

CONFIDENTIAL INFORMATION

INITIAL SUMMARY OF THE EXCAVATION AT DUCKPOOL, MORWENSTOW: 3RD-18TH AUGUST 1992

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Cornwall County Council

PURPOSE OF THE EXCAVATION

This was a small-scale excavation designed to investigate archaeological remains located at the top of Duckpool beach, at the western end of the National Trust car park (see Figures 1 and 2). Archaeological features (two hearths and a "midden") were actually visible in the stony car park surface, having been exposed by a combination of wave action (the sea reaches this high during severe winter storms) and vehicle erosion (cars have been parking and manoeuvring over the top of the remains for years). The purpose of the excavation was to:

- * determine the archaeological potential of the site (eg depth of stratigraphy, quality of survival);
- * investigate the character, function, date and context of the remains;
- * make a detailed record of the remains in advance of their gradual destruction

It was hoped that the excavation would also help to provide a context for remains previously exposed below the ridge of beach pebbles to the south-west. These had been recorded over several years since 1983 by local amateur archaeologist, Richard Heard, but by the time of the excavation had all been destroyed by the sea. They consisted of a substantial square hearth with flue, a longitudinal stone-lined pit showing signs of intense heat, a shell midden, a pot-lined oven made from a re-used cordoned-ware storage jar, and numerous finds including lead waste and other metal objects (see figure 3).

More details about the background to the excavation and the project design can be found in the Unit's previous report for English Heritage "Duckpool, Morwenstow, Cornwall: Project Design for Archaeological Recording", Cornwall Archaeological Unit, August 1992.

EXCAVATION STRATEGY

A trench measuring 11 metres long by 3 metres wide (maximum) was laid out north-west - south-east to incorporate the two surviving hearths. A smaller trench (5 metres long by 1 metre wide) was laid out at right angles to the north to sample the spread of "midden" material (see figure 4). The aim was to totally excavate these areas, but as it turned out the depth, survival and complexity of the remains made this impossible in the short time available.

Involvement of Specialists

During this short excavation site visits were arranged for a number of specialist archaeologists:

- * Vanessa Straker (Bristol University) and Wendy Carruthers (English Heritage AM Lab) - advice on environmental sampling for pollen, macroscopic plant remains and radio-carbon dating;

- * Dale Serjeantson (Faunal Remains Unit) - advice on sampling of bone and shell;
- * Matthew Canti (English Heritage AM Lab) - soil samples for chemical analysis;
- * Don Tarling (Plymouth University) - archaeomagnetic dating;
- * Henrietta Quinnell (Exeter University) - advice on pottery and general finds recording;
- * Margaret Brooks (Salisbury) advice on conservation of finds.

In the event, heavy rain made it impossible to take samples for archaeomagnetic dating, but all the other specialist visits were successful. While the excavation was in progress advice was also provided (over the phone) by Justine Bayley (English Heritage AM Lab) on aspects of metal technology.

RESULTS OF THE EXCAVATION

Features and Layers

Prior to excavation the two exposed hearths (Hearths (1) and (2)) showed up in the surface of the car park as orange rings of burnt clay. Hearth (2) also had a surround of flat burnt stones, one of which stood out because it was an imported block of granite rather than local slate (see figure 5). To the east of Hearth (2) was a line of flat burnt stones, initially interpreted as capstones of a flue associated with Hearth (2). The "midden" showed up as a dark spread with fragments of animal bone and shell visible in its surface.

With the removal of the car park surface, all these features became more clearly defined and an area of reddened clay (19) showed up around the line of stones east of Hearth (2) (see Figure 6).

Excavation of Hearths (1) and (2) showed them to be structurally very different. Hearth (1) was a shallow burnt depression with a deposit of clay, ash and charcoal in its centre (see Figures 7, 9 and 10). Hearth (2) consisted of a square pit, steep-sided and flat-bottomed, with a surround of burnt clay and flat stones, and a shallow flue which entered the hearth pit towards its top (see figures 9 and 11). This hearth was filled by (from top to bottom): a silty sand (not related to the use of the hearth); a large slab of slate; burnt and unburnt clay (both the slate and this fill appearing to represent the inward collapse of an upper structure of the hearth); a layer of pure ash; a layer of charcoal (see Figures 8 and 10). These last two layers related to the final use of the hearth.

Hearths (1) and (2) appeared to be of contemporary date, as did a series of shallow post-holes lying between the two hearths (figures 9 and 14). These represent the remains of some kind of timber structure, the exact nature of which was not clear.

In the northern arm of the excavation trench a 40 cm wide slot was excavated down to the natural subsoil. This cut through the "midden" which proved not to be a midden at all, but a dump/spread consisting of layers of ash, charcoal and burnt clay (see Figure 12). These

appeared to be the result of the cleaning out of the hearths after use. Animal bone and shell were spread throughout these layers which explains why they were originally mistaken for a midden.

During the latter stages of the excavation a third hearth was discovered to the north-east of Hearth (2) (see Figure 11 and 13). Owing to lack of time, this was not fully excavated. Its outer edge was only defined on the south-east (the line of stones and reddened clay interpreted earlier as the top of a flue). The interior was partially excavated but only the upper fills, apparently unrelated to the use of the hearth, were removed (see Figure 11). The underlying collapsed clay (55) and whatever lay below this were left *in situ*.

In the final hours of the excavation several new features were uncovered, including two stakeholes on the north side of Hearth (2) (but predating this structure). There was only time to excavate one of these stakeholes (58), but the approximate position of the other has been recorded. To the west of Hearth (2) was a substantial ash-lined pit (60) (see Figure 13). Only the upper, post-use fill (54) was fully excavated, though a sample was taken of the ash beneath (see Figure 14). Removal of fill (54) revealed an arrangement of overlapping slab-like stones (57) leading away from the north-east side of the pit towards Hearth (21). Impending darkness prevented the exposure of the north-eastern end of this feature and none of its stones were removed. Consequently its full character and function remain a mystery. It may represent collapsed walling or the capping of a flue feeding Hearth (21).

What was clear was that Hearth (21), Pit (60) and stone structure (57) were all stratigraphically lower than Hearths (1) and (2) and must, therefore, represent an earlier phase in the use of the site. They all underlie the ash dump (spreads (15) and (16) and layer (12) (same as (17) and (7), which either preceded Hearths (1) and (2) or relates to the period when they were in use. This sandy clay loam contained most of the artefacts found during the excavation. The impression gained was that it had built up gradually and contained debris from whatever process or processes were being carried out at the site. Underlying layers ((8) (10) and (30)) contained similar material but were only partially excavated.

The finds

A substantial number of finds were collected during the excavation. These include pottery, burnt and unburnt animal bone, marine shells, stone (including a whetstone), fired clay?, iron and copper objects, lead waste and vitreous lumps. Some of the bone fragments appear to be from marine mammals, including one shaped into a point. An unusual find, from layer (12), was part of a human jaw! Perhaps most exciting were the six Roman coins, which all came from the area west of Hearth (2) and were with one exception (from layer (30)) all from layer (12). Though they are generally in very poor condition, it is possible to make out some detail on at least three of the coins. Most of the other finds were spread evenly throughout layers (12) (8) (10) and (30), but virtually all the lead was found in layers (12) and (30) between Hearths (1) and (2), and in a couple of cases within a pocket of burnt animal bones. The vitreous lumps came almost entirely from the upper fill (54) of Pit (60), and there was a distinct concentration of winkle shells around the north side of Hearth (2). Some of these shells were extremely small and the impression gained was that rather than having been individually collected they may have got there incidentally as part of a deposit of beach sand or perhaps even seaweed.

Soil and Charcoal Samples

Bulk environmental samples were taken of each excavated layer and hearth and pit fill. These samples will be sieved and their contents (bone, shell, charcoal, seeds?) analysed. Smaller samples were also taken for chemical analysis aimed at detecting residues associated with metalworking. These samples were taken from the layers and fills mentioned above and from the burnt edges of Hearth (1) and (2). Control samples were taken from non-archaeological soils away from the excavation site. Large samples of charcoal were collected from Hearths (1) and (2) and it is anticipated that sieving of the bulk environmental samples will yield more charcoal. Together with the abundance of animal bone and shell, this provides ample opportunity for radio-carbon dating.

Archiving

During the immediate post-excavation phase of the project inked archive copies have been produced of all the excavation plans and these have been indexed into the Unit's drawing archive. Black and white prints and colour slides of the excavation have been indexed into the CAU's photographic archive. The numerous artefacts have been washed, marked, catalogued and the various types of artefact separated for specialist assessment. A catalogue has also been made of the soil and environmental samples taken during the excavation.

PRELIMINARY INTERPRETATION AND DATING OF THE EXCAVATED REMAINS

Prior to the excavation, the Duckpool site was tentatively interpreted as the result of small-scale industrial activity during the Romano-British period. Metal working was suggested by the presence of lead waste (and other metal objects) and the remains of three hearths, one of which had what appeared to be a stone-lined flue. Cordoned-ware and other types of Romano-British pottery provided the dating evidence.

All the pottery collected during the excavation is Romano-British and, together with the coins, give confirmation of the general date of this site. Preliminary spot dating of the pottery suggests a 2nd century date, but the coins may be of later, 4th century, date. It is hoped that radio-carbon dating will assist in the dating of specific features and phases.

The excavation also confirmed that the remains had resulted from industrial activity. The three hearths appeared to have had an industrial rather than a domestic function (Hearth (2) had a flue and all three hearths had very burnt surrounds suggesting that considerable heat was being generated). The ash-lined pit and ash dump also suggested industrial activity. The artefacts too point to a non-domestic use of the site; an abundance of animal bone (and shell) spread throughout most of the layers rather than forming a distinct midden, lead waste, vitreous lumps, fragments of what looks like fired clay but may in fact also be industrial waste, and, of course, the coins (found in the same area of the trench as most of the burnt bone and lead).

As to exactly what was going at this site, it is at this stage tentatively suggested that *cupellation* may be at least one of the industrial processes being carried out. (pers. comm.)

Henrietta Quinnell and Justine Bayley). "Cupellation is carried out by melting the metal to be refined (usually base silver) with an excess of lead, and blowing air across the melt to oxidise it. The lead is changed to litharge (lead oxide) which then itself acts as an oxidising agent, converting any other base metals present to oxides. These either volatilise or dissolve in the litharge and are thus separated from the silver which is unaffected". (Anglo-Scandinavian Non-Ferrous Metalworking from 16-22 Coppergate by J. Bayley 1992). As well as a method of refining, cupellation could also be used to obtain silver from the crude metal smelted from mixed ores or as a test of purity of precious metals (ie assaying) (J. Bayley's PhD Thesis).

Bone ash can be used as a hearth lining to absorb the molten litharge and this may explain the abundance of animal bone at Duckpool. Wastes associated with cupellation are usually rich in copper and lead. At Duckpool copper waste was less apparent but a substantial amount of lead waste was recovered. The six Roman coins found may hold a clue to what the silver was being used for. These coins are very small and may have been locally rather than centrally produced. Specialist study of the artefacts and samples collected during the excavation will no doubt increase our understanding of this intriguing site.

ACKNOWLEDGEMENTS

I would like to thank my colleagues Anna and Andy Jones for their professional assistance, and dedication throughout the excavation and Richard Heard, Pearl Myers and Colin Rose for giving voluntary help. The Unit is particularly grateful to Richard Heard for providing information about previous exposures at Duckpool and access to his notes and numerous finds. Thanks are also due to Geoff Campion (National Trust Warden) for his support and practical assistance throughout the excavation, to Molly and Barry Rose (of Stowe Barton) for providing the excavators with drinking water, Pearl Myers for putting us up on the last night and to Mr and Mrs Dingle (of Scadghill Farm) for letting me use their shower! Finally, many thanks to Marion and Forbes Johnson of Cornwall Archaeological Society who painstakingly marked up the numerous finds collected.

FIGURE 1 MAP SHOWING LOCATION OF DUCKPOOL



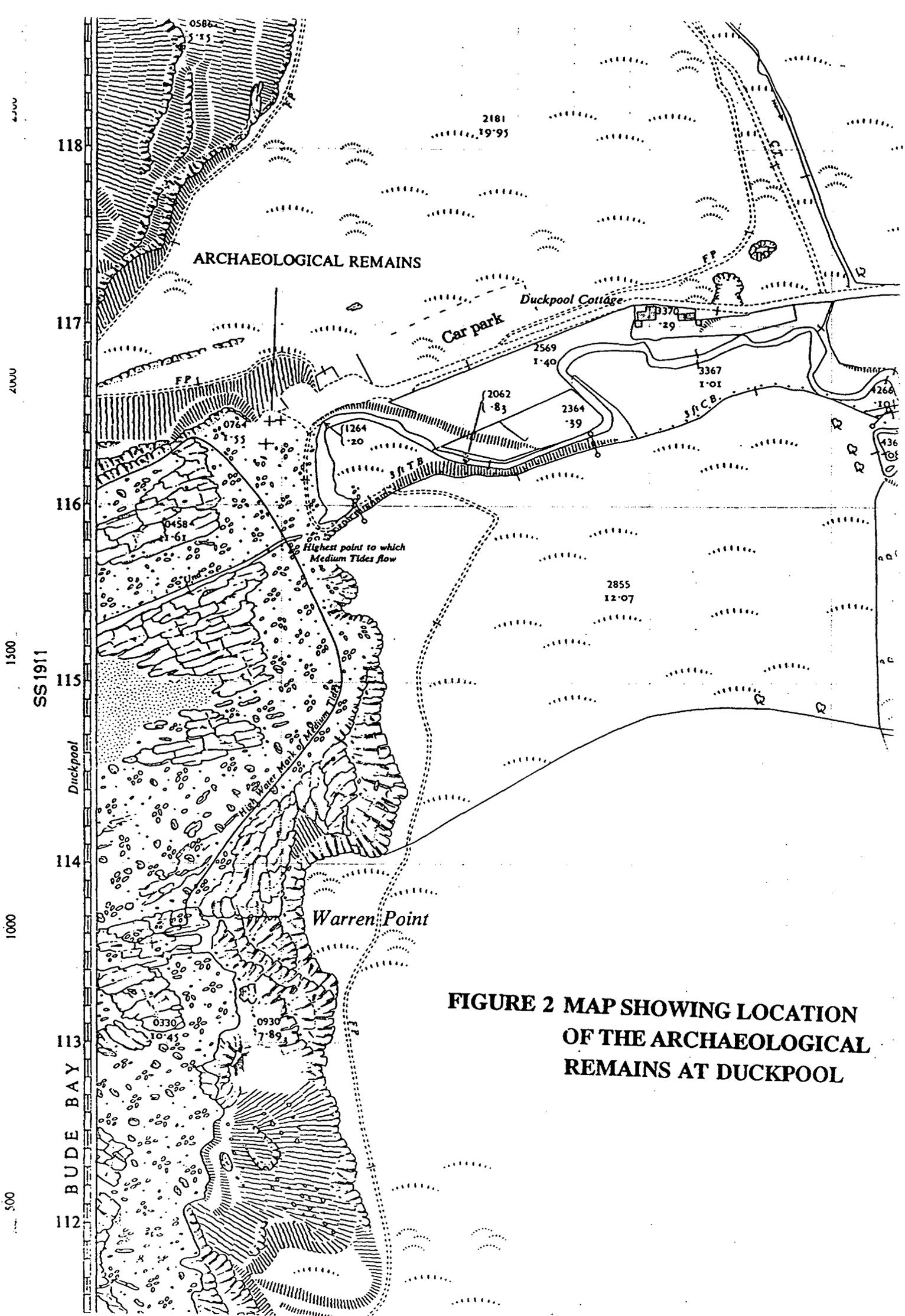


FIGURE 2 MAP SHOWING LOCATION OF THE ARCHAEOLOGICAL REMAINS AT DUCKPOOL

FIGURE 3 SKETCH PLAN BY R.M. HEARD OF DESTROYED FEATURES

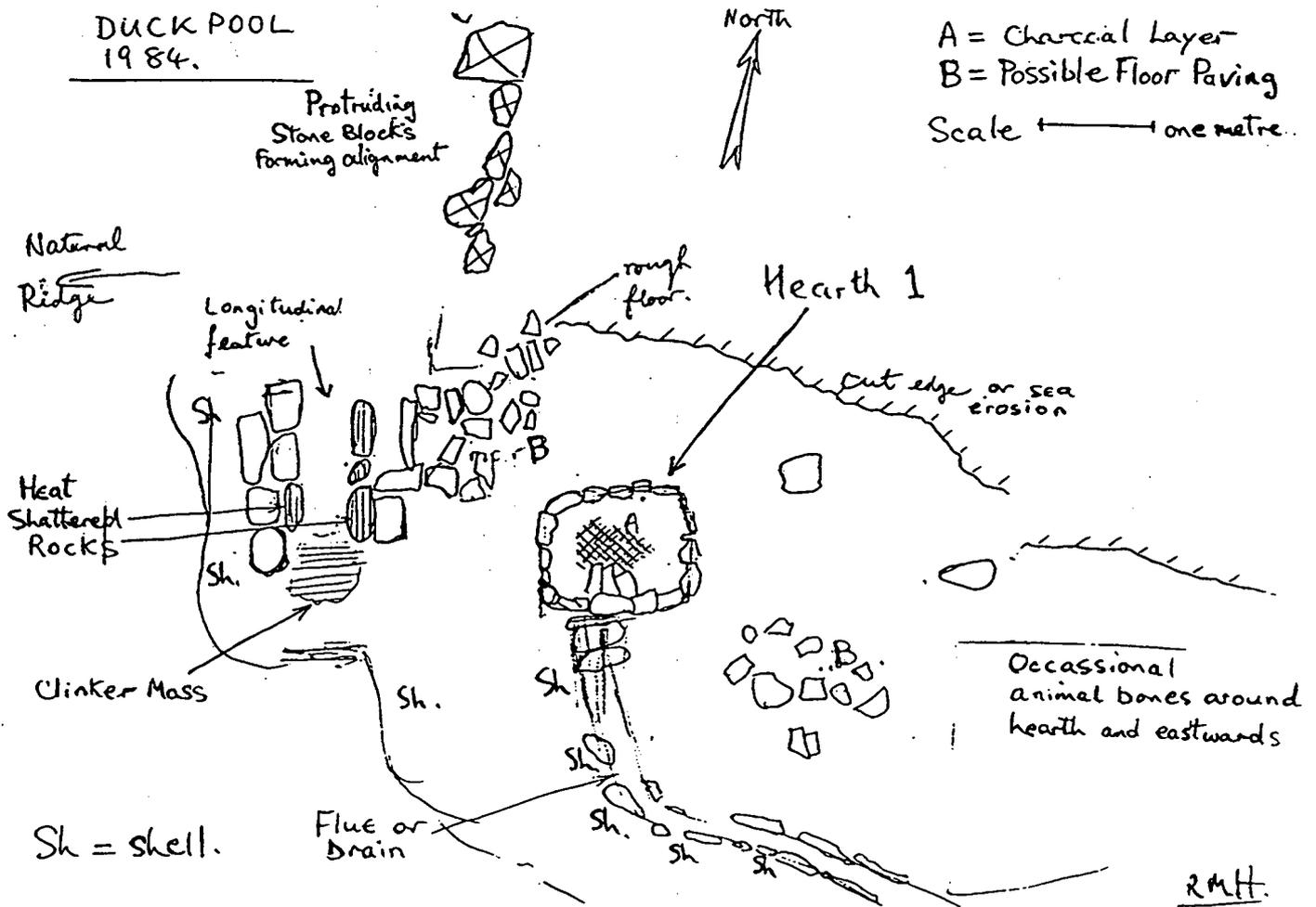


FIGURE 4 WEST END OF DUCKPOOL CAR PARK SHOWING EXPOSED ARCHAEOLOGICAL FEATURES AND POSITION OF EXCAVATION TRENCH

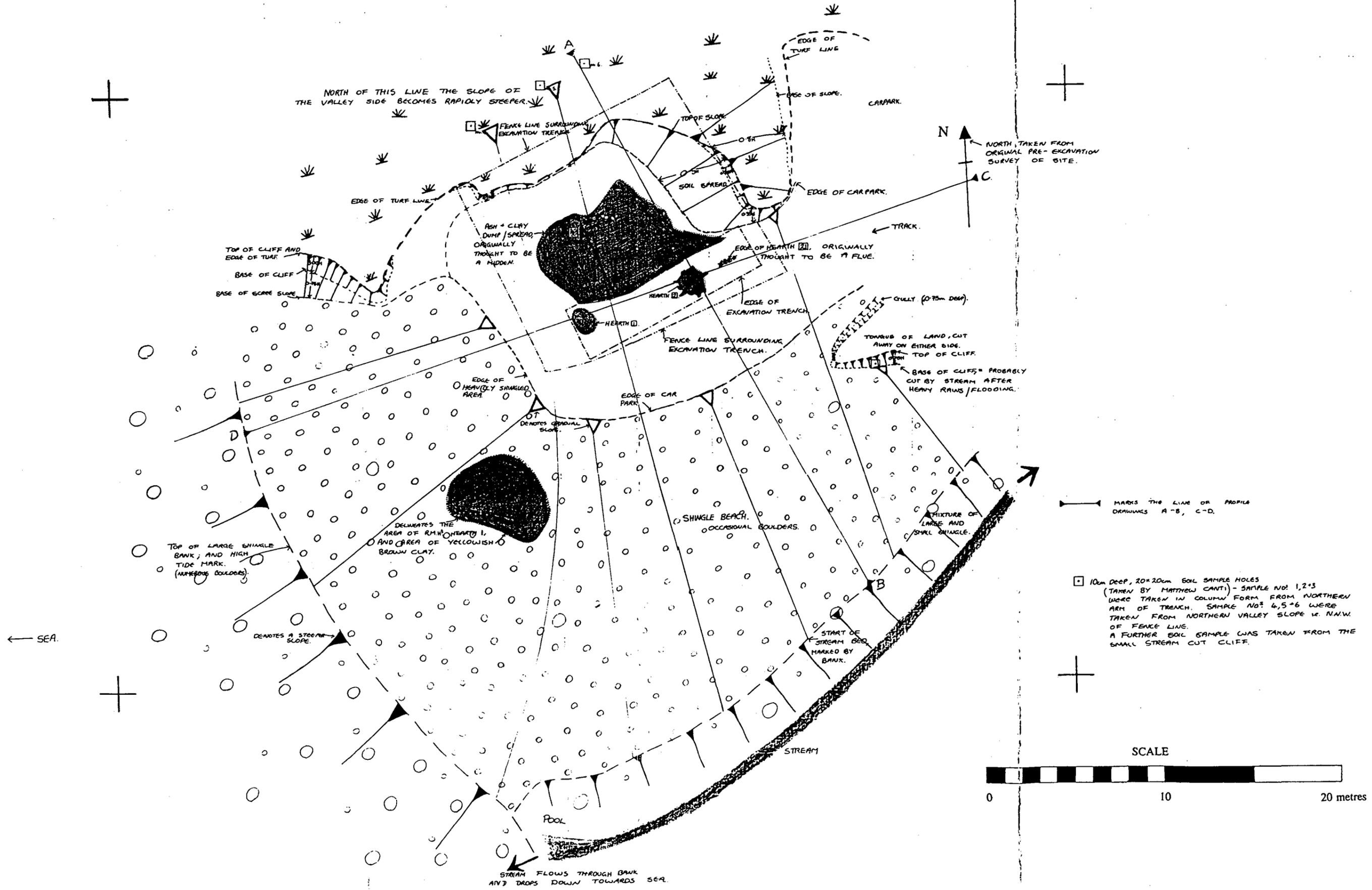


FIGURE 5
PRE-EXCAVATION PLAN SHOWING FEATURES
VISIBLE IN CAR-PARK SURFACE

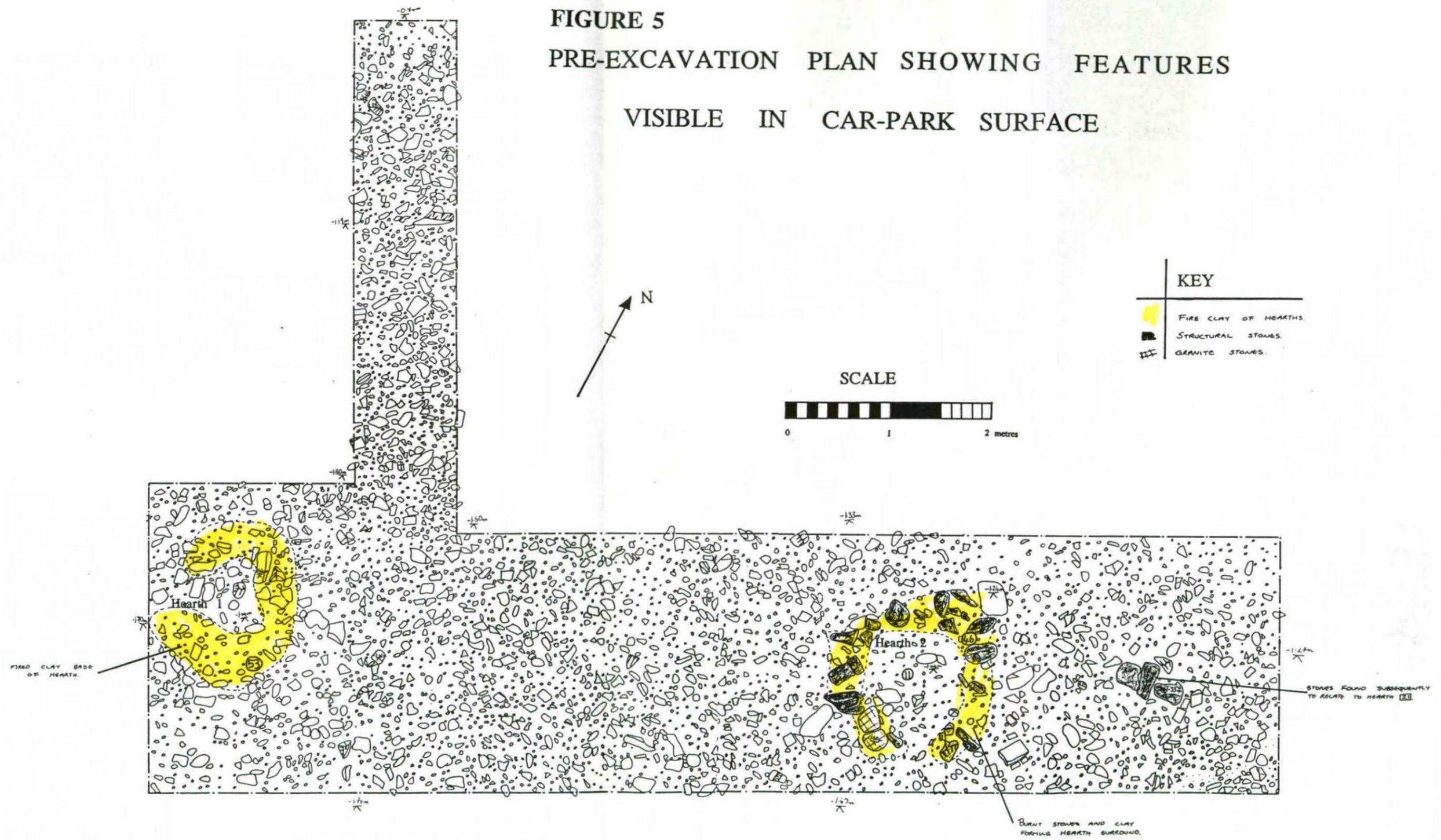
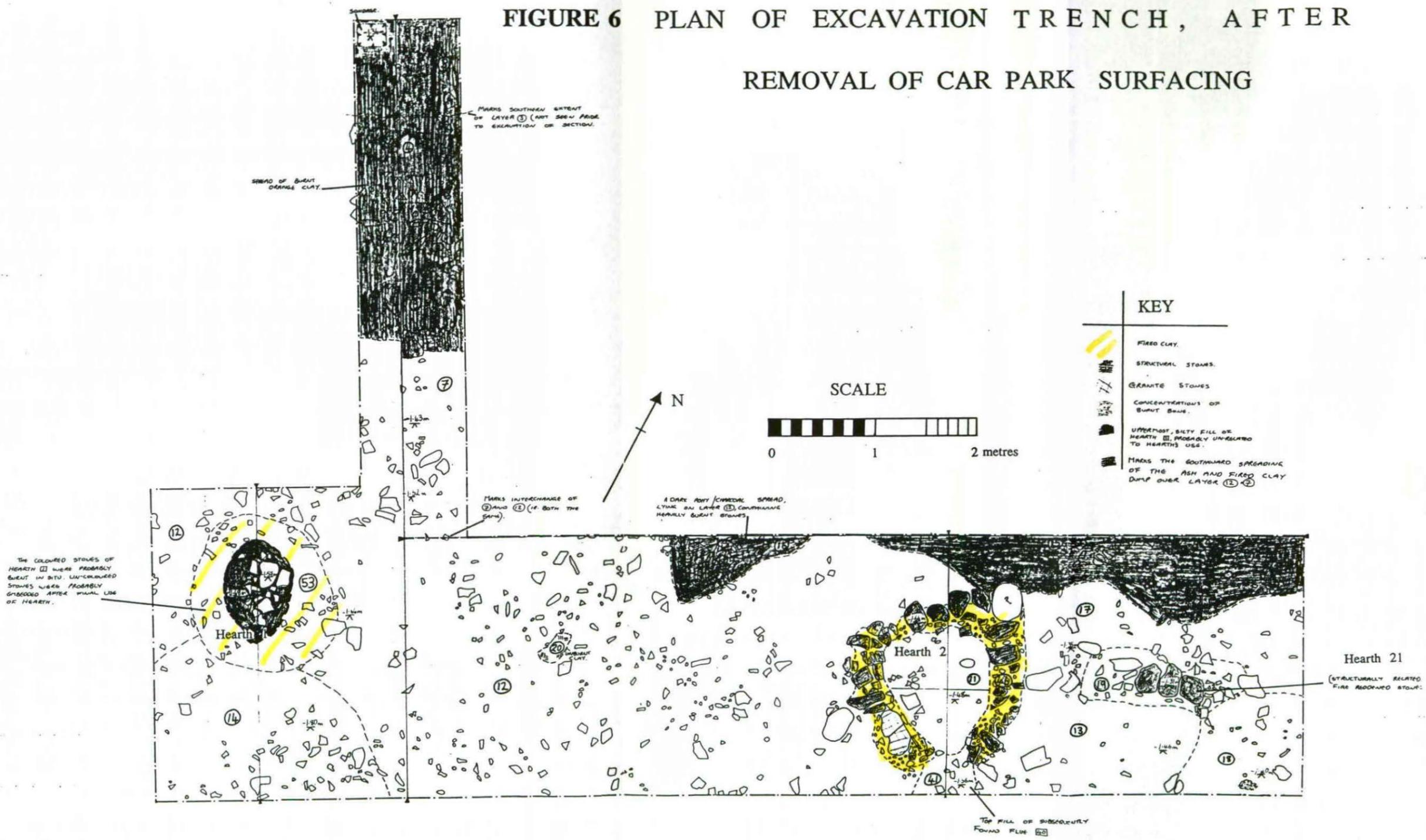


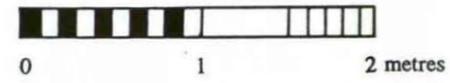
FIGURE 6 PLAN OF EXCAVATION TRENCH, AFTER REMOVAL OF CAR PARK SURFACING



KEY

- FIRED CLAY.
- STRUCTURAL STONES.
- GRANITE STONES.
- CONCENTRATIONS OF BURNT BONE.
- UPPERMOST, BONY FILL OF HEARTH 11, PROBABLY UNRELATED TO HEARTH'S USE.
- MARKS THE SOUTHWARD SPREADING OF THE ASH AND FIRED CLAY DUMP OVER LAYER 12-13.

SCALE



N

FIGURE 7

PLAN OF HEARTH 1 (with charcoal fill)

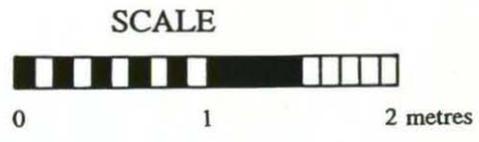
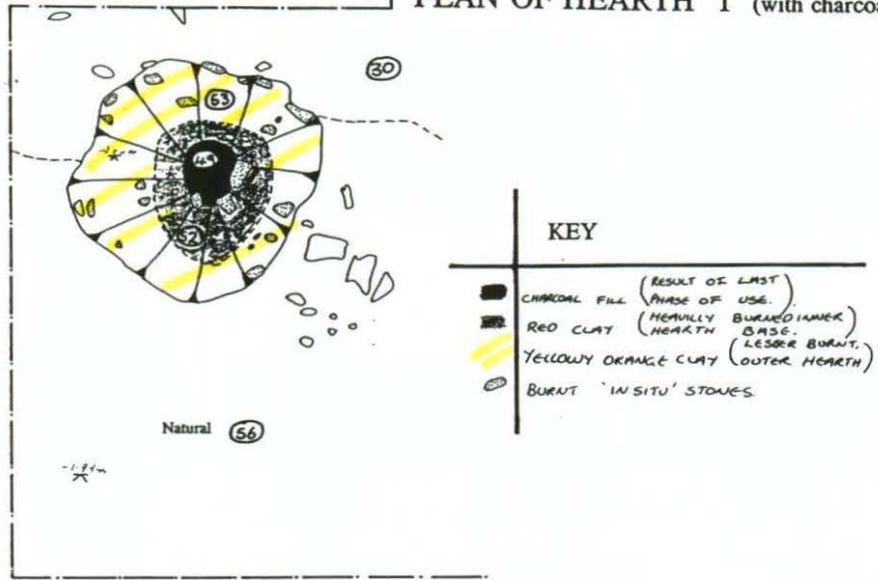


FIGURE 8 PLAN OF HEARTH 2 , SHOWING
STRUCTURAL COLLAPSE

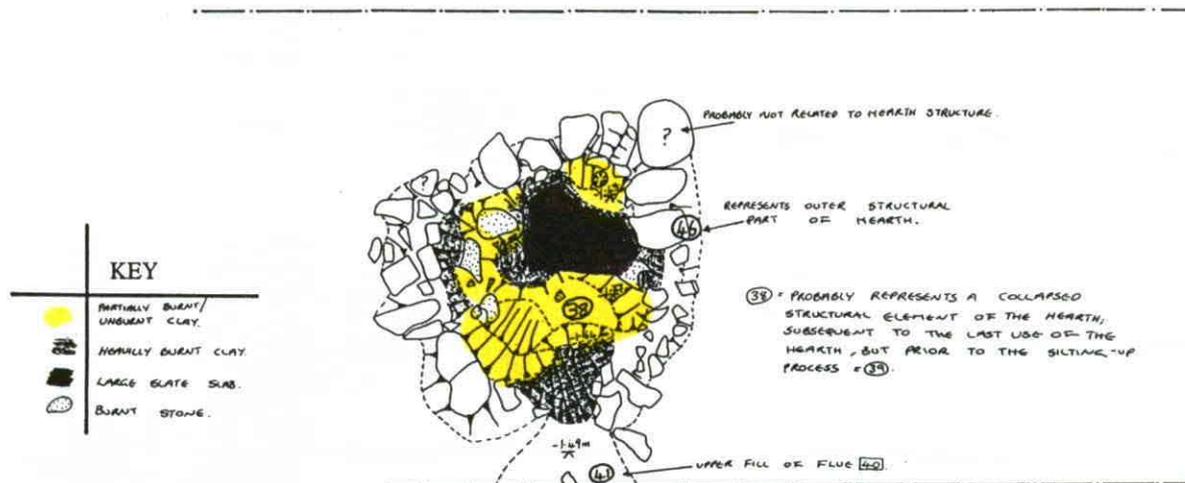
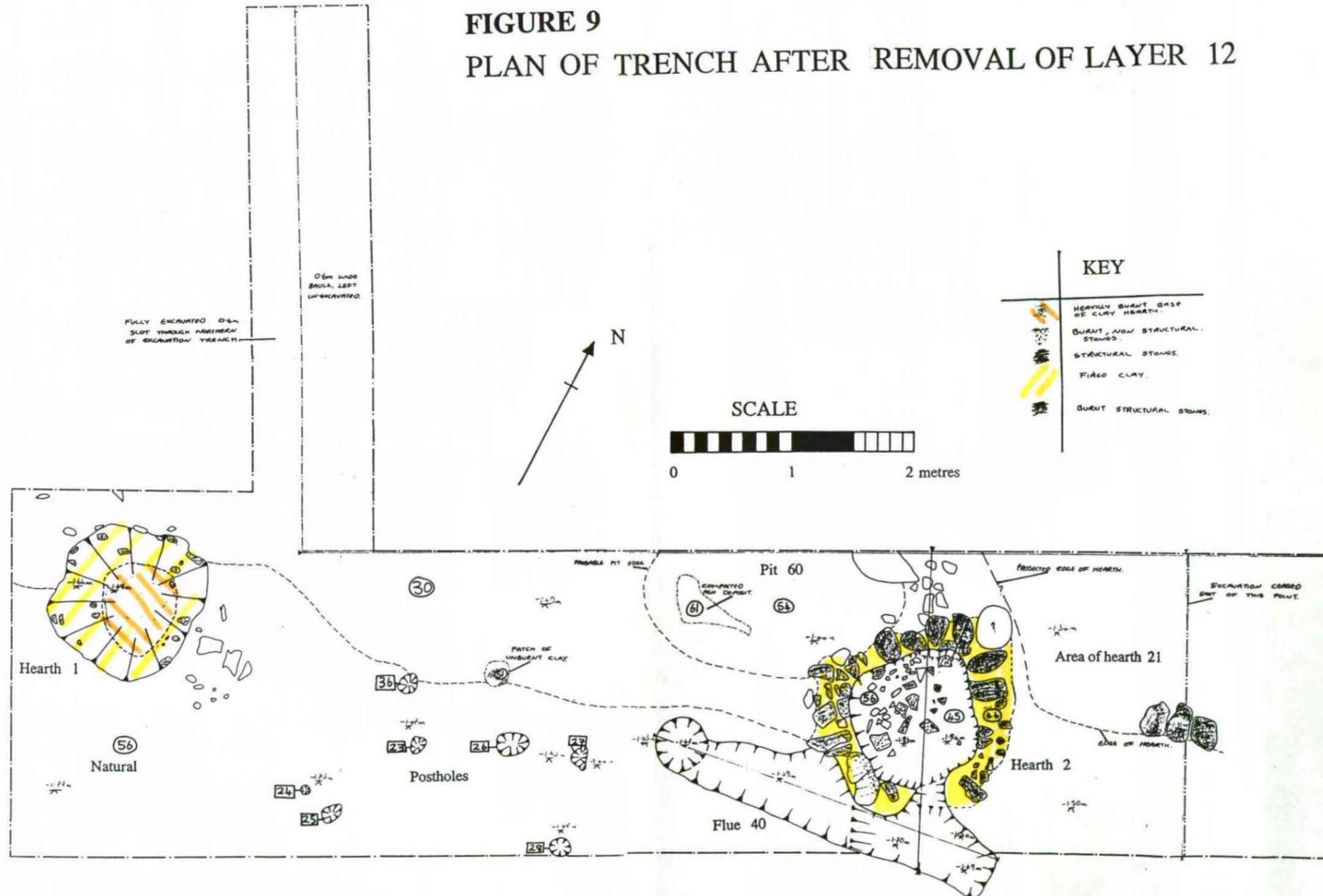


FIGURE 9

PLAN OF TRENCH AFTER REMOVAL OF LAYER 12



WEST FACING SECTION THROUGH HEARTH 2 AND FLUE 40

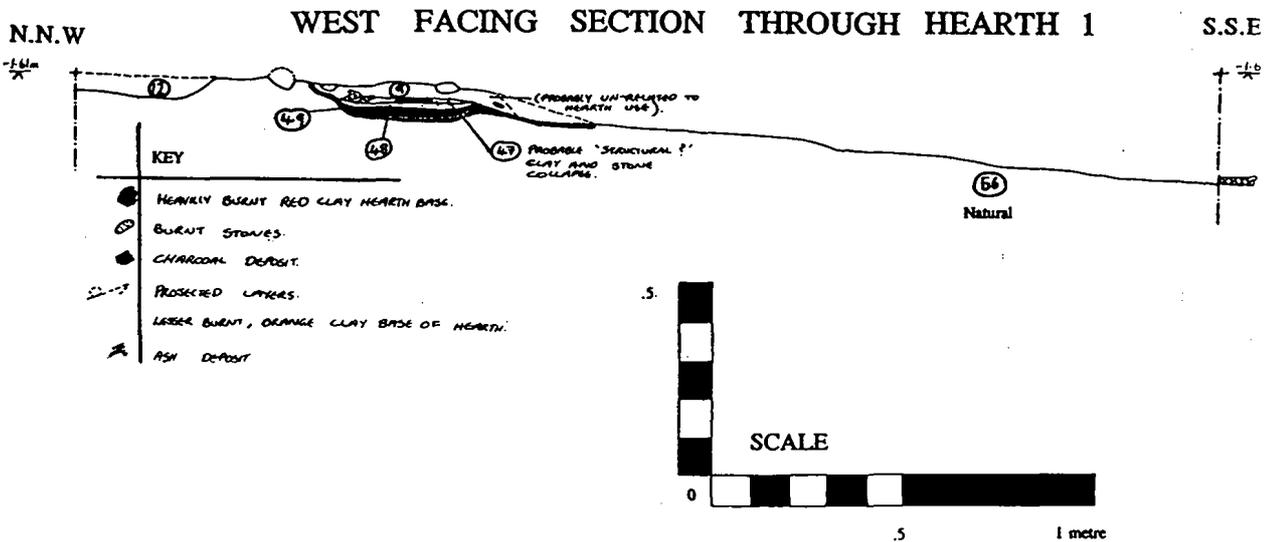
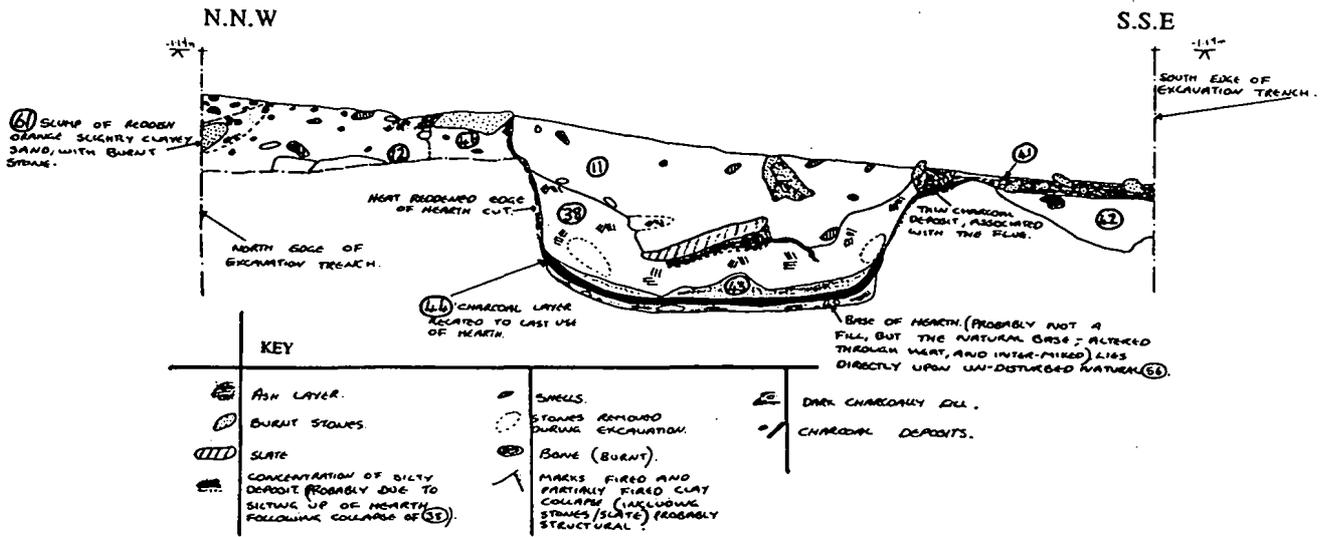
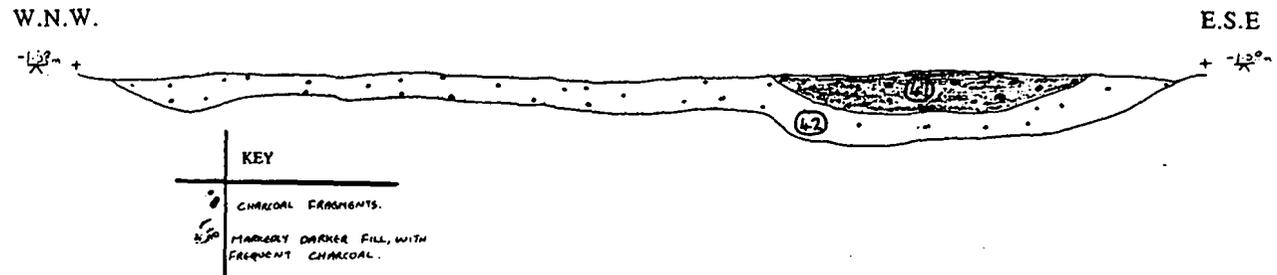


FIGURE 10

SOUTH FACING SECTION THROUGH FLUE 40



WEST FACING SECTION THROUGH PARTIALLY EXCAVATED HEARTH 21

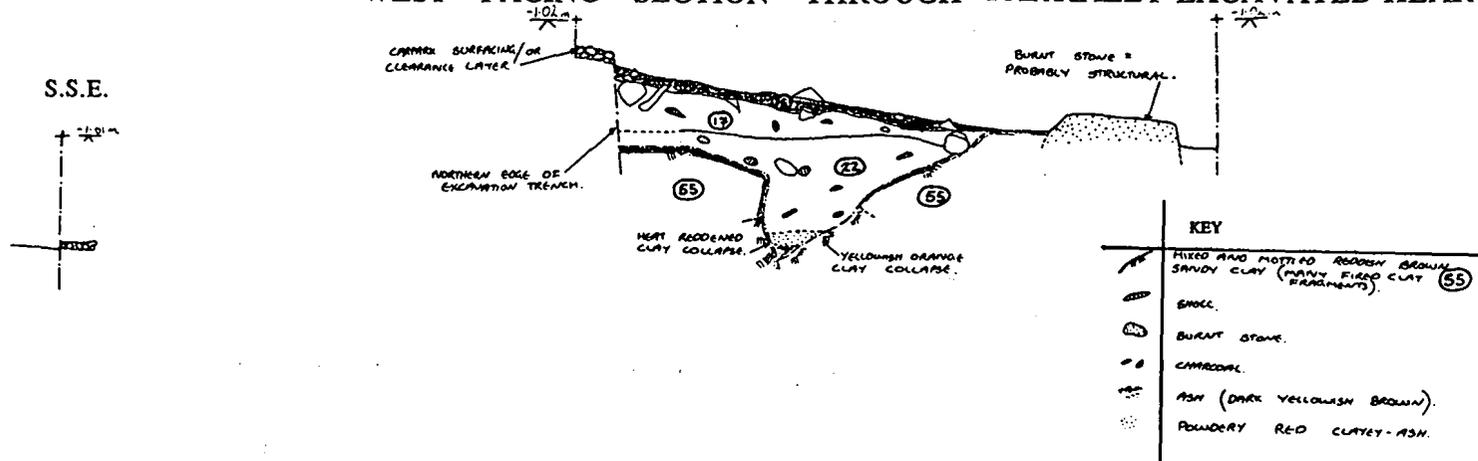


FIGURE 11

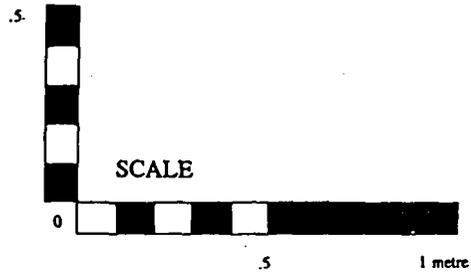
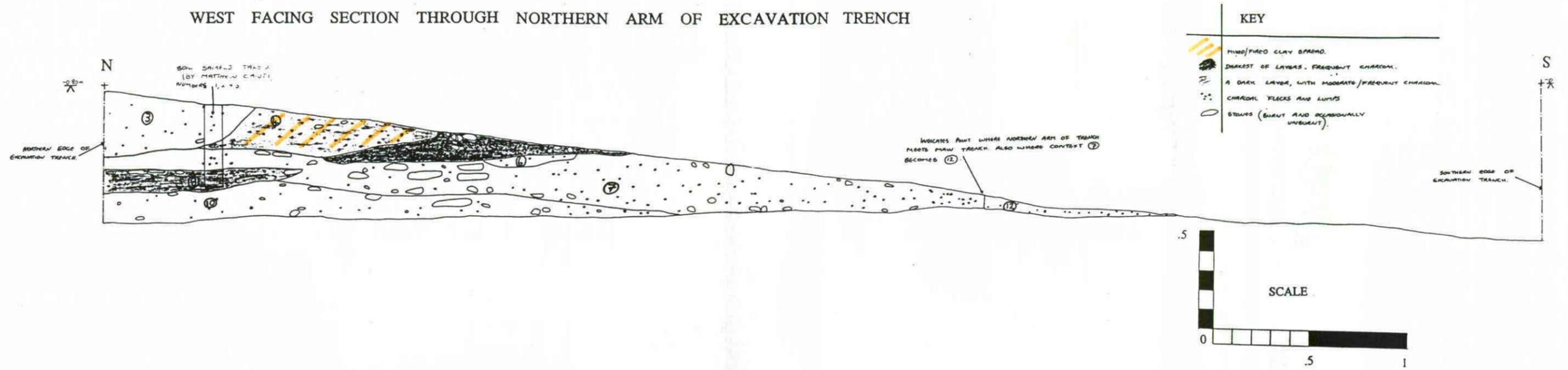


FIGURE 12

WEST FACING SECTION THROUGH NORTHERN ARM OF EXCAVATION TRENCH



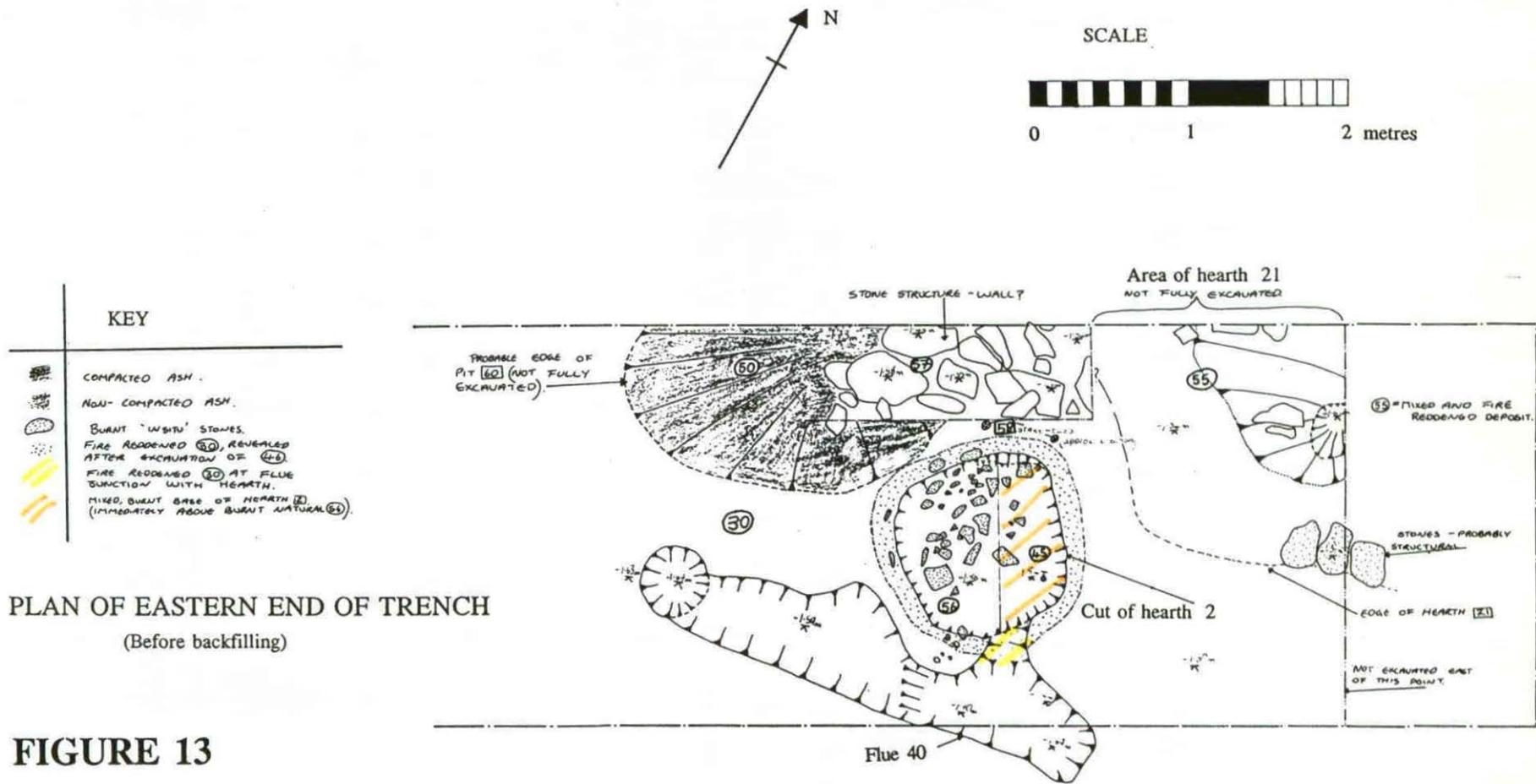


FIGURE 14

