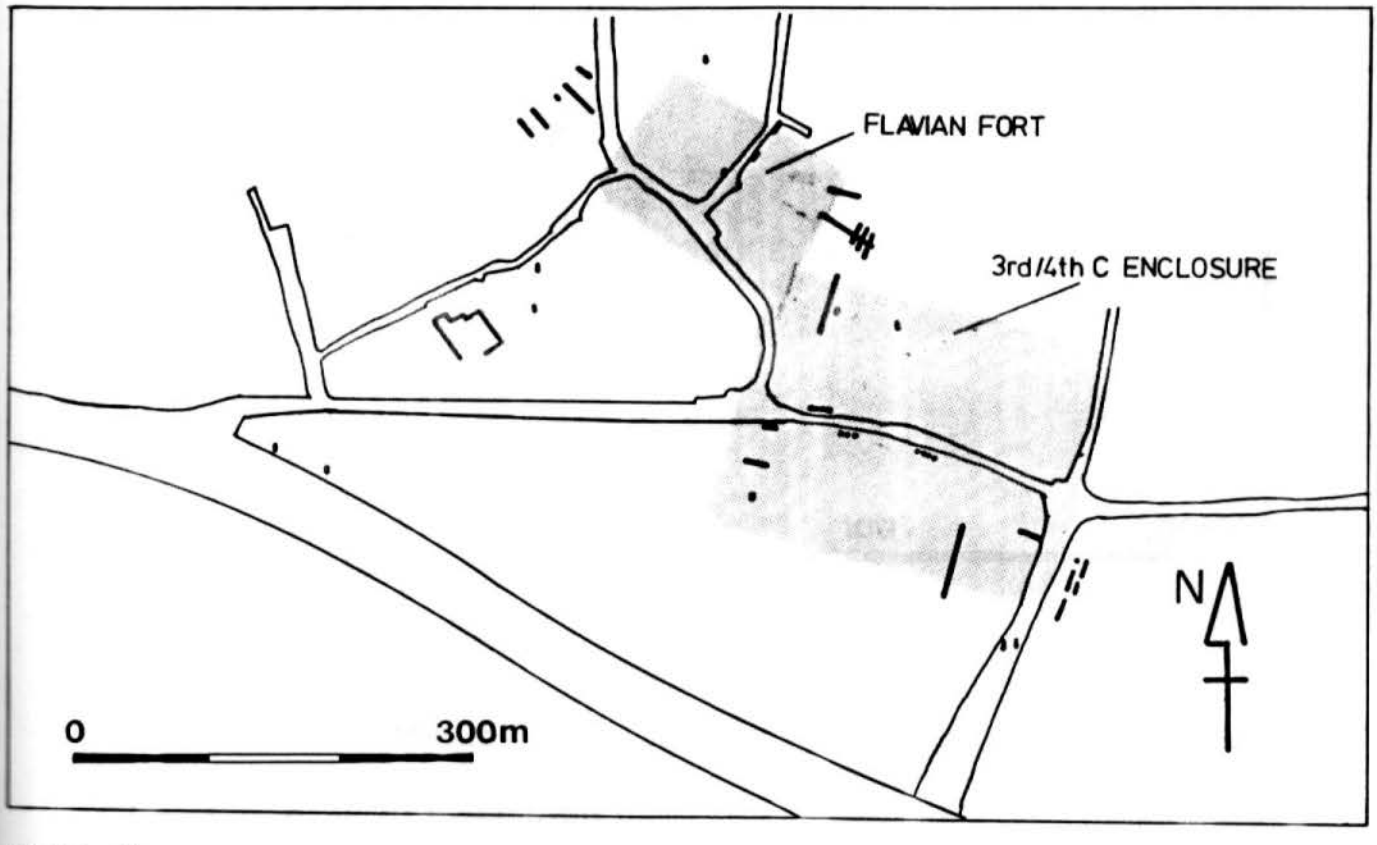


FIG 2 **Archaeological excavations at Wall**

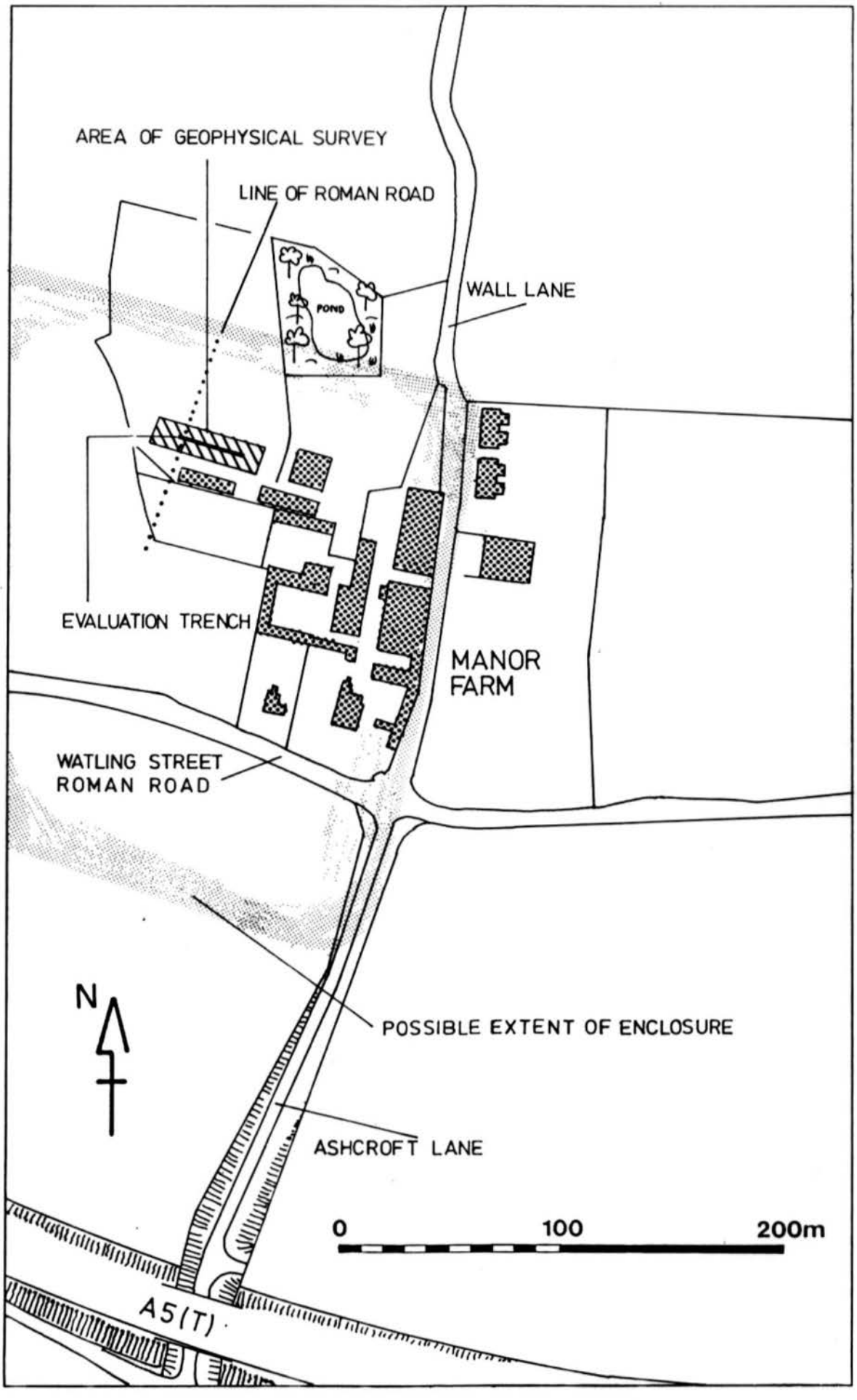
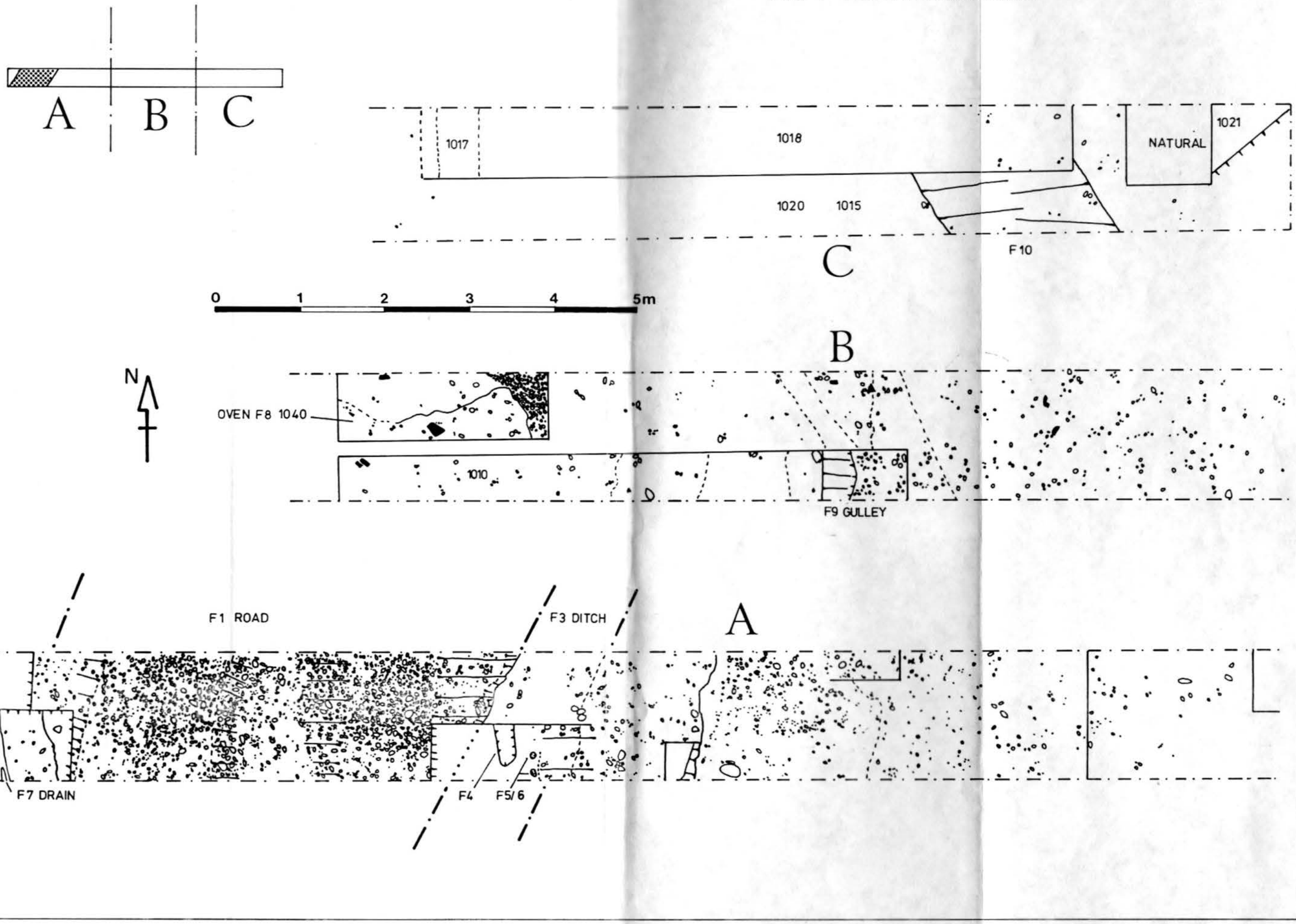


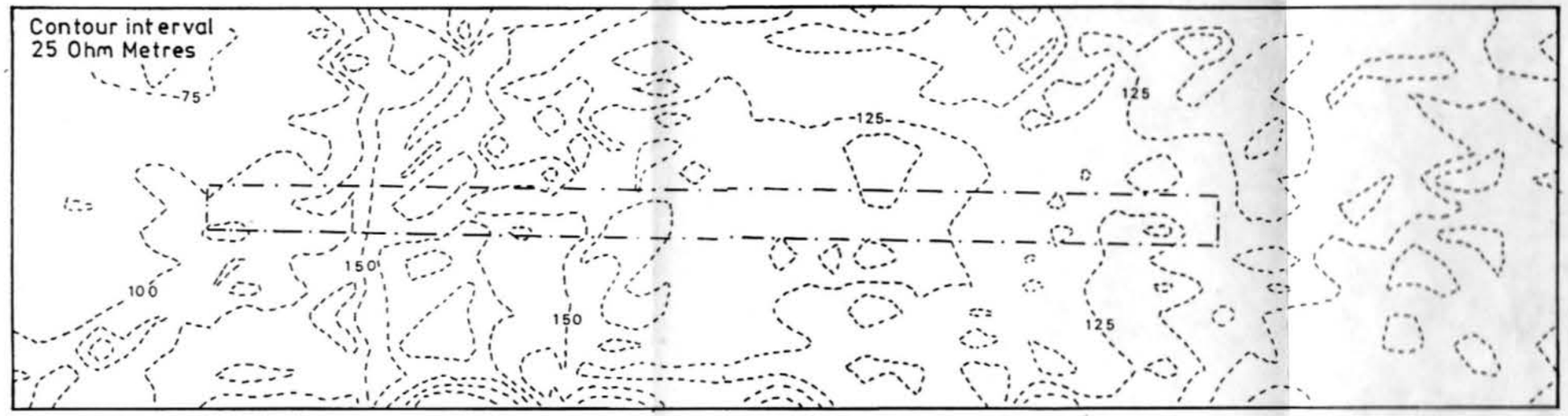
FIG 3 **Area of evaluation**

FIG 4 **Plan of evaluation trench**



WALL Manor Farm 1989 *Geophysical Survey*

a



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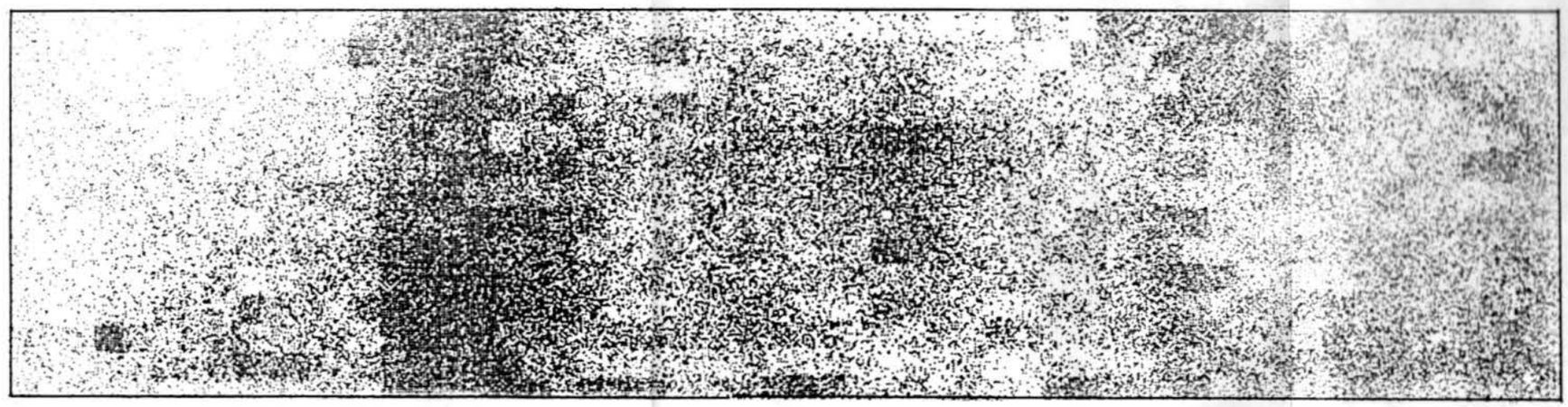

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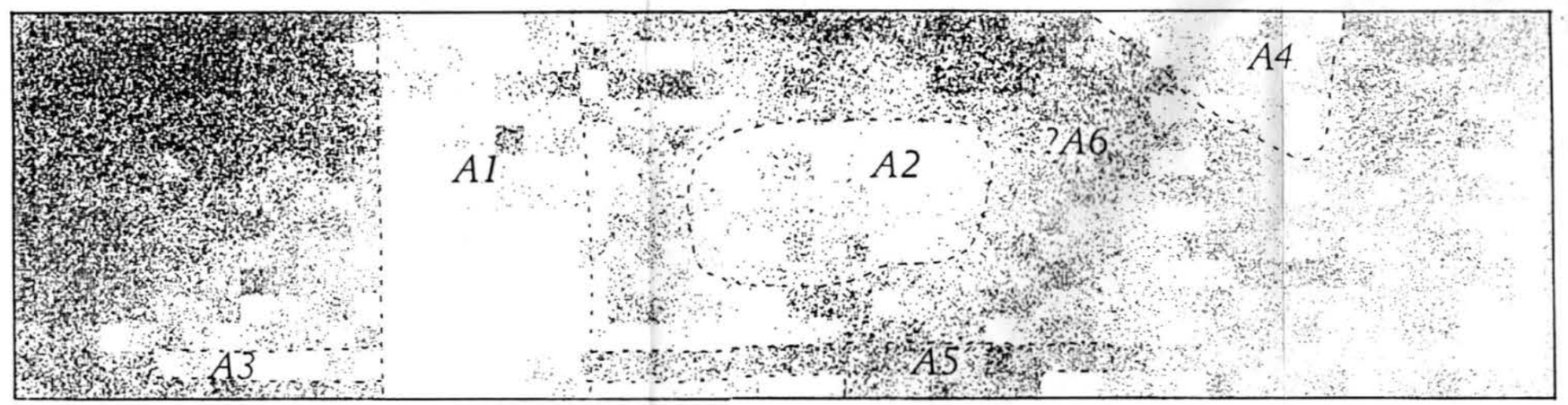

trench

0 20
m

FIG 5