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**Healam Bridge, North Yorkshire  
An Archaeological Evaluation 1994**

FINAL REPORT

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**HEALAM BRIDGE, NORTH YORKSHIRE**  
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## **1.0: SUMMARY**

The archaeological potential of a Roman fort and associated *vicus*, identified by a programme of archaeological fieldwalking and geophysical survey, was further tested by an archaeological evaluation employing selective trial-trenching.

Parts of the southern and eastern defences of the fort were sampled. The fort's southern side was defined by two ditches, of which the innermost had been re-defined after infilling; the eastern side was defined by a single ditch, with two further parallel ditches positioned on the outside of the fort. Traces of timber-framed buildings were recorded within the eastern zone of the fort.

Substantial settlement activity was also recorded by the geophysical survey to the north and south of the fort. Activity to the south was contained within ditched enclosures, which may have been further sub-divided with smaller ditches. Both zones yielded evidence for cobbled streets and distinct or discrete patterns of activity.

The dating evidence suggests a *terminus post quem* for the earliest activity in the Hadrianic-Antonine period, with continued, but not necessarily continuous, activity in the 3rd and 4th centuries AD.

## **2.0: INTRODUCTION**

### **2.1: The project**

This report describes the results of an archaeological assessment of arable and pasture farmland bisected by the course of the modern A1 dual carriageway at Healam Bridge, North Yorkshire (centred on NGR. SE 323835: Fig 1A-B). Birmingham University Field Archaeology Unit was commissioned to undertake the archaeological assessment by Anthony Walker and Partners. The methodology of this assessment conforms with the Archaeological Specification for trial excavations prepared by Anthony Walker and Partners. The results of the fieldwork are intended to contribute to the Cultural Heritage section of the Environmental Statement, in accordance with Volume 11, Design Manual for Roads and Bridges (Department of Transport, June 1993).

This report follows an earlier summary of the archaeological results (Jones 1994). The results of the preliminary stages of fieldwork, involving fieldwalking (MAP 1993) and geophysical survey (Geophysical Surveys of Bradford 1993, 1993a), are also summarised in the present report, where appropriate.

### **2.2: The project aims**

The purpose of the trial-trenching was to complete the archaeological assessment of the proposed new road corridor to the east of the existing dual carriageway. In particular, the trial-trenching was intended to:

- (i) confirm the results of the geophysical survey and the interpretation of the complex as a Roman fort and a Romano-British settlement.
- (ii) determine whether substantial well-preserved archaeological features and/or structures survived within the area of the fort and the settlement.

- (iii) determine if complex stratigraphic relationships were present.
- (iv) determine the extent of the settlement areas.
- (v) provide an informed basis for an assessment of the likely extent, cost and duration of further excavation work.

Trial-trenches were located to test the geophysical anomalies recorded, and also to provide information on the archaeological potential of areas where such anomalies were absent (Anthony Walker and Partners 1994).

### 3.0: THE SITE AND ITS SETTING (Figs 1-3)

The modern A1 road follows the approximate course of Roman Dere Street between Dishforth and Leeming. Possible evidence of the Roman road surfaces may have been recognised at Healam Bridge during road-works in 1949.

The underlying geology to the west is Permian Magnesian Limestone, and to the north Jurassic Oolitic Oxford Clay and Kellaway Beds. The whole area is covered with a glacial deposit consisting of sand and gravel while to the east boulder clay is present.

The site is situated at 39m OD. A small stream, the Healam Beck - a tributary of the river Swale, flows through the north part of the site. This stream has a catchment of 24 km<sup>2</sup> upstream from the site, with the watershed at 115m to the west and about 53m to the north and the south. The land rises sharply either side of the beck by about 10m, so alluviation is not a feature of this site, and furthermore waterlogging is unlikely to be present even in the deepest features. Water would naturally drain to the lowest point leaving most of the site well above the water table.

Over most of the site was a ploughsoil, being a dark brown, sandy loam (*sensu* Hodgson 1976) with a neutral pH (pH6.8 to 7.0). The topsoil was generally stone free, while in places the subsoil contained 35% small, rounded stones. Large fine-grained, rounded stones were also present in the subsoil in places. In places a more clay-rich soil was present (for example in Trench M) where it was a yellowish brown silty clay loam. Both the sandy loam and the silty clay loam were lightly gleyed in their subsoils with manganese flecking, indicating saturation by water, perhaps indicative of a high rainfall in this area.

Hartley (1971, 57 & 66) suggested in 1971 that a Roman fort was located at Healam Bridge, located mid-way between known forts at Aldborough and Catterick Bridge, and he also identified a possible 'earthwork platform' here. More recently, in 1986, fieldwalking on both sides of the A1 produced quantities of late Roman pottery and coins which were concentrated along both the east and west sides of the A1 (Price and Evans 1992).

A nearby fieldname, 'Brigg Field' (North Yorkshire SMR No. 8430), derived from the Scandinavianised form 'brygg' of the Old English 'brycg,' meaning land near a bridge, suggests a long established crossing of the Healam Beck was established in the vicinity.

A programme of intensive fieldwalking recovered a scatter of Roman pottery dating to between the 1st to 4th-centuries AD. A subsequent geophysical survey identified parts of a square, ditched enclosure, bisected by the modern A1 road. The enclosure was interpreted as a Roman fort, measuring 140m across, and contained a number of linear and 'pit-like' geophysical anomalies. To the south lay a complex of interlinked rectangular enclosures, interpreted as an area of civilian settlement, which also extended along the eastern and western sides of the A1 road. This settlement again contained a number of 'pit-like' anomalies. Further evidence of

settlement was found to the north of the Healam Beck, where both linear and 'pit-like' anomalies were recorded.

The presumed eastern and southern limits of the settlement area to the south of the fort were identified by the geophysical survey. The northernmost limit of the civilian settlement could not be successfully identified or characterised by the geophysical survey because of interference from a large gas pipe, which crossed the survey area diagonally. The western limit of the settlement probably lay to the west of the area surveyed.

#### **4.0: METHODOLOGY (Figs 2-3)**

A total of 13 trial-trenches (A-M) was excavated, totalling 905 square metres in area, a sample of approximately 0.68% of the land within the proposed new road corridor, and approximately 0.51% of the surviving part of the archaeological site as revealed by previous archaeological fieldwork.

The individual trench positions were selected and established on the ground by Anthony Walker and Partners, and tied into the National Grid.

In each trench the overburden was removed by tracked excavator, using a 2m toothless bucket operating under archaeological supervision, to expose the upper horizon of the subsoil, or the top of archaeological deposits, whichever was uppermost. The machined surface was hand-cleaned to define any archaeological features present in plan. Archaeological features were chosen for excavation to provide a representative sample of feature types, and to provide material for environmental analysis. In the event, it proved necessary to sample the majority of the linear features identified in plan, because of poor feature definition in the dry conditions during fieldwork. Because of the dry conditions it was further necessary to excavate machine dug sondages through the subsoil horizon in Trenches D-H, to confirm the apparent absence of Romano-British features in trenches F-H, and to assist in archaeological definition in trenches D-E.

Recording was by means of pre-printed pro-forma recording sheets for contexts and features, supplemented by sections and photographs, all of which are held in the archive.

An extensive programme of soil sampling was undertaken, to determine the ecofactual content of archaeological features, to provide a cross-check on the recovery of artifacts during hand excavation, and also to recover any industrial waste products. A 20 litre sample was taken from all apparently undisturbed archaeological contexts which contained datable material, and additionally, control samples from the subsoil were also taken and processed.

### **5.0: THE ARCHAEOLOGICAL RESULTS**

#### **5.1: Trench A (Figs 4,6)**

Trench A measured 30m in length and 2m in width. The trench was located to examine part of the fort defences, and also an area of the fort interior located on the summit of a knoll, where both linear and 'pit-like' geophysical anomalies were recorded.

For ease of description the fort defences and the fort interior are described in two sub-sections below.

## The fort defences

The stony gravel subsoil (1016) was located at a depth of 0.4m below the modern ground surface. The southern ditched limit of the fort was cut into this subsoil in the south of the trench. This ditch had been successively re-cut following a west-east alignment, but excavation of the ditch fills was limited to a maximum depth of 1.2m below the modern ground surface, for reasons of safety. This restriction necessarily limited the potential for interpretation of the sequence of deposits within the ditches, since neither of the identified ditches could be fully excavated.

Stratigraphically, the earliest defensive circuit was represented by two ditches (F105 and F103/F106), both aligned perpendicular to the trench. Ditch F105 was of irregular stepped profile, and was infilled with brown sand-silt (1009) containing angular sandstone boulders. The northern and southern edges of ditch F103/F106, which lay to the north of ditch F105, cannot be directly related stratigraphically because of a subsequent re-cut (F104), although ditch segments F103 and F106 both pre-date this cut. The earliest excavated fills of ditch F103/F106 comprised a light orange-brown sand-silt (1011) and a mid-brown sand-silt (1012) on the southern edge of the ditch (F103), and a light orange-brown sand-silt (1014) on its northern edge (F106). The later ditch fills were a mid-brown sand-silt (1004) in ditch F103, and an orange-brown sand-silt (1015) in ditch F106.

A re-cut of the ditch (F104) followed the alignment of the primary ditch (F103/F106), though cut slightly to the north of the latter. The re-cut was backfilled with mid-brown sand (1010), and red-brown sand-silt (1008).

After the infilling of ditch F105 a layer of pebbles and angular stone blocks (1005) was laid over the line of the infilled ditch, possibly as a foundation for a drystone wall (F108: Plate 1). The infilled ditches F103/F106 and possible wall foundation F108 were overlain by a light orange sand-silt (1013), which may have been deposited as a result of downslope erosion.

There was no surviving trace of a rampart.

## The fort interior

Hand-cleaning of the uppermost subsoil horizon exposed by machining identified a number of negative features cut into the subsoil in the fort interior. A sub-circular pit (F107: defined after hand-cleaning of the machined horizon) to the north of ditch F106 may have been associated with the rampart structure.

To the north of pit F107 was a large stone-packed post-hole (F101), which was partially excavated. A second, circular, stone-packed post-hole (F102) was truncated by a ditch F100, which was aligned perpendicular to the trench. The full width of the ditch was not exposed within the trench. The ditch had an irregular flat base, stepped in profile, the lower part of which was rectangular in plan. The ditch was backfilled with mid-brown clay-sand (1002).

Both layer 1013, which overlay the infilled fort ditches, and the backfilled features within the fort interior were sealed by the ploughsoil (1000).

## Dating

The pottery dating provides a *terminus post quem* for activity here between the 1st-4th century AD. Features F100 and F101 contained pottery with a *terminus* between the 2nd and 3rd centuries AD; feature F102 contained material with a *terminus* in the 1st to 3rd centuries, and features F103/F106 and F105 produced pottery with a *terminus* in the 4th century AD. Features F100-F103 and F105 contained animal



bones; horse, cow, pig and sheep were represented. Feature F100 contained a small hook on an ovoid link which had been subsequently re-used.

## 5.2: Trench B (Figs 4,6: Plate 2)

Trench B measured 30m in length and 2m in width. This trench was positioned to intercept a dense group of linear geophysical anomalies, within the settlement area to the west of the A1 road.

The upper horizon of the stony gravel subsoil (1102) was located by hand-excavation at a depth of 0.75m below the modern surface. The surface of the subsoil was exposed and cleaned in two sondages cut perpendicular to the main axis of the trench. No features cutting the subsoil and sealed by later deposits were identified.

The subsoil was overlain by a homogenous layer of dark brown clay-silt (1113,1115,1117), measuring approximately 0.2m in depth, which was recorded throughout the trench, and which contained pottery and animal bone. The upper horizon of this occupation deposit, as exposed by machining, was cleaned to define features cut into this deposit. These features were later selectively examined by hand-excavation. With the exception of a few direct relationships, the contemporaneity (or otherwise) of these features can only be determined by an examination of the finds.

The earliest feature cutting the occupation deposit in the south of the trench was a shallow gully (F156), aligned approximately perpendicular to the trench, which was partly exposed just inside the western bank of the intervention. The gully was backfilled with a dark brown clay-silt (1110). The backfilled gully was overlain by two stone surfaces F151 and F153.

The northern edge of an irregular stone-surface (F153), composed of rounded pebbles and worn angular sandstone slabs (1107), was recorded in the south of the trench, overlying layer 1117. The northern limit of this surface was further defined by a narrow gully (F158), also cutting layer 1117, aligned perpendicular to the trench. To the north of this possible yard-surface, a slightly cambered, cobbled surface (F151), formed of round pebbles and worn angular sandstone blocks (1105), was laid over the occupation deposit.

A shallow, sub-circular pit (F155) was cut into layer 1113 to the north of surface F151. The pit was backfilled with dark brown silt-clay (1109) containing angular sandstone fragments. A further pit (F154), to the north of pit F155, was partially-excavated. This former was sub-circular in shape, with steeply-sloping sides. The pit backfill comprised dark brown silt-clay (1108) containing angular sandstone fragments.

Two further stone filled pits (F152 and F157), in the north of the trench, were identified and partially excavated, although poor definition of the pit fills against the underlying occupation deposit caused problems of feature definition during excavation. The pits were filled with dark brown silt-clays (1106 and 1116).

A ditch (F150) was cut through the occupation layer and into the subsoil below in the north of the trench. The ditch was V-shaped in profile, and was backfilled with grey-brown silt-clay (1103, 1104, 1114).

The backfilled ditch, pits and surfaces were all sealed by the modern ploughsoil (1100/1118).

## Dating

Feature F152 and layer 1117 produced perhaps the earliest pottery assemblage from the trench, with a *terminus post quem* in the Hadrianic-Antonine period. Feature F151 produced pottery with a terminus in the later 2nd century. Later activity was represented by features F150 and F155 which contained material with a terminus in the 3rd-4th century AD. All features, except feature F153, contained animal bone. The assemblage recovered from this trench amounted to over 51% of the animal bone recovered during the evaluation, and included horse, sheep/goat, pig, and bird and frog bones.

### 5.3: Trench C (Figs 4,6)

Trench C measured 30m in length and 2m in width. This trench was located to examine a concentration of geophysical linear and 'pit-like' anomalies in the settlement area, to the east of the A1 road.

The trench contained negative features cut into the subsoil (F201, F202, F206, F207, F208); negative features cut into disturbed subsoil horizons (F203, F204, F205), and a negative feature (F200) cut through an occupation deposit (1218), into the underlying subsoil; discrete occupation layers (1212, 1218) were also recorded.

The upper surface of the buff sandy subsoil (1213) was sealed in the centre of the trench by a horizon of disturbed subsoil (1211), flecked with charcoal and containing a small quantity of pottery and animal bone. A shallow, flat-based post-hole (F205) and a shallow, flat-based ditch (F204) were cut into this disturbed subsoil horizon (1211).

A shallow, flat-based ditch (F202), dug into the subsoil, was partly sectioned at the eastern end of the trench, but neither the full width or alignment of this feature could be determined, although its westernmost limit presumably lay to the east of ditches F201/F206. To the west of feature F202, a V-shaped ditch with a basal cleaning-slot (F206) was cut into the subsoil on an approximate north-south alignment. The ditch fill comprised a dark grey-brown silt-clay (1206).

After ditch F206 became infilled, an occupation deposit (1212) of dark grey silt-sand measuring a maximum of 0.05m in depth, was deposited over the surface of the disturbed subsoil horizon (1211) to the west of ditch F206, sealing the now infilled features F204-5. Later, ditch F206 was re-cut (F201) along the northeastern edge of the earlier ditch, the line of the re-cut feature following the alignment of its precursor. This re-cut was dug to a V-shaped profile.

At the western end of the trench a further occupation layer (1218), measuring a maximum of 0.2m in depth, accumulated over the surface of the subsoil. This deposit comprised a brown clay-silt mixed with patches of clay and containing some flecks of charcoal. Layer 1218 was cut by a ditch (F200), of notably irregular and stepped profile and orientated approximately perpendicular to the trench. To the east of ditch F200 was cut a further ditch (F203: Plate 3), lined with clay (1214), dug through a layer of disturbed gravel (1219) containing flecks of burnt clay.

Two further ditches (F207, F208) located in the centre of the trench, were probably both aligned perpendicular to the trench. These features were defined in a hand-dug sondage, but neither feature could be fully defined in plan or in section. The earlier of the two ditches (F207) was dug into the subsoil (1213), and its eastern edge was cut by ditch F208.

Layer 1211 was sealed by layer 1212. The infilled ditches and occupation layers 1212 and 1218 were sealed by the ploughsoil (1200).

### Dating

Features F203 and F206 contained pottery with a *terminus post-quem* in the Hadrianic period or later. Feature F201, a re-cut of ditch F206, contained an assemblage with a *terminus* in the late-2nd century AD or later. Feature F200 contained sherds with a *terminus* in the mid-3rd to mid-4th century AD. Feature F207 contained a sherd of pottery with a *terminus* in the 17th century or later. A total of 15% of the animal bone recovered during the evaluation was collected from this trench, including horse, cow, pig and sheep or goat.

#### 5.4: Trench D (Figs 5,7)

Trench D originally measured 30m in length and 2m in width, but was subsequently widened by 1m along its entire length after the identification of a service trench containing a live telephone cable, running parallel to the main axis of the trench, which restricted investigations in the original trench. Trench D was positioned to intercept a major linear geophysical anomaly, aligned approximately north-south, and to test an area where few other geophysical anomalies were recorded.

The upper surface of the subsoil (1302), here comprising a buff-brown clay-sand, was exposed by initial machining. The cut for the telephone cable service trench (1305), dug into the subsoil, was defined but not excavated.

Because of the dry conditions during fieldwork, it was not possible to define the major geophysical anomaly after hand-cleaning of the machined subsoil horizon. Therefore it was decided to cut a trench, measuring approximately 0.5m in depth, into the subsoil with a hymax excavator, to assist in archaeological definition. This machine-dug trench permitted the definition, in plan and section, of a ditch (F250), corresponding in position and alignment with the recorded anomaly. The ditch measured a maximum of 4.6m in width, and was excavated to a depth of 1.2m. The ditch fills comprised a mid-grey silt-sand (1304), sealed by a buff-brown silt-clay (1303). The subsoil and infilled ditch F250 were sealed by the ploughsoil (1300), which measured 0.4m in depth.

#### Dating

No pottery was recovered from this trench.

#### 5.5: Trench E (Fig 5,7)

Trench E measured 20m in length and 5m in width, and was positioned adjoining Trench D, to investigate a group of 'pit-like' geophysical anomalies.

The lower subsoil horizon (1405), located in hand-excavated sondages and in the base of cut F300, comprised a brown mottled clay, sealed by a buff silt-sand (1404), the upper subsoil, which was exposed at its uppermost horizon by machining. An irregular stony spread (1402), overlying the subsoil layer 1404, was defined in the northeast of the trench, and was thought to be probably geological in origin. In the northwest of the trench, part of a sub-ovoid pit (F300), dug through the upper subsoil, into the lower subsoil (1405), was excavated. Feature F300 was gently-sloping in profile, with a flat base. A service trench (1401), dug into the subsoil, was also defined but not excavated. The ploughsoil (1400), sealing feature F300, layer 1402 and the upper subsoil horizon measured 0.4m in depth.

#### Dating

The pottery recovered from feature F300 had a *terminus post quem* in the Hadrianic-Antonine period.

#### 5.6: Trench F

Trench F measured 15m in length and 5m in width. It was positioned to intersect the possible continuation of a major linear geophysical anomaly (also recorded in Trench D), in an area where other geophysical anomalies were absent.

A machine-cut trench, 1.5m wide, was dug along the southeastern baulk of the trench to test in section the sequence of the deposits revealed in plan. The earliest deposit encountered was a grey-brown clay-silt (1502), exposed at a depth of 0.9m below the modern surface, flecked with charcoal and containing fragments of angular sandstone. Layer 1502 was sealed by an orange sandy clay (1501), averaging 0.2m in depth, which contained localised patches of rounded pebbles. Layer 1501 was cut by two field drains (F150, F151), aligned north-south and east-west respectively. The field drains and layer 1501 were sealed by a layer of ploughsoil (1500), here measuring 0.35m in depth.

#### Dating

No pottery was recovered from this trench.

### 5.7: Trench G

Trench G measured 15m in length and 5m in width. This trench was positioned to examine the archaeological potential of an area where no geophysical anomalies were recorded.

Hand-excavated sondages were cut into the subsoil horizon exposed by machining along the northwestern baulk of the trench and in the centre of the trench, to a depth of 0.05m, and a sondage 1m deep was subsequently cut by machine along the entire length of the southeastern baulk to assist archaeological definition in the very dry conditions.

The upper surface of the buff brown sand subsoil (1601) was exposed by machining at a depth of 0.4m below the modern ground surface. The subsoil was sealed by the ploughsoil (1600).

No archaeological features or deposits were recorded in this trench.

#### Dating

No pottery was recovered from this trench.

### 5.8: Trench H

Trench H measured 20m in length and 2m in width, and was located to intercept a group of curvilinear geophysical anomalies, located to the east of the settlement area.

After hand cleaning of the upper subsoil surface as revealed by initial machine excavation, a 1.5m wide sondage was cut along the entire length of the trench, in an attempt to define any archaeological features which may not have been otherwise identifiable in the dry conditions.

The earliest deposit encountered here was a layer of dark brown, hardened subsoil (1703), exposed along the entire length of the trench. In the north of the trench layer 1703 was sealed by a layer of dark orange sand (1702). A number of suspected animal or root disturbances cut into layer 1702 was tested by selective hand-excavation, but none was found to be of archaeological interest. The ploughsoil (1700) in this trench measured 0.4m in depth.

No archaeological features or deposits were defined in this trench.

No pottery was recovered from this trench.

#### 5.9: Trench I (Fig 5)

Trench I measured 30m in length and 2m in width. It was located to sample a curvilinear geophysical anomaly, and to determine the presence of settlement features in this area.

The surface of the upper subsoil, a buff sand-silt (1807), was exposed by machining at a depth of 0.4m below the modern surface. It sealed a layer of mottled brown clay subsoil (1808), exposed below layer 1807 by hand and mechanical excavation. A number of archaeological, or suspected archaeological, features, cut into the subsoil, was sampled by hand excavation.

The south-westernmost feature was a ditch (F500), aligned approximately perpendicular to the trench, whose full width was not exposed within the trench. To the east was a shallow, flat-based depression (F501) in the subsoil, also aligned approximately perpendicular to the trench and measuring a maximum of 5.0m in width. A ditch of irregular profile (F502), aligned perpendicular to the trench, contained traces of extensive root-disturbance. Ditch F503 (Plate 5), located at the northeastern end of the trench, aligned approximately northwest-southeast, was of V-shaped profile with a basal cleaning-slot.

Features F500-F503 and the upper subsoil 1807 were sealed by the ploughsoil (1800).

#### Dating

No diagnostic pottery was recovered from this trench.

#### 5.10: Trench J

Trench J measured 20m in length and 2m in width. This trench was positioned to test the possible eastward continuation of two linear geophysical anomalies, joining at a right-angled intersection.

The upper surface of the subsoil (1902), an orange-brown sand, was located at a depth of 0.38m below the modern surface. A disturbance (F550), measuring up to 12m wide, located in the centre of the trench, was revealed by excavation to be a shallow, flat-based linear depression in the upper surface of the subsoil, containing buff-brown silt-sand (1903). The infilled feature F550 and the subsoil (1902) were sealed by the ploughsoil (1900).

No pottery was recovered from this trench.



### 5.11: Trench K (Figs 5,7)

Trench K measured 60m in length and 2m in width. This trench was located to sample part of the eastern circuit of the fort defences, in a zone where the circuit is relatively unclear in the geophysical survey, and also to provide information concerning the presence and sequence of archaeological features and deposits within the fort interior. For clarity, the following account is sub-divided accordingly.

The upper horizon of the grey-brown sand-clay subsoil (2028) was located at a depth of 0.4m below the modern ground surface.

#### The fort defences

The eastern side of the fort was defined by a ditch (F611), aligned perpendicular to the trench and measuring approximately 8m in width. The eastern edge of the ditch was cut through a layer of grey-brown silt-sand-clay (2026), and into the subsoil (2028) beneath. Excavation of the ditch was discontinued at a depth of 1.2m below the modern surface, for reasons of safety. The earliest fill excavated was a dark grey-brown silt-sand-clay (2021), sealed by an upper fill composed of orange-brown silt-sand (2027).

The line of the defences was further defined by two narrow slots (F606, F613), 1m apart and both cut parallel to the line of the outer ditch (F611). These were cut into a layer of grey-brown sand-silt-clay (2026, 2025, 2006), and into the subsoil (2028) beneath. Cut F613 was steeply-sided, its inner face packed with rounded pebbles (2023A), and backfilled with mottled light orange-brown silt-clay (2023B). To the west of feature F613 a shallow slot (F606), of U-shaped profile, was dug into the subsoil (2028). The latter feature was filled with brown clay-silt (2014).

#### The fort interior

The earliest feature defined in the interior of the fort was a vertically-stepped slot (F604), possibly cut to contain a timber beam. The slot was cut through layers of disturbed sand (2015,2017) and into the underlying subsoil (2028). The slot formerly contained a timber-beam (2019) which had decayed *in-situ* and was sealed by a dark brown clay-silt including stone packing (2018). The slot was overlain by a layer of dark brown clay-silt (2011), in turn itself sealed by a layer of build-up material, comprising dark grey-brown clay-silt which was recorded above the subsoil (as layer 2006 and 2008) throughout the fort interior.

Later, a cut (F603), aligned parallel with the trench, was made through the build-up soil (2006/2008), but this feature was only recorded just inside the southern baulk of the trench and its form was unclear. It was backfilled with dark brown clay-sand (2010) and sealed by an orange sand-clay (2009). A stone-filled cut (F605), aligned approximately parallel with the trench, was cut into layer 2006, but neither its full width or alignment could be defined within the trench. Feature F605 was sealed by a shallow layer of orange-brown silt-clay (2001), which also overlay layer 2006/2008 throughout the exposed area of the fort interior.

After the deposition of layer 2001, a shallow ditch (F610) of U-shaped profile was cut perpendicular to the trench, truncating feature F605. Ditch F610, backfilled with large angular sandstone blocks in grey-brown sand-clay (2020), was later re-cut (F601) following the same alignment as the former feature but displaced slightly to the east. Ditch F601 was backfilled with light grey-brown silt-sand-clay (2003).

## The fort exterior

A glacial feature, possibly an ice-wedge, composed of light buff-brown sand-silt (2029), aligned parallel to the trench, was recorded at the northeast end of the trench. This glacial feature was cut by a ditch (F602), measuring a maximum of 3m in width and aligned perpendicular to the trench. The primary fill of the ditch was a gleyed grey clay (2013), overlain by a mottled and heavily iron-panned grey-brown clay-silt fill (2007). A second ditch (F612: Plate 6), excavated to the southwest of ditch F602, was also aligned perpendicular to the trench. Ditch F612 measured a maximum of 0.5m in depth, and 3m in width. It was backfilled with a mottled and iron-panned buff-brown sand-clay (2022).

### Dating

Features F601, F606 and layer 2004 contained pottery with a *terminus post quem* in the 2nd century AD or later. Feature F611 contained material with a *terminus* in the late 2nd to early 3rd century AD; feature F605 contained pottery with a *terminus* in the 4th century AD. Features F601, F604, F605 and F610 contained animal bone, including horse, cow, pig and sheep or goat. Features F602 and F605 each contained two iron nails.

### 5.12: Trench L

Trench L measured 15m in length and 5m in width, and was positioned to test the archaeological potential of an area where no clear geophysical anomalies were recorded.

The upper horizon of the brown sandy subsoil (2102) was located at a depth of 0.3m below the modern surface. The subsoil was cut by a shallow ditch (F650), containing traces of root disturbance. No other archaeological features or deposits were recorded in this trench.

### Dating

No Roman pottery was recovered from this trench. Pottery sherds with a *terminus post quem* in the 18th or 19th-century, and three iron nails, were recovered from feature F650.

### 5.13: Trench M (Figs 5,7)

Trench M measured 30m in length and 2m in width. This trench was located to examine major linear and 'pit-like' geophysical anomalies, to characterise the nature of activity to the north of the Beck, and to provide dating evidence.

The upper surface of the subsoil (2202), a yellow-brown gleyed clay-silt, was located at a depth of 0.37m below the surface of the modern pasture. In the extreme south of the trench a cobbled surface (F702), aligned approximately northwest-southeast was laid directly over the subsoil. This surface was subsequently cut by the southern edge of a ditch (F703), aligned perpendicular to the trench, which was only partially excavated.

To the north of ditch F703, a further ditch (F701: Plate 7), measuring 1.8m in width, was cut following the same alignment. To the north of ditch F701 was a flat-based shallow pit (F705), capped with rounded sandstone boulders (2211) forming an irregular upper surface.

The remains of a disturbed but articulated human burial (HB1/F704) were recorded in the north of the trench, immediately overlying the subsoil. The remains extended beyond the eastern baulk of the trench, and only approximately 20% of the skeleton was recovered, including fragments of the right humerus, femur, and skull. The

human remains were immediately above the upper surface of the subsoil, and no trace of the presumed cut for this burial could be identified.

A shallow gully (F700), of U-shaped profile and aligned approximately east-west, was recorded in the north of trench. The infilled ditches, the human burial (F704) and the cobbled surface (F702) were sealed by topsoil (2200A/B) below the modern pasture surface.

#### Dating

Pottery with a *terminus post quem* in the Hadrianic-Antonine period was found in features F701 and F705. Pottery assemblages recovered from features F700 and F703 had a *terminus* in the 4th century. Animal bone was recovered from features F700, F701 and F703, including horse, pig, sheep or goat and dog.



## 6.0: THE FINDS

### 6.1: The Roman pottery by Jeremy Evans

Some 540 sherds of pottery were recovered from the assessment excavations of which some 533 are of Roman date. There were also some 8 brick and tile fragments and 38 daub fragments. The distribution of the pottery by trench is presented in Table 1. It can clearly be seen that the majority of the material comes from Trenches A, B, K and M, both by absolute numbers of sherds and especially by numbers of sherds relative to the area excavated.

**Table 1: Quantities of pottery and trench area**

Trench	Sherd number	Area	Sherds/m <sup>2</sup>
A	177	60	2.95
B	148	60	2.47
C	38	80	0.48
D	0	60	0
E	2	100	0.02
F	0	75	0
G	0	75	0
H	0	40	0
I	1	60	0.02
J	0	40	0
K	95	120	0.79
L	2	75	0.03
M	75	60	1.27

Table 2 shows the fabric proportions by general class of all the pottery from the excavations. The high proportion of Dressel 20 amphorae sherds is fairly typical for 1st and 2nd century northern forts, as can be seen in the data from Thornborough Farm, Catterick, and similarly the 12% of colour-coated finewares. The collection includes a single sherd of Iron Age style (Trench B, context 1111), although it could be of 1st or 2nd century date. Little, if any, of the material need be of 1st century date and no context contains a collection exclusively of this date (see Appendix 1). It is, therefore, rather difficult to see the fort as clearly founded in the Flavian period. The highest proportion of material which can be dated seems to be of Hadrianic-Antonine date and many contexts have this as a terminus post-quem. Given this, a Hadrianic-Antonine date for the fort may be more probable, perhaps of similar date to that at Thornborough Farm, Catterick. The ceramic evidence suggests some 3rd century activity, probably at a much reduced level from the 2nd century, and this clearly continues into the second half of the 4th century. There is not, however, the evidence in this material of the intense 4th century activity in the field east of the A1 observed close to the A1 by Price (pers comm; Price and Evans 1992).

**Table 2: Fabric proportions from the excavations by sherd count**

Fabric	%	Fabric	%
BB1	8.1	Greywares	31.5
BB2	0.4	Grey gritted	0.7
Calcite grit	2.8	Grey gritted handmade	1.5
Crambeck grey	1.5	Grey Rustic	0.4
Crambeck parchment	0.4	Iron Age handmade	0.2
Colour-coat roughcast	0.2	Mancetter mortaria	0.6

Clay pipe	0.6	Modern oxidised	0.2
Dalesware	0.6	Nene Valley	4.6
Dressel 20 amphorae	21.9	Oxidised	11.3
Modern glazed	0.9	Oxidised mortaria	1.1
Oxidised roughcast	0.6	White slip oxidised	2.0
Rhenish	0.2	Samian	7.0
Modern stoneware	0.2	White wares	0.7

Table 3 presents the fabric proportions from excavation trenches within the area of the fort (Trenches A and K) and the rest of the site excluding these. The groups are very small, 273 and 255 sherds respectively, and the results must be treated with considerable caution. However, the surfeit of Dressel 20 amphorae sherds clearly shows up as associated with the fort (principally, in fact from one context, 1002, with 104 sherds) and the later 3rd-4th century fabrics seem chiefly to come from areas outside the fort.

**Table 3: Fabric proportions from the fort (Trenches A & K) and the rest of the excavations by sherd count**

Fabric	Fort	Rest	Fabric	Fort	Rest
BB1	10.3	6.3	Greywares	26.4	38.4
BB2	0	0.8	Grey gritted	0.4	1.2
Calcite grit	0.7	5.1	Grey gritted handmade	0.4	2.7
Crambeck grey	0.7	1.6	Grey Rustic	0	0.8
Crambeck parchment	0	0.8	Iron Age handmade	0	0.4
Colour-coat roughcast	0	0.4	Mancetter mortaria	0.7	0.4
Dalesware	0	1.2	Nene Valley	4.8	4.7
Dressel 20 amphorae	40.3	3.1	Oxidised	8.8	14.5
Oxidised mortaria	0	2.4	White wares	0.4	1.2
Oxidised roughcast	0	1.2	White slip oxidised	1.8	2.4
Rhenish	0	0.4	Samian	4.4	10.2

The assemblage from Healam Bridge is too small to compare with other groups from the area except in very general terms. The preponderance of greywares is typical of 2nd-earlier 3rd century groups at Catterick, as is the rarity of BB2. The gritted hand and wheelmade fabrics of mid 3rd to mid 4th century date are very similar to those from Catterick and may well be from that source. In contrast, the early 2nd century oxidised mortarium is not a Catterick product, despite the considerable production of mortaria there. A single carinated bowl/jar from context 2209 is of some intrinsic interest as it does not have local parallels but is similar to material from Shiptonthorpe, near Brough-on-Humber, and may come from there or northern Lincolnshire.

## 6.2: The metalwork by Iain Ferris

Twenty five pieces of iron were recovered from 13 contexts. All of the material has been subsequently x-rayed. The assemblage consists of 18 nails or regognisable fragments of nails (one from each of 1002, 1004, 1007, 1104, 1113, 1205, and 1601; two from each of 1001, 1101, 2012 and 2207; and three from 2103, including one with the tip bent inward to the shaft to form a possible hook), four small amorphous lumps of corroded iron (two from each of 1202 and 2207), two small pieces of ?smithing slag (one from each of 1113 and 2103), and one object (from 1002, Trench A). The object appears to be a small hook on an ovoid link, which has been subsequently customised to form a double link by the bending-over of the hook.

The pottery from contexts 1601 and 2103 suggests these are datable to the post-medieval period.

### 6.3: The Human Skeleton by Stephanie Pinter-Bellows

One human skeleton was recovered from the evaluation. The skeleton (HB1/F704) was found in Trench M. The skeleton, which is less than 20% complete, is that of an adult, possibly female. No stature could be calculated from the fragmented bones. No pathologies were noted. However, the few teeth recovered show a very uneven wear pattern

#### Inventory and condition

The skeleton is less than 20% complete and is in fair condition. The skeleton consists of incomplete shaft fragments of the right humerus, radius and ulna, some unsided femur fragments, incomplete fragments of the frontal, left and right parietals and zygomatics and seven maxillary teeth: left first molar, left first and second premolar, left canine, right first incisor, right canine and right second premolar. The teeth have very uneven wear and there are caries along the cervico-enamel junction on the right first incisor and left canine.

#### Sexing

The determination of the sex is uncertain as the indicators used, the supra-orbital ridge and size of the humerus shaft, are being correlated with robusticity and size, as opposed to the pelvis where differences are associated with reproduction. The physical characteristics have ranges that overlap for the two sexes. Therefore, the sex of this individual cannot be assessed with certainty. The gender characteristics of the skeleton were established following the criteria and procedures presented in the Workshop of European Anthropologists (1980).

#### Aging

To estimate accurately the age of an individual it is necessary to be able to analyse a variety of indicators located throughout the skeleton; no single skeletal indicator of age at death is ever likely to reflect accurately the many factors which accumulate with chronological age. In this case, the only indicators are the size of the bones and the wear on the teeth. With these indicators, all that can be said is that the individual is adult.

### 6.4: The animal bone by Stephanie Pinter-Bellows

A total of 1041 animal bones was recovered from the trial-trenches. Table 4 provides a count of the bones divided into jaws, loose teeth, and long-bone ends and other "more useful bones", noting the number which could be measured, and all other bones. The following species were identified: horse (*Equus caballus*), cow (*Bos taurus*), pig (*Sus scrofa*), sheep (*Ovis aries*), goat (*Capra hircus*), dog (*Canis* sp. domestic), frog/toad (*Rana* sp./*Bufo* sp.), unidentified rodent, and unidentified bird.

The animal bone was rapidly counted and a note was made on the number of species present, any burning, gnawing, butchery, whether the edges of the fragments were sharp or dull, and pathologies. A catalogue of this material can be seen at the end of this report. The nature of this scan means less obvious gnawing, butchery and

pathologies will have been overlooked. The data are useful as a guide to the contents of faunal material, but not as complete records.

Six of the trenches contained animal bones. The assemblage is dominated by the usual domesticates: cattle are the most common, sheep/goat (both sheep and goat identified) and horse come next, with fewer pig. Dog was found in small numbers as is frog/toad. The only wild animal to be identified from the assemblage was one unidentified bird bone (the size of a song bird). Unidentified rodent bones were found in the sieved samples, from samples #22 and #55. The bones of cattle, and sheep/goat were common to all trenches. Horse makes up two percent of the bones in each trench where it is present. Table 5 quantifies the bones according to trench. The numbers of bones are below the limits which can be used to give statistical inferences about diet or animal husbandry. Therefore what follows is only a description of the various trenches, without interpretation.

Trench A contains 11% of the bones recovered; all identified bones are from the domestic quartet: horse, cow, pig and sheep/goat (with only sheep identified from this trench). While the bones are mainly in good condition, still showing sharp edges and little weathering or surface erosion, Trench A contained the only bones believed to be water affected. Context 1001 (a cleaning layer) and 1004 (the fill of a re-cut ditch) had the majority of the bones with a slightly "woody" appearance. One bone from context 1002 (the fill of a flat-based ditch) was noticed to have butchery marks; a cow cervical vertebra had knife marks on one side of the body, probably from meat removal. Three bones were noticed to have pathologies. A cow metacarpal and metatarsal from context 1002 have the beginnings of osteoarthritis with osteophytes and porosity on the proximal articulations. This osteoarthritis could be degenerative in origin or have come about from stress to the joints. A sheep/goat tibia shaft from context 1004 has unhealed periostitis. Periostitis is a non-specific inflammatory infection involving only the fibrous covering of the bone (the periosteum). Periostitis is recognised as a deposition of irregular new bone upon the outer surface of a bone.

Trench B contains 51% of the bones recovered and along with that the widest number of species. Besides the domestic quartet (both sheep and goat identified), there are frog/toad bones from context 1103 (the fill of a ditch), an unidentified bird bone from context 1101 (a cleaning layer) and dog bones from context 1108 (the fill of a pit). Sheep/goat bones gnawed by dogs were found in contexts 1108 and 1101. Gnawing by dogs shows that at least some of the bones were left on the ground surface for some length of time. Conversely, unusually large and unbroken bones were noted from contexts 1104 (occupation layer), 1106 (the fill of a pit) and 1109 (the fill of a pit) implying that these bones were quickly covered and thereby protected from many taphonomical factors. There was one example of butchery and indirect evidence of tool making. A cow rib from context 1112 (a cleaning layer) was chopped through, probably from division of the carcass into meat cuts. A horse metatarsal from context 1114 (the fill of a ditch) with only the proximal third present, the rest having been sawn away is evidence of tool making; the missing section probably used to make a bone handle. This same horse metatarsal has arthritis in the form of osteophytes and eburnation. There is also a distal cow tibia from context 1109 with extra bone growth on the distal 5 cms., the distal articular surface is not involved; it is most likely the result of an infection.

Trench C contains 15% of the bones recovered; all identified bones are from the domestic quartet: horse, cow, pig and sheep/goat. There are a few charred bones from context 1202 (the fill of a ditch). This same context has a pig bone which has been gnawed by a dog. One bone from context 1203 (the fill of a ditch) was noticed to have

butchery marks; a cow thoracic vertebra had knife marks on one side of the body, probably from meat removal. There was one pathology noted from context 1205 (the fill of a ditch), a cow metacarpal has arthrosis with a circular area of porosity on the proximal articular surface.

Trench I contains less than 0.01% of the bones recovered. They come from a cleaning layer and there were no bones of note.

Trench K contains 5 % of the bones recovered; there are cow, pig and sheep/goat. There were no bones of note.

Trench M contains 18% of the bones recovered; besides the domestic quartet, there is also dog from context 2206 (the fill of a ditch). This same context has a cow bone which has been gnawed by a dog and one charred bone. There is one bone showing butchery marks, also from this context; it is a cow ilium which has been chopped and has knife marks, probably from division of the carcass into meat cuts.

**TABLE 4: Quantification of animal bone;**

**Hand Collected Bone**

	Long bones etc.	Measurable bones	Jaws	loose teeth
Horse ( <i>Equus caballus</i> )	14	12		2
Cow ( <i>Bos taurus</i> )	35	18	5	13
Pig ( <i>Sus scrofa</i> )	9	3	4	8
Sheep ( <i>Ovis aries</i> )	2	2	1	1
Goat ( <i>Capra hircus</i> )			1	
Sheep/Goat	17	10	3	4
Dog ( <i>Canis</i> sp. domestic )			1	
Frog/Toad	3			
Unidentified Bird	1			
Total	81	45	15	28
All other bones				1041

**Bone from Sieved Samples**

	Long bones etc.	Measurable bones	Jaws	loose teeth
Horse ( <i>Equus caballus</i> )				1
Pig ( <i>Sus scrofa</i> )	1			
Sheep ( <i>Ovis aries</i> )				1
Unidentified Rodent	1	1		
Frog/Toad	5			
Total	7	1		2
All other bones				164

**TABLE 5: Quantification of animal bone from each trench**

**Trench A**

	Long bones etc.	Measurable bones	Jaws	loose teeth
Horse ( <i>Equus caballus</i> )	1	1		1
Cow ( <i>Bos taurus</i> )	5	3		2
Pig ( <i>Sus scrofa</i> )	2			1
Sheep ( <i>Ovis aries</i> )	1	1		
Sheep/Goat				1
All other bones				101

**Trench B**

	Long bones etc.	Measurable bones	Jaws	loose teeth
Horse ( <i>Equus caballus</i> )	9	8		
Cow ( <i>Bos taurus</i> )	17	11	5	5
Pig ( <i>Sus scrofa</i> )	5	2	3	3
Sheep ( <i>Ovis aries</i> )	1	1	1	1
Goat ( <i>Capra hircus</i> )			1	
Sheep/Goat	15	9	2	1
Dog ( <i>Canis</i> sp. domestic)				
Unidentified Bird	1			
frog/toad	3			
All other bones				422

**Trench C**

	Long bones etc.	Measurable bones	Jaws	loose teeth
Horse ( <i>Equus caballus</i> )	2	1		1
Cow ( <i>Bos taurus</i> )	7	2		2
Pig ( <i>Sus scrofa</i> )				
Sheep/Goat				1
All other bones				139

**Trench I**

All other bones				4
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**Trench K**

	Long bones etc.	Measurable bones	Jaws	loose teeth
Cow ( <i>Bos taurus</i> )	2			2
Pig ( <i>Sus scrofa</i> )	1	1		3
Sheep/Goat			1	
All other bones				43



## Trench M

	Long bones etc.	Measurable bones	Jaws	loose teeth etc.
Horse ( <i>Equus caballus</i> )	2	2		
Cow ( <i>Bos taurus</i> )	4	2		2
Pig ( <i>Sus scrofa</i> )			1	1
Sheep/Goat	2	1		1
Dog ( <i>Canis</i> sp. domestic)			1	
All other bones				163

Species without any quantification against them are present but not within the parameters set.

## 7.0: THE ENVIRONMENTAL EVIDENCE

### 7.1: The charred plant remains by Lisa Moffett

Samples for charred plant remains were taken at the discretion of the archaeologist within the requirements of the brief. The samples were processed by wet sieving to remove the clay, followed by water flotation of the residue to separate the charred material from the remaining mineral component. The samples were difficult to process and the resulting flots still contained some sand and clay. A considerable amount of modern root material was also present in the flots. An attempt was made to remove the largest clumps of root material before measuring the flot volumes but much root material remained. The flot volumes given in the table, therefore, are considerably larger than the amount of charred material present in the flots and are only a very approximate indication of the relative amounts of material recovered.

Not all of the 81 samples processed were included in the assessment. Only dated samples were considered, and samples considered by the archaeologist to be 'cleaning' horizons were also not included.

The flots were scanned under a binocular microscope and the presence of seeds and other material briefly noted. No items were removed and some of the larger flots were subsampled to save time. Some of the botanical material noted was also briefly identified, but these identifications were made at a glance, without taking time for close examination or comparison with modern material and should therefore be regarded as strictly provisional. The presence or absence of material in the samples, as well as brief comments are given in the table. The column headed M (M=more) indicates whether further work is needed.

The samples were generally poor in charred material, and much of the material which was present was in a poor state of preservation. Only one sample produced sufficient material to possibly warrant further analysis. The amount of material, however, was not large enough for it to be likely that anything conclusive could be deduced from analysis of the assemblage. Given the small amount of material from the rest of the samples, it seems unlikely that much information could be gained from further analysis.

**Table 6: The charred plant remains**

AREA	C_NO	CONTEXT	DATE	SVOL	FVOL	CL	GR	CH	LE	FR	SE	BO	MO	O	M	NOTES
A	1002	ditch inside fort	HAD-3C	20	100	2	Y	N	N	N	N	Y	N	Y	N	A few cereal fragments and a small amount of small animal bone. Some coal. Silica globules, presumably from wood ash. About 50 ml. scanned.
A	1003	posthole	AD160-M3C	20	60	2	Y	N	N	N	Y	Y	N	N	N	One Triticum grain, a rhizome fragment and an unidentified seed. A few small animal bones. About 20 ml. scanned.
A	1004	re-cut fort ditch	4C	10	20	1	Y	N	N	N	N	N	N	N	N	A couple of Triticum and cereal fragments.
A	1007	posthole	1C-3C	10	40	2	Y	N	N	N	Y	N	N	Y	N	A couple of Hordeum grains and a few seeds of Galium and Vicia/Lathyrus, also a couple of tuber fragments.
A	1009	outer fort ditch	L4C	10	25	1	N	N	N	N	N	N	N	N	N	No charred remains.
B	1103	ditch	M3C-M4C	10	30	1	Y	N	N	N	Y	Y	Y	Y	N	A few grains of Triticum and Hordeum, a seed of Vicia/Lathyrus, a possible tuber fragment, bone fragments, a few molluscs. About 20 ml. scanned.
B	1106		HAD-ANT	10	10	1	Y	N	N	N	N	N	Y	N	N	A moderate number of cereal grains including Triticum and Hordeum, poorly preserved.
B	1108	pit	HADRIANIC+	10	15	1	Y	N	N	N	N	Y	Y	N	N	A small number of Triticum and cereal grains, fragment of bone, some molluscs.
B	1109	pit	3C	10	20	1	Y	N	N	N	N	N	Y	N	N	A couple of Triticum and Hordeum grains, a few cereal indet.
B	1113	occupation layer	HAD-ANT	10	20	1	Y	N	N	N	N	N	Y	N	N	A Triticum grain, a couple of molluscs.
C	1202	ditch	M3C-M4C	10	30	2	Y	N	N	N	N	N	N	N	N	A very small number of Triticum grains, one germinated.
C	1203	re-cut ditch	L2C+	10	22	2	Y	Y	N	N	Y	N	N	N	?	A moderate amount of cereals including T. spelta glume bases and grains, a few other seeds like Raphanus raphanistrum and Vicia/Lathyrus. Preservation of cereal grains mostly rather poor.
C	1205		HADRIANIC+	10	70	2	Y	N	N	N	N	N	N	N	N	A couple of Triticum grains. About 35 ml. scanned. Much of the flot is actually clay and sand.
E	1403	quarry pit	HAD-ANT??	20	10	1	Y	N	N	N	N	N	N	N	N	One cereal grain fragment.
K	2002	layer	M-L3C(4C?)	10	18	2	Y	N	N	N	Y	N	N	N	N	A couple of cereal and seed fragments.
K	2003	ditch	2C+	10	28	2	Y	N	N	N	N	Y	N	Y	N	A few cereal grains including Triticum and Hordeum, a few lumps of something like bread or dung, a few fragments of bone.
K	2012	construction trench	4C	10	70	2	Y	N	N	N	Y	Y	N	N	N	A few cereal grains including Hordeum and Triticum, a seed of Polygonum, a few fragments of large mammal bone. About 30 ml. scanned.
K	2014	slot	HADRIANIC+	10	30	1	Y	N	N	N	N	N	Y	N	N	A few cereal grains including Hordeum, a mollusc.
K	2021	outer fort ditch	(L2C)E3C	10	20	1	Y	N	N	N	N	N	N	N	N	A few small cereal fragments.
M	2206	ditch	HAD-ANT	10	60	2	Y	N	N	N	Y	N	N	Y	N	A Hordeum grain, a grass seed, a few fragments of coal and a fragment of shell. About 30 ml. scanned.
M	2207	ditch	E4C	10	22	1	Y	N	N	N	Y	Y	N	N	N	A few cereal grains, a seed of Vicia hirsuta, some very small fragments of bone.

240 720

CL=charcoal, GR=grain, CH=chaff, LE=legume, FR=fruit/nut, SE=seed, BO=bone, MO=mollusc, O=other, M=more



## 7.2: The Mollusca by Andy Moss

Two contexts contained mollusca. Context 1116 had several *Cochlicopa lubrica* and *Vallonia excentrica* and a couple of juvenile Helicidae. Context 1108 contained several *Cochlicopa lubrica*, *Vallonia excentrica* and *Bithynia cf. tentaculata* and some juvenile Helicidae and Zonitidae.

*Vallonia excentrica* are typical of dry grassy places, *Cochlicopa lubrica* of dry and wet grassy places, *Bithynia cf. tentaculata* are aquatic.

These species indicate that the ditches were filled when the surrounded area was grassland, while 1108 had carried water at one time.

The results from molluscan analysis were good and further work from a possible future excavation should yield results. Pollen, waterlogged plant and beetle analysis is unlikely to be possible unless a waterlogged feature is found which is unlikely, for the reasons stated in the introduction.

## 8.0: DISCUSSION

### 8.1: Trenches A and K: The Roman fort

#### Trench A

Limited excavation of part of the fort's southern defences suggested that at least two contemporary ditches were represented, an outer ditch (F105) and an inner ditch (F103/F106). The inner ditch had been re-cut (F104) at least once. The dating evidence derived from limited excavation which was restricted to the upper fills of these ditches was generally sparse, but included pottery with a *terminus post quem* in the 4th century AD from ditch F103, and material with a *terminus* in the late 4th century AD from the upper fills of ditch F105, although this latter material may derive from a later phase of activity (F108, see below).

Within the fort interior feature survival was restricted to negative features cut into the subsoil. The identification and sampling of a number of stone-packed post-holes (F101, F102, F107) suggests that elements of timber framed buildings may have been located here, although no building plans could be identified.

The central area of the trench may have been positioned over the fort's *intervallum* space, an area within the planned fort interior where no major buildings belonging to the original layout may be anticipated. No evidence of the *via sagularis*, a road which ran parallel to the defences to the rear of the *intervallum* could be found. Of particular interest was the recovery of a large quantity of amphora fragments from ditch F100. Some of this assemblage appeared to have been cut deliberately to a rectangular shape.

#### Trench K

This trench examined part of the eastern fort defences, and part of the fort interior. In contrast to the double-ditched arrangement, recorded in Trench A, only a single defensive ditch (F611) could be identified on this eastern side. However, it was possible to define two ditches (F602, F612), cut on a similar alignment to ditch F611, outside the fort. A continuation of this defensive arrangement comprising one or more outer ditches, is suggested by the pattern of anomalies recorded outside parts of the fort's northern and western defences. Of particular note are the two slots (F606, F613) which may have founded a timber revetment on both faces of the rampart (eg Johnson 1983, Fig 36).

The stratigraphic sequence encountered in this sector of the fort's interior is both complex and informative. The earliest structure is a beam-slot (F604), aligned parallel with the trench, which was cut through earlier ?occupation deposits (2015, 2017). This beam-slot contained no datable pottery. Although only part of one side of this building was identified, its position within the fort (Johnson 1983, Fig 19) suggests that the beam-slot may have defined one of the long sides of a barrack block. After this building was abandoned, a layer of levelling material (2006) was imported to build-up the ground level. This levelling activity may have been a preparation for the excavation of a stone-filled construction trench (F605), aligned parallel with the trench, which contained pottery with a *terminus post quem* in the 4th century AD. A second cut (F603) was also dug through the soil 2006, but this feature is difficult to interpret, because its full width was not revealed within the trench.

As in Trench A there was no evidence of the *via sagularis*.

## 8.2: Trenches B and C: The settlement

### Trench B

The pottery dating suggests an extended span of activity here, although not necessarily continuous, dating from the Hadrianic-Antonine period to the 4th century AD. The earliest activity on this west side of the settlement was represented by the deposition of an occupation layer, or soil build-up deposit, (1113, 1115, 1117), which contained pottery with a *terminus post-quem* in the Hadrianic-Antonine period. Later, a cobbled street (F151) and cobbled yard surface (F153) were laid out, both overlying the earlier soil horizon. A ditch (F150), a gully (F156), and a number of rubbish-pits (F152, F154, F155, F157) were also in use during this latter phase of activity here. The continuation of activity here into late in the Roman period is perhaps suggested by the recovery of pottery with a *terminus post quem* in the mid to late 4th century AD from a cleaning layer (1112) to the north of street F151.

Trench B was positioned to sample the central area of that part of the settlement located to the west of the A1 road. The geophysical survey suggests that the western boundary of the settlement lay to the west of the area surveyed, while the line of Dere Street lay within the modern roadline. The main features recorded in Trench B were the cobbled surfaces, the rubbish pits and a ditch. Comparison with the more extensive information provided by the geophysical survey suggests that the street and yard surface were both extensive features, following the predominant orientation of anomalies in this area.

There was no surviving evidence of any structures or parts of structures identified within the trench. The assemblage of animal bone recovered from the pit groups includes material that was gnawed by dogs, suggesting a prolonged period of exposure before burial, but also material which was buried soon after butchery. It is difficult to attribute a particular function to the area associated with animal slaughter, given that Trenches A, C and K have also produced evidence of butchery marks, but the quantity of large freshly buried bone recovered from this trench may suggest this area, located to the rear of the Dere Street frontage, may have been favoured for rubbish disposal.

### Trench C

The pottery dating evidence from this trench suggests a range for activity in this eastern zone of the settlement from the Hadrianic-Antonine period to the 4th century, a similar overall time-scale to that proposed above for the western zone of the settlement (Trench B). Two phases of activity may be identified here. During the first phase a ditch (F206) was laid out parallel to the presumed alignment of Dere Street, and a smaller ditch (F203) lined with clay was cut on a similar alignment. Ditch F204 and post-hole F205 may also be datable to this early phase of activity. The latter features were sealed by a charcoal-rich occupation deposit (1212), while a further occupation horizon (1218) was recorded in the extreme west of the trench. The second phase of activity here is marked by the re-cutting (F201) of ditch F206, and the excavation of a further ditch (F200), parallel to the former feature.

Ditch F207 may have been cut in the post-medieval period, possibly as a field boundary; alternatively, the pottery contained in its fill may be intrusive.

The main activity recorded in Trench C was the excavation and re-excavation of ditched boundaries, cut parallel to the alignment of Dere Street. The re-cut boundary ditch (F201/F206) may, by analogy with the geophysical survey results, have formed the easternmost boundary of the settlement, a boundary which was

recorded as an anomaly for a distance of at least 250m. The other ditches recorded were smaller in size and may have formed sub-divisions within the individual plots recorded by geophysical survey. Other boundaries cut approximately parallel to the alignment of the trench were recorded to the north and south of the area investigated here.

No evidence of structures was recorded within the trench, although at least one post-hole (F205) was recorded. It is possible that the buildings may have been located closer to the line of Dere Street, to the west of the area available for investigation. However, the identification of surviving occupation horizons (1212, 1218) does suggest activity of some nature in the near vicinity.

The relatively small quantity of pottery recovered from this trench, and from the immediately surrounding area during fieldwalking, may argue that activity in this area was less intensive than that recorded in the western side of the settlement.

### **8.3: Trenches D-J: The area to the east of the settlement**

Trenches D-J were dug to the north and east of the main focus of the settlement, to examine a number of geophysical anomalies recorded outside the settlement area.

Datable evidence of Roman activity was restricted to Trench D although the sparse pottery recovered from this trench may have been residual. A large, flat-based pit (F300), possibly a clay pit, was cut into the subsoil was recorded in Trench E. The stony spread recorded in the same trench was probably of geological origin. The major linear geophysical anomaly aligned approximately northwest-southeast was sampled in Trench E (F250), while a part profile of a ditch cut on a similar alignment, possibly a continuation of ditch F250, was recorded in Trench I, but no dating material was recovered from this feature. Another undated feature recorded in Trench I was a ditch (F503) which was also identified on the geophysical survey as a slightly curving linear feature. Although no dating evidence was recovered for this latter feature, it may be interpreted as a possible Roman feature. Unfortunately, the gas pipeline to the northwest of Trench I has inhibited the identification of any archaeological anomalies over an extensive area, and no information is available concerning Roman activity in the area between the fort and the northern bounds of the settlement, as presently defined.

Trenches G and H contained no manmade features or deposits. The feature recorded in Trench J was probably of geological origin. Trenches F and L contained features of post-medieval or modern date.

### **8.4: Trench M: The area to the north of Healam Beck**

A second focus of settlement, to the north of the fort was investigated in Trench M.

The recorded stratigraphy, and the datable pottery could suggest that two phases of activity are represented in this trench, the first with a *terminus post quem* in the Hadrianic to Antonine period, the second with a *terminus* in the early 4th century AD. The first phase of activity is represented by a broad ditch (F701), and a hearth (F705), and possibly also by a cobbled street surface (F702), which is cut by a ditch (F703), belonging to the later phase. The second phase is represented by shallow ditch F700 and broad ditch F703. The human burial (F704) is undated.

Comparison with results of the geophysical survey suggests that the street (F702) may be an extensive feature. The second phase ditch F700 may form part of a linear anomaly which appears to define part of the southern side of a D-shaped enclosure. No evidence of any structures was found in this trench. Although plough truncation was anticipated to be less severe here than in other areas examined during the

evaluation, given its location in an area of pasture, no trace of buildings associated with either phase could be located. It is possible that any contemporary buildings may have been located on, or at least closer to, the frontage of Dere Street. None of the 'pit-like' geophysical anomalies recorded around Trench M were paralleled in the trench, although it is possible that these represented better preserved human burials. The single human burial recorded (F704) was very poorly preserved, and was orientated approximately north-south. There is evidence, from local sources, of burials in stone coffins recorded to the north of this trench, which may imply a more extensive cemetery. It is common for a Roman cemetery to be located alongside a main road.

#### Topography, and relationship with other settlement areas.

The information from Trench M provides the only excavated evidence for Romano-British settlement or activity located to the north of the Healam Beck. There is also some evidence, in the form of geophysical anomalies, of activity in the zone immediately adjoining the south bank of the Beck, and lying to the north of the fort, although it is not known whether these anomalies reflect activity of a military or civilian character. It is possible that some of the anomalies recorded to the northwest of the fort may be outer defensive works associated with the fort. Similar possible outer defensive ditches were recorded in Trench K.

### **9.0: DEPOSIT MODEL**

The majority of the recorded archaeology comprised negative features, such as ditches or post-holes, cut into the subsoil. Ditches measuring up to 1.2m in depth were fully excavated. Partial excavation of the more deeply-cut ditches (e.g. the fort defences) suggests the sequence of infills may be complex and informative. Additionally, discrete layers, formed as occupation deposits, were located in Trenches B and C within the settlement, and in Trench K within the fort. These occupation deposits measured an average of 0.4m in depth in Trench B, and 0.1m in depth in Trench C. In Trench K the major soil build-up deposit (2006) measured an average of 0.3m in depth. Because of the limitations necessarily imposed by the scope of the evaluation, it was not possible to define if these occupation deposits belonged to more than one phase of activity. However, evidence of a sequence of activity, in the form of ditches or pits, cutting the occupation horizons was found in all the trenches (B, C, K) where such deposits were present. The only positive features surviving were the cobbled street and yard surface (F151, F153), recorded in Trench B, and the cobbled street (F702) exposed in Trench M. No complete ground plans of structures were recovered, although possible structural components were recorded in Trenches A, C and K. The hearth found in Trench M may have been associated with a structure located outside the area investigated. The ploughsoil measured an average of 0.4m in depth in all trenches.

The preservation of pottery finds was generally fair to good, and animal bone was well-preserved. It has been noted elsewhere that waterlogged deposits were absent, and conditions for the preservation of pollen were poor.

### **10.0: POST-EXCAVATION ASSESSMENT** by Iain Ferris

The brief required that an assessment be made of the evaluation archive with a view to the publication of the results of this phase of work, should no further archaeological work be carried out at Healam Bridge. The following assessment is based upon the quantitative and qualitative analysis of the evaluation data by the various specialists, and includes proposals both for further post-excavation work and publication.



## 10.1: Introduction

Given the limited scale of the excavations at Healam Bridge, any discussion of the wider significance of the results must be tentative. Nevertheless, the excavation data have raised a number of interesting questions relating to fort/vicus studies.

As a result of the analysis of the pottery, Evans (above) was able to suggest that a Hadrianic/Antonine date for the fort seems probable, with some 3rd century activity on a lesser scale, continuing into the 4th century. While there is some pre-Hadrianic material, there is not enough to point to an earlier foundation and certainly not to one in the Flavian period, as might perhaps have been expected. Evans notes that an Iron Age style sherd came from one context outside the fort, but that this could be of a 1st or 2nd century date. There is a number of instances of forts being founded on or near to 'native' settlements or sites - as at Hayton, Malton and Brough-on-Humber (Branigan 1984, 30) - but clearly at Healam Bridge a single dubious sherd should not be used to suggest such a scenario.

The broad foundation date suggested would tie in with that for the nearby fort at Thornborough Farm, Catterick (Wilson 1991), identified by the excavator as Antonine, though, as at Healam Bridge, a Flavian date for the fort here had been supposed. Given the limited intervention at Catterick, Wilson erred on the side of caution in stating that the evidence was not conclusive in dating activity over the whole site to the Antonine period, and the same stance must be taken with regard to Healam Bridge. A wider contextualisation within the framework of the military north as a whole would at this stage not seem either possible or desirable.

The trenching across the defences and into the fort interior at Healam Bridge did not produce a great deal of evidence about the chronology and development of the defensive circuit, so that it is not possible to analyse the defences within a framework similar to that developed by Jones (1975). Nor was it possible to say much about the structures in the fort interior. Intensive work on large areas of auxiliary forts is still rare and it is often difficult to understand phasing or function of structures in isolation, though the opportunity to examine an entire fort site, as at Elginhaugh (Hanson and Yeoman n.d.), can help to provide a framework of comparative contextualising material for such an endeavour.

As to the vicus at Healam Bridge, the date of foundation is not discernible though it can be assumed that settlement became established relatively soon after the fort. However, it would appear that some activity in the vicus could have post-dated the fort, with there being one instance where a stone foundation overlay part of the backfilled fort ditch. A clearer example of such a relationship is provided by a parallel at Binchester (Ferris and Jones 1991) where the vicus spreads into part of the fort in the later 4th century. It has been noted above by Evans that the majority of the later 3rd to 4th century pottery was found outside the fort.

The results were of great interest in that they have allowed for some differentiation to be made between levels of activity in different areas of the vicus, and thus perhaps for functional variations to be suggested. Despite a recent substantial and important study of the military vici of Britain (Sommer 1984), it is true to say that they remain one of the most enigmatic features of the Romano-British landscape, particularly in the north where, as Snape has recently shown, interpretation and discussion is still dominated by the extensive work at Househeads and Vindolanda (Snape 1989). Again, if the isolated burial at Healam Bridge is part of a larger cemetery - whether civilian or military - then its importance is considerable.

As well as the information provided by the excavation about the fort and the vicus as separate entities, and about their spatial and temporal relationships, the artefacts and ecofacts recovered can also tell us something about economic and social relationships, though in one or two instances this is limited. The need to construct models of social relationships between the military and civilians (whether 'natives' or vicani) has been argued and demonstrated as valuable by Jones (1990), and it is to such a debate that artefact/ecofact studies can contribute beyond a site-specific analysis and study. However, quantities of pottery, animal bone and charred plant material from Healam Bridge are small, though as Evans has shown (above) some patterning within the vicus and distinctions between fort and vicus can nevertheless be demonstrated from the pottery. The bones have not been subjected to the same military-civilian comparison (for discussion of the military as opposed to civilian diet debate see King 1984) and this may be a useful future exercise, though the assemblage is not large. The environmental potential of the whole site has been demonstrated, but not realised to any extent by the limited nature of the present intervention.

## 10.2: The paper archive

The paper archive comprises the following records:

<i>Record</i>	<i>Quantity</i>
Context cards	138
Feature cards	57
Drawings (A1-A4 format)	57
Colour slides	129
Monochrome prints	129

An index to the archive is provided in Appendix 2.

## 10.3: The Roman pottery by Jeremy Evans

Apart from one or two rim sherds of some intrinsic interest the collection is too small both overall, and particularly from any individual context, to merit publication in its own right, although some material will clearly have to be presented to provide dating evidence for the stratigraphic account. If the stratigraphic account is to be published at this stage it is recommended that the samian ware examined here, together with that collected by MAP, is subject to further study, in particular to isolate the proportion of South Gaulish material and the consequent evidence of 1st century activity.

A timing and costing for further work on the coarse pottery (by J. Evans) and the samian (by B. Dickinson) is provided in section 11.0 below. A costing for the drawing of 22 vessels is also provided below.

## 10.4: The metalwork by Iain Ferris

None of this material is of particular intrinsic interest, and none is recommended for further study or publication.

## 10.5: The Human Skeleton by Stephanie Pinter-Bellows

No further work on the skeleton is recommended.

## 10.6: The animal bone by Stephanie Pinter-Bellows

The number of bones is below the limit which can be used to give statistical inferences about diet or animal husbandry. The collection does not justify any analytical work being carried out unless the faunal assemblage is added to at a later date. Because of the importance of the site, however, it might be advisable to produce a complete catalogue of the bones with measurements and aging of the teeth; especially if it will be a number of years before the site is investigated again. If this is carried out, not more than three days should be spent on it. The good condition of these bones suggest that other excavations on the site should be able to retrieve meaningful faunal information and recovery methods and sampling should be planned accordingly.

A costing and timing is included in section 11.0 below.

### 10.7: Environmental evidence

The environmental potential of the site has been demonstrated by the collection of charred plant material and its analysis. However, the quantity of material recovered is too small to justify any further work, with the exception of the editing and preparation of this data for a publication summary report. A costing for this work is included in section 11.0 below.

### 11.0: PUBLICATION PROPOSAL

The assessment work carried out at Healam Bridge - that is fieldwalking, geophysical survey and trial-trenching- deserves to be published in its own right in summary form, should no further work take place on the site. It is proposed that publication be in the form of an article in the period journal *Britannia*.

#### Synopsis

'Archaeological Work at the Roman Fort and Vicus, Healam Bridge, North Yorkshire'

by A.E. Jones, with contributions by B. Dickinson, J. Evans, I. M. Ferris, C. Gaffney, L. Moffett and S. Pinter-Bellows.

Introduction	AEJ	500 w.	1 figure
Fieldwalking	AEJ	500 w.	1 figure
summary			
Geophysical Survey	CG	1000 w.	1 figure
summary			
Excavation summary	AEJ	2000 w.	4 figures 2 plates
Finds			
Samian	BD	200 w.	
Coarse pottery	JE	1000 w.	1 Figure
Environmental	LM	250 w.	1 table
Animal bone	SPB	1000 w.	1 table
Discussion	AEJ/IMF	2000 w.	

TOTAL 8450 words, 8 Figures, 2 plates, 2 tables

KEY: AEJ= A.E. Jones, CG=Chris Gaffney, JE= Jeremy Evans, LM= Lisa Moffett, BD= Brenda Dickinson, IMF= Iain Ferris  
SPB= Stephanie Pinter-Bellows.

Standard English Heritage publication grant per page (as of 1/4/94) is £45 and this should be followed as a guideline in the first instance.



Text 15 pages  
Figures/ tables 10 pages  
Plates 2 pages  
Total 27 pages at £45 p.p. = £1215

### Costing

I. Ferris	264
A. Jones	440
Illustration	690
Management and secretarial	322
J. Evans (coarse pottery)	161
B. Dickinson (samian)	260
L. Moffett (environmental)	150
C. Gaffney (geophysical)	300
Sub-total	2587
Expenses and materials	
University overheads	687
Office costs and materials	100
Publication cost	1215
Sub-total	2002

**FINAL TOTAL =** **£4589**  
(VAT exclusive)

### 12.0: ACKNOWLEDGEMENTS

The project was sponsored by Anthony Walker and Partners, and was monitored by Dan Johnson and Ed Dennison for the sponsor, and for BUFAU by Iain Ferris, who also edited this report. The project was directed by Alex Jones, assisted by Heather Sugden (Supervisor), Dave Leigh, Edward Eastaugh, Katie Hirst and Emma Turner. Additional assistance was provided by Bob Burrows, Mark Allen, Marianne Ridgeway and Derek Moscrop. Rebecca Roseff advised on environmental sampling, and processed the samples in the laboratory. Finds processing was undertaken by Emma Turner, under the supervision of Lucy Salmon. Jane Evans commented on the finds. We are also grateful to the specialists for their contributions, included in this report.

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## Appendix 1: Pottery spot dates by Jeremy Evans

Note: All dates are expressed as a *terminus post quem*

<i>Context</i>	<i>Area</i>	<i>Date</i>
1001	A	Hadrianic - Antonine
1002	A	Hadrianic - 3rd century AD
1003	A	160 AD - mid 3rd century AD
1004	A	4th century AD
1007	A	1st - 3rd century AD
1009	A	Late 4th century AD
1101	B	4th century AD
1103	B	Mid 3rd to mid 4th century AD
1105	B	Late 2nd century AD ?
1106	B	Hadrianic - Antonine
1108	B	Hadrianic or later
1109	B	3rd century AD
1111	B	4th century AD
1112	B	Mid - late 4th century AD
1113	B	Hadrianic - Antonine
1117	B	Hadrianic - Antonine
1202	C	Mid 3rd - mid 4th century AD
1203	C	Late 2nd century AD or later
1205	C	Hadrianic or later
1206	C	Hadrianic or later
1216	C	17th century AD or later
1403	E	Hadrianic - Antonine
1601	G	18th - 19th century AD
2002	K	Mid - late 3rd century AD (or 4th century)
2003	K	2nd century AD or later
2004	K	Late 2nd century AD or later
2006	K	3rd century AD
2012	K	4th century AD
2014	K	Hadrianic or later
2021	K	(Late 2nd century) - early 3rd century AD
2103	L	18th century AD or later
2201	M	19th century or later
2203	M	18th century or later
2205	M	Early 4th century AD
2206	M	Hadrianic - Antonine
2207	M	Early 4th century AD
2209	M	4th century AD
2211	M	Hadrianic - Antonine

## Appendix 2: Archive summary

<i>File no.</i>	<i>Contents</i>
1	Context and feature records: Trenches A-C Index to context and feature records
2	Context and feature records: Trenches D-J Index to context and feature records
3	Context and feature records: Trenches K-M Index to context and feature records
4	Photographs: Monochrome print contact sheets, colour slides, photographic index
5	Drawing index (A1-A3 drawings separate)
6	Finds records: finds index, assemblage summaries, material summaries
7	Documentation; background information
8	Environmental sampling and processing records
9	Reports, copies of Interim and Final reports, originals of specialist contributions

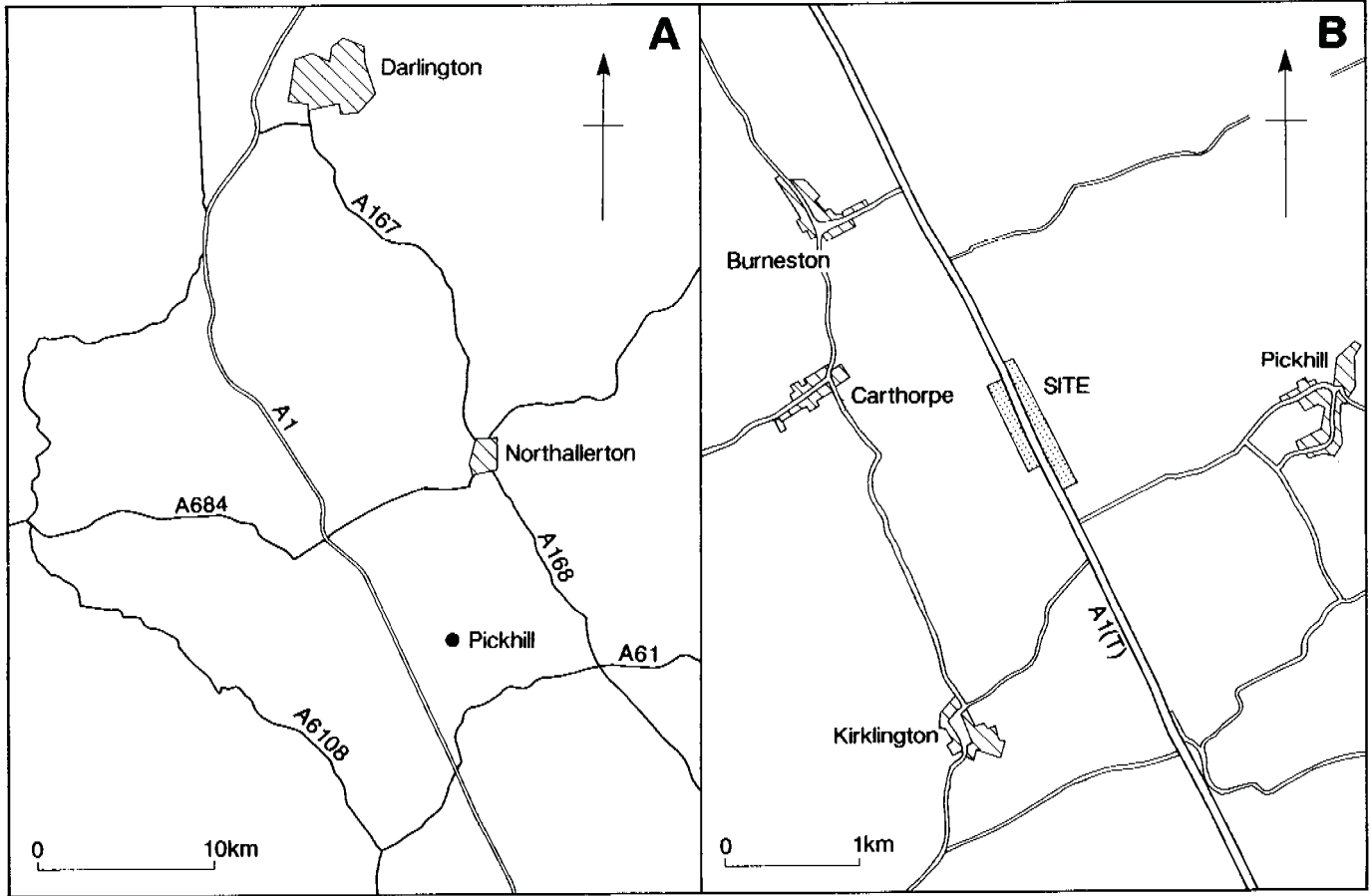
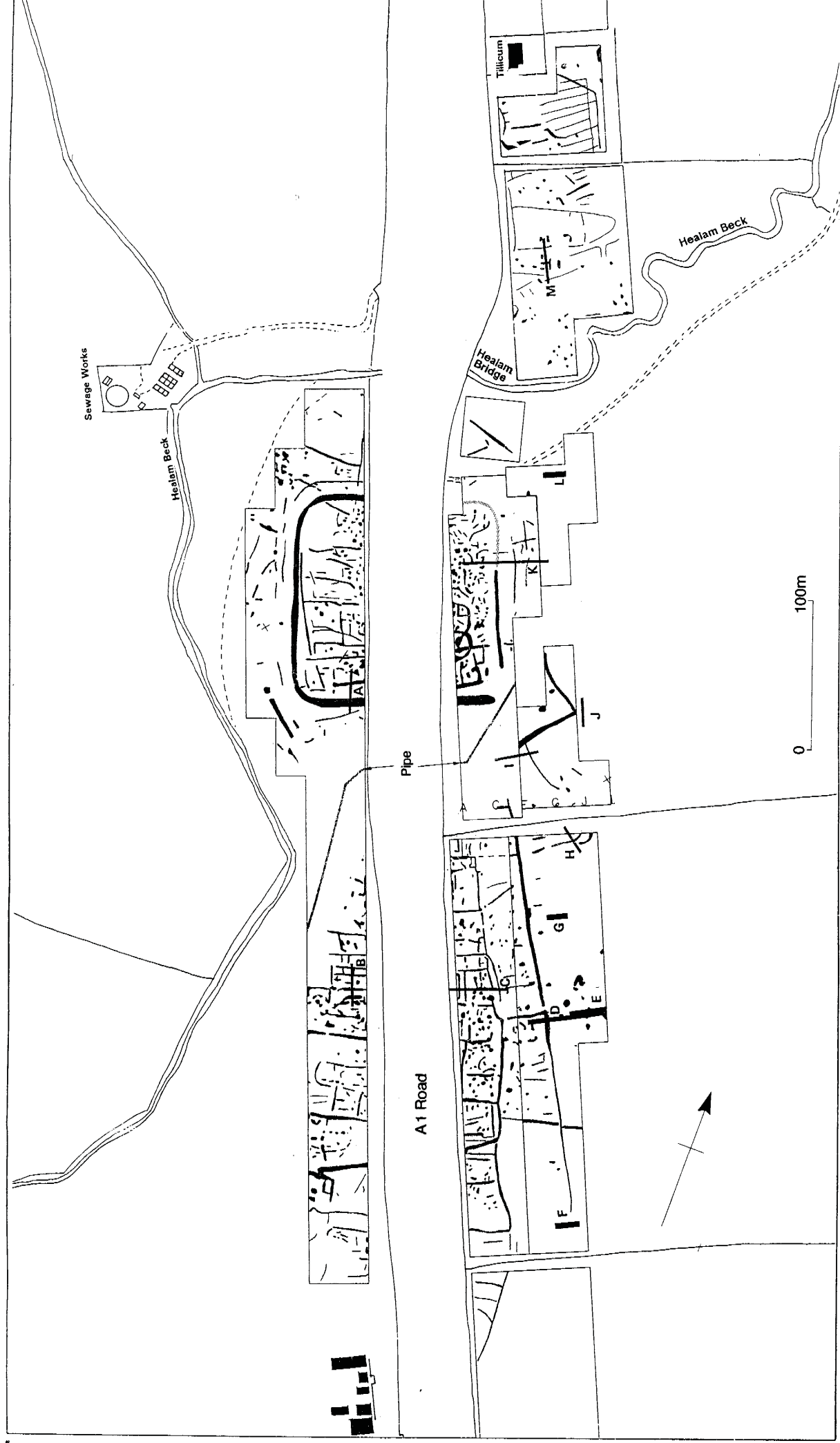
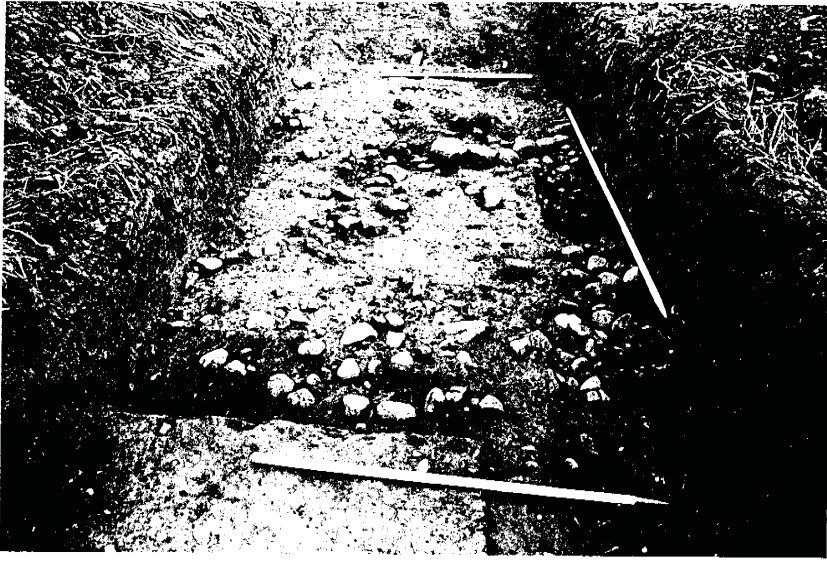


Fig.1



ORIGINAL AT A3

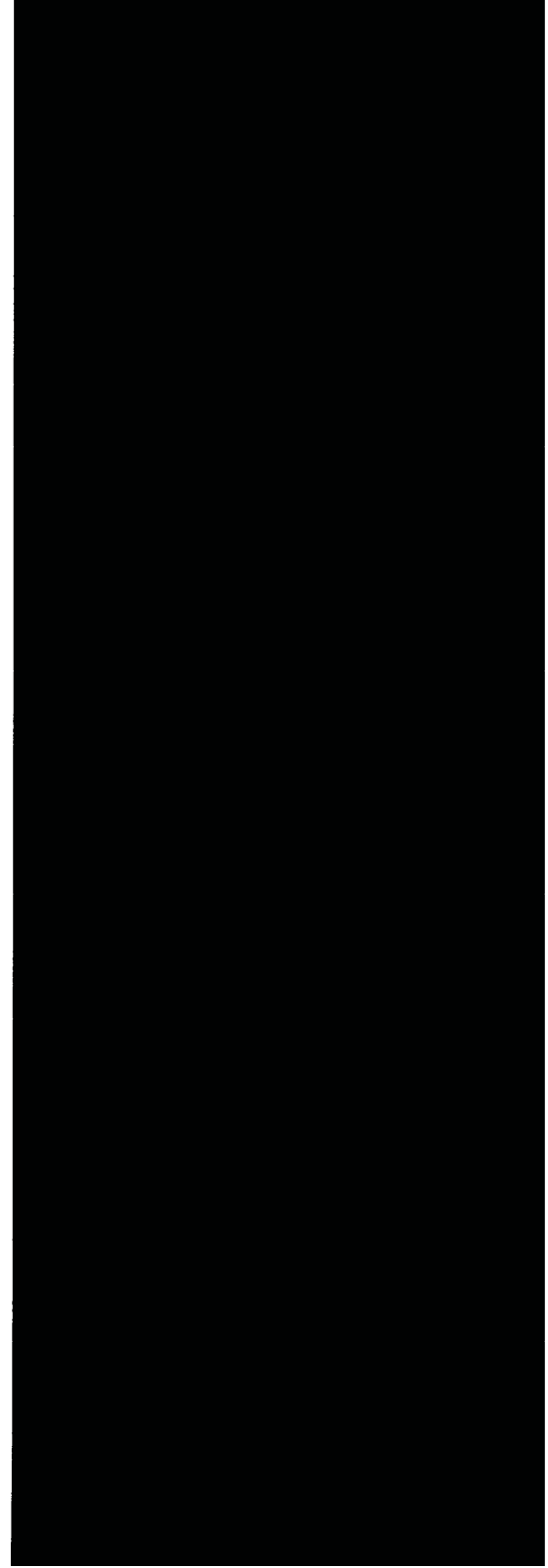
FIG.3



▲  
PLATE 1



PLATE 2 ▶



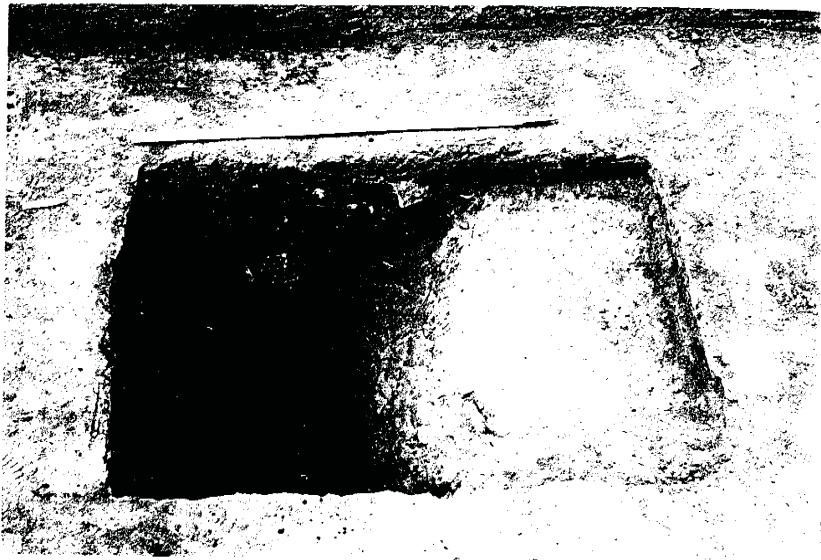


PLATE 3

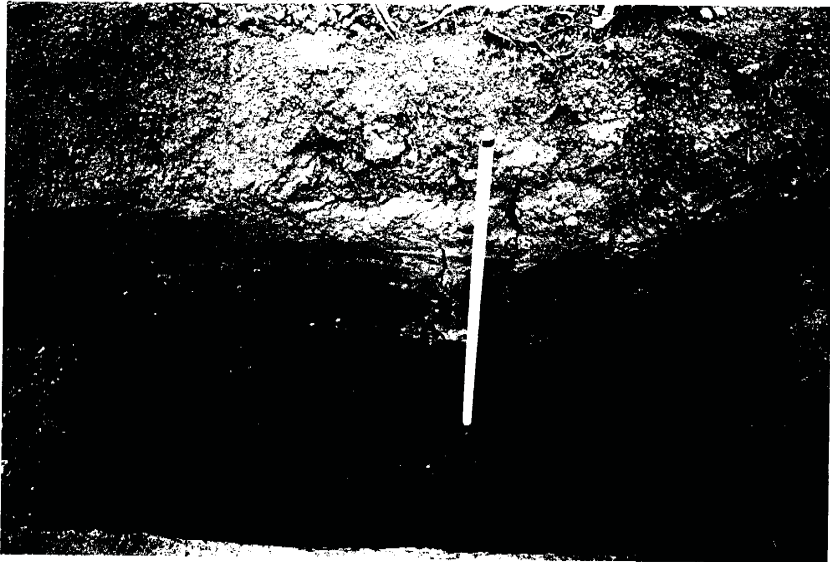


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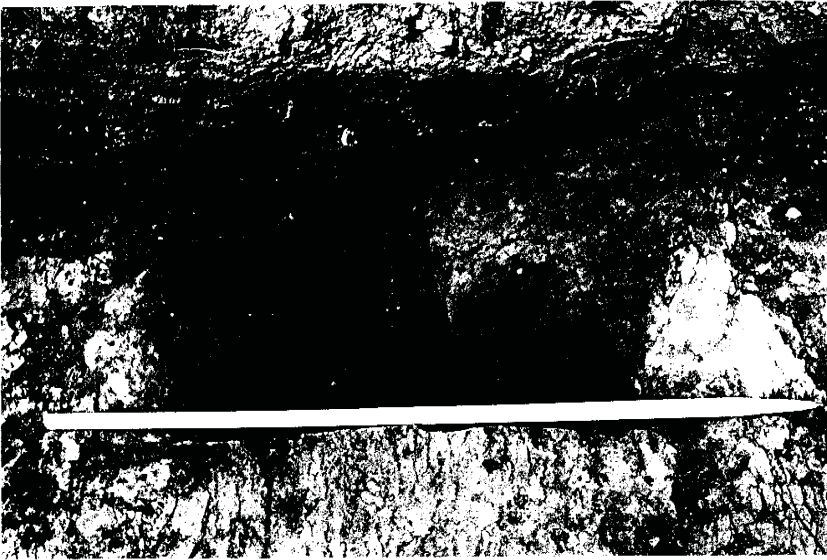


PLATE 5

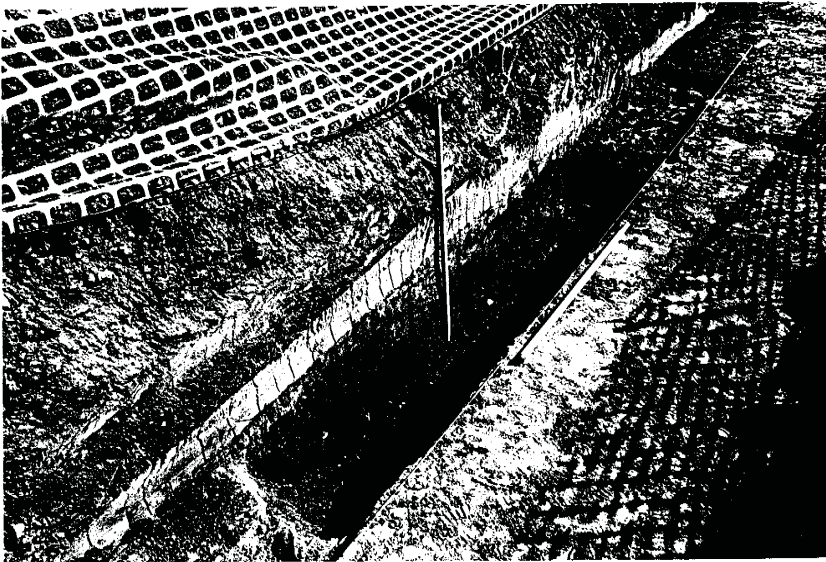


PLATE 6

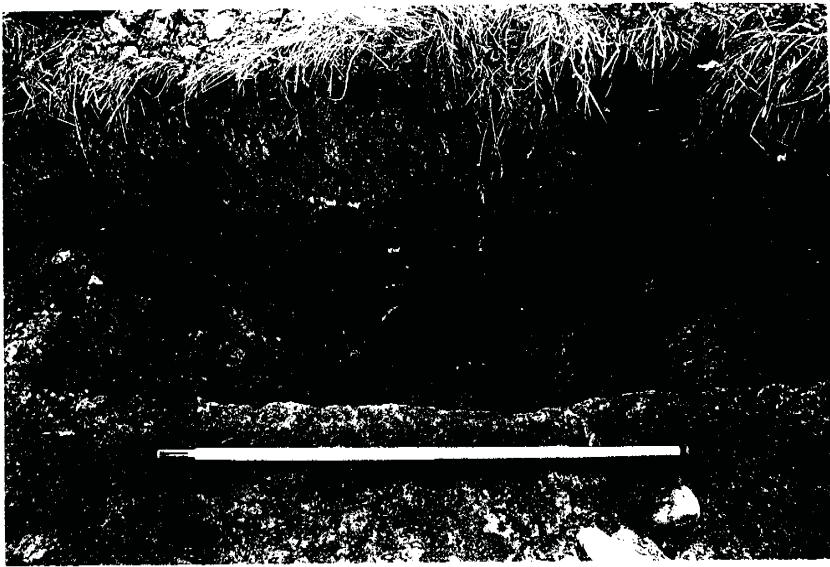
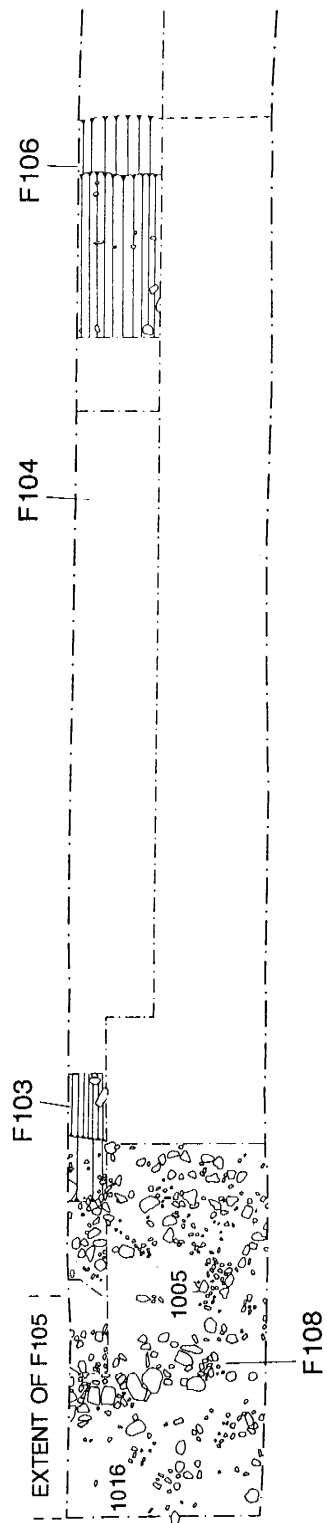
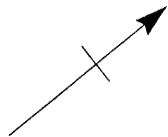


PLATE 7

# Trench A

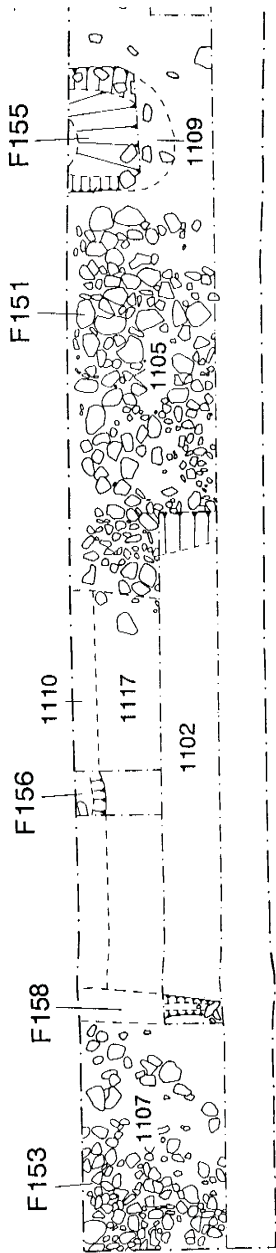


E2525/N3465

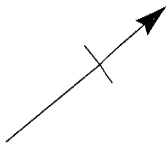


ORIGINAL AT A3

# Trench B

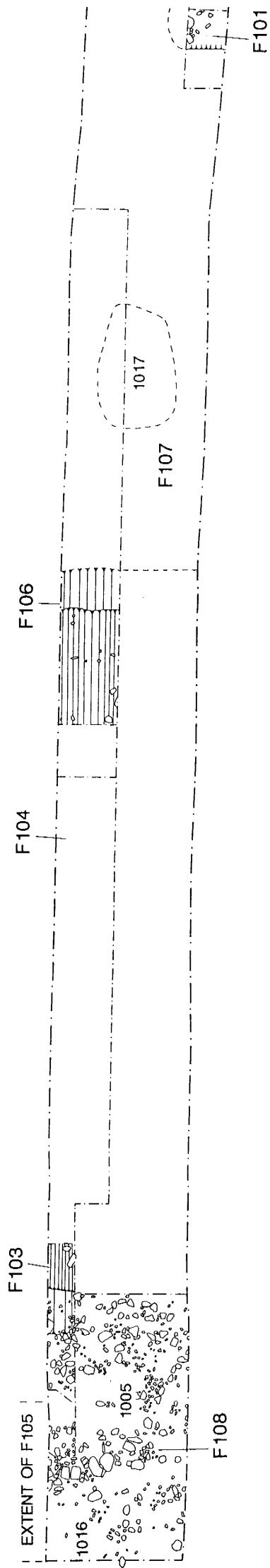


E2410/N3287



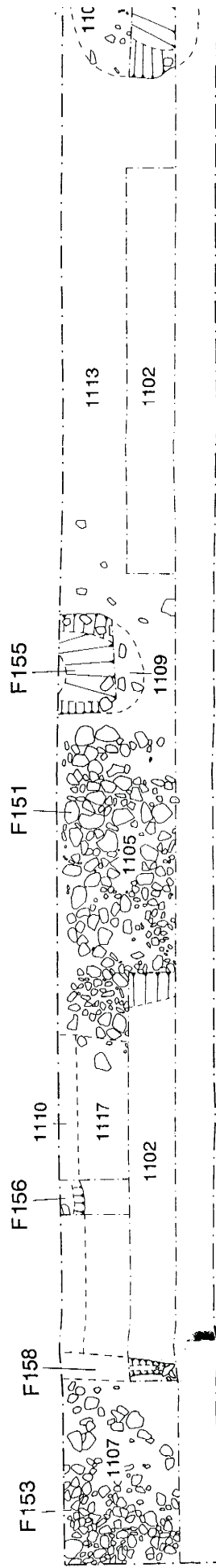
1.2

### Trench A



ORIGINAL AT A3

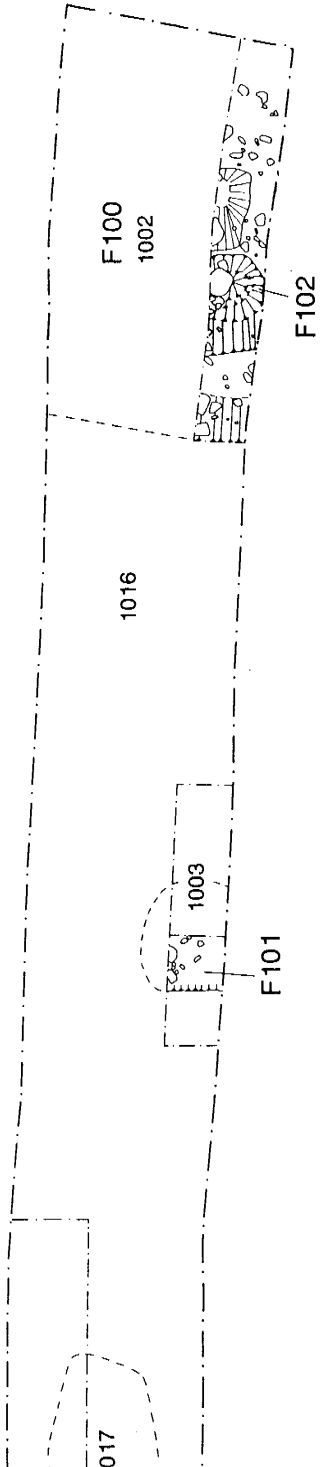
### Trench B



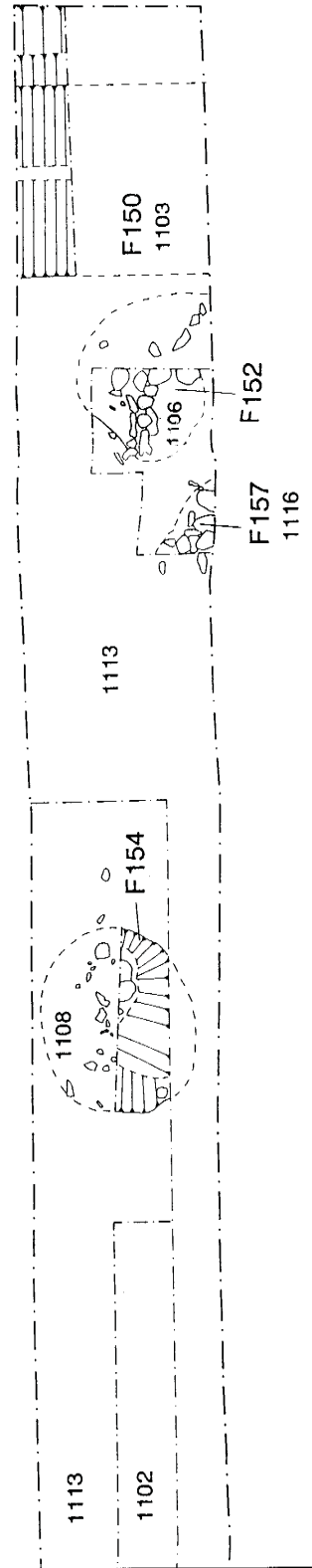
1.3

ORIGINAL AT A3

E2312/N3500

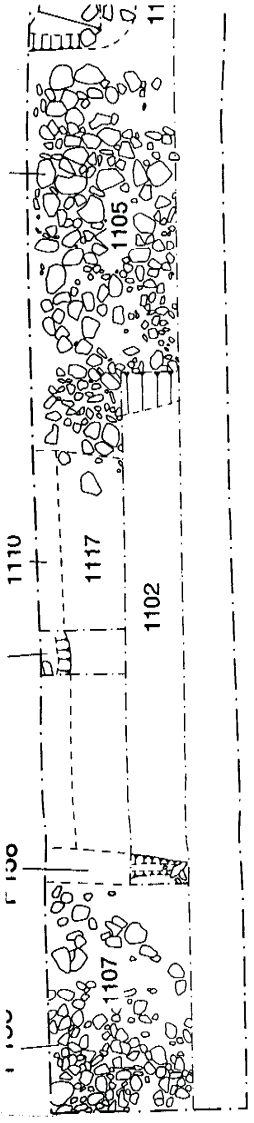
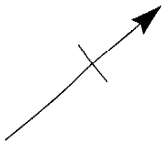


E2393/N3320



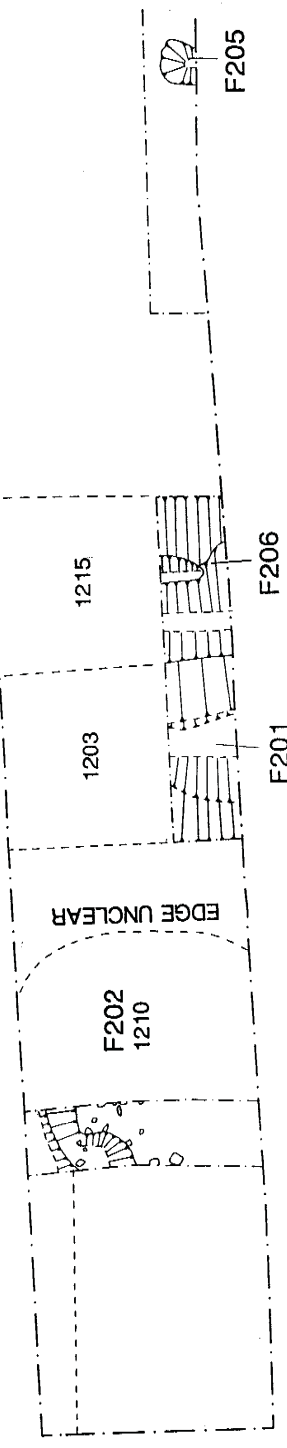
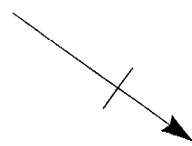
1-A

E2410/N3287



# Trench C

E2500/N3345



ORIGINAL AT A3



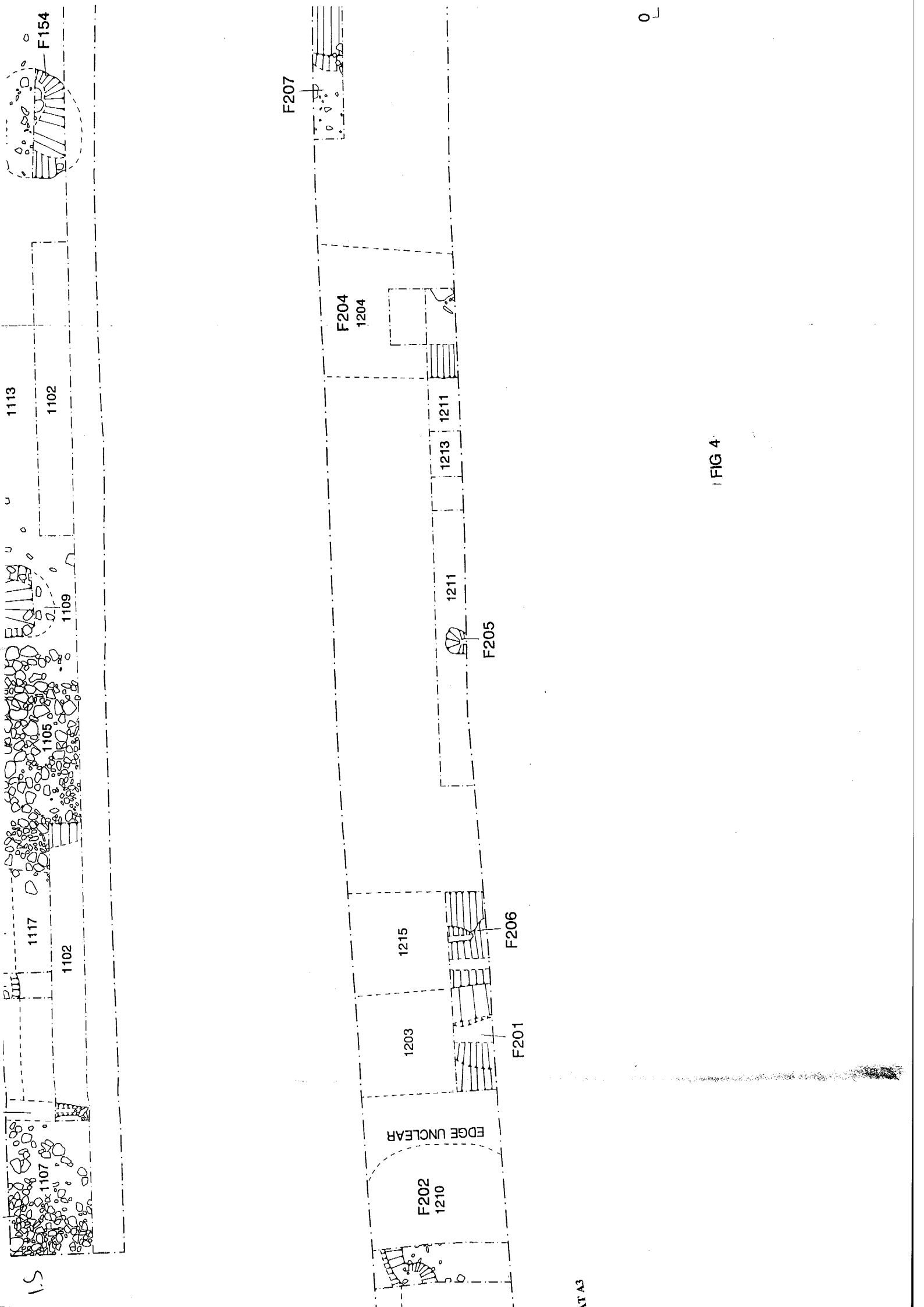
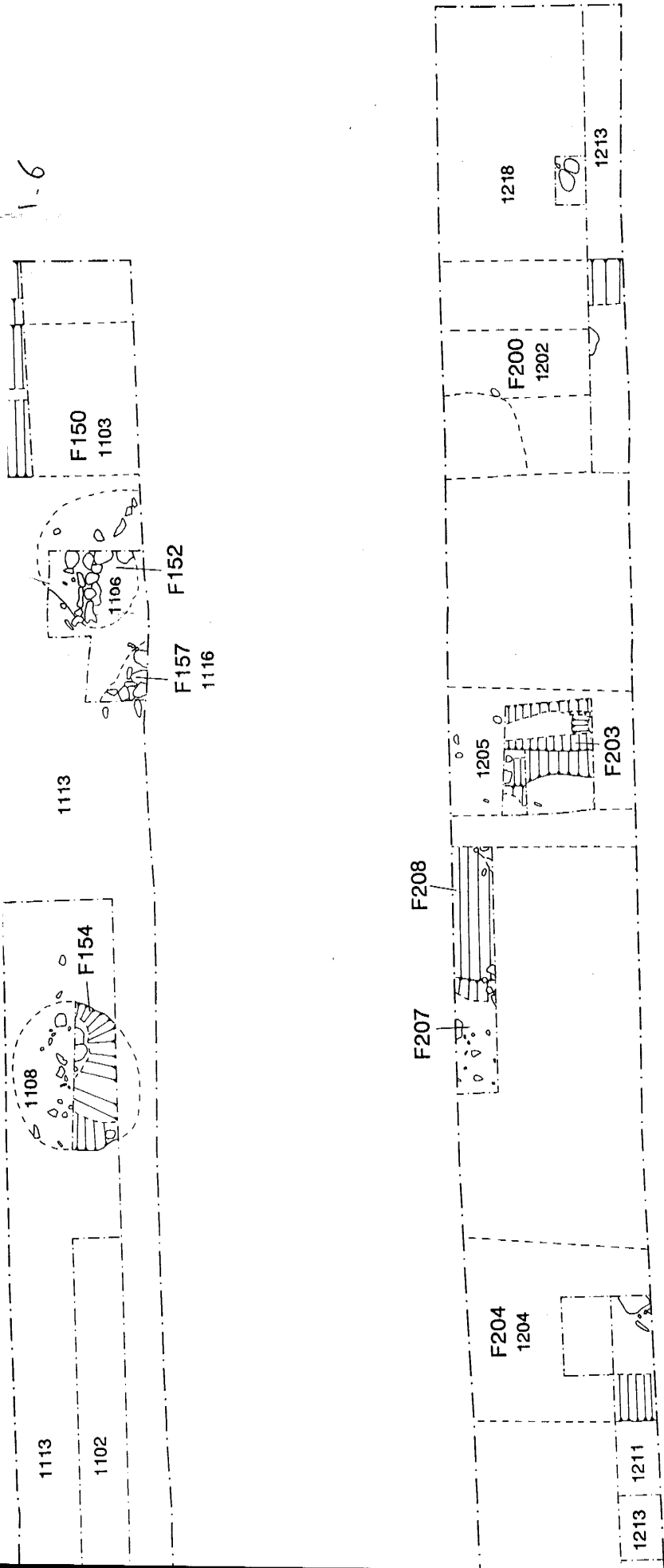


FIG 4



E2460/3325

ORIGINAL AT A3



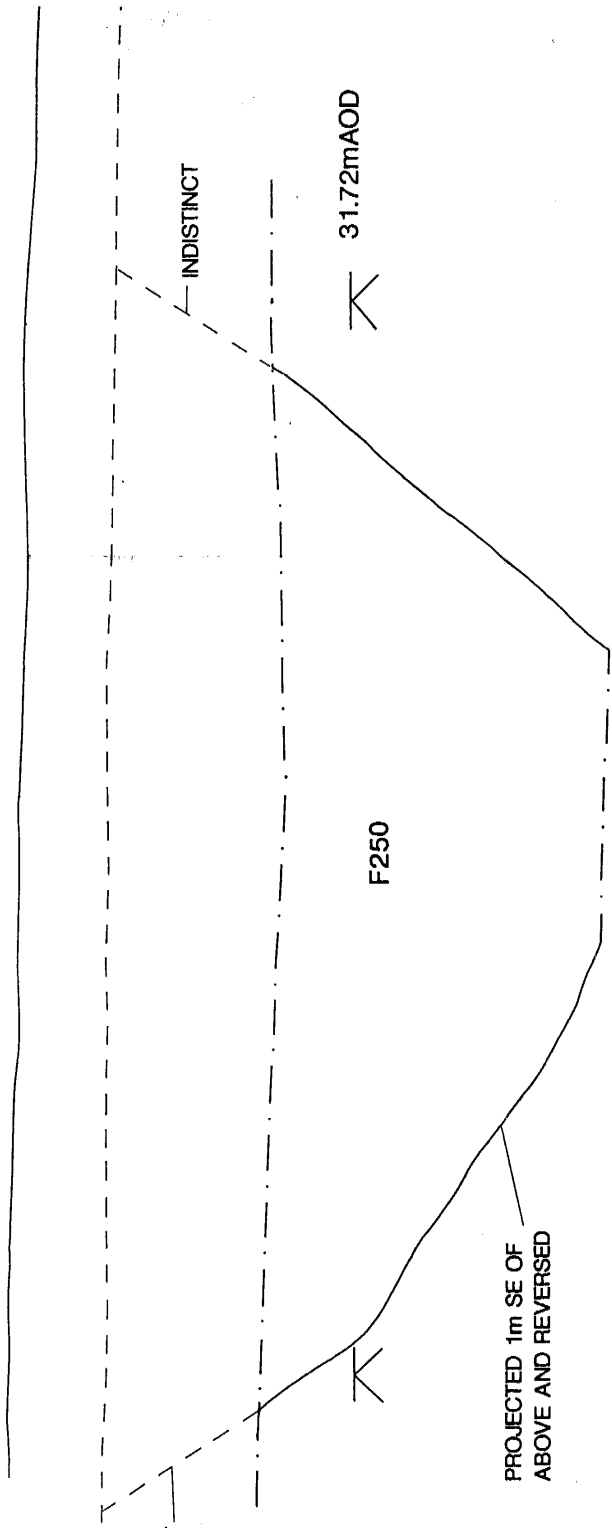
FIG 4

102.1

# Trench D

W

E



INDISTINCT

INDISTINCT

F250

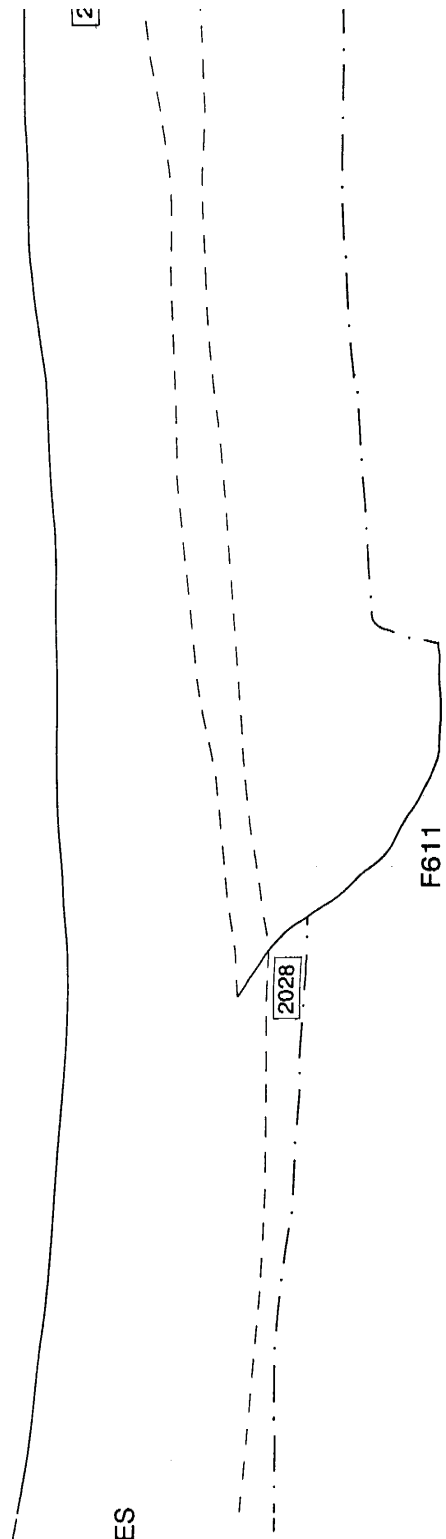
31.72mAOD

PROJECTED 1m SE OF ABOVE AND REVERSED

ORIGINAL AT A3

# Trench K

E



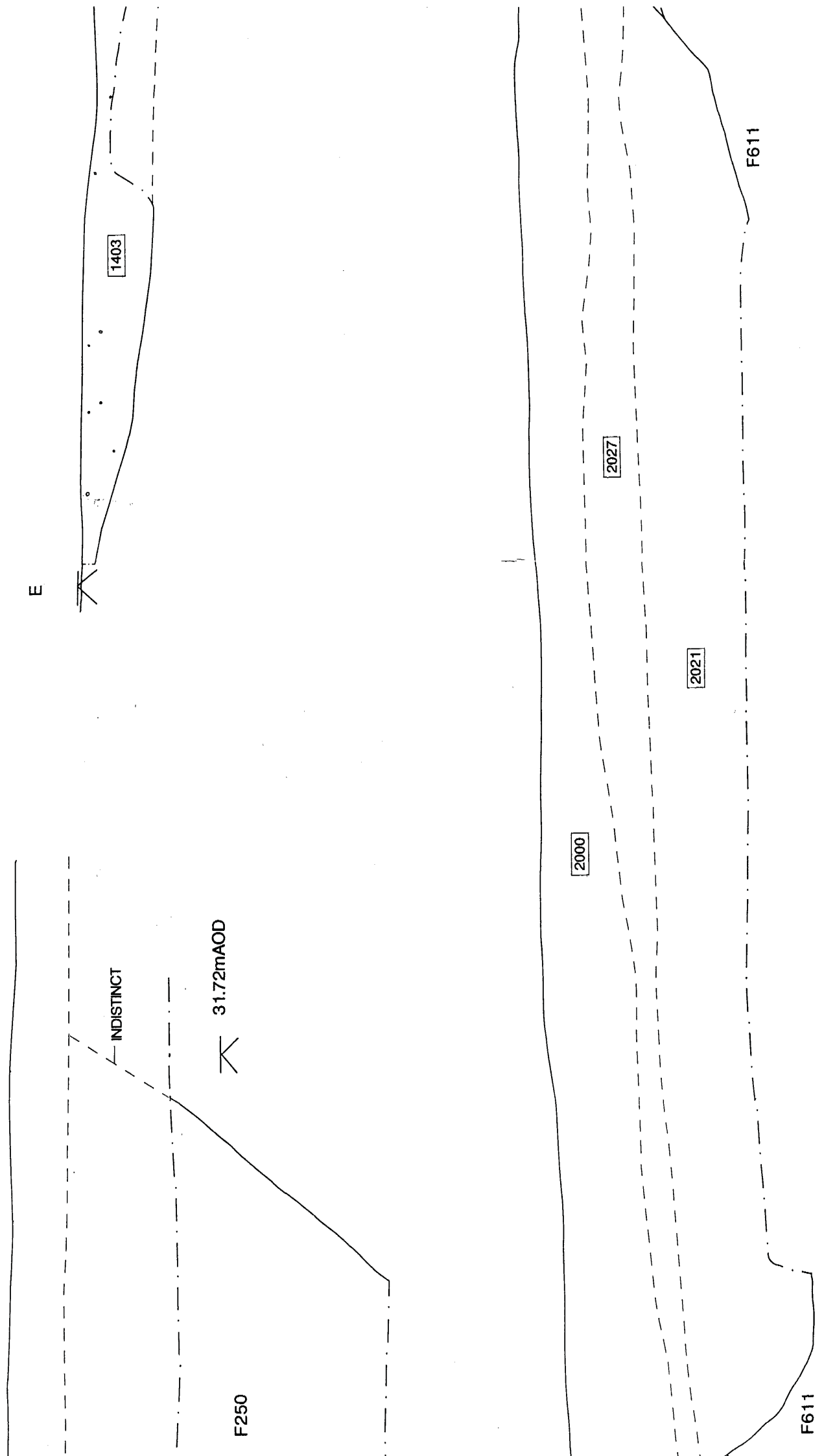
TRENCH CONTINUES

2028

F611

E 2-2

Trench E



E

INDISTINCT

31.72mAOD

F250

2000

2027

2021

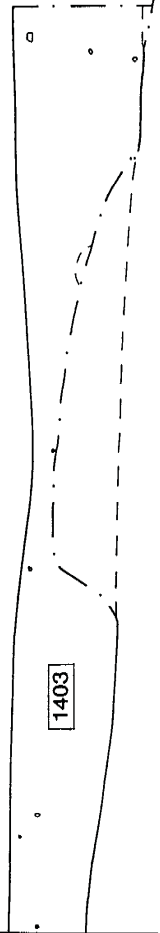
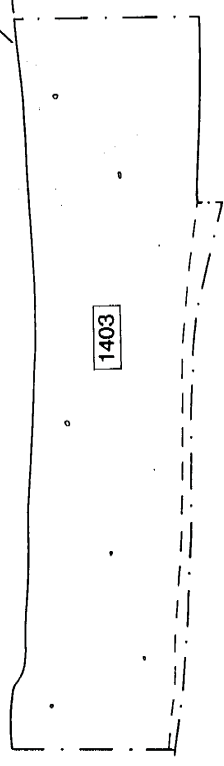
F611

F611

W

33.66mAOD

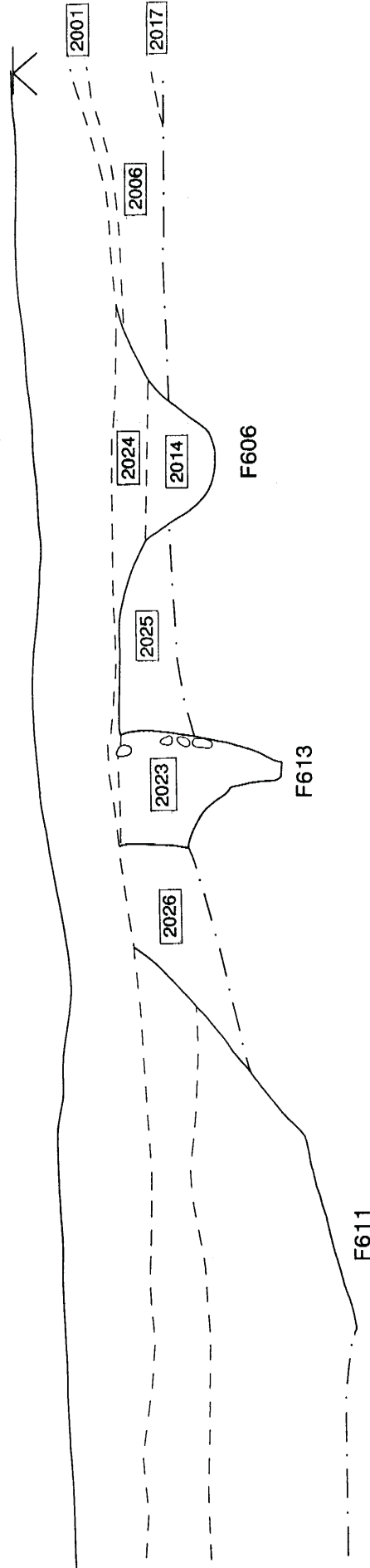
2-3



ORIGINAL AT A3

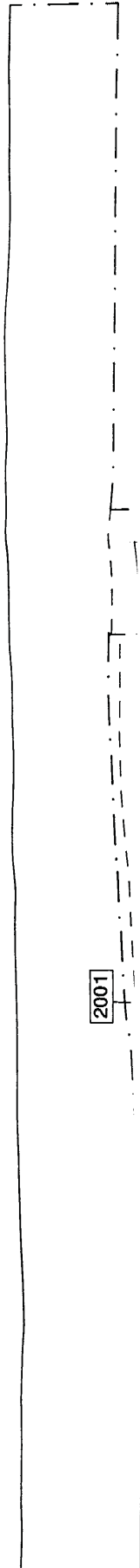
W

CONTINUES BELOW LEFT

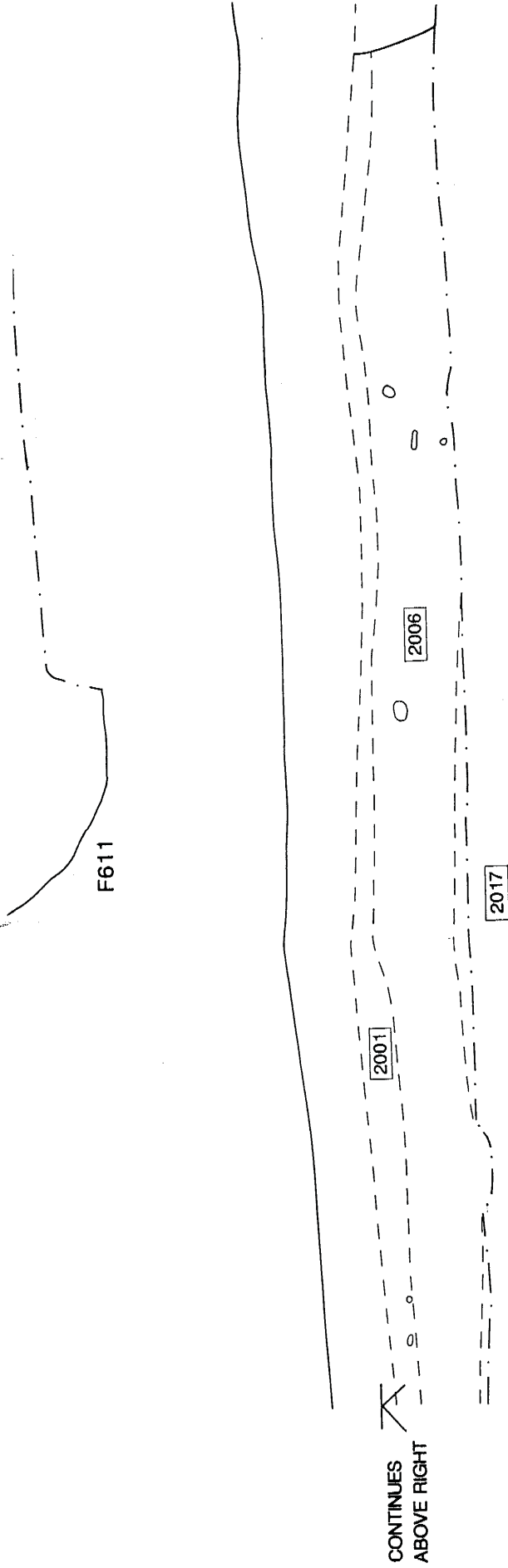


W

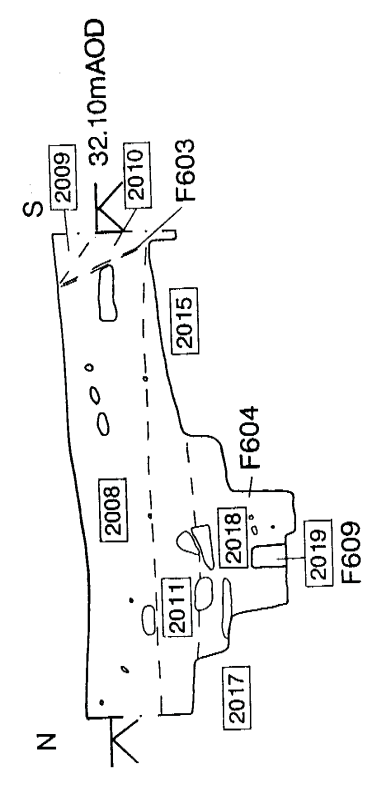
31.70mAOD



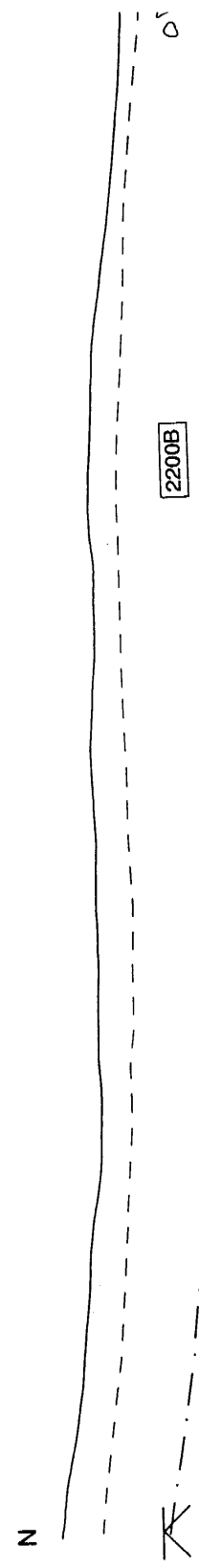
2-A



### Trench K



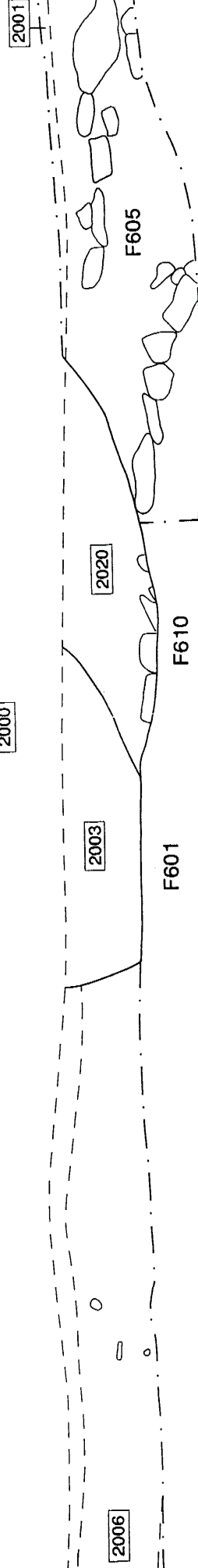
### Trench M





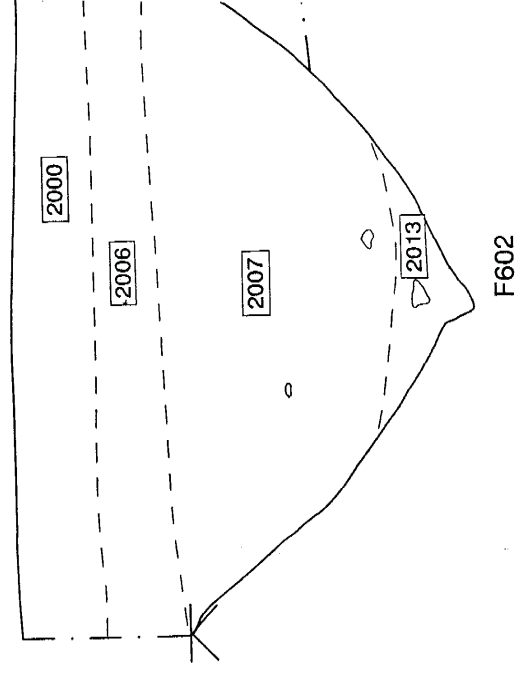
2.S

F611

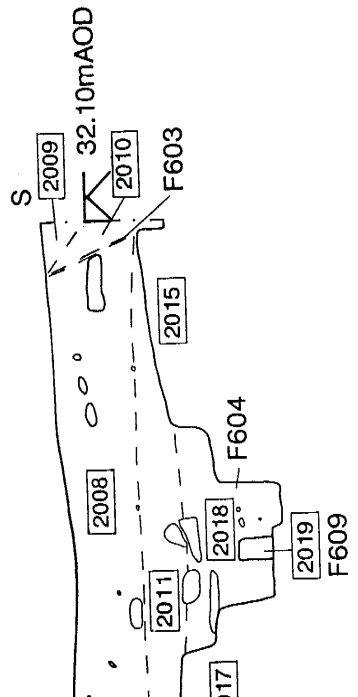


Trench K

W



Trench K



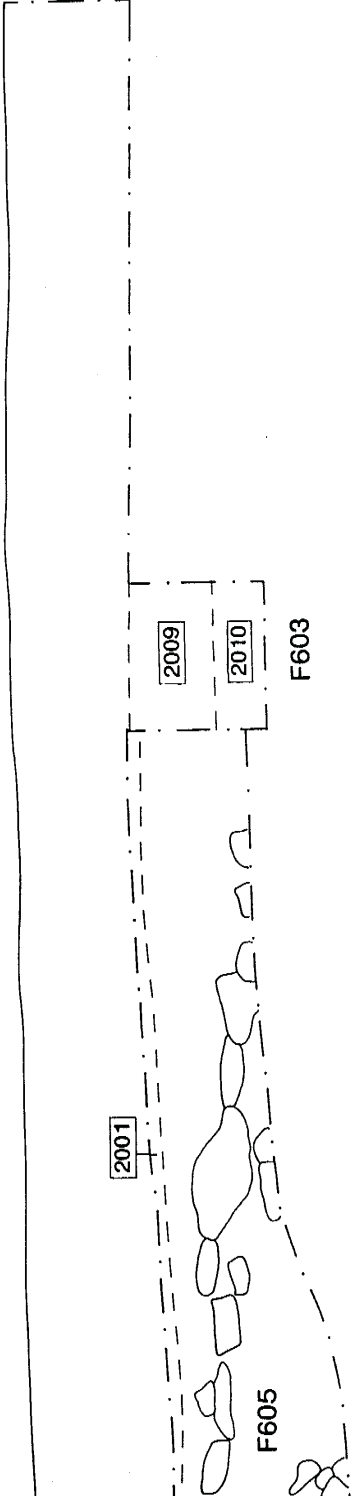
2200NB

0.5

0.5

W

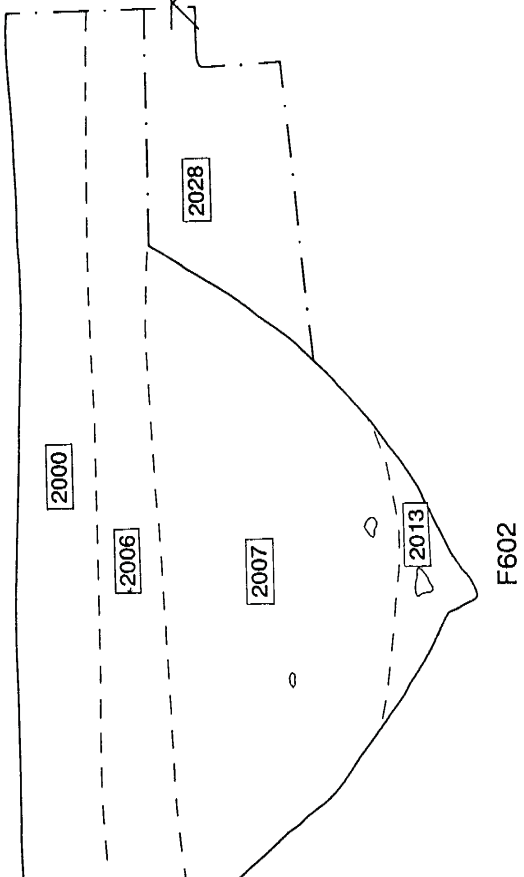
31.70mAOD



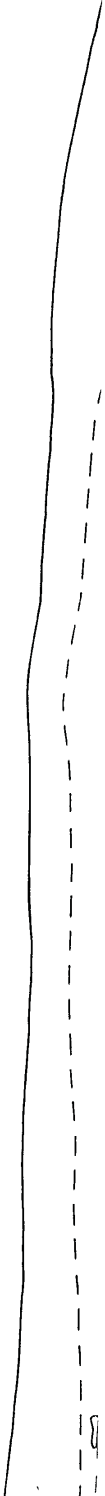
ch K

E

31.58mAOD



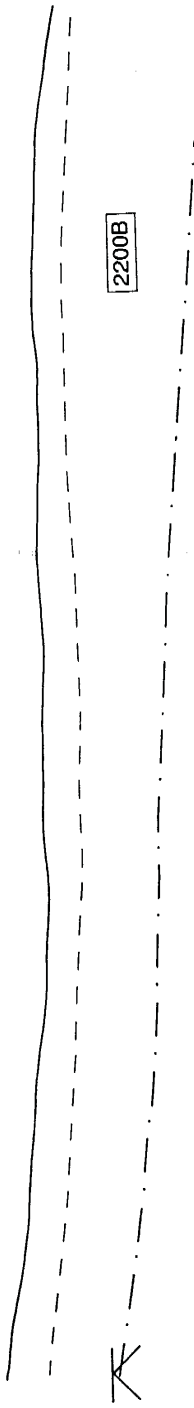
31.41mAOD



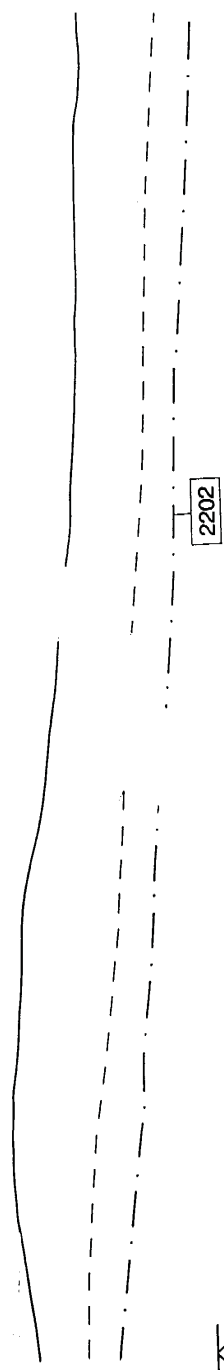
2019  
F609

# Trench M

N



CONTINUES  
ABOVE RIGHT



N

0



2-8

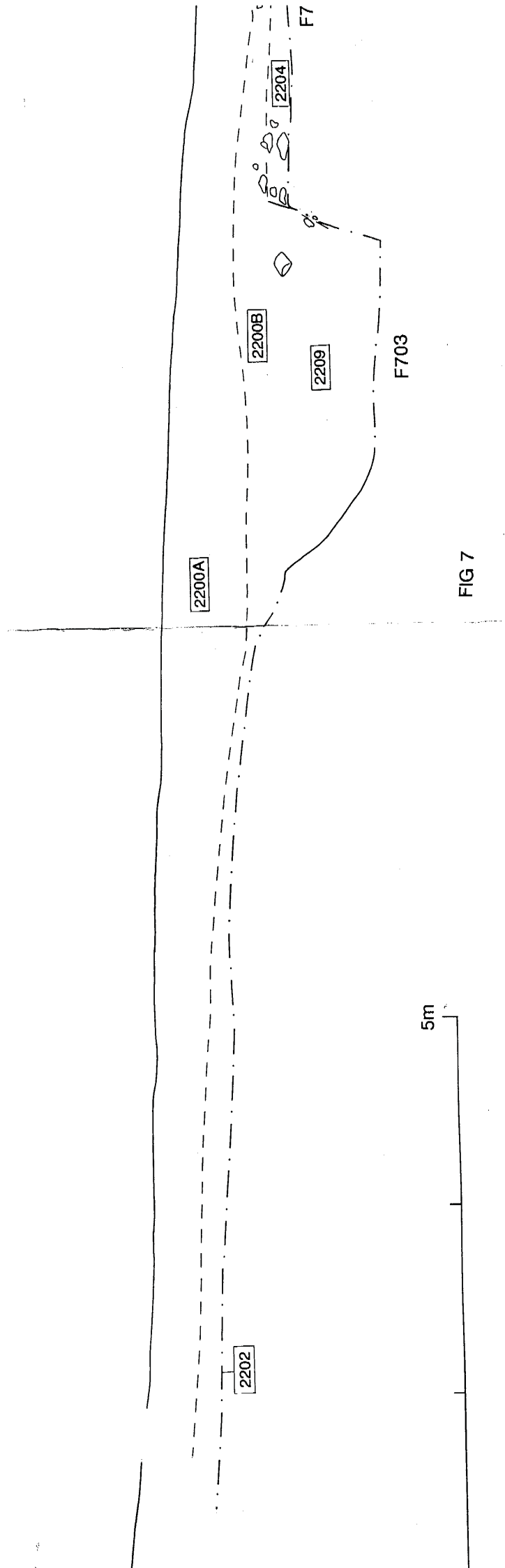
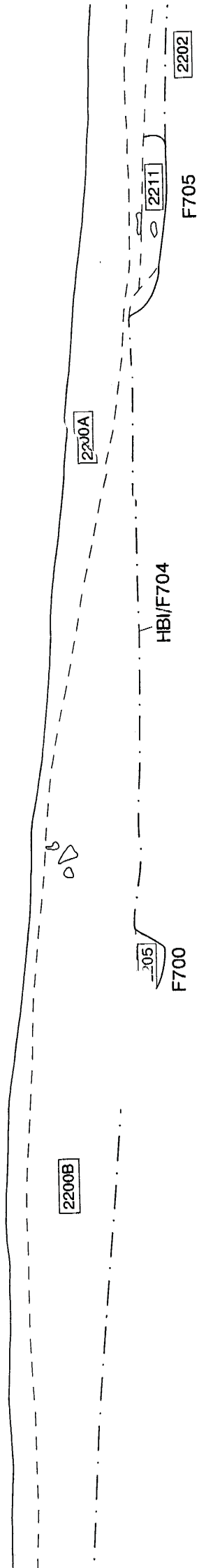


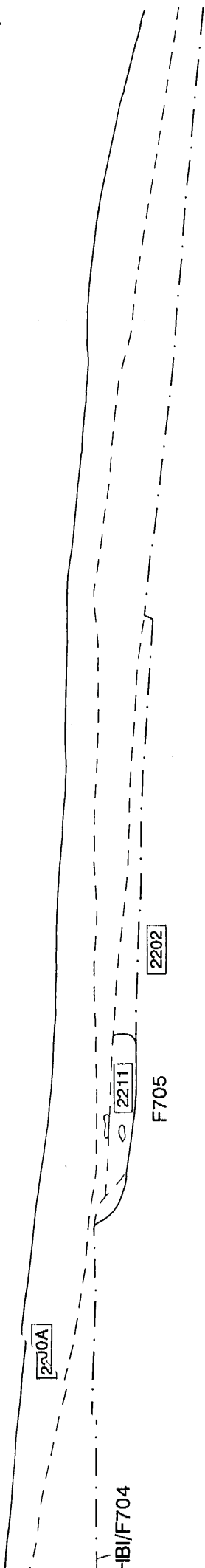
FIG 7

5m



2-9

31.41F



CONTIN  
BELOW

ORIGINAL AT A3

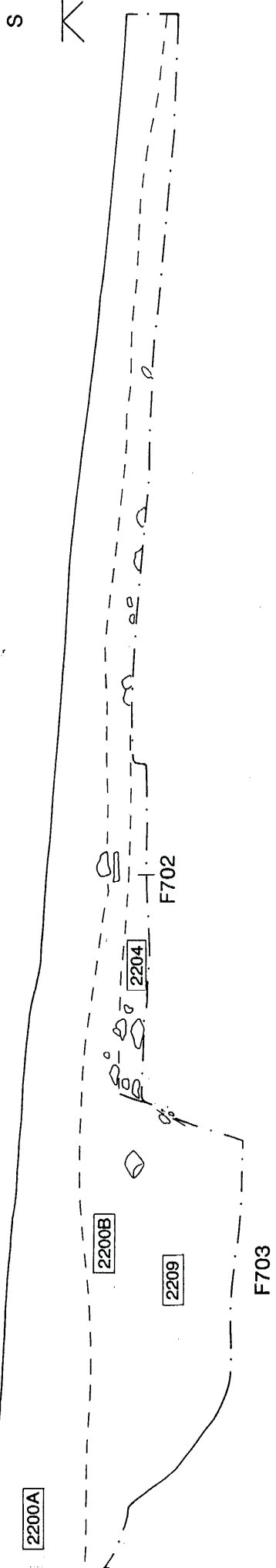
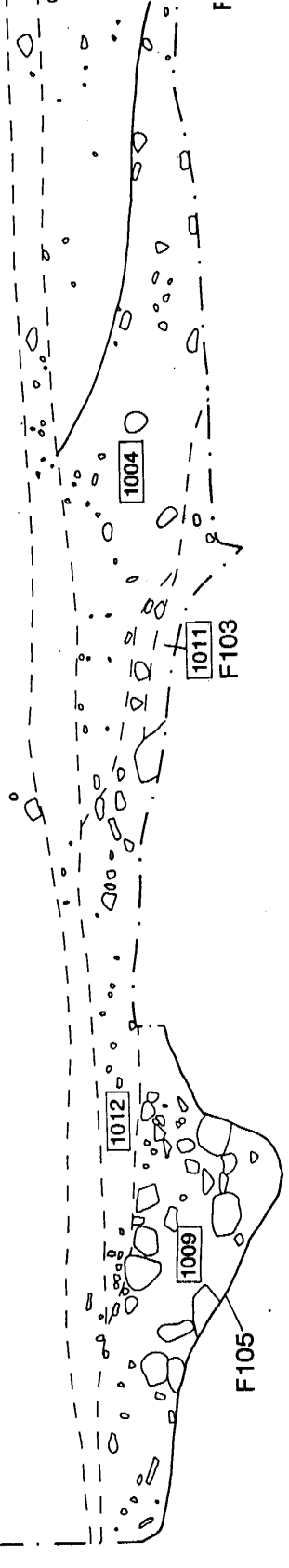


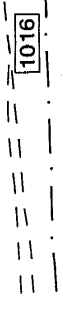
FIG 7

TRENCH A

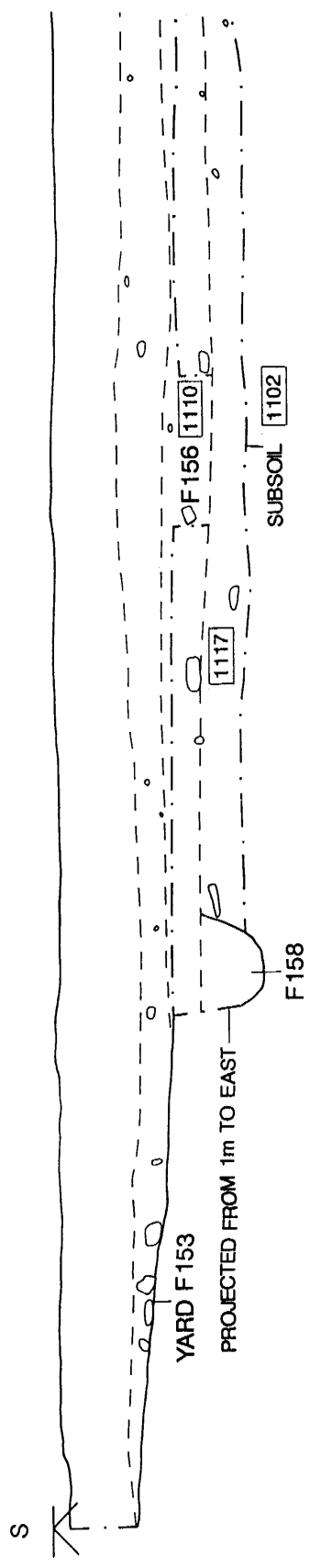


ORIGINAL AT A3

CONTINUES ABOVE RIGHT



Trench B





3.2

1000

1013

1008

1010

1004

1011

F103

F104

F104

1000

1100

1118

F156

1110

1117

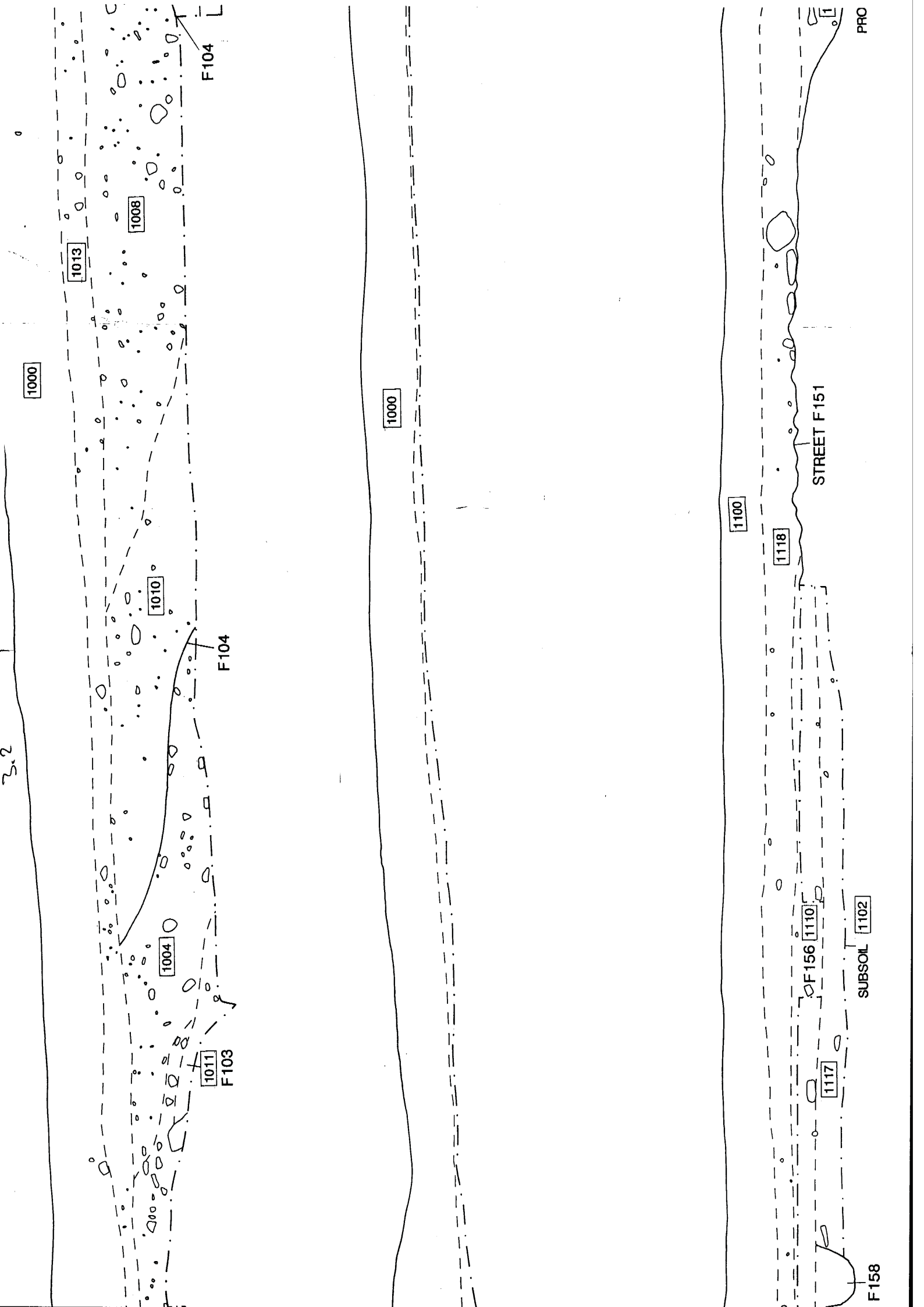
SUBSOIL

1102

F158

STREET F151

PRO



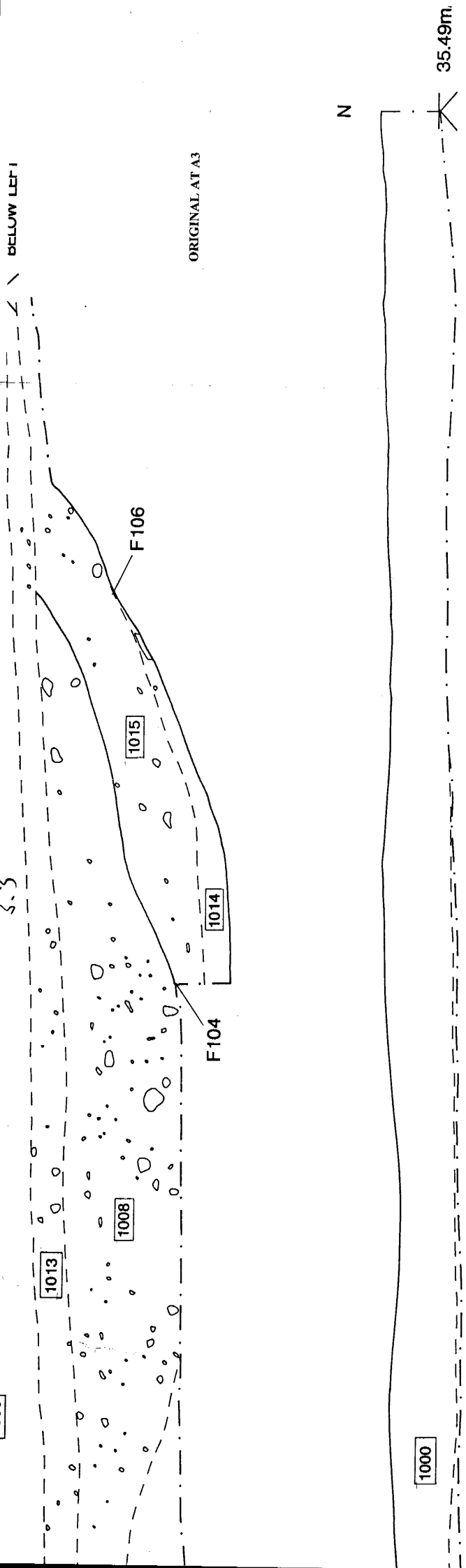
BELLOW LEFT

3.3

ORIGINAL AT A3

N

35.49m



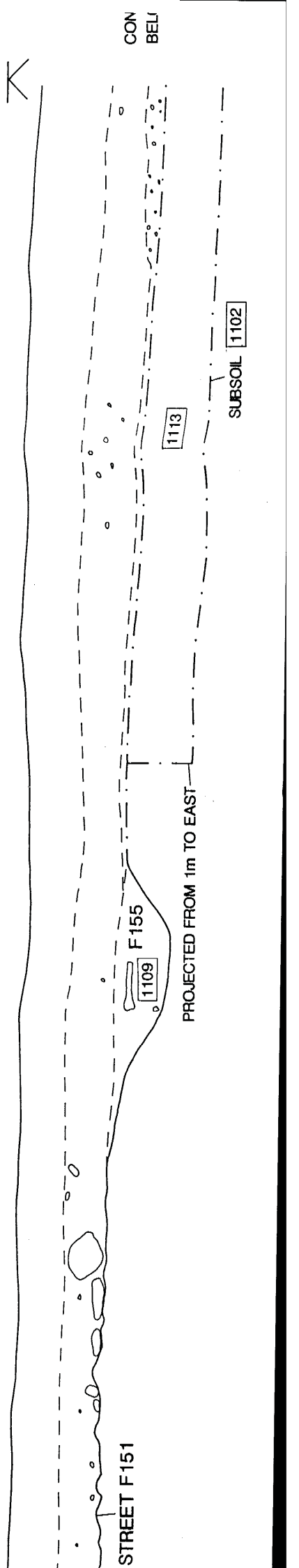
^

CON  
BEL

STREET F151

PROJECTED FROM 1m TO EAST

SUBSOIL 1102



3.A

YARD F153

PROJECTED FROM 1m TO EAST

F158

CONTINUES  
ABOVE RIGHT

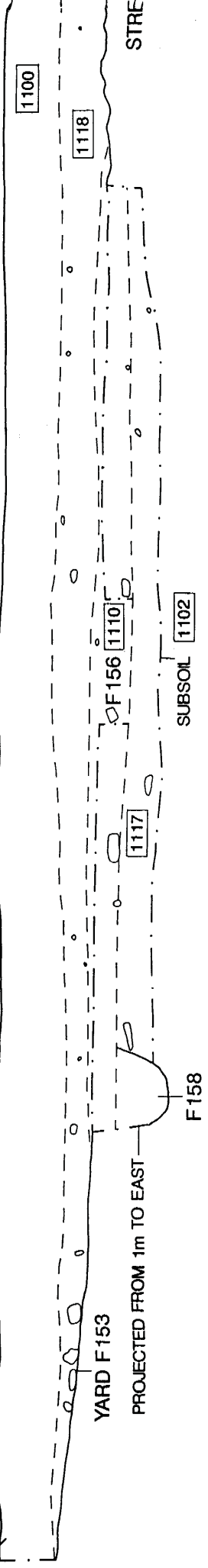
Trench C

W

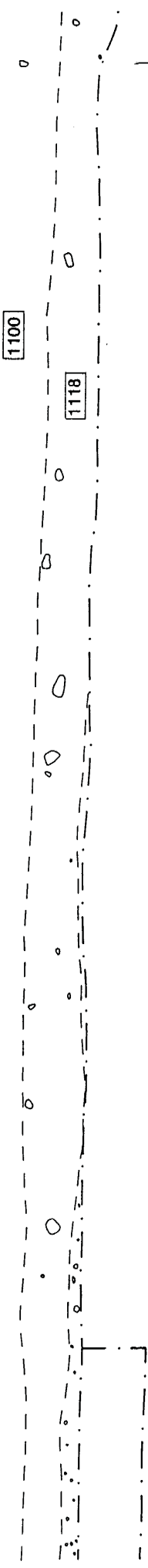
F200

ORIGINAL AT A3

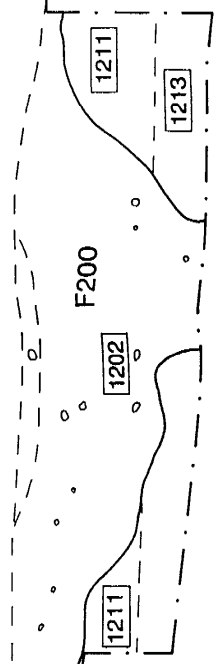
3.S

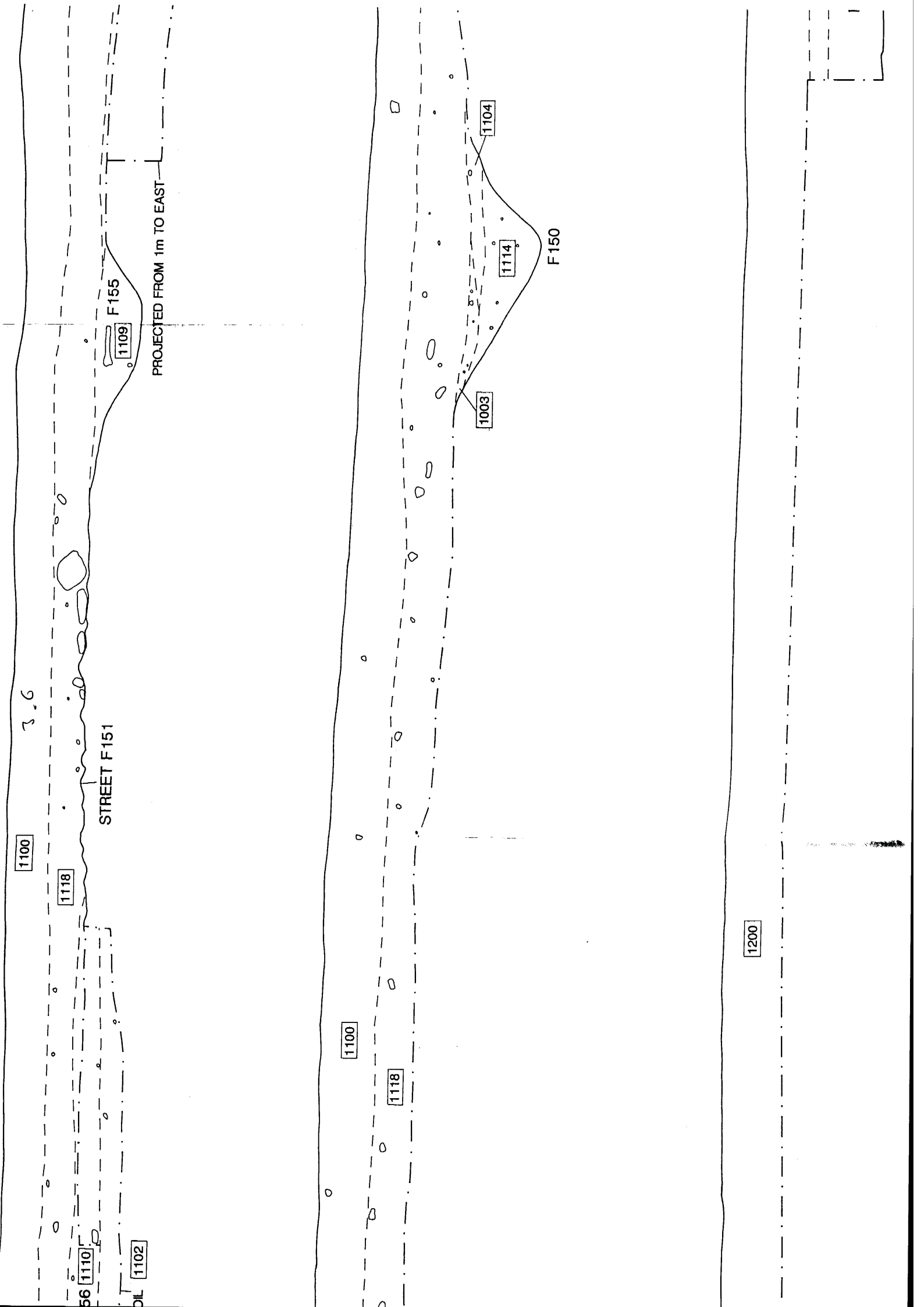


CONTINUES  
ABOVE RIGHT



1200





3.6

1100

1118

STREET F151

F155

1109

PROJECTED FROM 1m TO EAST

1100

1118

1003

1104

1114

F150

56 1110

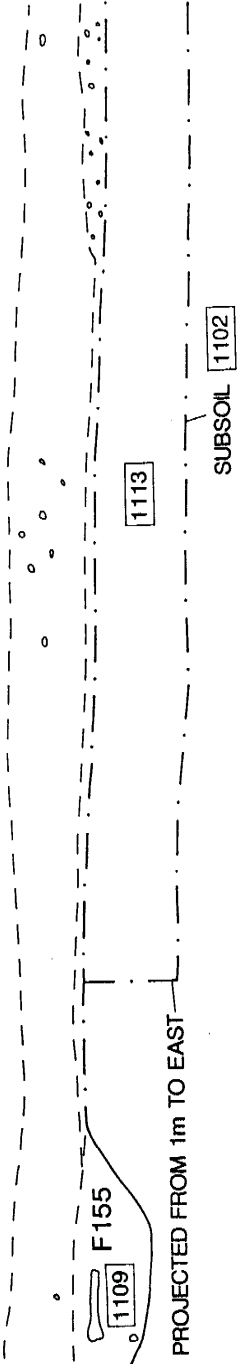
DIL 1102

1200

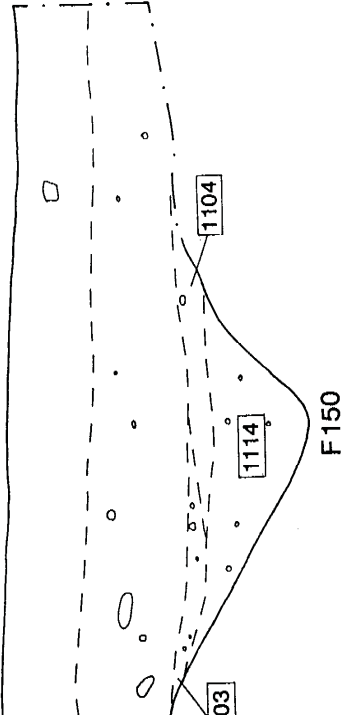
3.7



CONTINUES  
BELOW LEFT



N 32.74mAOD



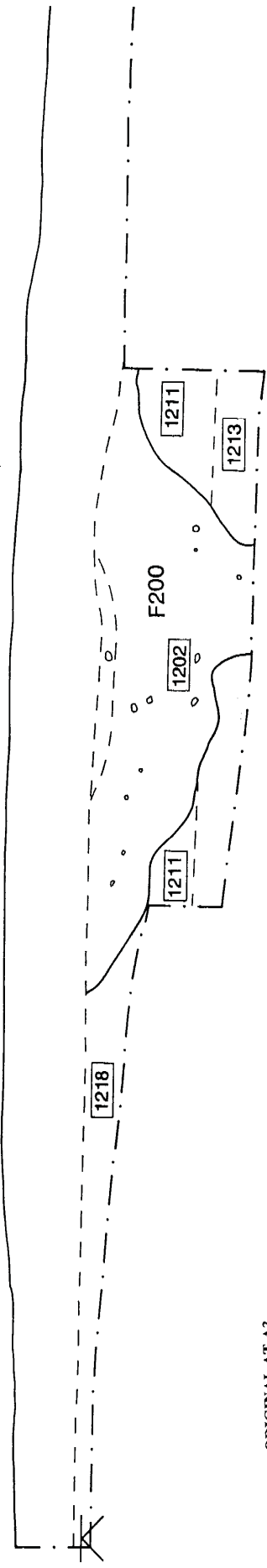
CONTINUES  
BELOW LEFT





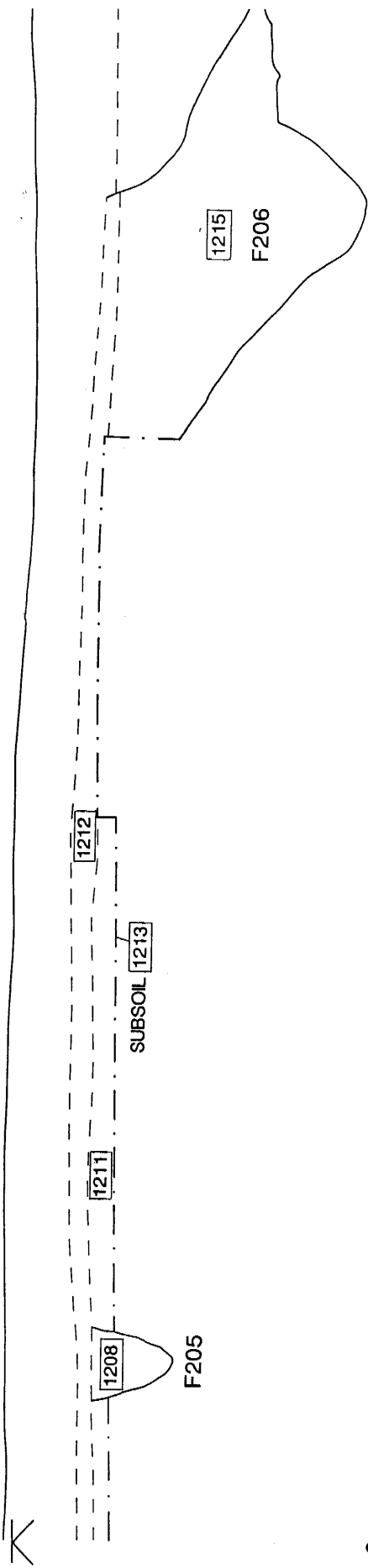
28

W



ORIGINAL AT A3

CONTINUES  
ABOVE RIGHT



3a.0

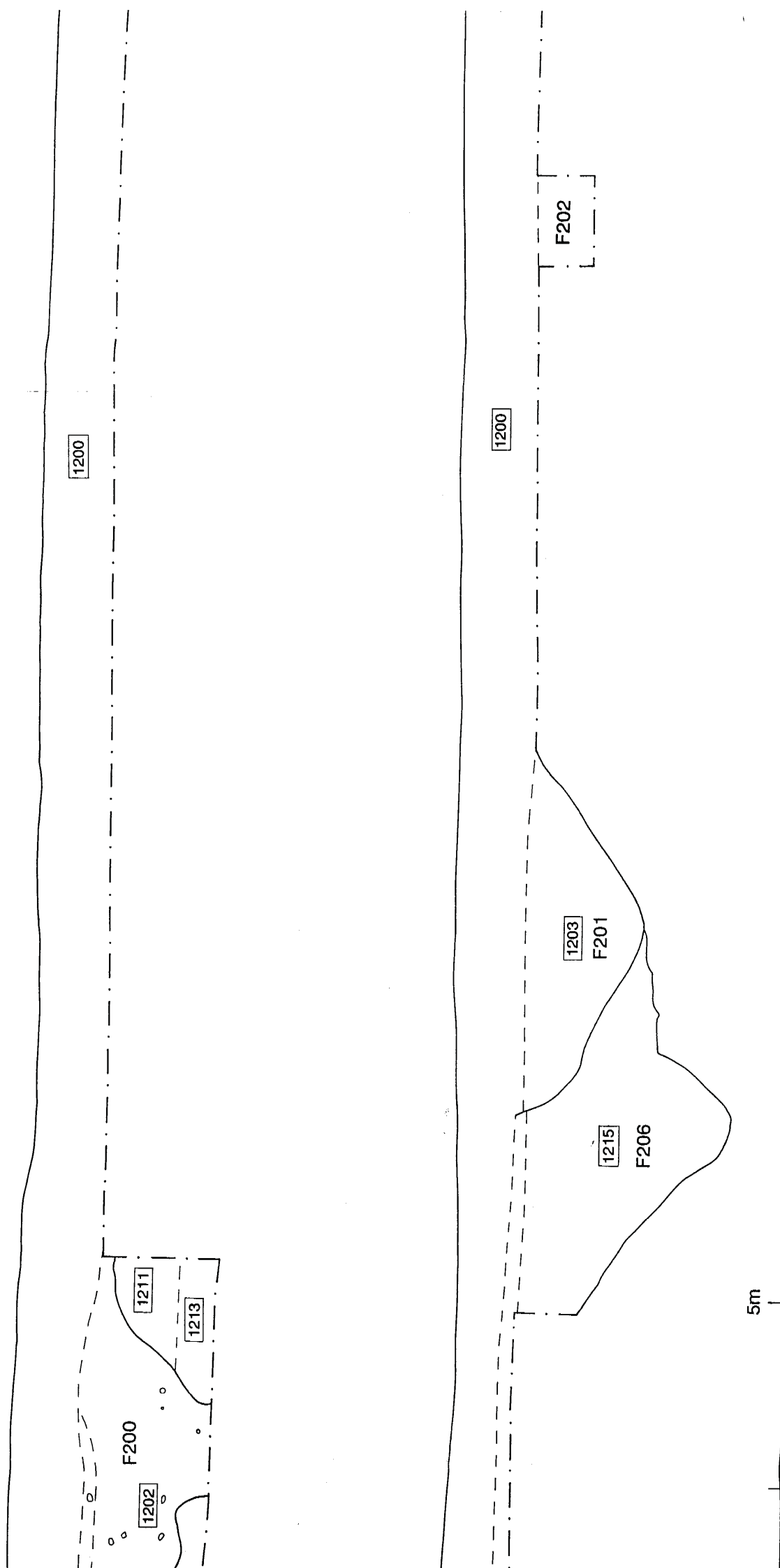


FIG 6

3.9-1

1200

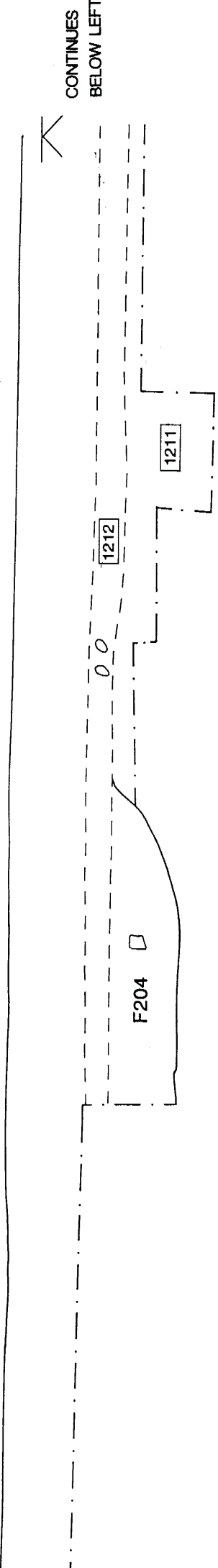
F204

E 33.53mAOD

1200

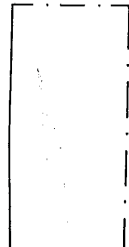
F202

3-a.2



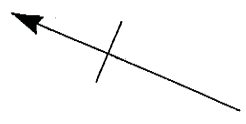
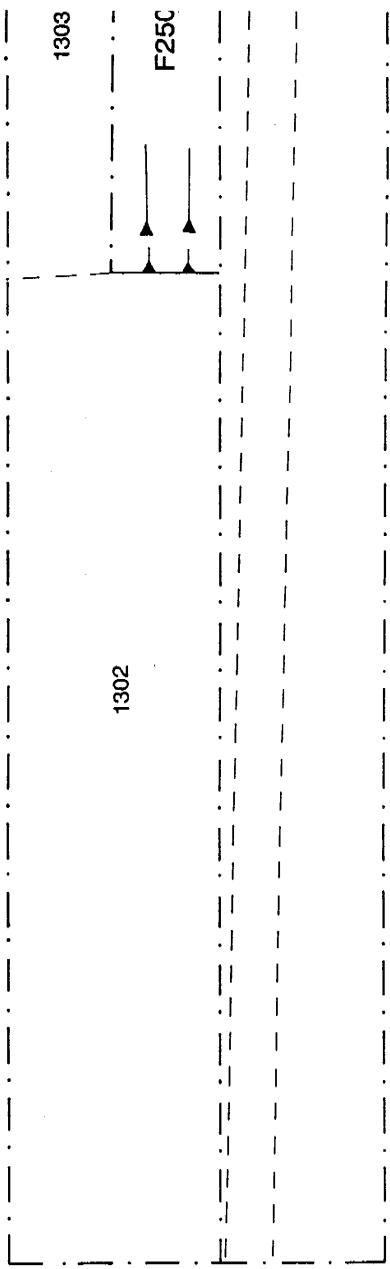
E  
33.53mAOD

ORIGINAL AT A3



A-1

Trench D



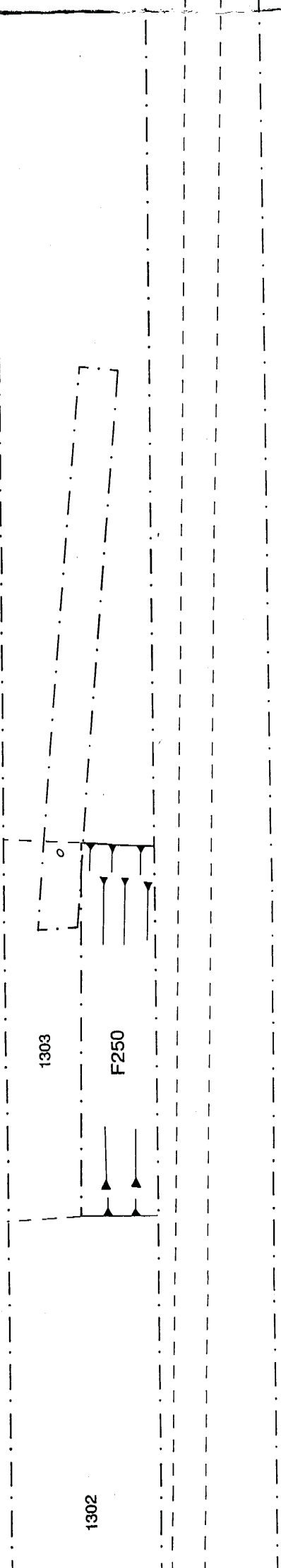
E2515/N3325



ORIGINAL AT A3

Trench I

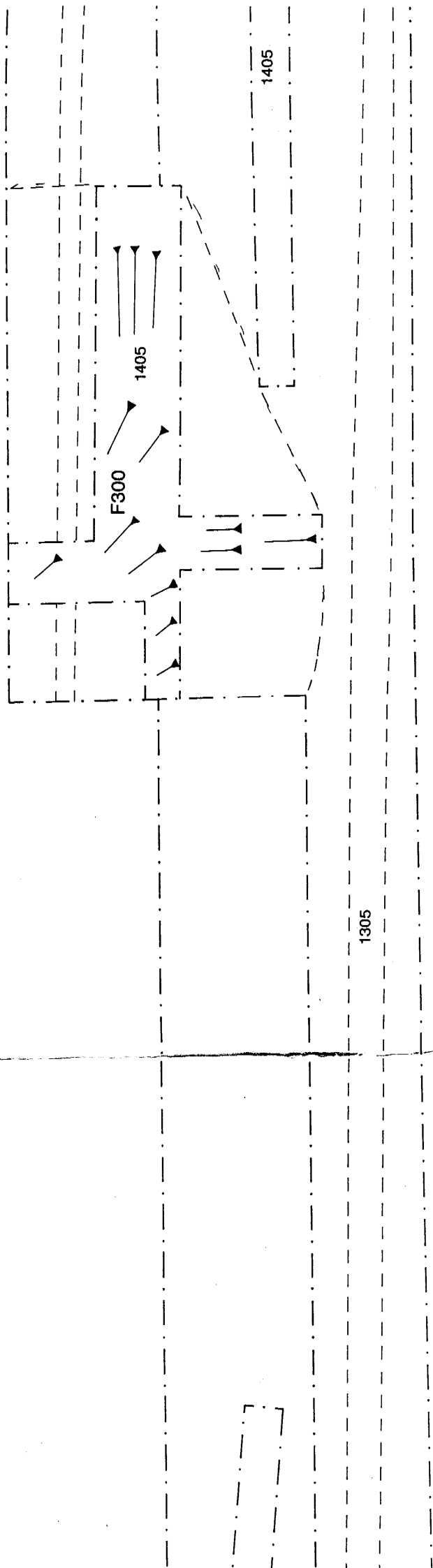
A.2



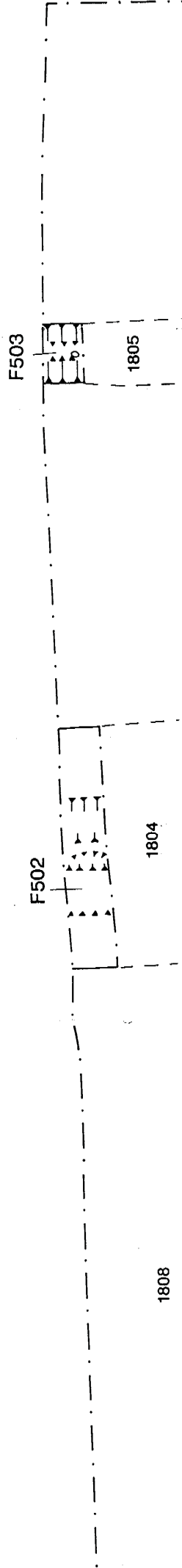
Trench I.

4-3

Trench E



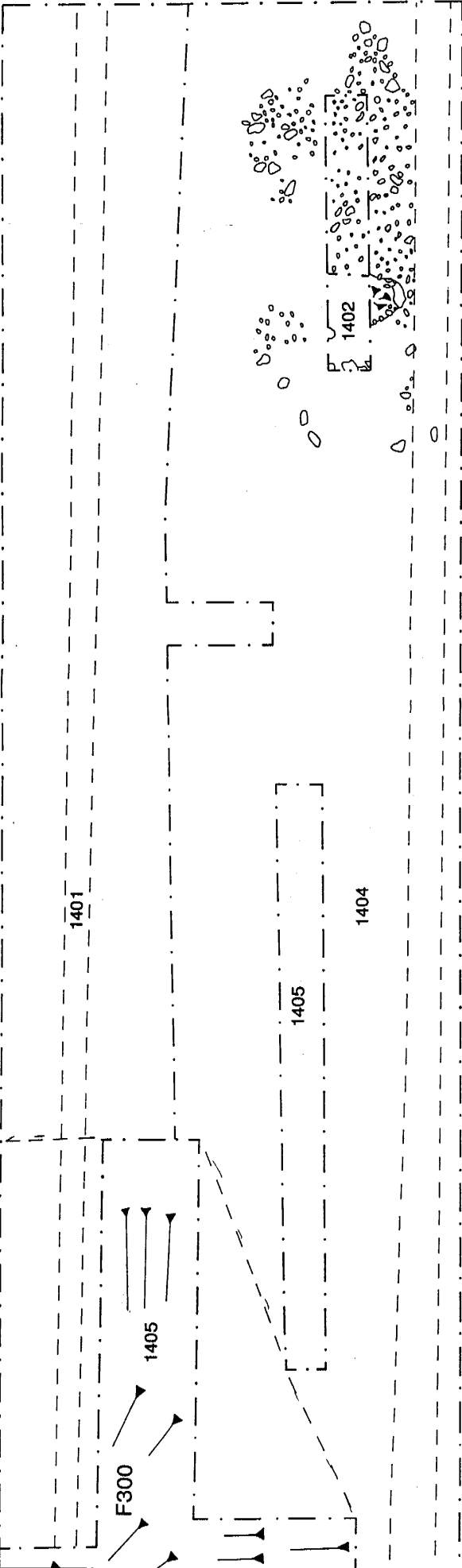
01



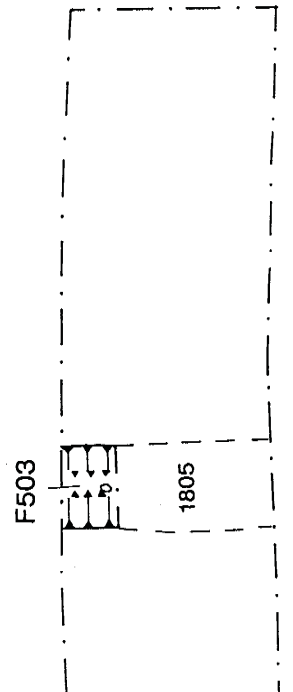
1808

A - 4

E2560/N336



ORIGINAL AT A3



E2455/N3500



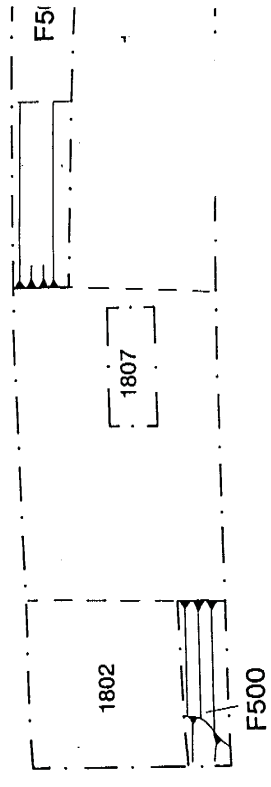
E2515/N3325



ORIGINAL AT A3

A.S

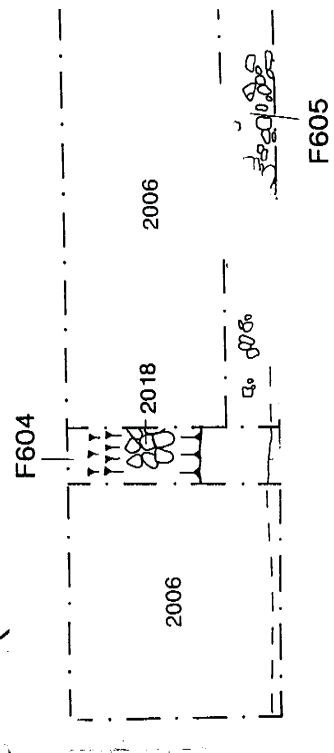
Trench I.



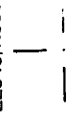
E2422/N3473



Trench K

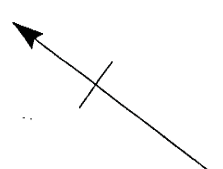
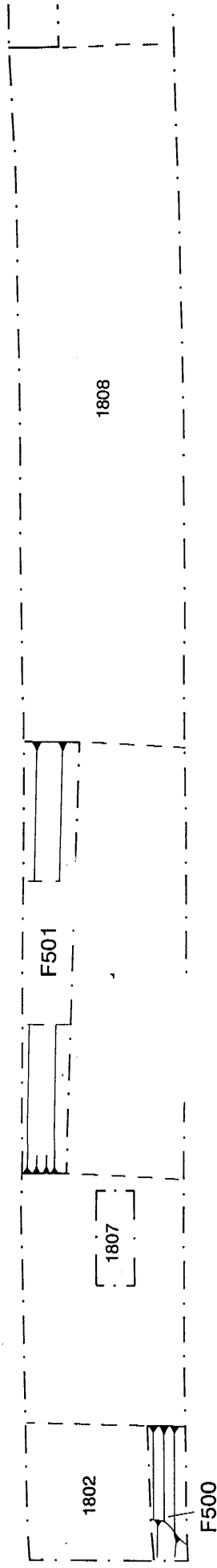


E2345/N3590

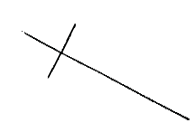
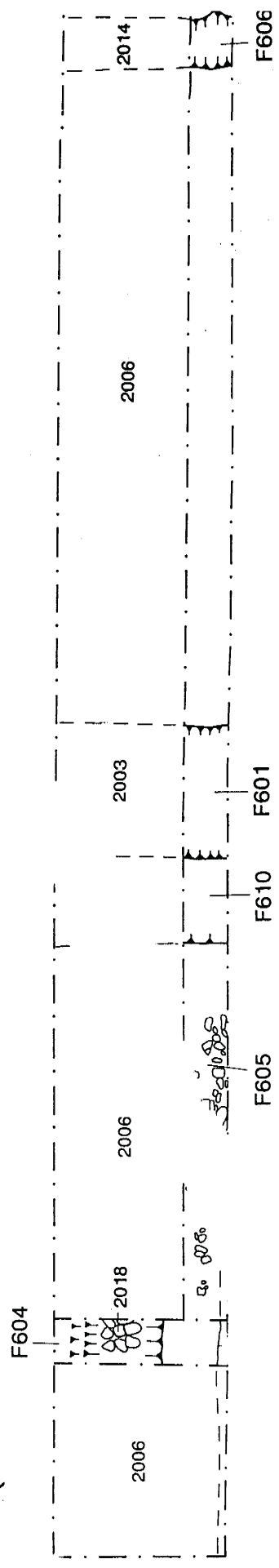


A-C

Trench I.



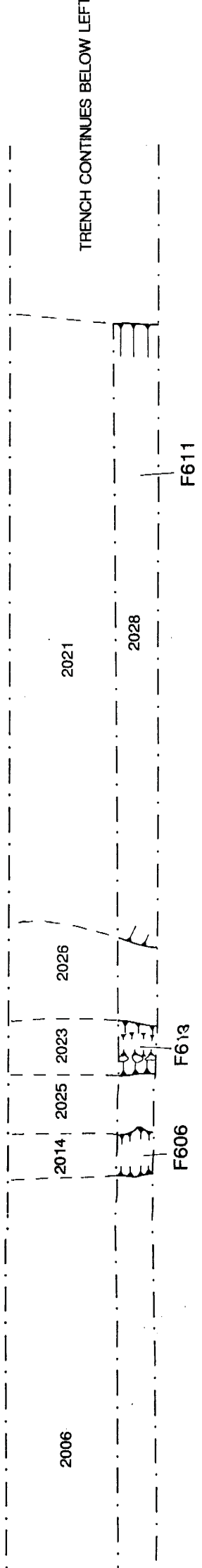
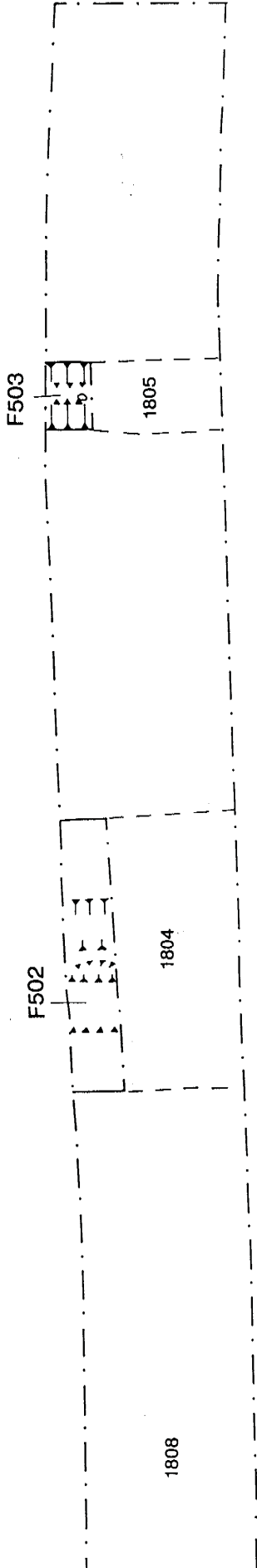
Trench K



Trench K continued

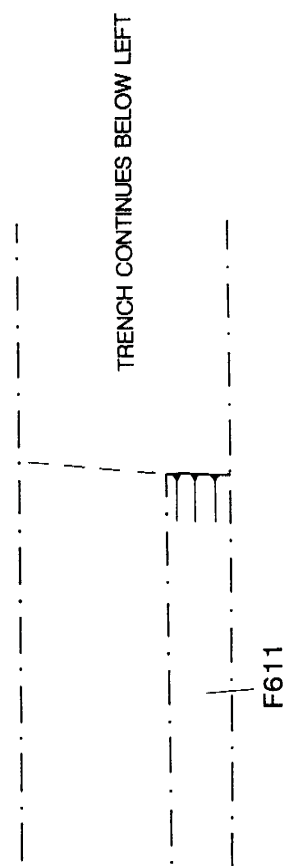
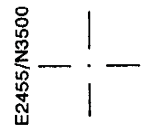
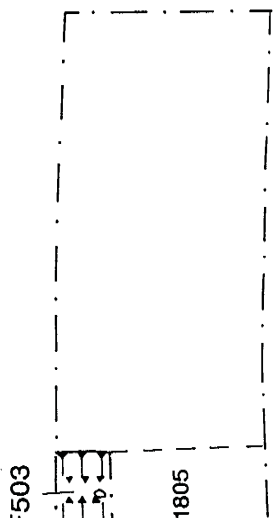
F602

A.7



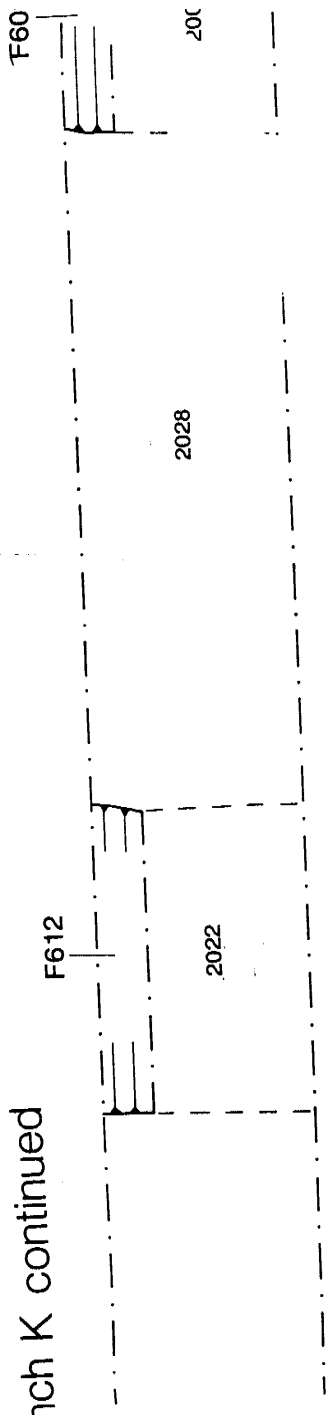
TRENCH CONTINUES BELOW LEFT

4-8



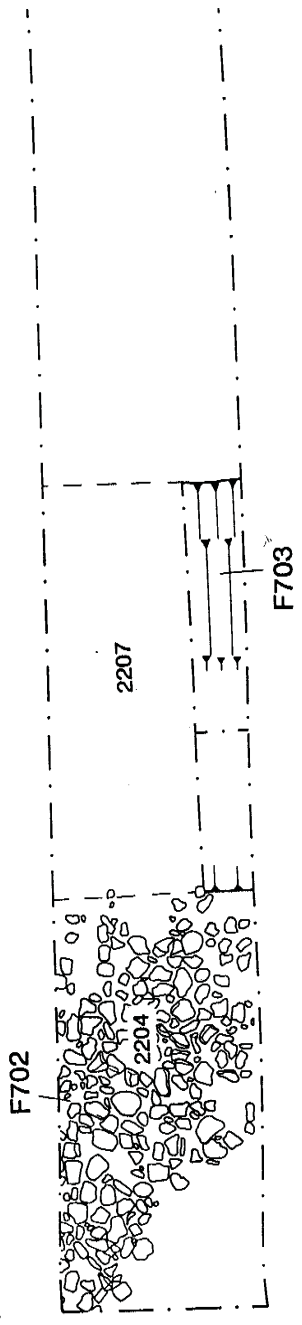
A-01-0

Trench K continued

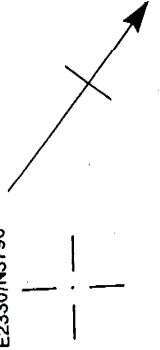


ORIGINAL AT A3

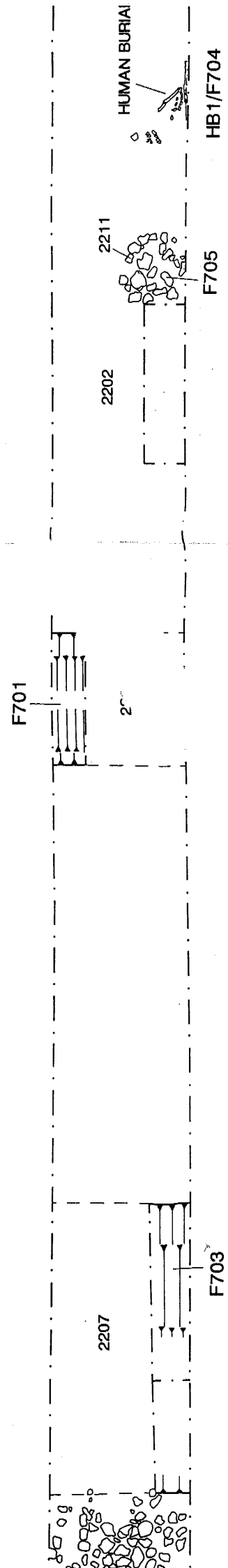
Trench M



E2330/N3790

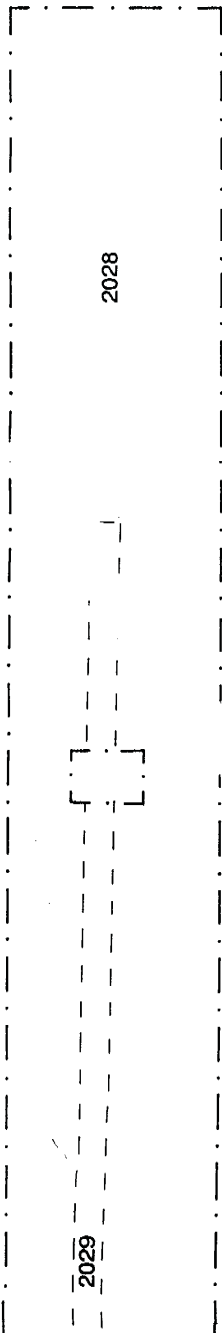


4-a-1

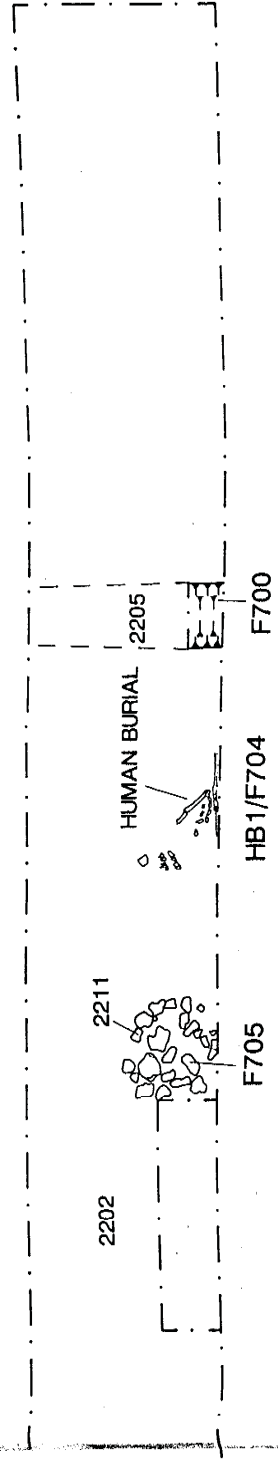


A-a.2

ORIGINAL AT A3



E2405/N3620



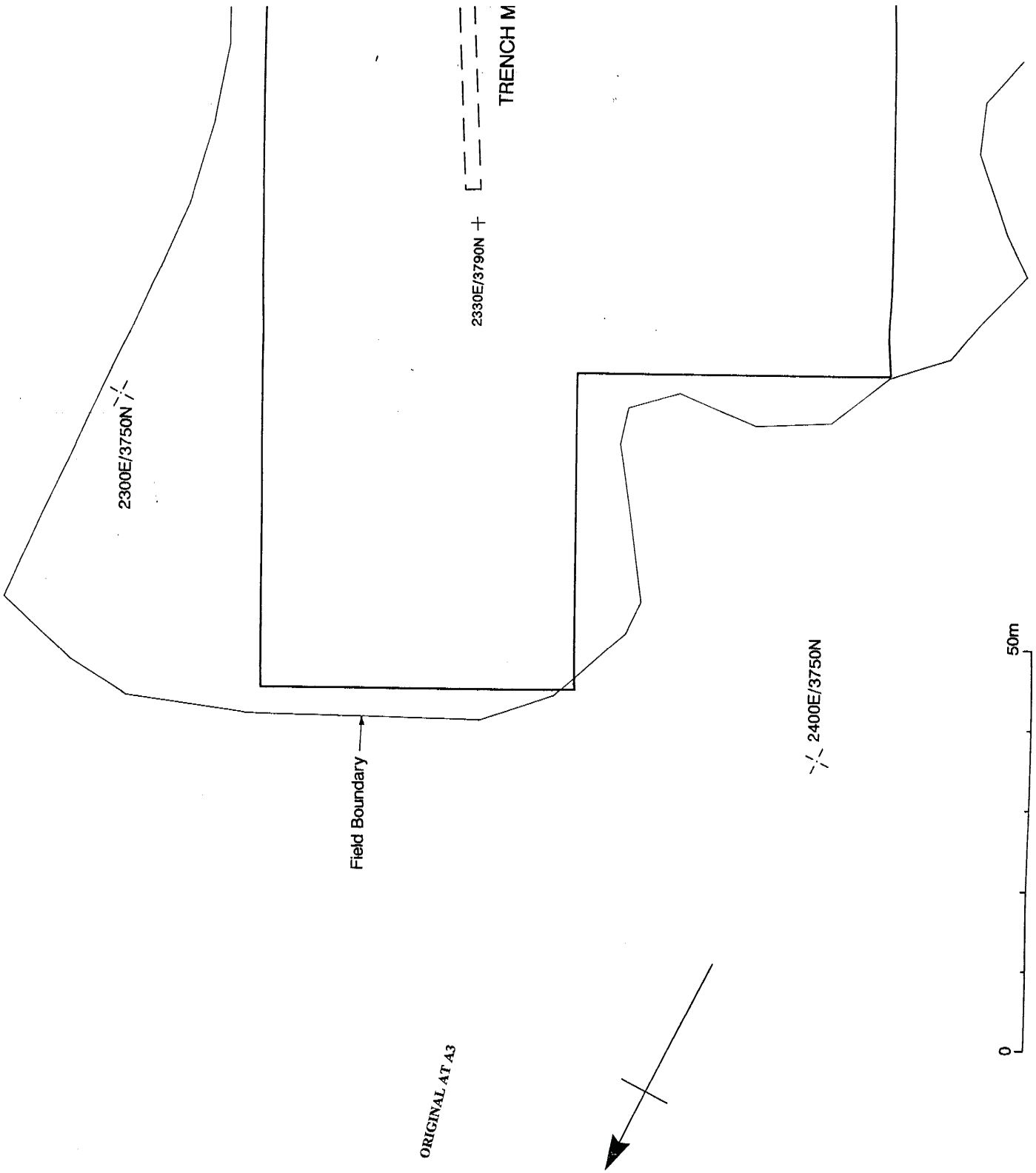
E2310/N3825



5m

0

518



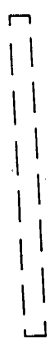


2300E/3750N

S-2

+

+ 2310E/3825N



TRENCH M

2330E/3790N +

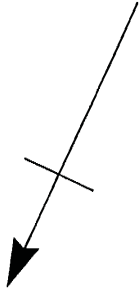
Edge of Geophysical Survey

2350E/3900N

2250E/3350N

S-3

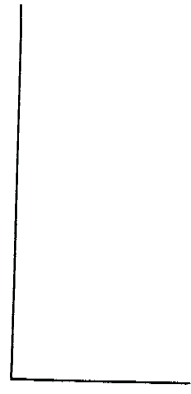
ORIGINAL AT A3



00N

ORIGINAL AT A3

Edge of Geophysical Survey



S-4

0 50m

TREN

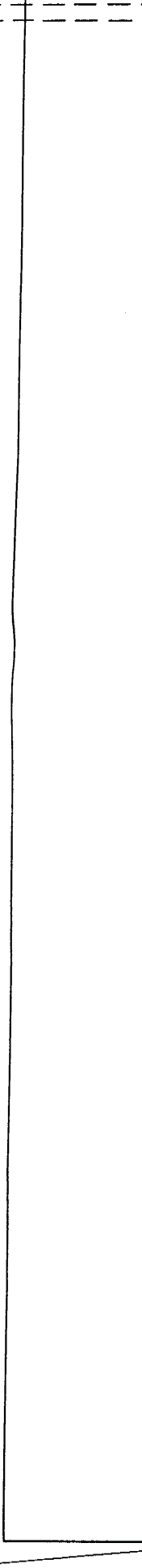
2410E/3287N +



2450E/3250N

Field Boundary

+ 2460E/332



ORIGINAL AT A3

2350E/3900N

S.S

ORIGINAL AT A3

Edge of Geophysist

TRENCH B

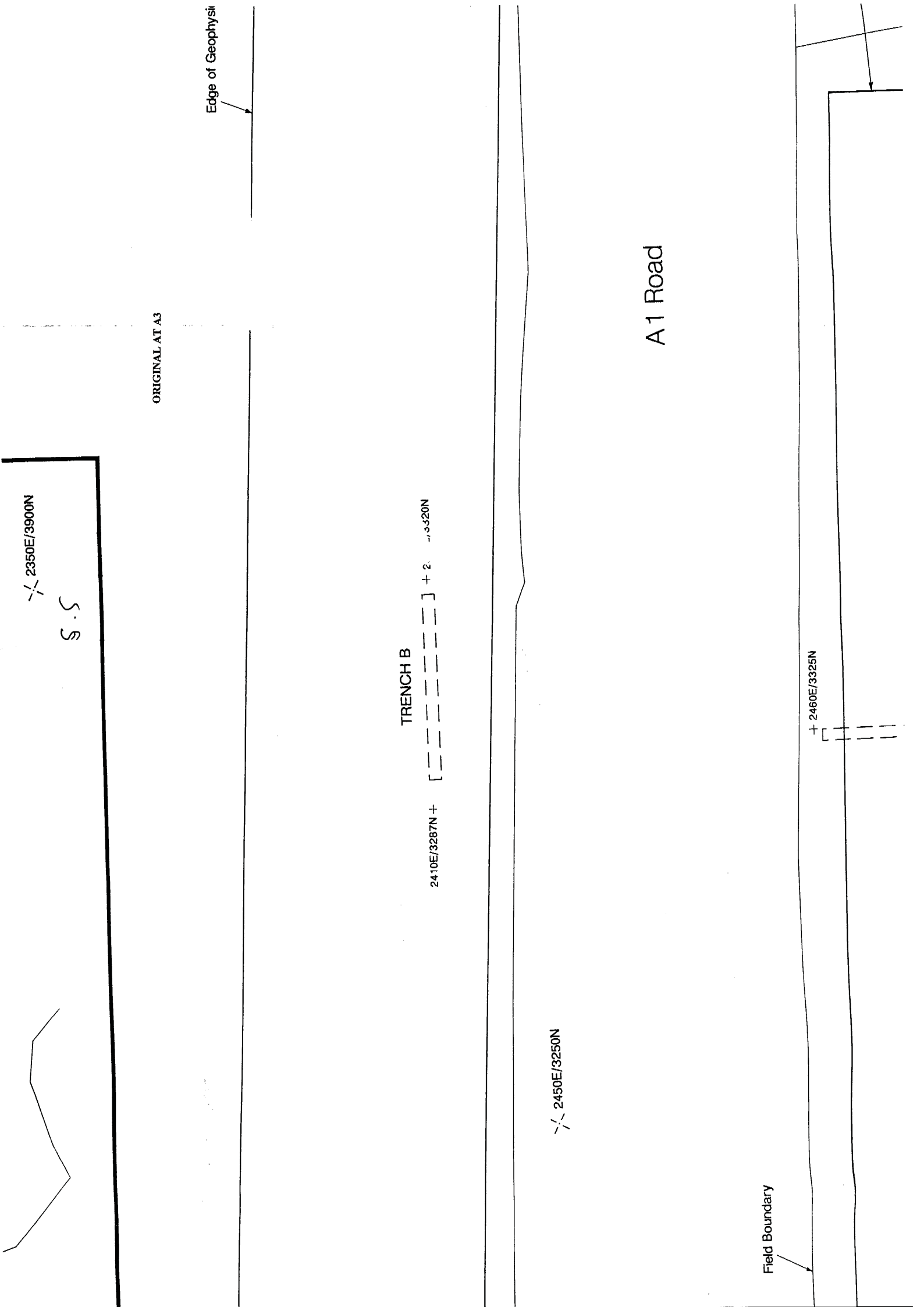
2410E/3287N + [ --- ] + 2. --- 320N

2450E/3250N

A1 Road

Field Boundary

+ 2460E/3325N



S.6

AL AT A3

Edge of Geophysical Survey

2325E/3465N + [ TRENCH A ] +2312E/3500N

A1 Road

Edge of Geophysical Survey

S. 7

✱ 2200E/3600N

A  
== J +2312E/3500N

S-8

2450E/3250N

Field Boundary

+ 2460E/3325N

TRENCH C

+ 2500E/3345N

2515E/3325N

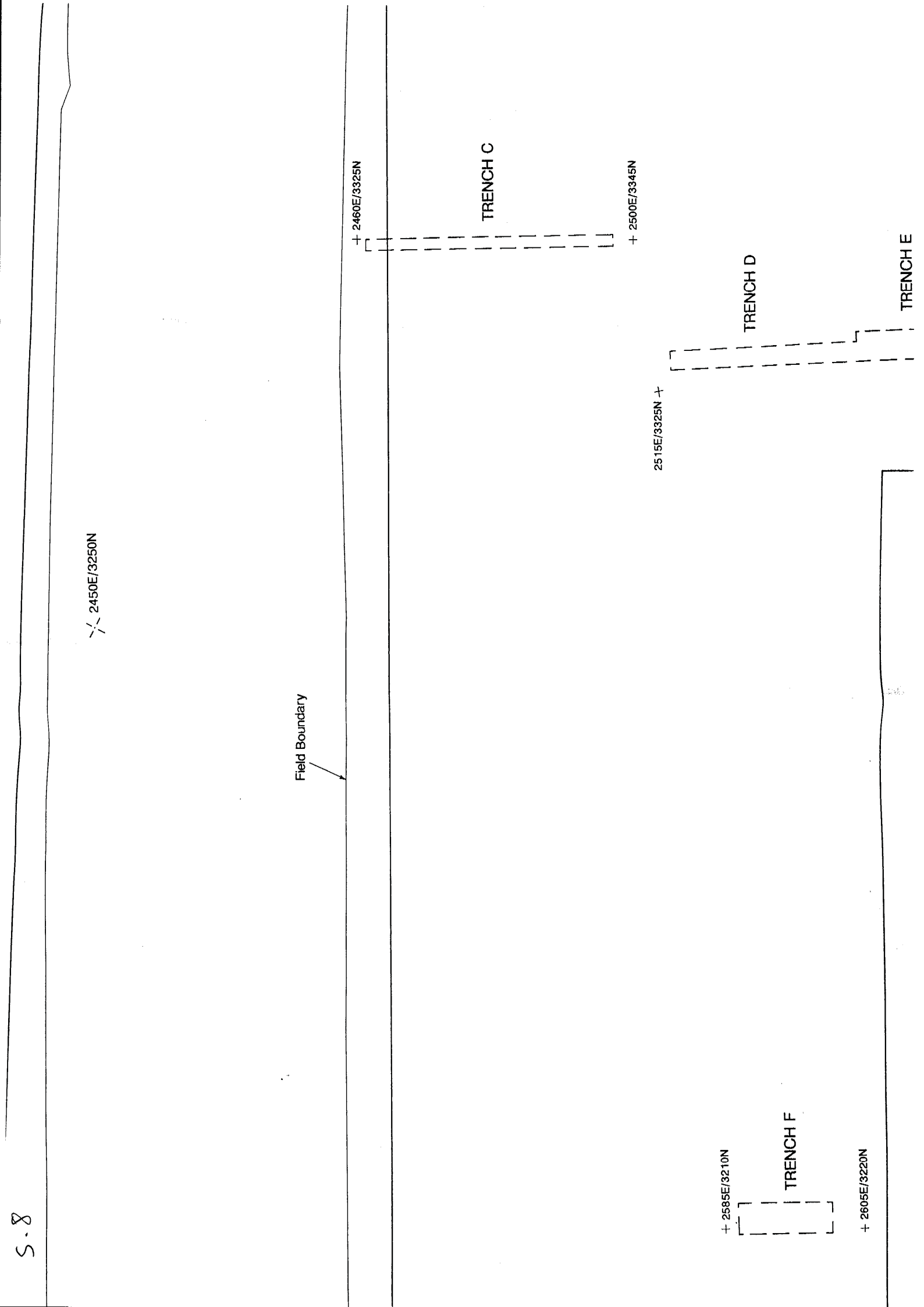
TRENCH D

TRENCH E

+ 2585E/3210N

TRENCH F

+ 2605E/3220N



S.9.0

A1 Road

Edge of Ger

+ 242

+ 2460E/3325N

TRENCH C

+ 2500E/3345N

+ 2495E/3395N

TRENCH G

+ 2515E/3405N

2485E/3458N

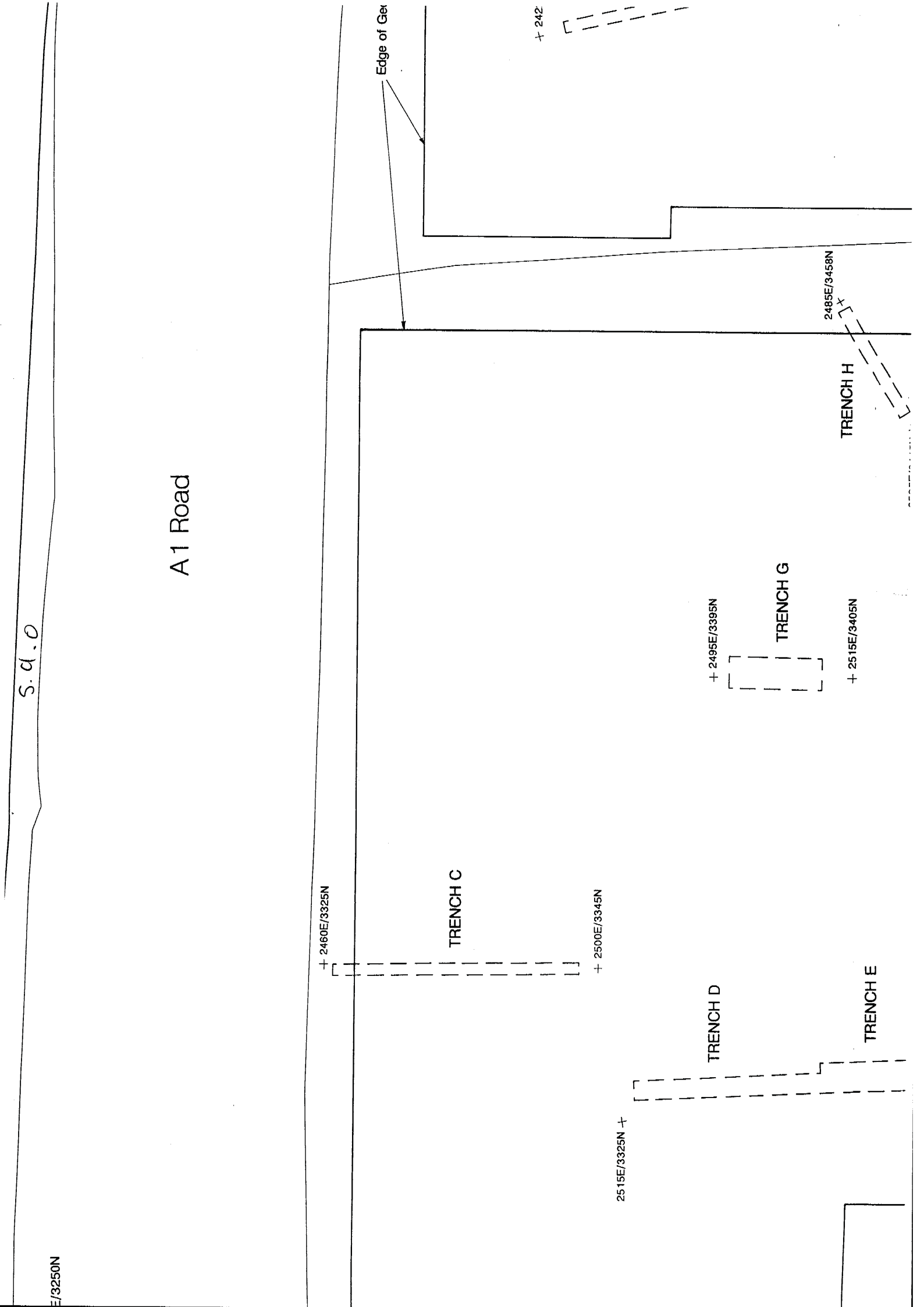
TRENCH H

2515E/3325N +

TRENCH D

TRENCH E

E/3250N





S-11-1

A1 Road

Edge of Geophysical Survey

+ 2422E/3473N

TRENCH I

+ 2455E/3500N

TRENCH H

2485E/3458N

TRENCH J

2455E/3550N

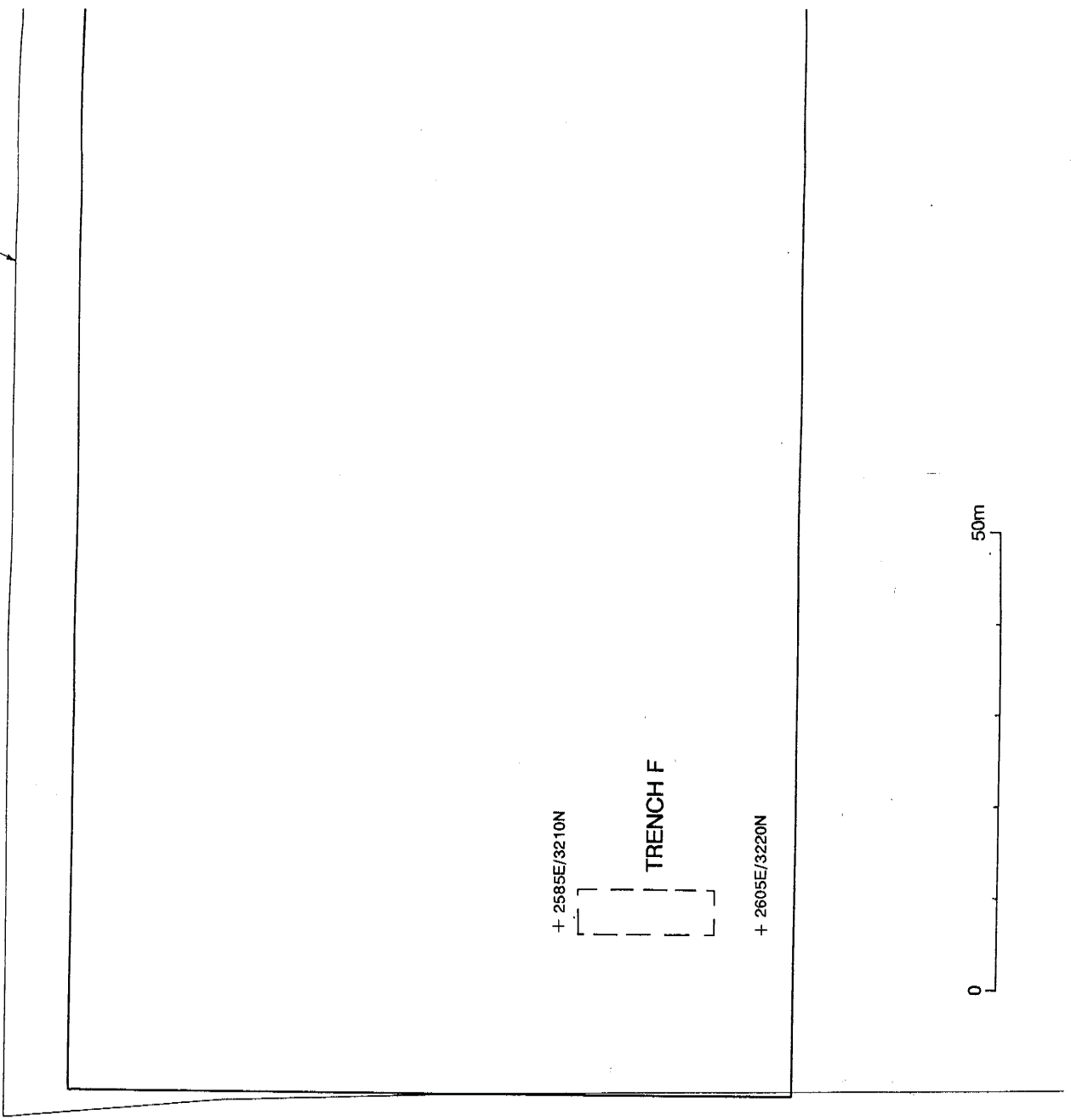
G



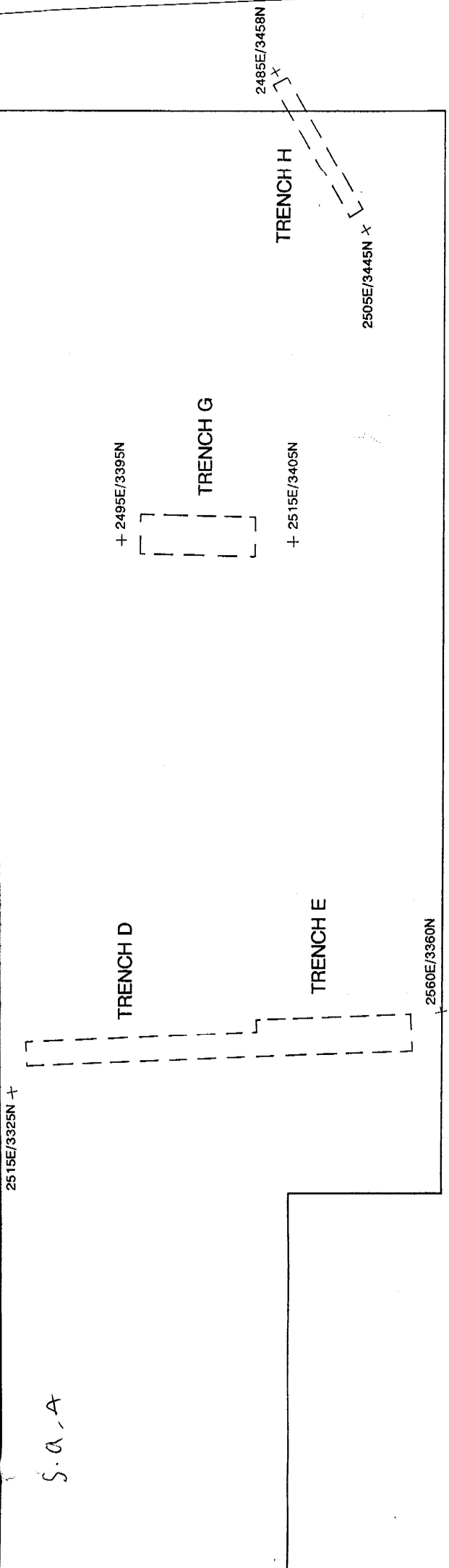


S. 03

Field Boundary



S.A.A

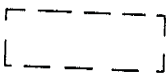


ORIGINNAT T.A.T.A

Fig.2

S. 9.5

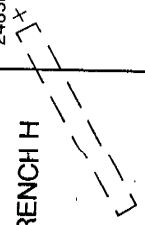
+ 2495E/3395N



TRENCH G

+ 2515E/3405N

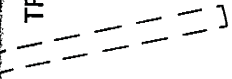
2485E/3458N



TRENCH H

2505E/3445N x

TRENCH I



+ 2455E/3500N

TRENCH J

2488E/3525N + [ --- ]

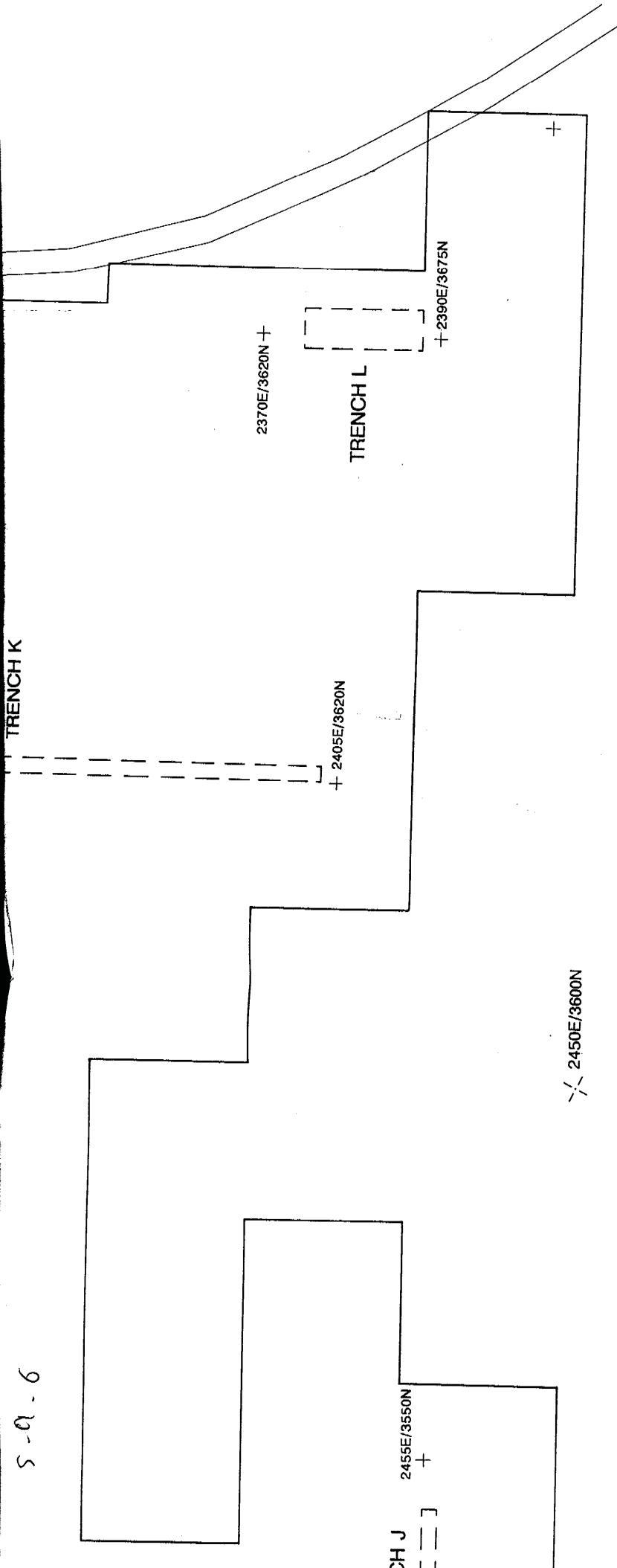
2455E/3550N

+

Fig.2

ORIGINAL AT A3

S-9-6



CH J

2455E/3550N  
+

+ 2405E/3620N

2370E/3620N +

TRENCH L

+ 2390E/3675N

X 2450E/3600N

ORIGINAL AT A3

ORIGINAL AT A3