Barnsdale Bar Limestone Quarry
Kirk Smeaton
North Yorkshire (SE509145)

Archaeological Evaluation Report

November 1993

West Yorkshire
Archaeology Service

West Yorkshire Archaeology Service
14 St John's North, Wakefield WF1 3QA

WYAS R160; 2nd November 1993

Barnsdale Bar Limestone Quarry, Kirk Smeaton, North Yorkshire (SE509145)

Archaeological Evaluation Report

Contents

1. Report Summary

Client
Drinkwater Sabey Ltd., Cumberland House, Wintersells Road, Byfleet, Surrey KT14 7AZ.

Project supervision
Directed by Andy Boucher, Field Archaeologist
Excavation supervised by Alistair Webb, Field Officer/Geophysics

Objectives
To identify and phase features causing the anomalies located by gradiometer survey. In addition, to investigate the northern end of the site where no anomalies were detected.

Method
A total of nine trial trenches were excavated by machine, their locations being based on the results of the geophysical survey. Exposed features were then hand dug.

Results
The trial trenches provided evidence of four ditches oriented north-west to south-east. At least one ditch is cut by a later, north-east to south-west oriented ditch. A shallow grave, with severely degraded skeletal remains, was located adjacent to this later ditch. No features were seen in the three trenches opened in the northern end of the site. The position and orientation of the ditches is consistent with the results from the gradiometer survey. One ceramic rim sherd of probable late Roman provenance was recovered from one of the earlier ditches. Several natural, fluvially formed, features were located.

2. Introduction

The West Yorkshire Archaeology Service was commissioned by Drinkwater Sabey Ltd. to conduct an archaeological evaluation by trial trenching of the linear and other anomalies identified from geophysical survey.

The evaluation was carried out between 7th and 17th September 1993 on land set aside for the expansion westwards of the limestone quarry at Barnsdale Bar, Kirk Smeaton.

The underlying geology is Magnesian Limestone with the topography sloping gradually up from the south of the site to the north (53m to 55m OD).

3. Archaeological Background

The site is located within an area of proven archaeological importance. Excavations by the West Yorkshire Archaeology Service (Abramson 1989) and the East Riding Archaeological Research Committee (Simpson 1990-91) on land to the north and east of Windhill Plantation have confirmed the presence of part of a ditched enclosure system of more than one phase. Two individual burials were uncovered during these excavations. Little precise dating evidence was found from either excavation and no direct relationship was established between the burials, one of which was crouched, and the ditch system. However, the few pot sherds recovered from the ditch segments, and the position and orientation of one of the skeletons, would tend to indicate a prehistoric or at least a pre-Christian origin.

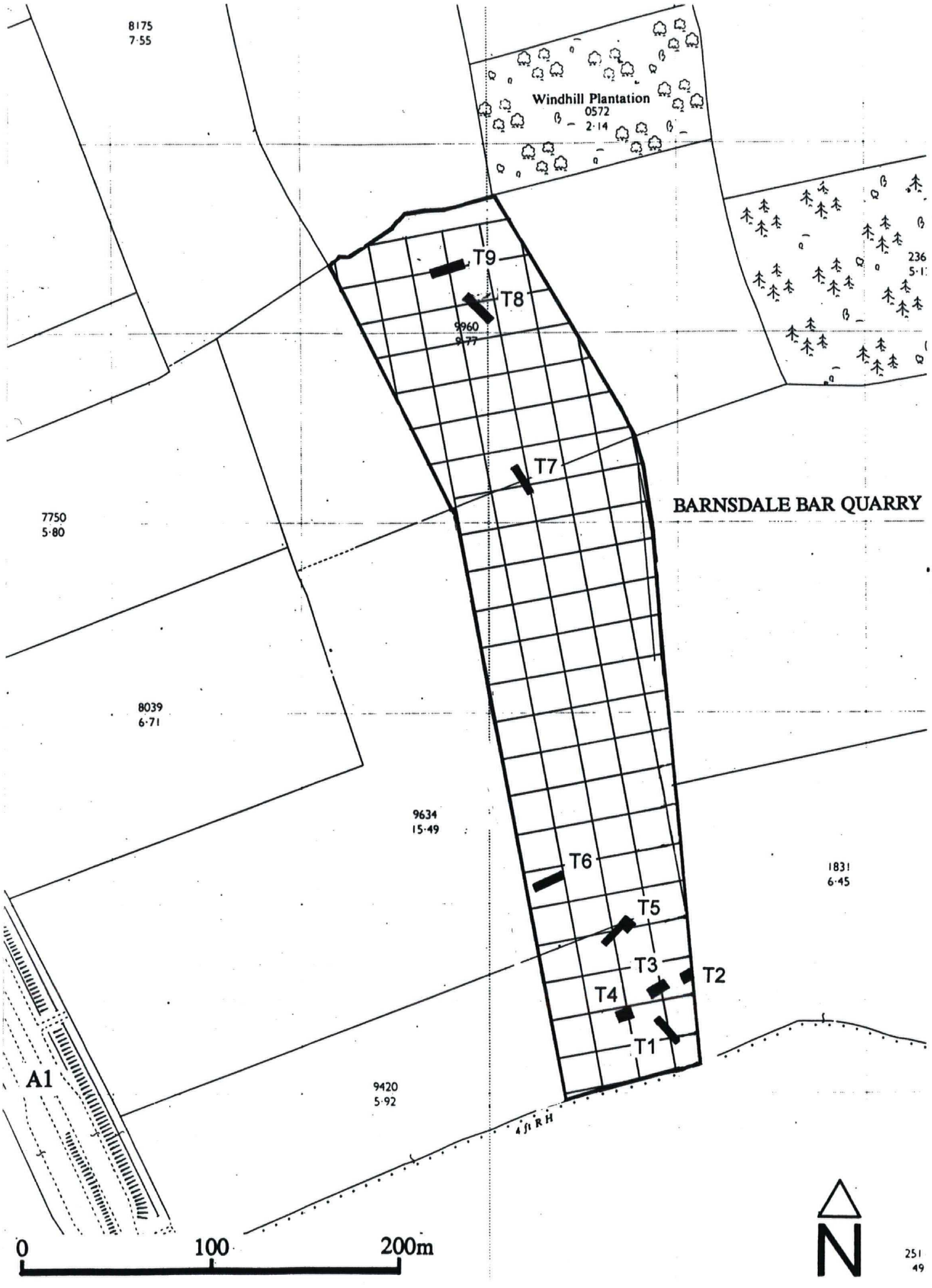


Fig. 1 Site plan showing trench location

A gradiometer survey on the present site had shown linear anomalies which suggested the presence of an enclosed, ancient agricultural landscape: "The alignment of these ..... would tend to imply more than one phase of ancient landscape" (Boucher 1993).

4. Method of Evaluation

The gradiometer survey confirmed the presence of possible archaeological deposits and the trial trenches were positioned on the basis of these results. Nine trenches were machine dug by JCB to the point where features became visible or to the base of the subsoil profile. The trenches were manually cleaned to highlight any potential archaeology and features were then excavated by hand and recorded in accordance with the West Yorkshire Archaeology Service Context Manual.

5. Results

5.1 Trench 1 (Figs 1 and 2)

This trench, oriented north-east to south-west and measuring 17m by 3m, was positioned in order to investigate two pit type anomalies detected by gradiometer survey. The trench was excavated 1m down to the natural limestone bedrock. No evidence of any feature was seen either in plan, as the trench was excavated, or later in section. However, the depth (0.60m) of topsoil (101) and subsoil (102) was much greater in this trench than in any other, probably reflecting its geographical location in a trough between slopes to the south and north.

5.2 Trench 2 (Figs 1, 2 and 3)

This 5m by 5m trench, oriented north-east to south-west, was positioned so as to provide a section across the most easterly of the presumed ditches (M211). The ditch, which was cut into the Magnesian Limestone bedrock, had a shallow, basically U-shaped, profile with an irregular bottom. It was approximately 1.25m wide and 0.30m in depth. Only one light brown, sandy silt fill (205/201) with small limestone fragments was distinguished in the two segments excavated (Fig. 3 S.1 and S.2). No finds were observed.

A linear feature (F204), running into the eastern baulk and cut at right angles by F202, proved on excavation to be a natural gully, probably fluvial in origin, which contained two solution holes (F209 and F210).

5.3 Trench 3 (Figs 1, 2 and 4)

This trench (11m by 4.5m), on the same alignment as T2, was positioned to establish the relationship between the two linear features which appeared to intersect in the geophysical results. Excavation of a box section through ditch M321 showed it to be very shallow (0.20m deep), but 1.8m wide. It was cut into the bedrock. Only one orange/brown sand silt loam fill (301) with few inclusions was identified in this segment of the feature (Fig. 4, S.6), although two fills (308 and 309) were identified in F307, a segment which was excavated at the intersection of the two ditches, M321 and M322 (Fig. 4, S.15).

The second of these ditches, M322, cut M321 at right angles. It was 0.60m wide and 0.70m deep with a characteristic profile; the eastern edge being almost vertical and the western

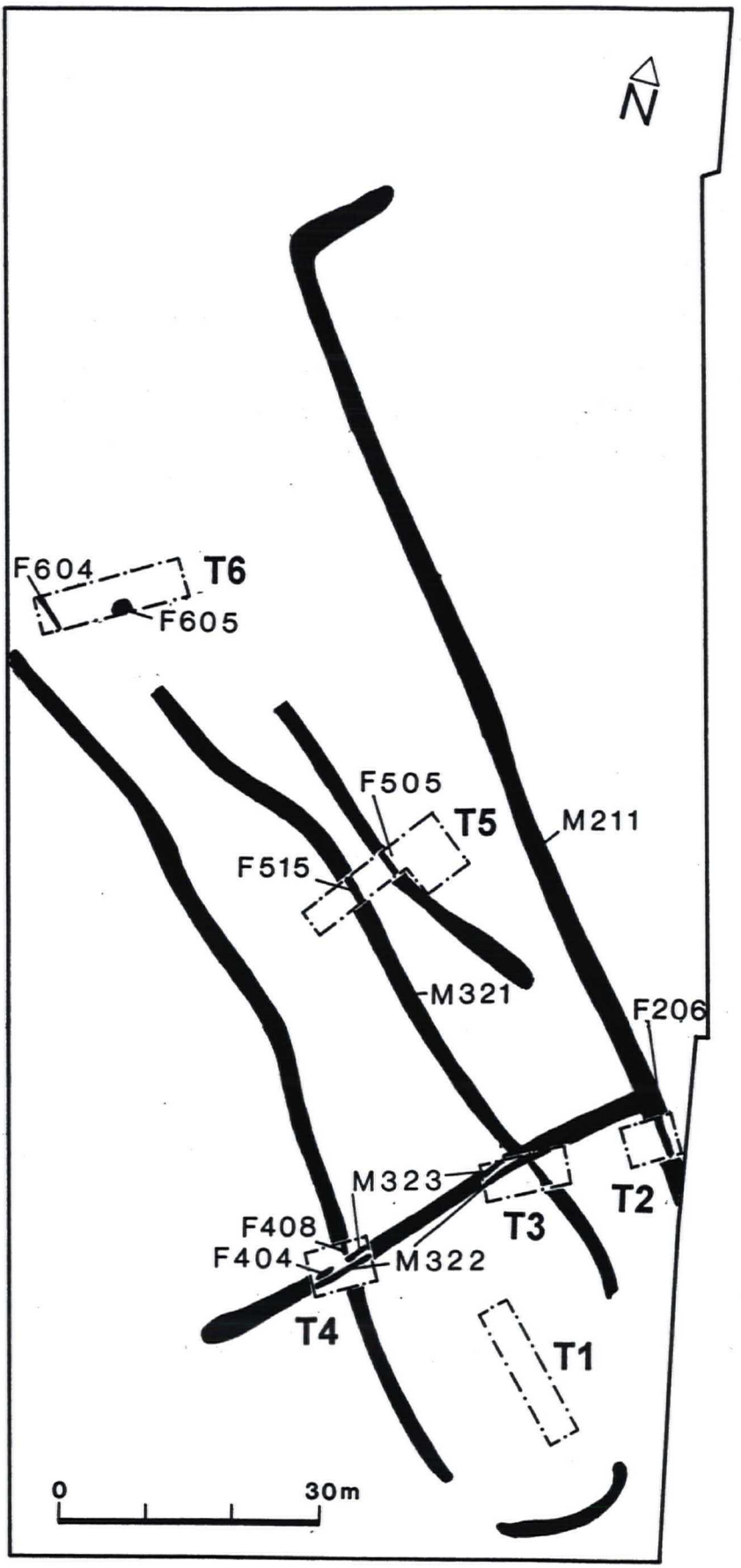


Fig. 2 Trench location plan showing excavated features and geophysical interpretation

edge about 45°, with a slightly rounded bottom (Fig. 4, S.14). Three distinct fills were identified (304/5/6). Fills 305 and 306 were an orange/brown silty clay and a yellow/brown clay silt respectively with the middle fill (304), a yellow/brown sandy clay, containing frequent small and medium limestone fragments. At the western end of the trench M322 narrowed and a second section was dug across it (F311). The ditch here was much shallower (*c.*0.10m deep) but with the same basic profile as at the eastern end.

A second shallow ditch F313, similar in size and morphology to F311 and running almost parallel to, and 0.50m north of it, was also seen in this end of the trench, although it ran off under the baulk edge.

Immediately north of F303, and butting up against it was a layer made up predominantly of medium sized (up to *c.*0.30m across) limestone fragments (320). These pieces were black in colour but did not appear to have been burned and they were of much better quality (*i.e.* more robust) than the crumbly limestone bedrock. Beneath this layer was a fine surface of small, black, water worn pebbles (317) about 0.02-0.05m in diameter which appeared to have been purposefully laid; no similar pebbles were seen in this or any other of the trenches. After removal of this surface and a yellow brown loam fill (318), a steep sided, round ended cut, F319 was revealed.

5.4 Trench 4 (Figs 1, 2, 5 and 6)

This 7m by 6m trench was also positioned to resolve the phasing of the two ditches which appeared to intersect here. Ditch segment F414, which ran north-east to south-west and aligned with M322 in T3, varied in width from 0.30m on the eastern baulk, to 0.90m in the west, and from 0.10m to 0.50m in depth. Three fills were identified in the east facing section: a dark brown sand, silt loam (401), a patch of burnt material (403), and 415, a dark brown silty loam (Fig. 5, S.19).

Another ditch, F413, is cut at right angles by, and is therefore earlier than, F414. No more than 0.10m in depth and 0.45m in width this irregular feature was interpreted as a fluvial feature. Again solution holes were found in the base of the feature adding additional weight to the above interpretation.

On the same alignment as F413 is a second ditch feature, F408. Measuring 1.80m in width and 0.40m in depth it became increasingly shallow to the south where it appeared to be butt ended 2.35m from the baulk edge (Fig. 5). Three fills were identified: a dark brown sand silt loam (409), an intermittent burnt layer (410) and 411, a pale brown sand/silt loam primary fill (Fig. 5, S.17).

Adjacent to ditch F414 was grave F404 (Figs 5 and 6a). At the western edge of the trench the cut was quite well defined, but the eastern end was indeterminate. The skeletal remains were in very poor condition. Apart from three possibly articulated leg bones nothing of the lower body remained. After careful cleaning some ribs, scapulae, clavicles, vertebrae and poorly preserved skull fragments could be seen *in situ*. No grave goods were found. An unusual pale brown, greasy, concreted material, apparently lining the inside of the grave cut was seen. However, this "lining" extended beyond the eastern end of the grave and may be pedological in origin.

5.5 Trench 5 (Figs 1, 2 and 7)

Oriented north-east to south-west this 18m by 3m trench was positioned in order to provide information about M321 and a second linear feature to its north, both of which run north-west to south-east across the site. Additionally a large pit-like anomaly at the north-eastern end of the trench was to be investigated. The trench was widened to 6m at the same end to investigate this.

The most easterly of the ditches, F505, proved to be the shallower of the two features being about 2m wide but only *c.*0.20m in depth. The sides were steeper on the west than on the east and the bottom irregular (Fig. 7, S.5). Only one fill, 504, a mid-brown sandy silt was identified, although a single iron object was recovered from the base of the fill.

The second ditch, F515, was 1.5m south-west of F504 and appeared to run roughly parallel to it. The profile of the ditch, which was 3.5m wide and 0.75m deep, was broadly U-shaped (Fig. 7, S.12) with sides sloping at approximately 45°. Within it six deposits were identified:

509: red brown sand silt loam, 0.25m deep, containing
510: lens of the same basic material as above but with many small limestone chips, above 511
511: pale brown silt clay loam with burnt patches, 0.17m, above 512
512: same as 511 but with no burnt patches, 0.12m deep, above 513
513: pale brown silt with limestone fragments, 0.25m deep, above natural
514: orange brown clay with limestone fragments, above 513

The natural was badly decomposed resulting in the bottom being very irregular. No dating evidence was found.

A third major feature was seen in this trench, F508 (Fig.7). On the geophysical plot it showed as a possible pit-type anomaly of irregular shape. It measured approximately 4m in width and 3m in length in the north-east corner of the trench. A portion of the feature was excavated adjacent to the north-east baulk. The bottom proved to be extremely irregular with several solution holes cut into it, thus leading to its interpretation as a natural glacial or post glacial feature. A second anomaly similar in magnetic response to F508 is recorded in the primary archive.

5.6 Trench 6 (Fig. 8)

Again the objective was to provide more information about the two linear anomalies assumed to be continuations of F505 and F515 in T5. The trench measured 17m by 4m.

The most westerly of the two ditches (F604), assumed to be a continuation of M321, was 2-3m wide and 0.30m deep and oriented north-west to south-east, although at the northern end it appears to be widening or turning towards the west. The cut was broadly U-shaped with gently sloping sides and an irregular bottom (Fig.8, S.21). Two ceramic sherds of the same Grey-ware vessel were found at the base of the fill (603).

The second "ditch" feature (F605), assumed to be a continuation of F515, proved to be very nebulous in plan. After sustained cleaning it appeared to form a round ended terminus about half way across the trench. The cut was very shallow (*c.*0.30m) with an irregular bottom cut

into the bedrock. In section no definite cut could be seen although a slight change in colour between the subsoil and the "fill" could just be discerned.

5.7 Trenches 7-9 (Fig. 1)

Three additional trenches were machine excavated at the northern end of the site. Although no anomalies were detected by gradiometer survey in this part of the site it was thought possible that changes in the drift geology may have masked responses from any potential archaeological features. However, the combined depth of topsoil and subsoil, typically less than 0.50m, was generally shallower in this area than in the south of the site and no major geological change was observed. No features were seen in plan but samples of topsoil and subsoil were taken for magnetic susceptibility testing in order to give a comparison with samples taken both within features and in the top-soil and subsoil in the other six trenches.

6. Discussion

The trial trenching confirmed the presence of the ditches as identified from the gradiometer survey. In addition, at least one grave was identified. Enough information has been obtained to tentatively divide the site into four main phases, not including the phase implied by the surface flint finds collected during the geophysical survey (Boucher 1993). This phasing is based on the chronology and orientation of the features with the phase chronology determined by intersections between features.

Phase I comprises the geological features such as the solution holes F209, F210 and F508 and the natural gully F413. All of these features are thought to be formed by glacial and peri-glacial fluvial activity. The fills of these features are also assumed to be geological. Layer 602 has the same soil description as L502, (which also makes up the fill of F508), so this too, is placed in Phase I.

Phase II is assigned to the earliest archaeological features and deposits. The major feature in this phase is ditch M321. It cuts L502 in T5 and L602 in T6 thus showing it to be of a later phase than that containing these layers (Phase I). Although the number of fills varies throughout its length the basic size and morphology of the ditch remains similar. Unfortunately, as experienced on other similar sites, dating features on sites with a probable agricultural function proves a perennial problem. Only two stratified pot sherds were found, both in fill 603 (M321). They are probably of Late Roman origin. The design on the rim may allow a more accurate date to be ascribed.

Also placed in Phase II are ditches F505 and F605 which are probably part of the same linear feature as indicated by the similarity of their fills, 504 and 606. The interpretation of the phasing is based solely on the fact that it runs parallel with M321, possibly indicating that both features formed part of the same enclosure system. A single iron object was recovered from the bottom of fill 504.

At right angles to M321 is a second linear anomaly, M323 (Fig. 2). Although both M323 and M322 (an adjacent but divergent linear feature) are very similar in size and morphology, M323 has been placed in this earlier phase (II) because its orientation at right angles to M321 could imply contemporaneity of function.

Phase III represents the most recent archaeological features. The major feature in this phase is ditch M322 which cuts, and is therefore later than, the fills assigned to ditch M321.

A second feature in this phase is ditch F408. One of its fills (410) contains a spread of burnt material similar to that within fill 403 in M322. The relative proximity of the two features has led to the conclusion that they were open at the same time. The fills sealing both these deposits are both similar dark brown sand/silt loams giving further evidence of contemporaneity. No finds were recovered from either of the ditches so dating is based on inference from the pot sherds in M321. This evidence places these features either in the Roman period or later. M211 has also been tentatively placed in this phase although without the relationship with linear feature M323, with which it is presumed to intersect, this cannot be proved.

Phase IV represents the topsoil and later subsoil deposits formed to a large extent by modern agricultural practice and recent soil development.

Two other features, F404 and F319, which both seem to abut the ditch feature M322 have not been phased. F404 was a shallow grave containing the skeletal remains comprising the head, upper torso and leg of a single individual, thought to be a young adult. Three iron nails were found within the grave fill (402).

The second feature, F319, might also prove to be a grave. The cut appeared to be round-ended and the spread of stones which initially delineated the feature in plan was approximately the right length for a grave. The fact that the stones were unlike any others found on site and the apparent precision with which the pebble surface (317) below it had been laid would seem to indicate a specific function. Alternatively it might represent an occupation surface. However, no direct relationship between either feature and the ditch which they appear to butt (M322) was established. Abramson (1989) and Simpson (1990-91) both reported finding similar graves; adjacent to ditches but with no obvious association to them.

Interpretational problems arose due to the properties of the solid geology, in this case Magnesian Limestone. The indented, fractured surface of the bedrock is caused by glaciers and post-glacial melt-waters eroding and scouring solution holes and ephemeral streamlets at the end of the last Ice Age. These naturally formed features, when filled, resemble archaeological features when seen in plan, especially small features like post-holes. Thus, valuable time has to be spent excavating at least a sample of features which subsequently prove to be natural.

7. Conclusion

The remains uncovered during trial work have shown a complexity of features which were not initially expected from the results of the geophysical survey. Certainly the trial trenches in the north of the site confirm the geophysical results indicating little activity here. However, there are still several points requiring clarification in the southern area.

There seems no reason to assign anything other than an agricultural function to the ditches. No evidence of occupation relating to these was uncovered. In fact, the paucity of finds from the excavated features would tend to suggest a lack of settlement on the site. The prehistoric

flint in the top-soil suggests the almost total destruction of features of this period, which are generally very shallow.

8. Recommendations for Further Work

Further work is required to establish the nature of F319 and its associated deposits and the phasing of the ditches and other features between T2 and T3.

To achieve these aims a trench 7m wide encompassing F319 and following M323 and M322 to their presumed intersection with M211 (see Fig. 9) should be excavated to archaeological standards using, for example, a Hymac with a flat-blade ditching bucket. This should provide sufficient information to give a reasonable understanding of the archaeology in this part of the site.

Acknowledgements

Report: Alistair Webb BA, Field Officer/Geophysics

Fieldwork: Charlie Morris BA, Assistant Archaeologist
Richard O'Neil, Site Assistant
David Waterhouse, Site Assistant
Alistair Webb BA, Field Officer/Geophysics
Jamie Wright BSc, Field Officer

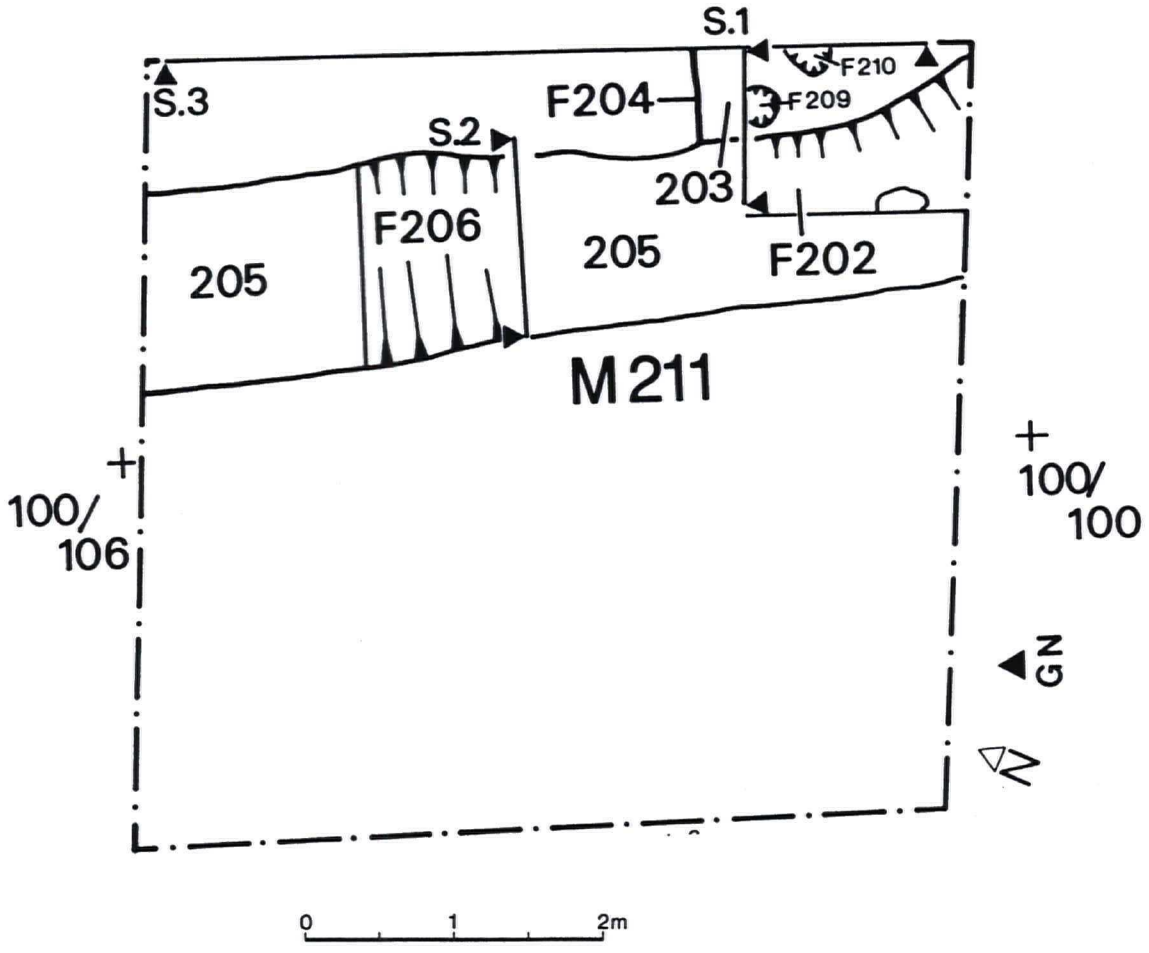
Drawings: Charlie Morris BA, Assistant Archaeologist

Bibliography

Abramson, P., 1989, 'Kirk Smeaton Quarry, North Yorkshire: Trial Excavations', West Yorkshire Archaeology Service

Boucher, A., 1993, 'Kirk Smeaton Quarry Gradiometer Survey', West Yorkshire Archaeology Service

Simpson, S., 1990-91, 'Kirk Smeaton Quarry: Phase IV', Yorkshire Archaeological Society Roman Antiquities Section, Bulletin 8



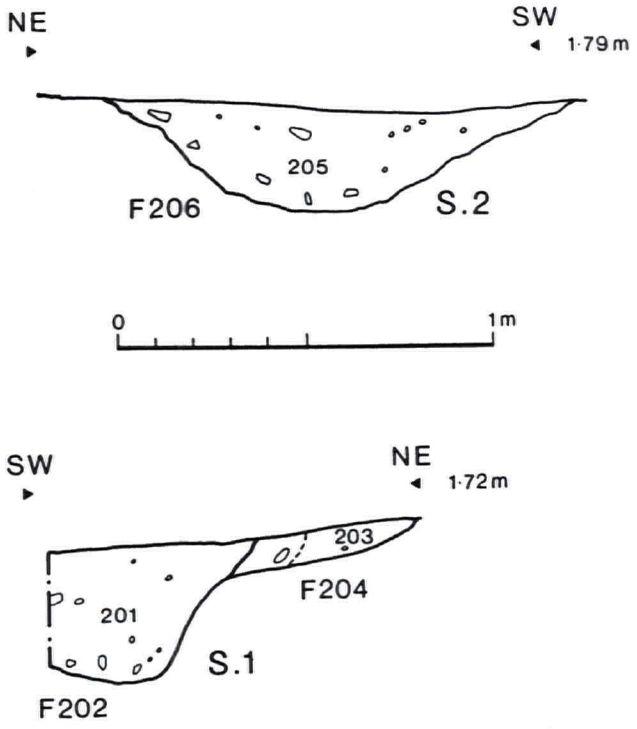
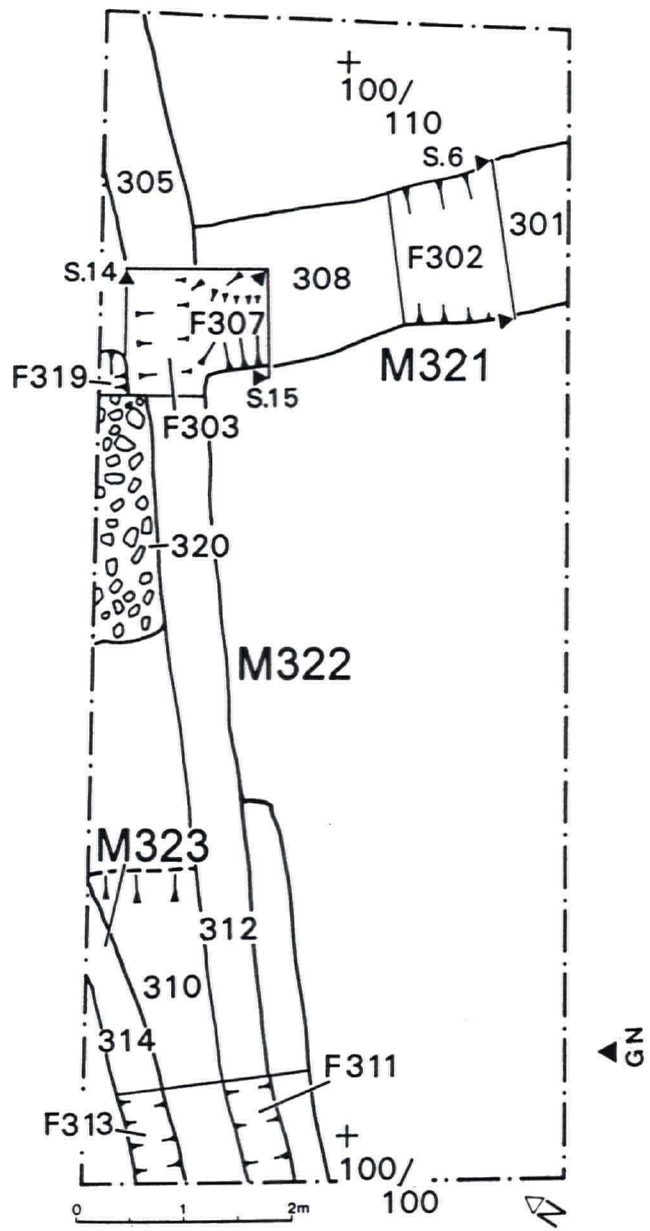


Fig. 3 Trench 2: Post-excavation plan and sections



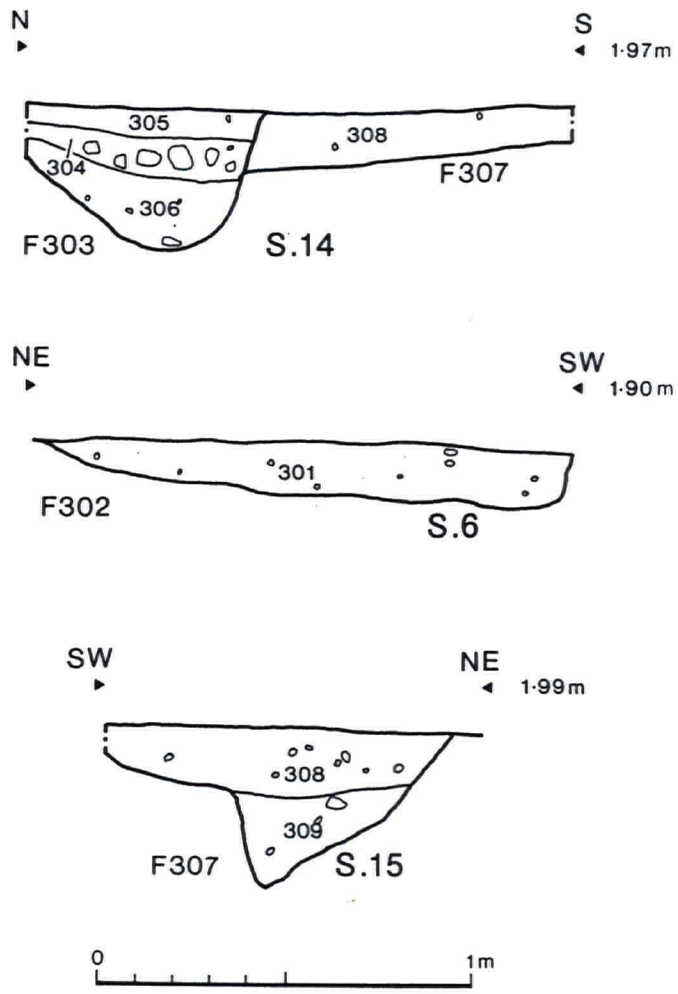


Fig. 4 Trench 3: Post-excavation plan and sections

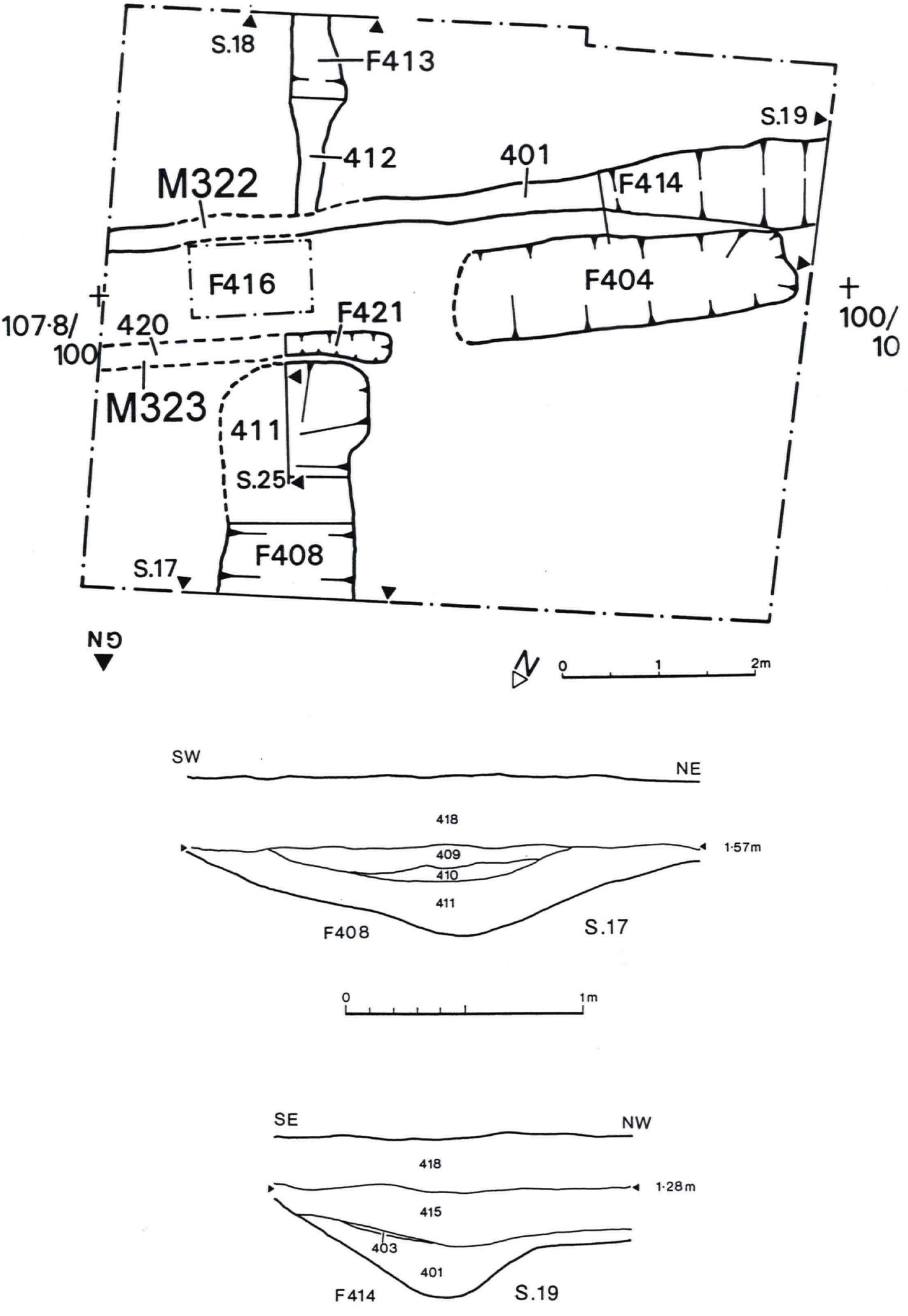
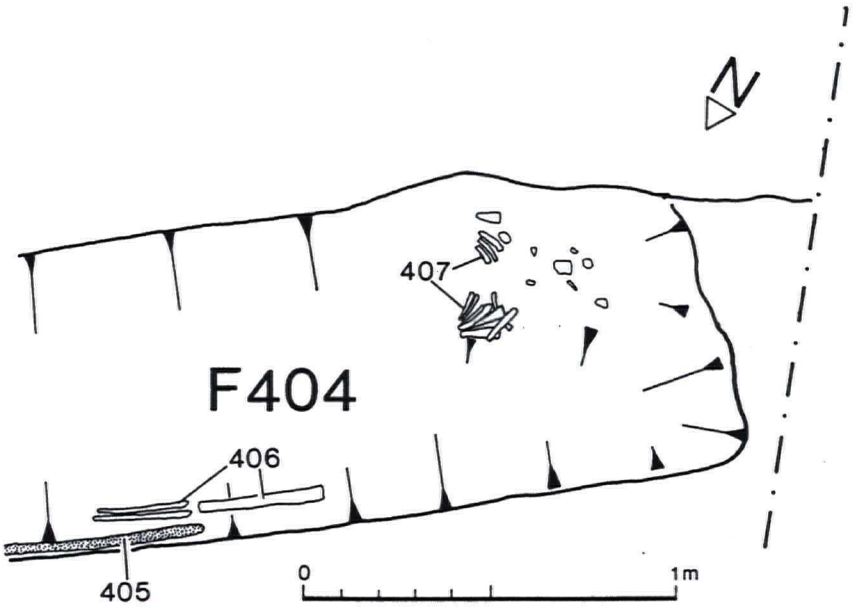
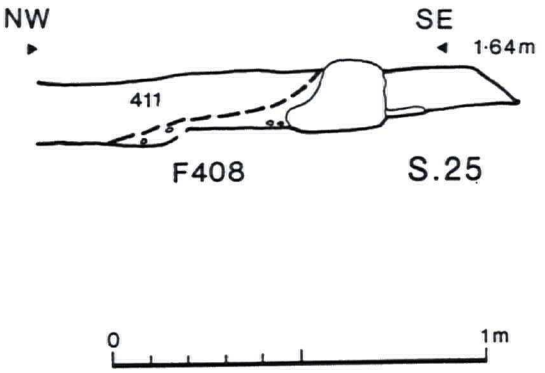


Fig. 5 Trench 4: Post-excavation plan and sections





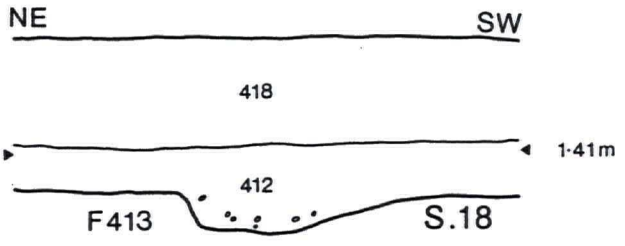


Fig. 6 Trench 4: Post-excavation plan of grave and further sections

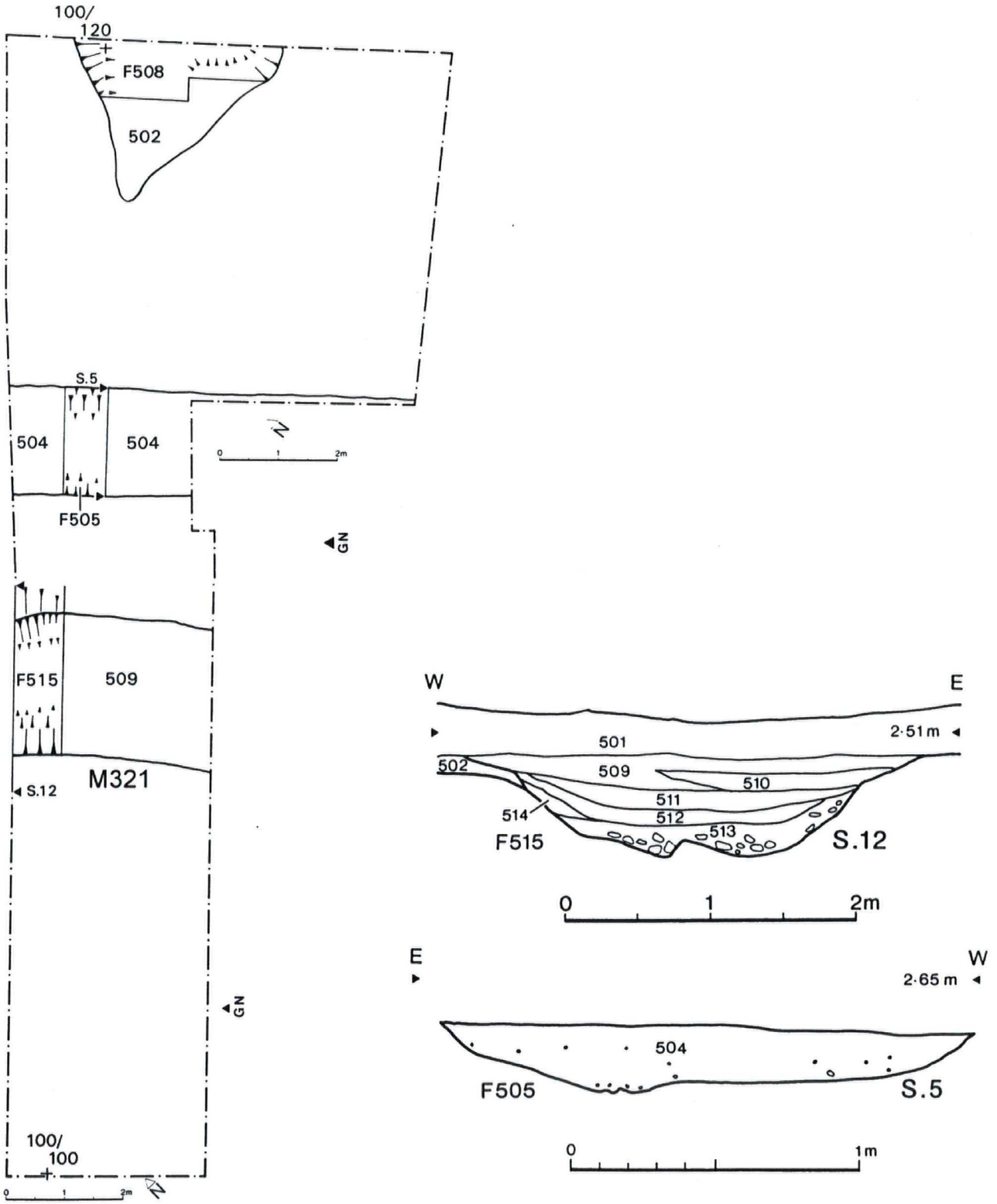


Fig. 7 Trench 5: Post-excavation plan and sections

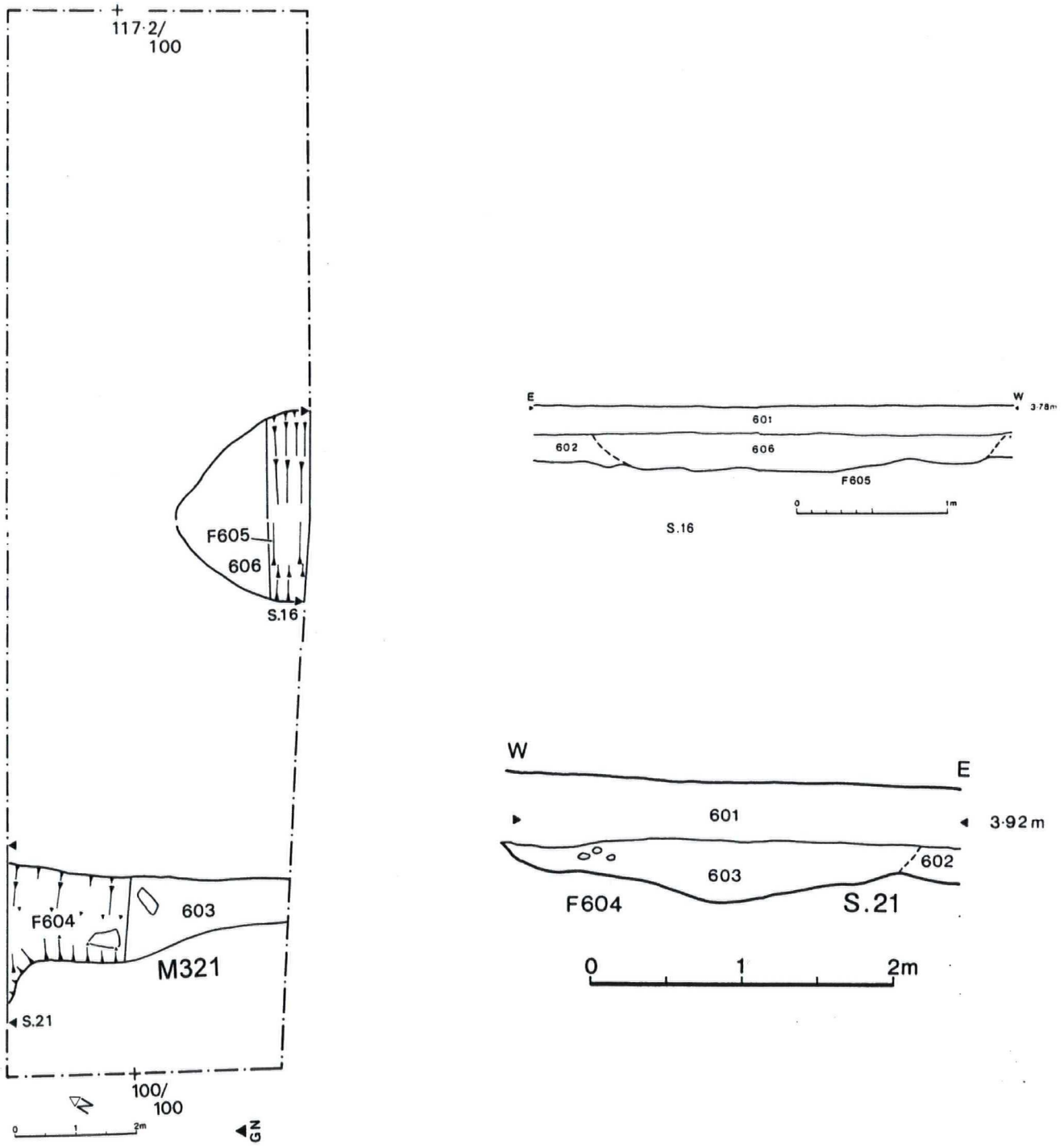


Fig. 8 Trench 6: Post- excavation plan and sections

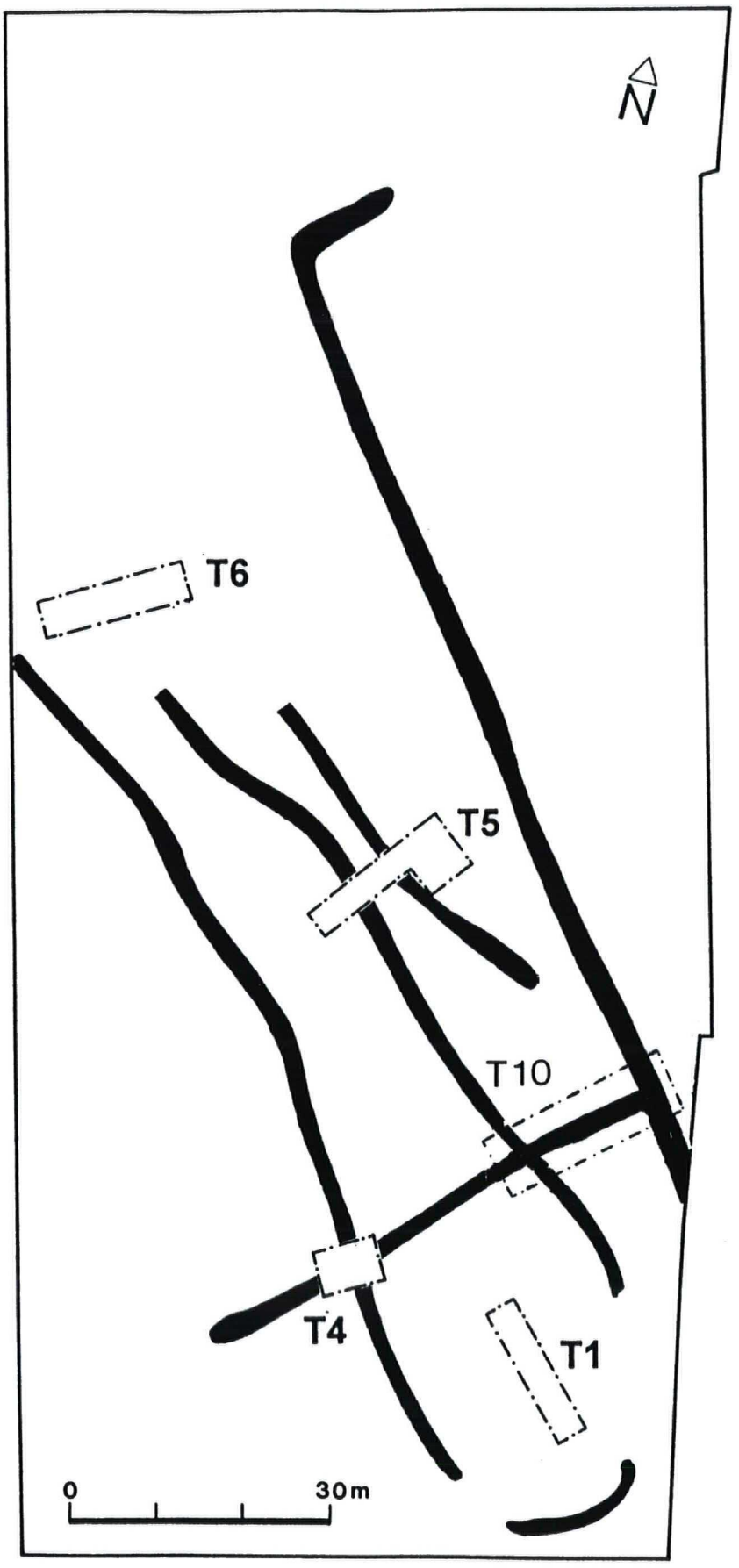


Fig. 9 Site plan showing location of Trench 10