

Former HM Prison, Longport, Canterbury

Archaeological watching brief on geotechnical work

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Abstract

In early 2016 an archaeological watching brief was maintained on geotechnical augering and test-pitting at the former HMP Canterbury (NGR 6157 1578), on behalf of Canterbury Christ Church University and their consultants, CgMs.

A few positions encountered deposits which might represent archaeological features (Phase C), although the relatively sparse sampling pattern means that a large proportion of such features may easily have been missed, as is suggested by evaluation trenching conducted in tandem but reported upon elsewhere.

Complex late Pleistocene and, perhaps, early Holocene deposits of geoarchaeological potential (Phases B1-B5) underlie the site and, should further groundwork involve them to any significant degree, it is recommended that they be inspected by a specialist geoarchaeologist.

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1 General

1.1 Introduction (Fig 1)

Canterbury Christ Church University (CCCU) are currently undertaking preliminary investigations for the redevelopment of the former HMP Canterbury, Longport, Canterbury, CT1 1PL (NGR 6157 1578) and adjoining land. An archaeological desk-based assessment of the prison was previously prepared for the Ministry of Justice (Hulka 2013). Following its acquisition by CCCU, they appointed CgMs as their archaeological consultants on the project and, through them, commissioned Canterbury Archaeological Trust (CAT) to undertake various tasks. This included archaeological evaluation trenching in February and March 2016 (Fig 6, Tr.3-Tr.8; Hicks and Boden 2016). Whilst the trenching was still in progress, an archaeological watching brief was mounted upon geotechnical site investigations (SI), in consultation with Duncan Hawkins (CgMs), Rosanne Cummings, Archaeological Officer for Canterbury City Council (CCC) and Alison Hicks (CAT). It was undertaken by the writers in accordance with CAT's generic written scheme of investigation for such work (Pratt 2012).

1.2 Positions and rigs (Fig 6)

The SI was conducted between 4 and 15 April 2016, by two to four geotechnical teams at once (one undertaking an asbestos survey of standing buildings). For the purposes of this report, to avoid misleading prefixes assigned to borehole names before the augering techniques were decided upon and to compensate for double-numbering of some test-pits by the field teams, many of the positions have been relabelled. One deep shell-and-auger borehole (BH4, here relabelled CP4), five deep rotary percussion boreholes (BH1-BH3, BH5 and BH6, here relabelled RP1-RP3, RP5 and RP6) and four shallower segmented flight auger boreholes (WS1-WS4, here relabelled FA1-FA4) were sunk. CP4 was cut using a towed cable-percussion rig, RP1-RP3, RP5 and RP6 using a tracked hydraulic rotary percussion rig and FA1-FA4 using a cut-down wheeled pneumatic rotary rig. As well as each borehole having a manually dug starter pit (which was treated as part of the borehole for logging purposes), thirteen test-pits were dug, and occasionally augered, by hand: generally the pit references used by the geotechnical teams have been retained but three are here given an 'A' suffix (*ie*, TP2A, TP3A and TP4A). TP4A and TP5, to the south of Tr.6 and north-east of TP2, were both abandoned at a shallow level due to the presence of a buried modern structure and, though logged, were not plotted by CAT and have been excluded from this report, although they will appear in the geotechnical report. Due to a misunderstanding one test-pit (TP2A), in the vicinity of RP1 and Tr.3, was not monitored or plotted archaeologically but will also be in the geotechnical report. In the absence of a publicly available Ordnance Survey (OS) plan of the prison buildings, the OS of the surrounding area was supplemented by various plans of the prison supplied by the Client, cross-checked with lidar data (Fig 5) and by visual inspection and measurement.

1.3 Sampling

The cable percussion rig took heavily disturbed bulk samples whilst the rotary and rotary percussion rigs took less disturbed ones: both types were laid out on the ground and logged as they were recovered, with the riggers asked to give approximate depths for deposit changes. The cable and rotary percussion rigs also took occasional undisturbed windowless samples, of 100mm nominal diameter and 500mm nominal length, in steel shells which were sealed and taken off-site for laboratory testing: for these samples the archaeological logging

was limited to recording the material exposed in both ends and, if differing, assuming the boundary lay halfway down the sample. Standard (SPT) and cone (CPT) penetration tests were also conducted in the boreholes sunk by the cable and rotary percussion rigs. Where, unless well within a thick and homogenous layer, the SPT sampler recovered material this was included in the log and, to avoid using less reliable bulk samples as an indicator of a deposit's upper boundary, so too was the void in the upper part of the sampler. The monitoring of each sufficiently deep position was discontinued when it reached clearly pre-Quaternary deposits.

1.4 Data processing and report structure

On completion of fieldwork, the detailed archaeological field logs from the watching brief were transcribed into a standard CAT borehole/test-pit database and general interpretative colour codes were added for each entry. This database was used to generate standardised logs for the new positions (Appendix 1) and to draft pseudo-sections along five nominal transect lines (Figs 6 and 13-17, TX1-TX5), to which interpretative background colours (Fig 12) and other annotations were added manually. Each context was assigned to a stratigraphic group and to a general phase (A1-A2, B1-B5, C or D). An overall description of each group was then prepared (Appendix 2), descriptions of individual test-pits prepared (Appendix 3), the superficial morphology of selected phases modelled (Figs 7-11) and a general account of the stratigraphic sequence was prepared (2.1-2.4). Overall conclusions were also drawn and an assessment made of the methodology employed (2.5).

1.5 Scope

This document focusses solely upon the watching brief on the SI and does not seek to duplicate information contained in the archaeological desk-based assessment nor in the report on the archaeological evaluation trenching. The current report should not be used for the identification of contamination, nor as evidence for its absence: the geotechnical report on the SI should be consulted instead.

1.6 Archive

A site archive will be prepared in accordance with Appendix 3 of *Management of Archaeological Projects* (English Heritage 1991, MAP2). The archive will conform to the *Guidelines for the preparation of excavation archives for long term storage* (UKIC 1990), *Standards in the museum care of archaeological collections* (Museums and Galleries Commission 1992) and the *Selection, Retention and Dispersal of Archaeological Collections: guidelines for use in England, Wales and Northern Ireland* (The Society of Museum Archaeologists 1993). The archive will be held by CAT.

2 Results (Figs 12-17)

2.1 Phases A1-A2: Cretaceous and Palaeogene (Tertiary) (Fig 7)

Undisturbed Cretaceous chalk (Phase A1, G10017) was identified as the uppermost pre-Quaternary deposit in the south-western half of the site. Its upper surface rose from about 10.30-10.70m OD in RP1 and RP6 to 13.10-13.60m OD in FA1 and FA2. It must continue beneath the north-eastern half of the site but is here overlain by Palaeogene clay sands (Phase

A2, G15030 and G15031), the uppermost perhaps weathered, first encountered around 16.35m OD in RP3 and 18.30 m OD in RP5. These phases are archaeologically sterile.

2.2 *Phases B1-B5: late Pleistocene to early Holocene*

The combined surviving upper surfaces of Phases A1-A2 (Fig 7, an apparent ridge between RP1 and RP3, also seen in Fig 8, is clearly an artefact due to the distribution of points and the contouring algorithm employed) suggest that these deposits were cut into by a side valley, running north-west towards the River Stour. This side valley is probably associated with the line of a (now dried up or subterranean) spring suggested by a digital terrain model of the site's environs and running roughly along the site's south-western margin (Fig 3). A deposit of clay with abundant chalk clasts (Phase B1, G10015) formed in the base of this valley: though 2.75-3.80m thick in RP1 and RP6, it thinned considerably to the south-east, becoming only 0.25-0.40m thick in RP2-FA1 and not being noted at all in FA2. This material resembled coombe deposits (*cf* Preece & Bridgland 1998, 20, 23) probably brought in by fluvial or colluvial *etc* activity but perhaps forming *in situ* by alternate freezing and thawing of ground water: in the last case the valley bottom should be taken as corresponding to their top rather than their bottom (Fig 8, see preceding comment regarding Fig 7). They presumably represent a very cold but, at least occasionally, wet environment. As the base of the lowest of the Stour's Second Terrace deposits lies, at Canterbury, at around 10m OD (Smart *et al* 1975, 246; Holmes 1981, 76; Pratt 2014, 3.1) and no fluvial sandy gravels have been identified on the current site, the side valley presumably post-dates that terrace and may be contemporary with the (chronologically later) First Terrace, perhaps formed during its initial down-cutting phase: a secure date for this is yet to be established but it seems likely to belong to the early to mid Devensian or Woolstonian glacial stages dated, very approximately, to 25,000-400,000 years ago.

0.10m of clayey sand (G10059), with a few flints, in RP6 and 1.8m of of clayey gravel (G15047) in FA1 overlay G10015 and probably represent a brief period (Phase B2) of relatively high energy head deposition within the side valley, perhaps with some superficial run-off depositing the sand.

These were sealed by a more extensive sequence of generally loamy to sandy and frequently slightly gravelly clays (Phase B3, G10014) indicating lower energy head or alluvial deposition and mostly around 2-3m thick. The upper surface of these dipped quite sharply from about 16.30-16.80 over gravel bank G15047 (and, perhaps, in FA2, although this may be due to difficulty in discerning the boundary with overlying material), to 14.37-15.25m OD elsewhere, evening out the valley bottom (Fig 9).

Generally finer grained "brickearth" clays, with very little or (more often) no gravel (Phase B4, G10010) overlay the north-eastern part of G10014 (and perhaps the south-western but, if so, it was not identified). Its upper surface fell from about 17.10-17.95m OD near its own north-eastern margin to 14.80-16.80 along its south-western (Fig 10). Generally it thinned out as it climbed to the north-east, from 1.7m thick in FA3 to 0.73m in RP3 and only 0.4m in CP4, although it was identified as 2.00m thick in FA4, either due to misidentification of other deposits or filling a cleft in the valley side. Similar deposits are widespread as superficial drift material in and around Canterbury: although generally indicated by the British Geological Survey (BGS) as head material (Fig 2), they do not reflect significant changes in adjacent solid geology and thus, together with their fine texture, almost complete absence of gravel and perhaps, in this case, the preferential deposition against the north-eastern valley

side rather than in its base, suggest a loessic (windblown) origin in very cold, dry conditions with the prevailing wind here probably from the south-west. Given such an environment and as they seem, elsewhere at Canterbury, to blanket not only the Stour's Second Terrace deposits but also those of the (chronologically later) First Terrace, it is likely that they pertain to the Last Glacial Maximum (Marine Isotope Stage 2) towards the end of the Devensian Stage of the Pleistocene, roughly 22,000 years ago.

Overlying the central part of G10010 and continuing north of it were up to 2.3m of generally heavy, often gravelly clays (Phase B5, G15085 and, perhaps, G15127). Their surface rose from about 17.10m OD near the centre of the site to 21.02m near its northern limit (Fig 11). The gravel and the distribution relative to the early valley suggests these were head deposits, probably due to a combination of effects (solifluction, soil creep, localised run-off *etc*). As they overlie brickearths G10010, they may have formed during the fairly rapid warming, interrupted by three cooler periods (Oldest, Older and Younger Dryas), which ended the Pleistocene and ushered in the Holocene around 12,000 years ago.

Although the deposits representing the coldest climates (probably Phases B1 and B4) seem very unlikely to contain evidence for human activity, there may be residual material within them. It is more (though still not very) probable that the other late Pleistocene/early Holocene deposits may yield such evidence, especially as the presence of a side valley may have attracted occupation. This valley also increases the site's potential for floral or faunal remains of regional or greater significance and the complexity of the deposits, and their superimposition, is itself of geoarchaeological interest.

2.3 *Phase C: late prehistoric to post-medieval/early modern*

Few positions encountered deposits which may have represented archaeological (as opposed to geoarchaeological) features. Grey brown clay loams (G10004), some charcoal- or tile-flecked, in RP2 and RP3 probably resulted from either deliberate or natural colluvial fill of a large feature or smaller features of Roman or later date. In TP1A a fairly similar soil (10062) was found to overlie the offset foundation for the main prison wall but, as it lacked obviously late inclusions and the footing was unusually deep here, it may be that the foundation had been dug through the same or a similar earlier feature and clean upcast from it used to backfill the construction trench. A very chalky loamy clay (G10023), with charcoal and tile flecking, identified in RP5 was probably intentional levelling or the fill of a feature, of any date from the Roman to early modern periods. A brown loam (G10022) overlying this was probably a post-medieval to early modern cultivated soil but perhaps intentional levelling. Grey brown sandy clay deposits (G15043) in FA1 and banded loamy clays (G15055) in RP1 were probably medieval or later cultivated soils, intentional levelling or pit(?) fills. A grey loam (G15205) in TP2 was probably a cultivated soil or intentional levelling of uncertain (though probably late) date.

2.4 *Phase D: nineteenth to twenty-first century*

Nineteenth- to twenty-first-century deposits (G10000) were encountered at every position. Other than to note that G15127, in TP3A, may have been redeposited in the modern era rather than being an *in situ* brickearth and that the degree of negative terracing within the prison may, therefore, be less than suggested by the digital terrain model (Fig 4), they will not be further described except in the appendices.

2.5 Conclusions and confidence

Whilst the BGS indicates the superficial geology beneath most of the site as Thanet Formation (formerly Thanet Beds), with Upper Chalk along its south-west margin and a miniscule area of Head Brickearths to the north-west (Fig 2), a more complicated picture has emerged from the new data. The limit of the Thanet Formation has been pushed northwards by a late Quaternary side valley (Fig 3) with multiple fills, probably including coombe-like deposits as well as head and loessic material. Should further groundwork involve them to any significant degree, it is recommended that they be inspected by a specialist geoarchaeologist.

A scattering of positions encountered deposits that might (but need not) indicate activity pre-dating the prison but the boreholes and test-pits represent only a vanishingly small percentage of the site acreage so they probably represent a higher concentration of features of potential archaeological interest than might appear at first sight. This is supported by the results of the evaluation trenching (Hicks and Boden 2016).

Given the relative paucity of positions and tiny percentage of the area involved, the use of disturbed sampling techniques (save for the occasional SPT and un-split windowless sample) in all the boreholes and the narrowness of the test-pits, it is inevitable that some of the thinner deposits may have been missed and the boundaries between the various natural clays was not always clear-cut. However, the overall pattern of Pleistocene and earlier deposits, though it could be refined by further investigation, is likely to be valid and the changing nature of the brickearth across the site was also noted during evaluation trenching (Boden, pers comm).

References

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Appendix 1: position logs (Figs 6 and 12-17)

A1.1 Conventions

In the following logs, estimated National Grid References (NGR), depths (below ground level) and estimated elevations (above Ordnance Datum) are given in metres. Where, to avoid duplication or misleading prefixes, CAT's alphanumeric reference code (CATref) for a position differs from that assigned for the geotechnical site investigation, the latter precedes the NGR. The positions are listed in CATref order. SPT indicates undisturbed standard penetration test sample cores. U100 indicates a steel-shelled, nominally 100mm diameter, 500mm long, windowless sample sent unopened to the laboratory for triaxial testing: where different deposits were observed in the two ends of a U100, the interface is assumed to have been halfway down the shell. SFA indicates samples recovered from a segmented flight auger. Bulk (or blk) indicates disturbed shell-and-auger samples. Deposits which were broken out or manually dug are indicated appropriately. Soil descriptions use the following frequency and size codes for inclusions: V = Very, R = Rare, C = Common, A = Abundant, S = Small (<10mm in every dimension), M = Medium, L = Large (>100mm in any dimension).

A1.2 CP4 (BH4; NGR 615721.6E 157818.9N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.60	20.20-19.60	10070	(G10000) Fairly compact mixed clays and loams with brick and concrete rubble. Recent evaluation trench infill.	Bulk
0.60-1.20	19.60-19.00	10071	(G15085) Compact slightly greenish yellow brown clay with brownish orange sandy clay mottle. ?Head brickearth, probably derived in part from Thanet Formation.	Bulk
1.20-1.80	19.00-18.40	10072	(G15085) Compact slightly greenish yellow brown clay with brownish orange sandy clay mottle. ?Head brickearth, probably derived in part from Thanet Formation.	U100+blk
1.80-2.00	18.40-18.20	10073	(G15085) Fairly compact yellow brown sandy clay with brownish orange sandy clay mottle. ?Head/loessic brickearth.	Bulk
2.00-2.25	18.20-17.95		Void.	SPT
2.25-2.45	17.95-17.75	10074	(G10010) Fairly compact yellow brown sandy clay. ?Loessic brickearth.	SPT
2.45+	17.75>	10075	(G10010) Compact pale grey green fine sand. Thanet Formation.	Bulk

A1.3 FA1 (WS1; NGR 615778.5E 157719.2N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.14	17.80-17.66	15040	(G10000) Very compact tarmacadam. Modern surface.	Broken
0.14-0.24	17.66-17.56	15041	(G10000) Compact hardcore, ASM brick?tile. Bedding.	Broken
0.24-0.50	17.56-17.30	15042	(G15043) Fairly compact grey brown	SFA

			sandy clay, ASM tile, RSM concrete. ?Cultivated old ground surface/ levelling/fill.	
0.50-0.75	17.30-17.05	15043	(G15043) Fairly compact grey brown sandy clay, ASM peg-tile, RSM concrete. ?Cultivated old ground surface/levelling/fill.	
0.75-0.80	17.05-17.00	15044	(G15043) Fairly compact slightly greenish greyish brown sandy clayey loam, RSM flint, RS tile. ?Cultivated old ground surface/ levelling/fill.	
0.80-1.50	17.00-16.30	15045	(G10010) Fairly compact yellow brown sandy clay, RVS flint. ?Loessic/head brickearth.	
1.50-2.00	16.30-15.80	15046	(G10014) Fairly compact greyish yellow brown loamy clay, RSM flint. ?Head brickearth.	
2.00-3.80	15.80-14.00	15047	(G15047) Fairly compact greyish yellow brown loamy clay, CSMRL flint. ?Head gravel.	
3.80-4.20	14.00-13.60	15048	(G10015) Fairly compact pale grey slightly silty clay, RS flint, AS chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	
4.20-5.00	13.60-12.80	15049	(G10017) Compact chalk. Natural chalk.	SFA

A1.4 FA2 (WS2; NGR 615698.7E 157722.4N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.08	17.80-17.72	15070	(G10000) Tarmacadam. Modern surface.	Dug
0.08-0.25	17.72-17.55	15071	(G10000) Compact greyish brown loamy clay, CSM flint, CSM chalk, CSM tile. Bedding/levelling.	Dug
0.25-0.50	17.55-17.30	15072	(G10000) Compact greyish brown loamy clay, CSM flint, CSM chalk, CSM tile. Bedding/levelling.	SFA
0.50-0.80	17.30-17.00	15073	(G10000) Compact greyish brown loamy clay, CSM flint, CSM chalk, CSM tile. Bedding/levelling.	
0.80-1.00	17.00-16.80	15074	(G10000) Fairly compact fairly pale greyish green, CSM flint, CSM chalk, CSM tile. Levelling (redeposited brickearth).	
1.00-1.20	16.80-16.60	15075	(G10014) Fairly compact grey green sandy clay, CSM flint. ?Head brickearth.	
1.20-2.00	16.60-15.80	15076	(G10014) Fairly compact grey green sandy clay, CSM flint. ?Head brickearth.	
2.00-3.30	15.80-14.50	15077	(G10014) Fairly compact orange brown sandy clay, CSM flint, RS chalk. ?Head brickearth.	
3.30-4.70	14.50-13.10	15078	(G10014) Compact yellow brown sandy clay, RS chalk. ?Head brickearth.	
4.70-5.00	13.10-12.80	15079	(G10017) Compact chalk. Natural chalk.	SFA

A1.5 FA3 (WS3; NGR 615705.6E 157785.3N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.25	18.10-17.85	15080	(G10000) Concrete. Modern surface.	Broken
0.25-0.60	17.85-17.50	15081	(G10000) Compact pale grey sandy clay, CSM flint, CS tile. Bedding/levelling.	SFA
0.60-1.00	17.50-17.10	15082	(G10000) Compact greenish grey sandy clay, CSM flint, CSM tile, CSM charcoal. Fill/levelling.	
1.00-1.40	17.10-16.70	15083	(G15085) Compact orange brown sandy loamy clay, CSM flint, RS tile. ?Disturbed ?head brickearth.	
1.40-2.20	16.70-15.90	15084	(G15085) Compact orange brown sandy clay, RSM flint. ?Head brickearth.	
2.20-2.80	15.90-15.30	15085	(G15085) Compact orange brown fairly sandy clay, CSM flint. ?Head brickearth.	
2.80-3.30	15.30-14.80	15086	(G15085) Very compact orange brown sandy clay, CSM flint. ?Head brickearth.	
3.30-3.50	14.80-14.60	15087	(G10010) Compact yellow brown sandy clay, RS flint. ?Head/loessic brickearth.	
3.50-4.50	14.60-13.60	15088	(G10010) Compact yellow brown very sandy clay, RS flint. ?Loessic brickearth.	
4.50-5.00	13.60-13.10	15089	(G10010) Compact yellow brown very sandy clay, RS flint. ?Loessic brickearth.	SFA

A1.6 FA4 (WS4; NGR 615736.6E 157795.1N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.10	18.60-18.50	15090	(G10000) Tarmacadam. Modern surface.	Dug
0.10-0.25	18.50-18.35	15091	(G10000) Compact dark grey brown silty clay, ASM flint, RSM brick. Bedding/levelling.	Dug
0.25-0.50	18.35-18.10	15092	(G10000) Banded hardcore. Levelling.	SFA
0.50-0.75	18.10-17.85	15093	(G10000) Compact greyish brown sandy clay, CSM flint, CSM tile, RS charcoal. ?Fill/levelling.	
0.75-1.50	17.85-17.10	15094	(G15085) Compact orange brown sandy clay, RSM flint. ?Head brickearth.	
1.50-2.50	17.10-16.10	15095	(G10010) Compact greenish yellow brown sandy clay, CS flint. ?Head/loessic brickearth.	
2.50-3.50	16.10-15.10	15096	(G10010) Compact greenish yellow brown sandy clay. ?Head/loessic brickearth.	
3.50-4.50	15.10-14.10	15097	(G10014) Compact greenish brown sandy clay. ?Head/loessic brickearth.	SFA

A1.7 RP1 (BH1; NGR 615633.6E 157775.1N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.14	16.90-16.76	15050	(G10000) Compact pale reddish brown gravel, AM flint. Modern surface.	Dug
0.14-0.34	16.76-16.56	15051	(G10000) Compact greenish grey gravel, AM flint, RS tile. Bedding/levelling.	
0.34-0.70	16.56-16.20	15052	(G10000) Compact dark greyish brown silty clay loam, CSM flint, CSM chalk, RM brick, CS charcoal. ?Cultivated old ground ?surface.	
0.70-1.16	16.20-15.74	15053	(G15055) Compact greyish brown loamy clay, CSM flint, CSM chalk, CSM peg-tile, CM bone, CS charcoal. ?Fill/levelling.	Dug
1.16-1.45	15.74-15.45		Void.	SPT
1.45-1.50	15.45-15.40	15054	(G15055) Loose greyish green loamy clay, RSM flint, CS tile. ?Fill/levelling.	
1.50-1.65	15.40-15.25	15055	(G15055) Compact greyish brown loamy clay, CSM chalk, CS tile. ?Fill/levelling.	
1.65-1.70	15.25-15.20	15056	(G15055) Compact greyish brown loamy clay, RSM flint, CS tile. ?Fill/levelling.	
1.70-2.00	15.20-14.90	15057	(G10014) Compact yellow brown clay with orange brown mottle. ?Head brickearth.	SPT
2.00-2.45	14.90-14.45	15058	(G10014) Compact yellow brown clay with orange brown mottle. ?Head brickearth.	U100
2.45-3.00	14.45-13.90	15059	(G10014) Very compact yellow brown clay with rare orange brown mottle. ?Head brickearth.	U100
3.00-3.20	13.90-13.70		Void.	SFA
3.20-3.45	13.70-13.45	15060	(G10014) Very compact yellow brown clay with rare orange brown mottle, CSM flint. ?Head gravelly brickearth.	SFA
3.45-3.75	13.45-13.15	15061	(G10014) Very compact yellow brown clay with rare orange brown mottle, RS tile. ?Head gravelly brickearth.	SPT
3.75-3.90	13.15-13.00	15062	(G10015) Compact very pale brown clay, RS flint, AS chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
3.90-4.00	13.00-12.90		Void.	SPT
4.00-4.45	12.90-12.45	15064	(G10015) Compact very pale brown clay, CSM flint, AS chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
4.45-5.45	12.45-11.45	15065	(G10015) Compact very pale brown clay, becoming chalkier at base, AS chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
5.45-6.60	11.45-10.30	15066	(G10015) Compact very pale brown clay, AS chalk. ?Coombe deposit, deposit, periglacial fill or cryoturbated chalk.	SPT
				SFA

6.60+	10.30>	15067 (G10017) Compact chalk, CSM flint. Flinty solid or ?cryoturbated chalk, ?coombe deposit or periglacial fill.	SPT SPT
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A1.8 RP2 (BH2; NGR 615721.8E 157752.9N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.02	17.60-17.58	10000	(G10000) Artificial turf. Modern surface.	Dug
0.02-0.08	17.58-17.52	10001	(G10000) Compact tarmacadam. Modern surface/bedding.	
0.08-0.25	17.52-17.35	10002	(G10000) Compact crushed stone. Levelling.	
0.25-0.54	17.35-17.06	10003	(G10000) Very compact slightly greyish orange brown loamy clay, ASMR brick. Levelling.	
0.54-1.26	17.06-16.34	10004	(G10004) Fairly compact fairly pale slightly brownish grey clay loam, RSM flint, RS chalk, RS charcoal. ?Colluvial ?fill.	Dug
1.26-1.46	16.34-16.14		Void.	SPT
1.46-1.48	16.14-16.12	10005	(G10004) Fairly compact fairly pale slightly brownish grey clay loam. ?Colluvial ?fill or fallen in.	
1.48-1.64	16.12-15.96	10006	(G10010) Fairly compact pale slightly greyish brown loamy clay. ?Weathered natural or ?colluvial ?fill.	
1.64-1.71	15.96-15.89	10007	(G10010) Compact orange brown loamy clay. ?Loessic brickearth.	SPT
1.71-2.00	15.89-15.60	10008	(G10010) Compact orange brown loamy clay. ?Loessic brickearth.	SFA
2.00-2.45	15.60-15.15	10009	(G10010) Compact yellow brown slightly sandy loamy clay. ?Loessic brickearth.	SFA
2.45-3.00	15.15-14.60	10010	(G10010) Compact yellow brown slightly sandy loamy clay. ?Loessic brickearth.	U100
3.00-3.23	14.60-14.37		Void.	U100
3.23-3.45	14.37-14.15	10011	(G10014) Compact orange brown loamy clay. ?Head/loessic brickearth.	SFA
3.45-3.90	14.15-13.70	10012	(G10014) Compact orange brown loamy clay. ?Head/loessic brickearth.	SFA
3.90-4.00	13.70-13.60	10013	(G10014) Compact pale slightly yellowish grey slightly gravelly loamy clay, RSM flint. ?Head clay.	
4.00-4.80	13.60-12.80	10014	(G10014) Compact pale slightly yellowish grey slightly gravelly loamy clay. ?Head clay.	
4.80-5.00	12.80-12.60	10015	(G10015) Compact pale slightly yellowish grey slightly loamy clay. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
5.00-5.05	12.60-12.55	10016	(G10015) Compact pale slightly yellowish grey slightly loamy clay. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SPT
5.05-5.45	12.55-12.15	10017	(G10017) Solid chalk. Natural chalk.	
				SPT

A1.9 RP3 (BH3; NGR 615736.2E 157783.5N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.03	18.60-18.57	15020	(G10000) Tarmacadam. Modern surface.	Broken
0.03-0.10	18.57-18.50	15021	(G10000) Poured concrete. Surface/bedding.	Broken
0.10-0.48	18.50-18.12	15022	(G10000) Banded brick and concrete hardcore, ASCML brick, ASMRL concrete, RL sandstone. Bedding/levelling.	Dug
0.48-1.12	18.12-17.48	15023	(G10000) Compact fairly pale greyish brown loamy clay, CSRM flint, CSRM chalk, RSM peg-tile, RS charcoal, RSM coal/clinker. Fill/levelling.	
1.12-1.20	17.48-17.40	15024	(G10004) Compact fairly pale greyish brown loamy clay, CSM chalk, RS tile, RM bone, RS charcoal. Fill/levelling or colluvium.	Dug
1.20-1.45	17.40-17.15		Void.	SPT
1.45-1.52	17.15-17.08	15025	(G10004) Fairly compact fairly pale slightly greyish orange brown loamy clay, RM flint, ASRM chalk, RS charcoal, RS ?daub. Fill/levelling or colluvium.	
1.52-1.65	17.08-16.95	15026	(G10010) Compact slightly greyish orange brown loamy clay. ?Loessic brickearth.	SPT
1.65-2.00	16.95-16.60	15027	(G10010) Compact slightly greyish orange brown loamy clay. ?Loessic brickearth.	SFA
2.00-2.25	16.60-16.35	15028	(G10010) Compact slightly greyish orange brown loamy clay, RM Tertiary pebble. ?Loessic brickearth.	
2.25-2.50	16.35-16.10	15029	(G15030) Compact fairly pale grey green clay sand with orange sand laminae. ?Weathered Thanet Formation or head derived from Thanet Formation.	SFA U100
2.50-2.70	16.10-15.90	15030	(G15030) Compact fairly pale grey green clay sand with orange sand laminae. ?Weathered Thanet Formation or head derived from Thanet Formation.	U100 SFA
2.70-3.00	15.90-15.60	15031	(G15031) Fairly compact pale grey slightly sandy clay silt with dark orange mottle. Thanet Formation.	SFA

A1.10 RP5 (BH5; NGR 615728.9E 157887.5N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.10	22.60-22.50	10020	(G10000) Compact tarmacadam. Modern surface.	Broken
0.10-0.45	22.50-22.15	10021	(G10000) Very compact brick rubble etc. Modern levelling.	Broken
0.45-0.90	22.15-21.70	10022	(G10022) Fairly compact brown slightly clayey loam, RSM flint, RS	Dug

			chalk, RS tile. ?Cultivated old ground ?surface.	
0.90-1.20	21.70-21.40	10023	(G10023) Fairly compact fairly pale yellowish brown loamy clay with brown clayey loam mottle, RSML flint, ASCM chalk, RS tile, RS charcoal. ?Fill/levelling.	Dug
1.20-1.50	21.40-21.10		Void.	SPT
1.50-1.58	21.10-21.02	10024	(G10023) Fairly compact fairly pale yellowish brown loamy clay with brown clayey loam mottle, RSML flint, ASCM chalk, RS tile, RS charcoal. ?Fill/levelling.	
1.58-1.65	21.02-20.95	10025	(G15085) Fairly compact yellow brown loamy clay, RSM flint.	
			?Colluvial/head gravelly brickearth.	SPT
1.65-2.00	20.95-20.60	10026	(G15085) Fairly compact yellow brown loamy clay, RSM flint, VRVS tile. ?Colluvium or ?bioturbated ?head gravelly brickearth.	SFA
				SFA
2.00-2.25	20.60-20.35	10027	(G15085) Fairly compact yellow brown loamy clay, RSM flint.	U100
			?Colluvial/head gravelly brickearth.	
2.25-2.50	20.35-20.10	10028	(G15085) Fairly compact orange brown loamy clay, CSM flint. ?Head very gravelly brickearth.	
2.50-3.00	20.10-19.60	10029	(G15085) Fairly compact orange brown loamy clay with rare medium lens(es) of fairly pale grey green sand, CSM flint. ?Head very gravelly brickearth with a little Thanet Formation derived material.	U100
3.00-3.25	19.60-19.35		Void.	SPT
3.25-3.45	19.35-19.15	10030	(G15085) Fairly compact slightly yellowish orange brown loamy clay, CSM flint. ?Head very gravelly brickearth.	
				SPT
3.45-3.60	19.15-19.00	10031	(G15085) Fairly compact slightly yellowish orange brown loamy clay, CSM flint. ?Head very gravelly brickearth.	SFA
3.60-4.00	19.00-18.60	10032	(G15085) Fairly compact yellow brown slightly sandy clay, RSM flint. ?Head gravelly brickearth.	SFA
4.00-4.25	18.60-18.35		Void.	SPT
4.25-4.30	18.35-18.30	10033	(G15085) Compact orange brown slightly sandy clay, RSCM flint. ?Head gravelly brickearth.	
4.30-4.40	18.30-18.20	10034	(G15031) Compact yellow brown clay sand. ?Head ?brickearth or ?weathered Thanet Formation.	
4.40-4.45	18.20-18.15	10035	(G15031) Compact pale grey green slightly clayey sand. Thanet Formation.	SPT

A1.11 RP6 (BH6; NGR 615666.8E 157843.2N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.10	17.50-17.40	10050	(G10000) Grass and fairly compact grey brown fine, slightly clayey	Dug

0.10-0.47	17.40-17.03	10051	loam. Modern topsoil and turf. (G10000) Fairly compact brownish grey clayey loam, RSM flint, RS chalk, RS mortar, RSM tile. ?Cultivated modern levelling.	
0.47-1.00	17.03-16.50	10052	(G10000) Fairly compact yellow brown loamy clay with greyish brown clayey loam mottle, RSM flint, RS charcoal, RL (electricity cover) brick. Modern levelling/fill.	
1.00-1.20	16.50-16.30	10053	(G10010) Fairly compact yellow brown loamy clay. ?Loessic brickearth.	Dug
1.20-1.37	16.30-16.13		Void.	SPT
1.37-1.65	16.13-15.85	10054	(G10010) Fairly compact yellow brown loamy clay, RS charcoal. ?Bioturbated ?loessic brickearth.	SPT
1.65-2.00	15.85-15.50	10055	(G10010) Fairly compact yellow brown loamy clay, VRS charcoal. ?Loessic brickearth.	SFA
2.00-2.25	15.50-15.25	10056	(G10010) Fairly compact yellow brown loamy clay. ?Loessic brickearth.	SFA
2.25-2.50	15.25-15.00	10057	(G10014) Compact brownish yellow sandy clay. ?Head/alluvial brickearth.	U100
2.50-2.90	15.00-14.60	10058	(G10014) Compact brownish yellow loamy clay with pale greenish grey lenses. ?Head/alluvial brickearth, probably with some Thanet Formation derived material.	U100
2.90-3.00	14.60-14.50	10059	(G10059) Compact slightly greenish grey clayey sand, RM subangular flint. ?Head derived from Thanet Formation.	SFA
3.00-4.00	14.50-13.50	10080	(G10015) Fairly compact very pale grey clay, ASM chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SPT
4.00-4.45	13.50-13.05	10081	(G10015) Fairly compact very pale grey clay, ASM chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SPT
4.45-5.00	13.05-12.50	10082	(G10015) Fairly compact very pale grey clay, ASM chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
5.00-5.40	12.50-12.10	10083	(G10015) Fairly compact very pale grey clay, ASM chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
5.40-5.45	12.10-12.05	10084	(G10015) Single chalk clast punched through by sampler, ASM chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SPT
5.45-6.00	12.05-11.50	10085	(G10015) Fairly compact very pale grey clay, ASM chalk. ?Coombe deposit, periglacial fill or cryoturbated chalk.	SFA
6.00-6.80	11.50-10.70	10086	(G10015) Fairly compact very pale grey clay, ASM chalk. ?Coombe	SFA
				SPT

			deposit, periglacial fill or cryoturbated chalk.	
6.80+	10.70>	10087	(G10017) Solid chalk. Natural.	SPT
A1.12 TP1 (NGR 615778.2E 157750.3N)				
Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.09	18.10-18.01	15010	(G10000) Very compact tarmacadam. Modern surface.	Dug
0.09-0.50	18.01-17.60	15011	(G10000) Compact orange brown sandy clay, CS tile, CS clinker. Fill/levelling.	
0.50-0.60	17.60-17.50	15012	(G10000) Fairly compact dark grey sandy clay, CS tile, AS slag/clinker. Fill/levelling.	
0.60-1.00	17.50-17.10	15013	(G10010) Compact pale greenish brown sandy clay, RS tile. Fill/levelling or disturbed/redeposited brickearth.	Dug
A1.13 TP1A (TP1; NGR 615685.6E 157763.5N)				
Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.12	18.00-17.88	10060	(G10000) Tarmacadam. Modern surface.	Dug
0.12-0.45	17.88-17.55	10061	(G10000) Brick rubble. Bedding/levelling.	
0.45-1.50	17.55-16.50	10062	(G10000) Fairly compact greyish brown clayey loam, RS flint, RSM mortar, RM bone, RSM oyster, RS charcoal, RSM brick/tile. ?Construction trench fill, possibly reused fill of earlier feature.	
1.50+	16.50>	10063	(G10000) Crushed-brick concrete. Offset wall foundation.	Dug
A1.14 TP2 (NGR 615751.3E 157773.2N)				
Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.16	18.30-18.14	15200	(G10000) Concrete. Modern surface.	Dug
0.16-0.35	18.14-17.95	15201	(G10000) Unmortared, slightly concave red brick surface over mixed clays and rubble. Drainage gully over bedding within construction cut.	
0.16-0.37	18.14-17.93	15202	(G10000) Mixed loams. Construction trench fill.	
0.16-0.48	18.14-17.82	15205	(G15205) Fairly compact grey slightly clayey loam. ?Cultivated old ground ?surface or levelling, cut by 15201.	
0.37-0.45	17.93-17.85	15203	(G10000) Concrete. Offset foundation.	
0.48-0.52	17.82-17.78	15204	(G15085) Compact yellow brown loamy clay. ?Head/loessic brickearth.	Dug

A1.15 TP3 (NGR 615726.2E 157849.3N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.10	21.20-21.10	15000	(G10000) Pea shingle with geotextile membrane at base. Modern surface.	Dug
0.10-0.25	21.10-20.95	15001	(G10000) Tarmacadam,, CSM. Modern surface.	
0.25-0.80	20.95-20.40	15002	(G10000) Compact dirty yellow brown sandy clay, RM brick. Fill/levelling (redeposited brickearth).	
0.80-1.00	20.40-20.20	15003	(G15085) Compact fairly pale yellow brown sandy clay. ?Head/loessic brickearth.	Dug

A1.16 TP3A (WTP3; NGR 615784.3E 157716.1N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.06	19.60-19.54	15120	(G10000) Tarmacadam. Modern surface.	Broken
0.06-0.16	19.54-19.44	15122	(G10000) Concrete. Modern surface/bedding.	Broken
0.16-0.55	19.44-19.05	15123	(G10000) Fairly compact greyish brown silty clay, CSM flint, CS mortar, CML brick. Fill/levelling.	Dug
0.55-0.85	19.05-18.75	15124	(G10000) Fairly compact fairly dark grey brown silty clay, CSM flint, CML brick, RM slag, CSM clinker, CSM iron. Construction trench fill.	
0.85-0.91	18.75-18.69	15125	(G10000) ?Unmortared shallow- and narrow-frogged brickwork; bricks are red, 0.06m x 0.11m x 0.21m. ?Yard surface.	
0.85-1.00	18.75-18.60	15126	(G10000) Compact fairly dark greyish brown loamy clay, CSM chalk, CSM tile, CL bone, CM oyster, RS charcoal. Old ground ?surface/fill/levelling.	
1.00-1.10	18.60-18.50	15127	(G15127) Compact yellow brown clay with orange brown mottle. ?Head/loessic brickearth.	Dug

A1.17 TP4 (NGR 615780.9E 157715.0N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.03	18.00-17.97	10040	(G10000) Tarmacadam. Modern surface.	Broken
0.03-0.20	17.97-17.80	10041	(G10000) Compact concrete. Modern surface/bedding.	Broken
0.20-0.50	17.80-17.50	10042	(G10000) Fairly compact dark greyish brown loamy clay and hardcore, CSM brick, CSM bone, CSM slate. Levelling.	Dug
0.50-0.80	17.50-17.20	10043	(G10000) Fairly compact yellow brown sandy clay. Foundation trench fill.	
0.80-1.10	17.20-16.90	10044	(G10000) Shallow-frogged orange red brickwork in pale cream sandy lime	

			mortar. Foundation.	
0.80-1.20	17.20-16.80	10045	(G10010) Compact yellow brown sandy clay. ?Loessic brickearth.	
1.10-1.20	16.90-16.80	10046	(G10000) Fairly compact pale very sandy clay. Construction fill under 10044.	Dug

A1.18 TPYA (NGR 615773.0E 157725.7N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.04	18.00-17.96	15130	(G10000) Tarmacadam. Modern surface.	Broken Broken
0.04-0.50	17.96-17.50	15131	(G10000) Fairly compact yellow brown sandy clay and rubble, CSM brick/tile. Bedding/levelling.	Dug
0.50-1.20	17.50-16.80	15132	(G10010) Compact yellow brown sandy clay. ?Loessic brickearth.	
1.20-1.30	16.80-16.70	15133	(G10014) Compact fairly pale greyish yellow very sandy clay. ?Head/loessic brickearth.	Dug

A1.19 TPYB1 (NGR 615724.3E 157742.5N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.06	17.60-17.54	15140	(G10000) Tarmacadam. Modern surface.	Broken
0.06-0.14	17.54-17.46	15141	(G10000) Fairly compact greenish grey gravel and hardcore, ASM flint, CML concrete. Bedding/levelling.	Broken
0.14-0.36 /0.56	17.46-17.24 /17.04	15142	(G10000) Fairly compact grey brown sandy clay and rubble, CSM brick/tile, CSM slate. Fill of service trench.	Dug
0.36-0.83	17.24-16.77	15144	(G10000) Concrete. Casing for sewer pipe.	
0.56-0.86	17.04-16.74	15145	(G10000) Single course of brickwork in pale yellowish brown sandy mortar overlain by three courses in 'pepper-and-salt' mortar. Foundation.	
0.83+	16.77>	15143	(G10000) Concrete. Base for ?sewer pipe.	Dug

A1.20 TPYB2 (NGR 615730.9E 157742.1N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.06	17.60-17.54	15150	(G10000) Tarmacadam. Modern surface.	Broken
0.06-0.14	17.54-17.46	15151	(G10000) Fairly compact greenish grey gravel. Bedding/levelling.	Broken
0.14-0.36 /0.80	17.46-17.24 /16.80	15152	(G10000) Fairly compact grey brown sandy clay. Fill/levelling.	Dug
0.36-1.10	17.24-16.50	15154	(G10000) 6 courses of brickwork with a further two offset. Foundation.	
0.36-1.30	17.24-16.30	15153	(G10000) Concrete. Encased ?sewer.	
0.80-1.34 /1.10	16.80-16.26 /16.50	15155	(G10010) Compact yellow brown clay, RS tile. ?Disturbed ?head/loessic	

brickearth.

Dug

A1.21 TPYB3 (NGR 615756.0E 157755.7N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group)	Description & interpretation	Sample type
0.00-0.06	17.60-17.54	15160	(G10000)	Tarmacadam. Modern surface.	Dug
0.06-0.20	17.54-17.40	15161	(G10000)	Fairly loose pale grey sandy gravel and concrete rubble, CSM concrete. Bedding/levelling.	
0.20-0.80	17.40-16.80	15162	(G10000)	Compact grey brown sandy clay, CSM flint, CSM mortar, CML brick. Fill/levelling.	
0.80-1.50	16.80-16.10	15163	(G10010)	Compact yellowish orange brown sandy clay, RS flint. ?Head/loessic brickearth.	Dug

Appendix 2: group descriptions (Figs 6 and 12-17)

A2.1 Conventions

Soil descriptions use the following frequency and size codes for inclusions: V = Very, R = Rare, C = Common, A = Abundant, S = Small (<10mm in every dimension), M = Medium, L = Large (>100mm in any dimension). For Phase C groups, each overall description and considered interpretation is followed by the initial description and field interpretation of its constituent context(s). For details of contexts in other phases, see Appendix 1. Only the position names used by CAT (CATrefs) are listed below: where these differ from those assigned by the geotechnical teams, Appendix 1 includes the original reference. Groups are listed in numerical order.

A2.2 Group G10000

Phase D

General number for all obviously nineteenth-century or later deposits and structures.

Transects: TX01, TX02, TX03, TX04, TX05

Boreholes: CP4, FA1, FA2, FA3, FA4, RP1, RP2, RP3, RP5, RP6, TP1, TP1A, TP2, TP3, TP3A, TP4, TPYA, TPYB1, TPYB2, TPYB3

Contexts: 10000, 10001, 10002, 10003, 10020, 10021, 10040, 10041, 10042, 10043, 10044, 10046, 10050, 10051, 10052, 10060, 10061, 10062, 10063, 10070, 15000, 15001, 15002, 15010, 15011, 15012, 15020, 15021, 15022, 15023, 15040, 15041, 15050, 15051, 15052, 15070, 15071, 15072, 15073, 15074, 15080, 15081, 15082, 15090, 15091, 15092, 15093, 15120, 15122, 15123, 15124, 15125, 15126, 15130, 15131, 15140, 15141, 15142, 15143, 15144, 15145, 15150, 15151, 15152, 15153, 15154, 15160, 15161, 15162, 15200, 15201, 15202, 15203

A2.3 Group G10004

Phase C

Generally greyish brown to brownish grey clay loams etc with rare anthropogenic inclusions.

Probably either deliberate or natural colluvial fill of a large feature (such as a brickearth quarry) or of separate features.

Transects: TX01, TX02, TX04

Boreholes: RP2, RP3

Contexts: 10004, 10005, 15024, 15025

Details:

CATref Con Description & initial interpretation

RP2 10004 Fairly compact fairly pale slightly brownish grey clay loam, RSM flint, RS chalk, RS charcoal. ?Colluvial ?fill.

RP2 10005 Fairly compact fairly pale slightly brownish grey clay loam. ?Colluvial ?fill or fallen in.

RP3 15024 Compact fairly pale greyish brown loamy clay, CSM chalk, RS tile, RM bone, RS charcoal. Fill/levelling or colluvium.

RP3 15025 Fairly compact fairly pale slightly greyish orange brown loamy clay, RM flint, ASRM chalk, RS charcoal, RS ?daub. Fill/levelling or colluvium.

A2.4 Group G10010

Phase B4

Generally unmottled, yellow brown to orange brown sandy to loamy clays, usually without inclusions but occasionally with rare gravel or charcoal flecking (the latter, if not introduced by the auger, perhaps due to bioturbation). Precise boundary with overlying and underlying ?head brickearths G15085 and G10014 often not very clear.

Probably loessic (windblown) brickearths.

Transects: TX01, TX02, TX03, TX04, TX05

Boreholes: CP4, FA1, FA3, FA4, RP2, RP3, RP6, TP1, TP4, TPYA, TPYB2, TPYB3

Contexts: 10006, 10007, 10008, 10009, 10010, 10045, 10053, 10054, 10055, 10056, 10074, 10075, 15013, 15026, 15027, 15028, 15045, 15087, 15088, 15089, 15095, 15096, 15132, 15155, 15163

A2.5 Group G10014

Phase B3

Generally sandy clays, mostly with rare to common gravels. Overlain at some positions by ?loessic brickearths G10010.

Probably head brickearths, perhaps including stream deposits.

Transects: TX01, TX02, TX03, TX04, TX05

Boreholes: FA1, FA2, FA4, RP1, RP2, RP6, TPYA

Contexts: 10011, 10012, 10013, 10014, 10057, 10058, 15046, 15057, 15058, 15059, 15060, 15061, 15075, 15076, 15077, 15078, 15097, 15133

A2.6 Group G10015

Phase B1

Very pale grey to brown clay with abundant small to medium chalk clasts.

Probably ?head coombe deposits, fill(s) of periglacial feature(s) or *in situ* cryoturbated chalk.

Transects: TX01, TX02, TX03, TX04, TX05

Boreholes: FA1, RP1, RP2, RP6

Contexts: 10015, 10016, 10080, 10081, 10082, 10083, 10084, 10085, 10086, 15048, 15062,

15064, 15065, 15066

A2.7 Group G10017

Phase A1

Solid (though sometimes very weak) chalk.

Natural, *in situ* bedrock.

Transects: TX01, TX02, TX03, TX04, TX05

Boreholes: FA1, FA2, RP1, RP2, RP6

Contexts: 10017, 10087, 15049, 15067, 15079

A2.8 Group G10022

Phase C

Brown, slightly clayey loam identified in RP5.

Probably cultivated old garden soil but perhaps intentional levelling.

Transects: TX03, TX04

Borehole: RP5

Context: 10022

Details:

CATref Con Description & initial interpretation

RP5 10022 Fairly compact brown slightly clayey loam, RSM flint, RS chalk, RS tile.
?Cultivated old ground ?surface.

A2.9 Group G10023

Phase C

Very chalky loamy clay, with charcoal and tile flecking, identified in RP5.

Probably the fill of a feature or intentional levelling.

Transects: TX03, TX04

Borehole: RP5

Contexts: 10023, 10024

Details:

CATref Con Description & initial interpretation

RP5 10023 Fairly compact fairly pale yellowish brown loamy clay with brown clayey loam mottle, RSML flint, ASCM chalk, RS tile, RS charcoal. ?Fill/levelling.

RP5 10024 Fairly compact fairly pale yellowish brown loamy clay with brown clayey loam mottle, RSML flint, ASCM chalk, RS tile, RS charcoal. ?Fill/levelling.

A2.10 Group G10059

Phase B2

About 0.10m of greenish grey clayey sand identified in RP6 between brickearths G10014 and ?coombe deposits G10015.

Probably head or stream/run-off deposited material derived from Thanet Formation.

Transects: TX01, TX03
Borehole: RP6
Context: 10059

A2.11 Group G15030

Phase A2

Compact, fairly pale grey green clay sand with orange sand laminae.

Either ?weathered Thanet Formation or a head deposit derived from the Thanet Formation.

Transects: TX01, TX04
Borehole: RP3
Contexts: 15029, 15030

A2.12 Group G15031

Phase A2

Fairly compact, pale grey slightly sandy clay silt with dark orange mottle.

Natural, Thanet Formation bedrock.

Transects: TX01, TX03, TX04
Boreholes: RP3, RP5
Contexts: 10034, 10035, 15031

A2.13 Group G15043

Phase C

Grey brown sandy clay deposits identified in FA1, the uppermost with many peg-tile fragments.

Probably, cultivated soils, intentional levelling or ?pit fills.

Transects: TX02, TX05
Borehole: FA1
Contexts: 15042, 15043, 15044
Details:

CATref Con Description & initial interpretation

FA1 15042 Fairly compact grey brown sandy clay, ASM tile, RSM concrete.
?Cultivated old ground surface/levelling/fill.

FA1 15043 Fairly compact grey brown sandy clay, ASM peg-tile, RSM concrete.
?Cultivated old ground surface/levelling/fill.

FA1 15044 Fairly compact slightly greenish greyish brown sandy clayey loam, RSM flint, RS tile. ?Cultivated old ground surface/levelling/fill.

A2.14 Group G15047

Phase B2

Clayey, subangular to rounded flint gravel identified in FA1.

Probably head gravel.

Transects: TX02, TX05
Borehole: FA1
Context: 15047

A2.15 Group G15055

Phase C

Banded grey to greyish brown loamy clays, with peg-tile and other inclusions, identified in RP1.

Probably intentional levelling or ?pit fills.

Transects: TX02, TX03
Borehole: RP1
Contexts: 15053, 15054, 15055, 15056
Details:

CATref Con Description & initial interpretation

RP1 15053 Compact greyish brown loamy clay, CSM flint, CSM chalk, CSM peg-tile, CM bone, CS charcoal. ?Fill/levelling.

RP1 15054 Loose greyish green loamy clay, RSM flint, CS tile. ?Fill/levelling.

RP1 15055 Compact greyish brown loamy clay, CSM chalk, CS tile. ?Fill/levelling.

RP1 15056 Compact greyish brown loamy clay, RSM flint, CS tile. ?Fill/levelling.

A2.16 Group G15085

Phase B5

Generally compact, generally orange brown to yellow brown clays to sandy clays, sometimes mottled, often gravelly.

Probably head brickearths.

Transects: TX01, TX03, TX04
Boreholes: CP4, FA3, FA4, RP5, TP2, TP3
Contexts: 10025, 10026, 10027, 10028, 10029, 10030, 10031, 10032, 10033, 10071, 10072, 10073, 15003, 15083, 15084, 15085, 15086, 15094, 15204

A2.17 Group G15127

Phase B5

Compact, yellow brown clay with orange brown mottle, identified in TP3A.

Either ?head brickearth or brickearth redeposited as levelling outside the main prison wall.

Transects: TX02, TX05
Borehole: TP3A
Context: 15127

A2.18 Group G15205

Phase C

Grey loam identified only in TP2, where it was cut by the construction trench for a brick-floored gully against the main prison wall.

?Cultivated old ground ?surface or intentional levelling.

Transect: TX01
Borehole: TP2
Context: 15205

Details:

CATref Con Description & initial interpretation

TP2 15205 Fairly compact grey slightly clayey loam. ?Cultivated old ground ?surface or levelling, cut by 15201.

Appendix 3: test-pit descriptions (Fig 6)

A3.1 Conventions

Only the position names used by CAT (CATrefs) are listed below: where these differ from those assigned by the geotechnical teams, Appendix 1 includes the original reference. Pits are listed in CATref order. See the relevant log (Appendix 1) for depth and elevation of individual contexts.

A3.2 TP1 (NGR 615778.2E 157750.3N)

TP1 was situated between the chapel and hospital, 0.30m square and excavated to a maximum depth of 1m below ground level.

The earliest deposit exposed was a compact light greenish brown sandy clay (15013) disturbed ground. Sealing layer 15013 was a slightly compact friable dark grey sandy clay (15012) levelling deposit. The uppermost layers comprised a levelling deposit of compact mid orange brown sandy clay (15011) sealed by a layer of tarmacadam (15010).

A3.3 TP 1A (NGR 615685.6E 157763.5N)

TP1A was cut north-west of the library building, against the inside edge of the prison wall. It was 0.45m north to south by 0.80m east to west and 1.50m deep.

The base of the pit revealed a concrete surface 0.15m wide (10063) above which was a deposit of fairly compact greyish brown loamy clay (10062) fill. The uppermost layers comprised a brick rubble deposit (10061) sealed by a layer of tarmacadam (10060).

A3.4 TP2 (NGR 615751.3E 157773.2N)

TP2 lay on the north side of the main prison wall, east of the fitters' store. It measured 0.75 east to west by 0.90m north to south and was 0.52m deep.

The earliest deposit encountered was a compact yellow brown sandy clay brickearth (15204) at 0.48m below the ground surface. Sealing the brickearth was a fairly compact grey brown sandy clay (15205), probably an old ground surface or levelling. Cut into layer 15205 was a concrete footing (15203) 0.15m wide and a brick built gully (15201) approximately 0.70m wide. Sealing the gully and footing was a mixed fairly compact clay (15202) which was sealed by a layer of concrete (15200).

A3.5 TP3 (NGR 615726.2E 157849.3N)

TP3 was situated inside the outer prison wall, to the north-west of the rear gate; it was 0.30m square and 1m deep.

The earliest deposit encountered at a depth of 0.80m below the ground surface was a compact light to mid yellow brown sandy clay (15003), interpreted as undisturbed natural brickearth. Sealing the brickearth was a compact mid yellow brown sandy clay (15002), interpreted as disturbed brickearth. The uppermost deposits comprised a layer of tarmacadam (15001) above which was a geotextile membrane sealed by a layer of pea shingle gravel (15000).

A3.6 TP3A (NGR 615784.3E 157716.1N)

TP3A lay against the exterior of the prison wall in the south-east corner of the site. It was 1m square and 1.10m deep.

The natural brickearth comprised of slightly mottled compact yellow brown clay (15127) was revealed at a depth of 1m below the ground surface. The brickearth was sealed by a compact mid to dark greenish brown loamy clay (15126), probably levelling, an old ground surface or the fill of a feature. This was overlain by a single course of brickwork (15125) five bricks' width (approximately 0.70m) across. This surface continued beyond the north-east and south-west limits of excavation. The bricks were orange to red stock bricks with shallow narrow frogs bonded by a soft buff cream lime mortar and the structure may have been a gully or drain cover. Sealing the brick structure was a layer of fairly compact mid to dark grey brown silty clay (15124). Above layer this was a brick rubble and fairly compact greyish brown silty clay layer (15123) sealed by a layer of concrete (15122) overlain by a layer of tarmacadam (15120).

A3.7 TP4 (NGR 615780.9E 157715.0N)

TP4 was situated in the south-east corner of the site, against the inside of the prison wall. It was 1m north-west to south-east by 0.70m north-east to south-west and 1.30m deep.

The natural brickearth, a mid yellow brown sandy clay (10045), was encountered at 0.80m below the ground surface. Sealing the brickearth was a brick built structure (10044) 0.60m long by 0.50m wide and 0.30m deep. The structure continued to the north-east, narrowing to 0.15m wide and comprising three stepped courses of bricks. These were orange to red stock bricks with shallow narrow frogs; the bonding material was a pale cream lime mortar. The structure has been interpreted as the foundations for the prison wall. Above the brick structure was a deposit of fairly compact yellow brown sandy clay (10043), sealed by a fairly compact dark grey brown loamy clay (10042), probably a levelling deposit. The uppermost deposits comprised a layer of concrete (10041) sealed by tarmacadam (10040).

A3.8 TPYA (NGR 615773.0E 157725.7N)

TPYA was cut against the south side of A-wing and was 0.50m square by 1.30m deep.

The earliest deposit encountered was a mid yellow brown sandy clay (15132) at a depth of 0.50m below the ground surface. The deposit has been interpreted as natural brickearth.

Sealing this was a fairly compact yellow brown sandy clay, perhaps redeposited natural, containing brick rubble (15131) and overlain by a layer of tarmacadam (15130).

A3.9 TPYB1 (NGR 615724.3E 157742.5N)

TPYB1 was situated against the north side of A-wing and was 0.80m square and 0.86m deep. Neither the footing of the wall nor the natural brickearth were encountered within the test-pit.

The earliest feature encountered was a stepped brick structure comprised of four courses of bricks (15145). The bricks were orange to red stock unfrogged bricks, the upper three courses were bonded by a mid grey charcoal(?) -flecked mortar typical of the period c 1750-1825. The bottom course was bonded with a soft yellow brown sandy mortar. This was probably a remnant of an earlier wall running perpendicular to the current A-wing wall. The brick structure at the base of the pit was cut by the wall of A-wing by a modern trench or pit, in the base of which was a laid concrete surface (15143) underneath a concrete-encased service (15144). Sealing the latter was compact mid grey brown sandy clay backfill (15142). The uppermost layers comprised compact mid greenish grey gravel hardcore (15141) sealed by a layer of tarmacadam (15140).

A3.10 TPYB2 (NGR 615730.9E 157742.1N)

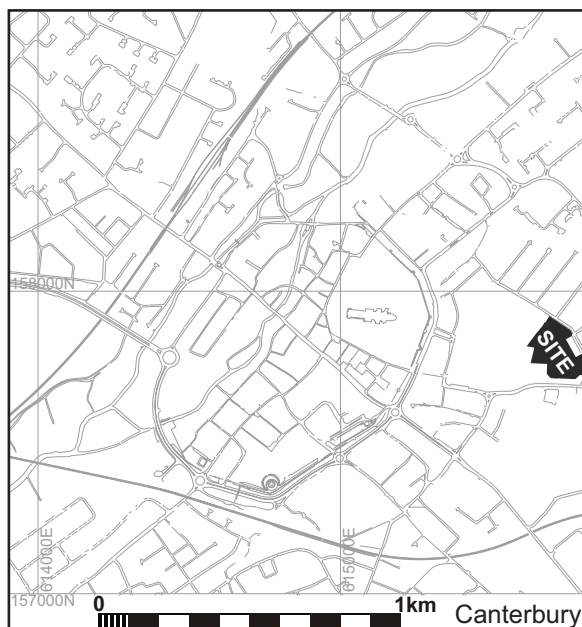
TPYB2 lay 6.2m to the east of TPYB1, against the north side of A-wing. It measured 0.40m east-west, 0.5m north-south and was 1.34m deep.

The earliest deposit encountered was a compact yellow brown clay (15155), interpreted as the natural brickearth. The foundation (15154) for the A-wing wall was encountered at 0.06m below the ground; it stepped out 0.10m from the wall and comprised six courses of bricks over a further two (offset by an additional 0.06m) for a total depth of 1.04m. Abutting the wall footing at depth of 0.36m below the ground level was a layer of concrete (15153) 0.20m wide and approximately 1m thick. Sealing the concrete was a compact mid grey brown sandy clay backfill (15152) overlain by greenish gravel hardcore (15151) and tarmacadam (15150).

A3.11 TPYB3 (NGR 615756.0E 157755.7N)

TPYB3 was cut against the west side of B-wing; it was 0.60m square and 1.50m deep.

The earliest deposit encountered was a compact mid yellowish orange brown sandy clay (15163) interpreted as the natural brickearth. Above the brickearth was a brick rubble foundation (15165) overlain by a three course stepped brick footing (15164). The upper two courses of bricks were bonded with a compact mid grey charcoal(?) -flecked mortar (see A3.9). The lower course had a pale yellowish brown lime mortar. Sealing the brickearth was a layer of grey brown silty clay (15162) backfill overlain by a layer of grey gravel with concrete rubble (15161) sealed by a layer of tarmacadam (15160).



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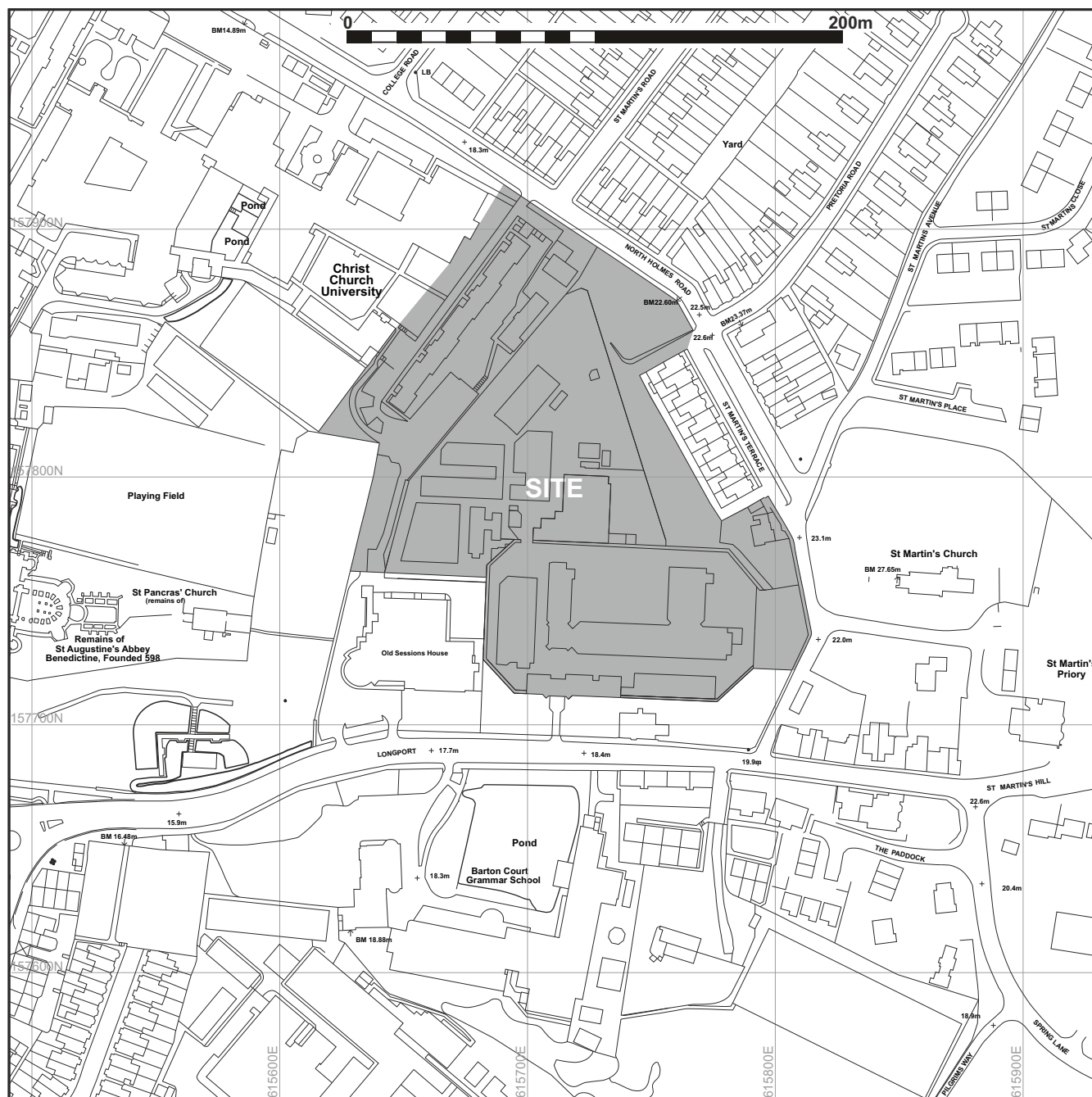


Fig 1 Location maps (1:1,250,000, 1:25,000 and 1:2,500).

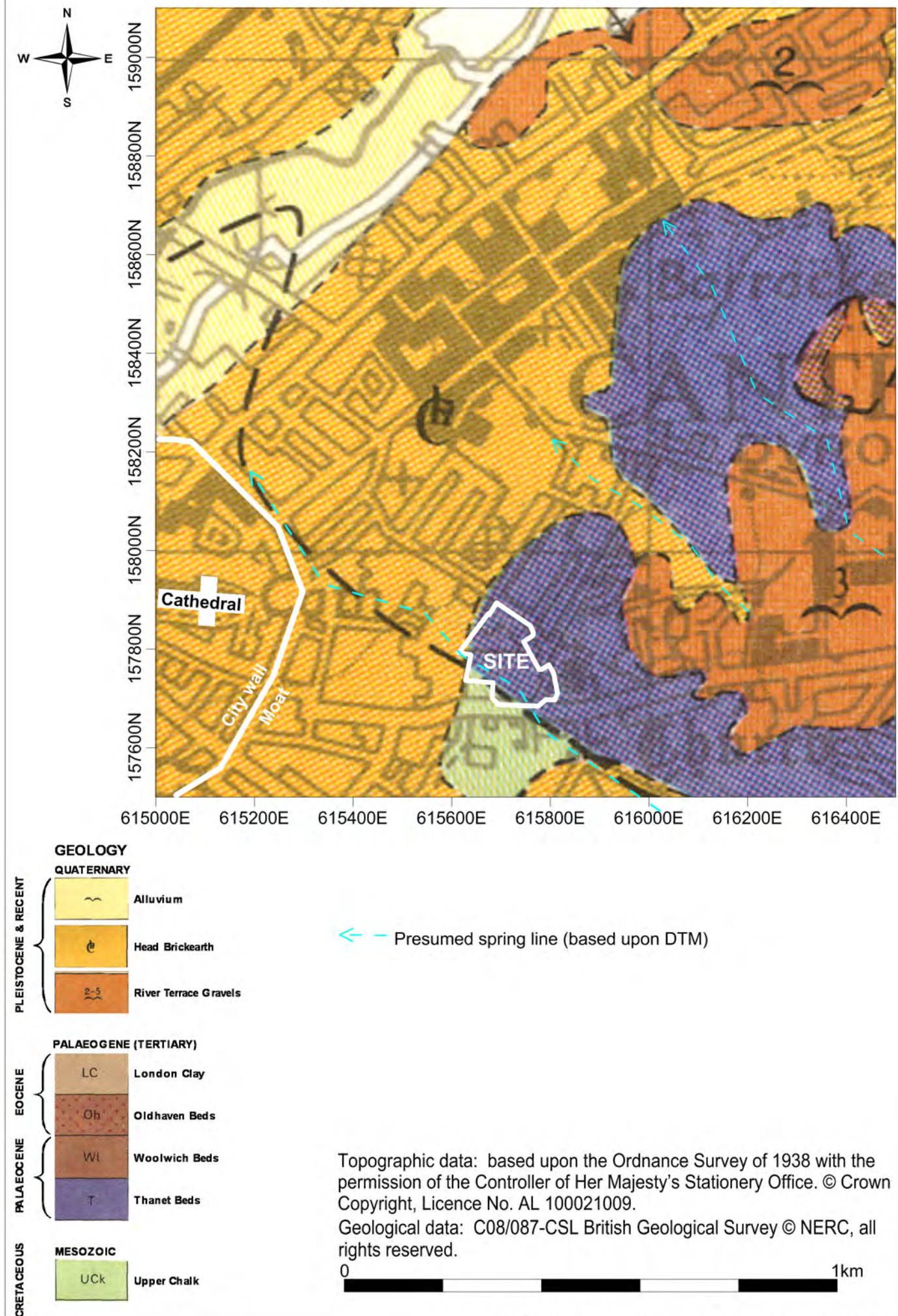
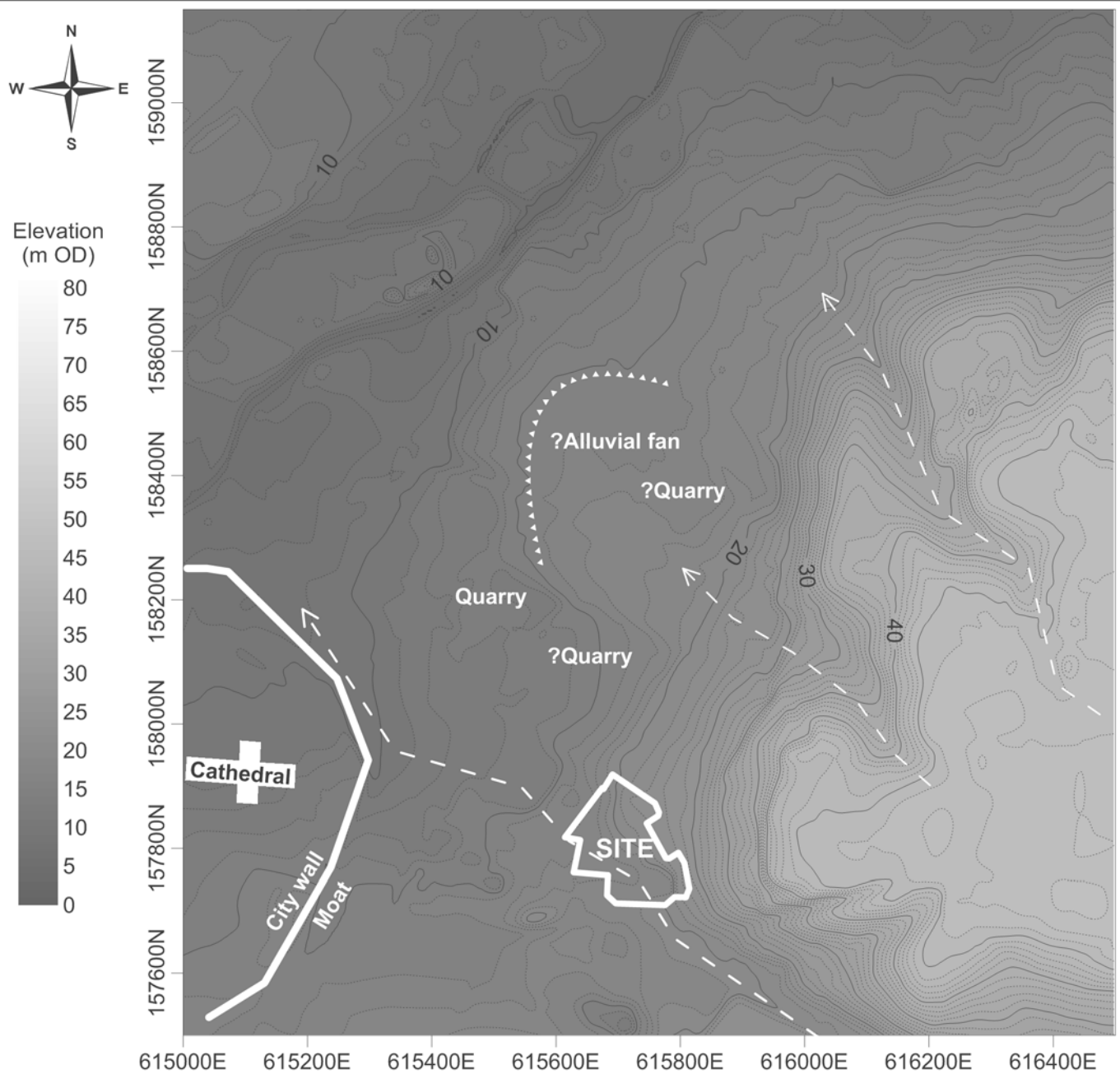


Fig 2 Anticipated superficial geology (1:10,000).



← — Presumed spring line (based upon DTM)

Digital terrain model: based upon 5m grid calculated from digital surface model based upon 2007 airborne radar data collected on a 2.5m grid.

Elevation data: © Airbus Defence and Space Ltd, Infoterra Ltd and Bluesky International Ltd 2007-2015.

0 1km

Fig 3 Digital terrain model of environs (1:10,000).



Digital terrain model (DTM) based upon lidar data collected for DEFRA on a 2m or finer grid. Contains public sector information licensed under the Open Government Licence v3.0 (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>).

Topographic data: based upon the Ordnance Survey with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright, Licence No. AL 100021009.

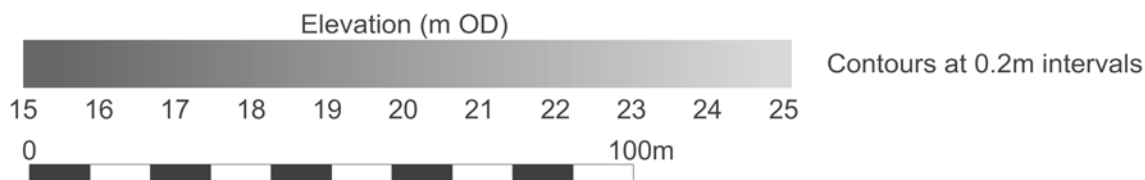
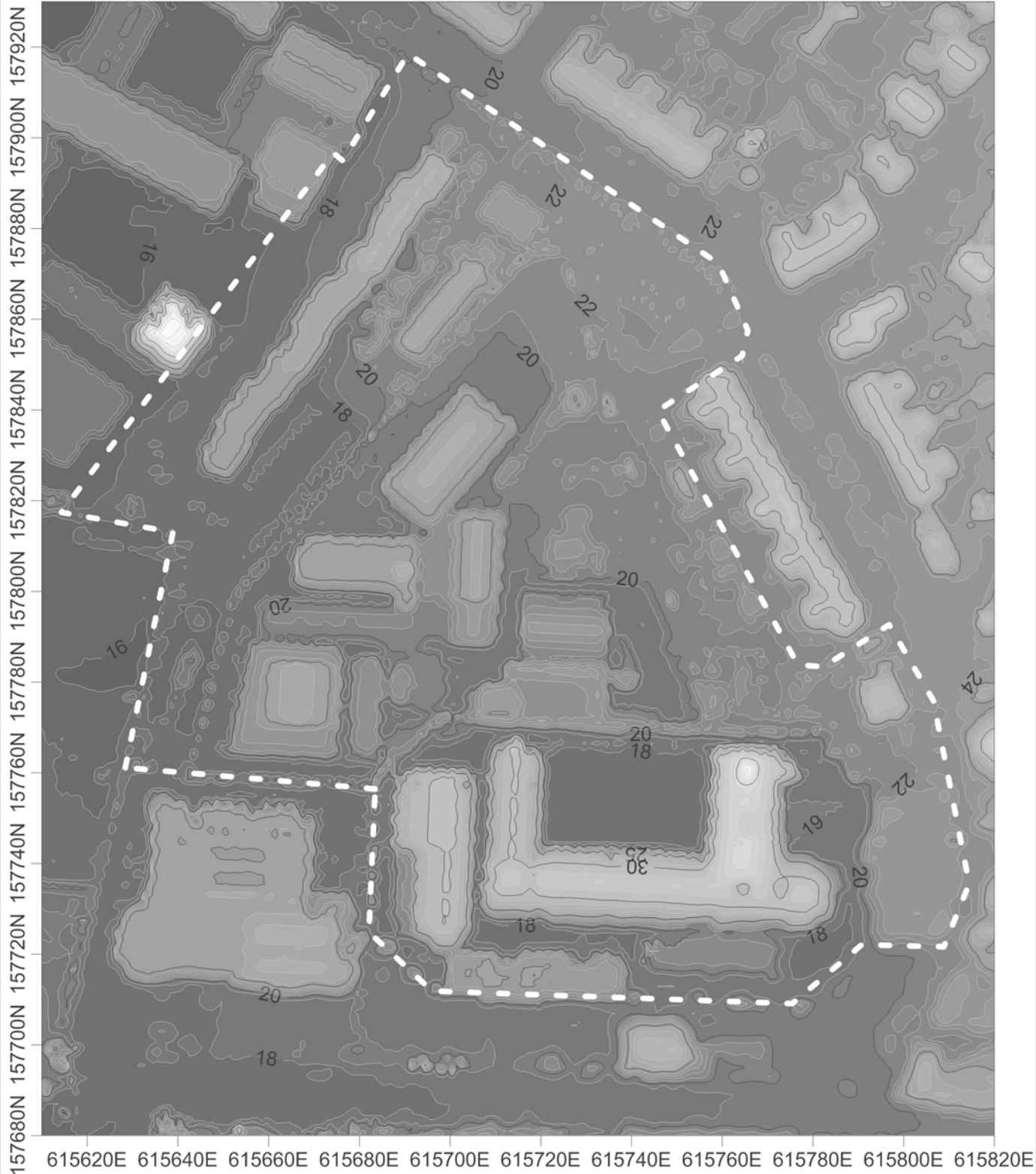
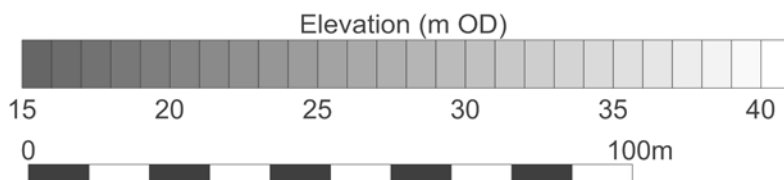


Fig 4 Digital terrain model of site (1:1250).

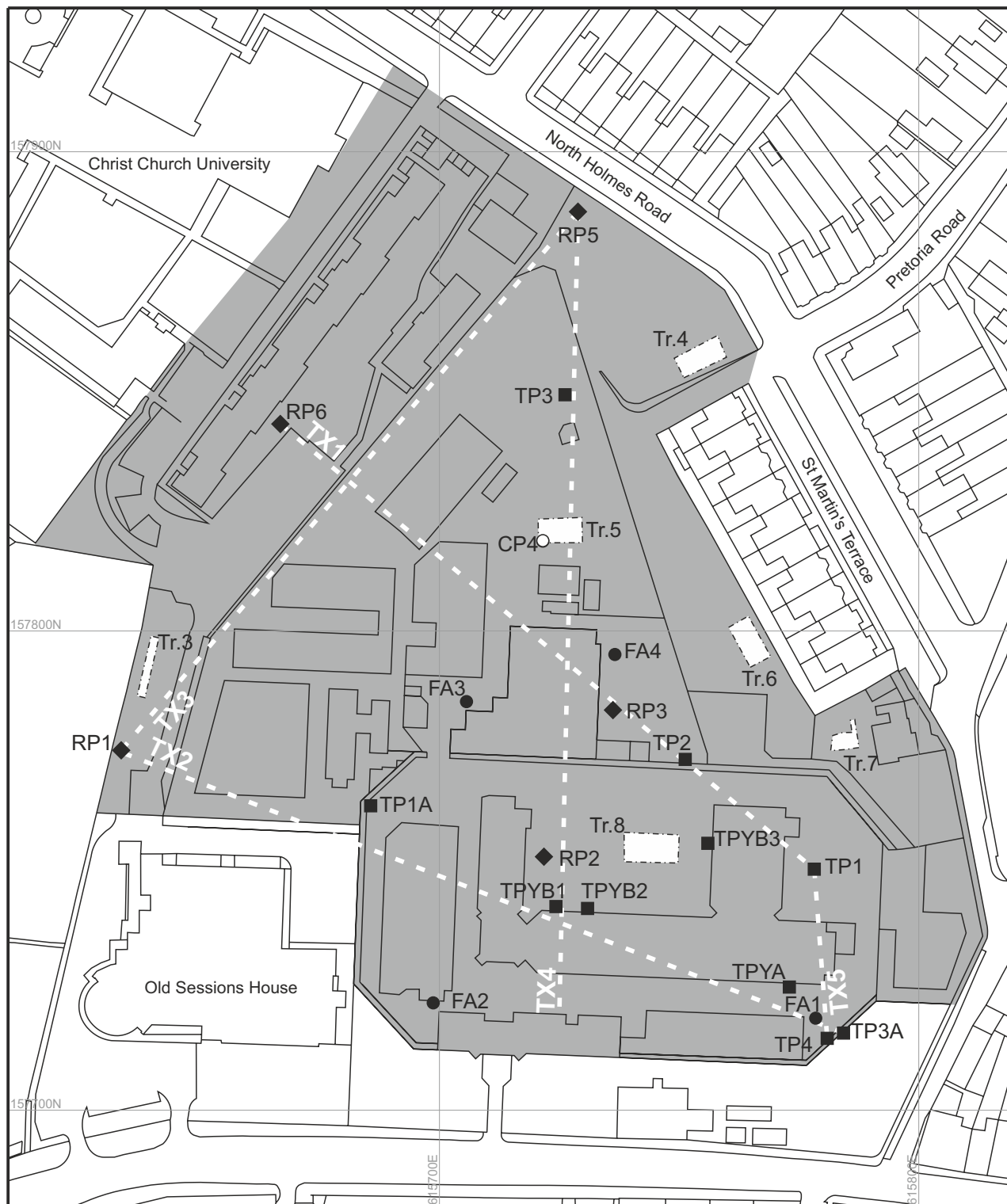


Digital surface model (DSM) based upon lidar data collected for DEFRA on a 2m or finer grid. Contains public sector information licensed under the Open Government Licence v3.0 (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>). Note this survey predates the new Reception and Chapel building against the south wall and shows an earlier building offset to the north instead.



Contours at 1m intervals

Fig 5 Digital surface model of site (1:1250).

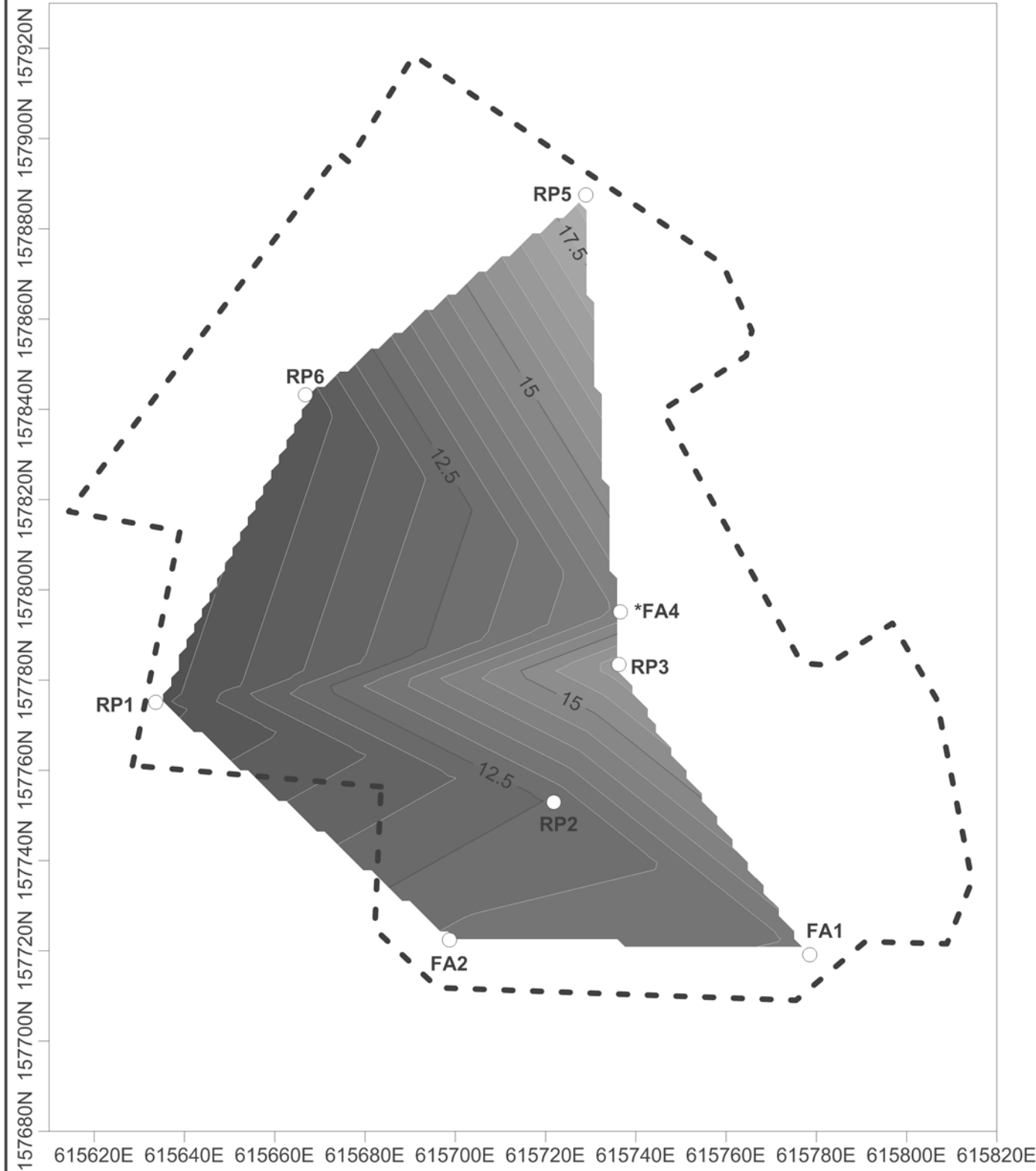


Topographic data: based upon the Ordnance Survey with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright, Licence No. AL 100021009.

- Tr. Evaluation trench (Tr nos)
- Test pit (TP nos)
- ◆ Rotary percussion auger (RP nos)
- Rotary flight auger (FA nos)
- Cable percussion borehole (CP nos)

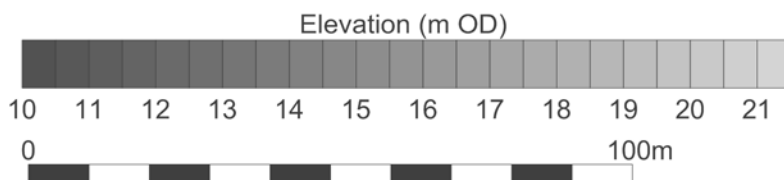


Fig 6 Site plan (1:1250).



*FA4: top of Phase A estimated as lowest recorded Phase B

Contouring algorithm: triangulation with linear interpolation



Contours at 0.5m intervals

Fig 7 Interpolated uppermost surface of Phases A1-A2 (1:1250).

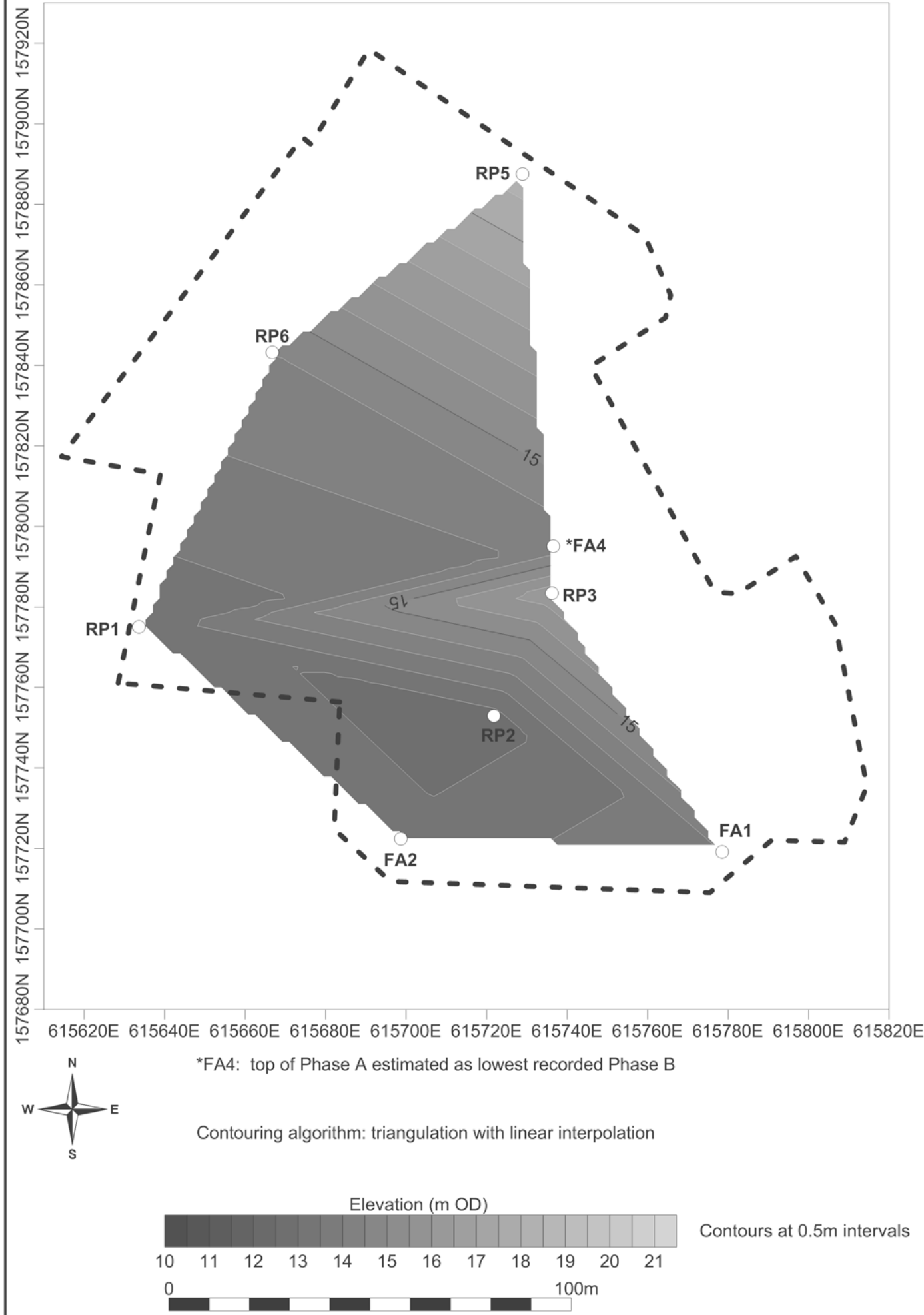


Fig 8 Interpolated uppermost surface of Phases A1-B1 (1:1250).

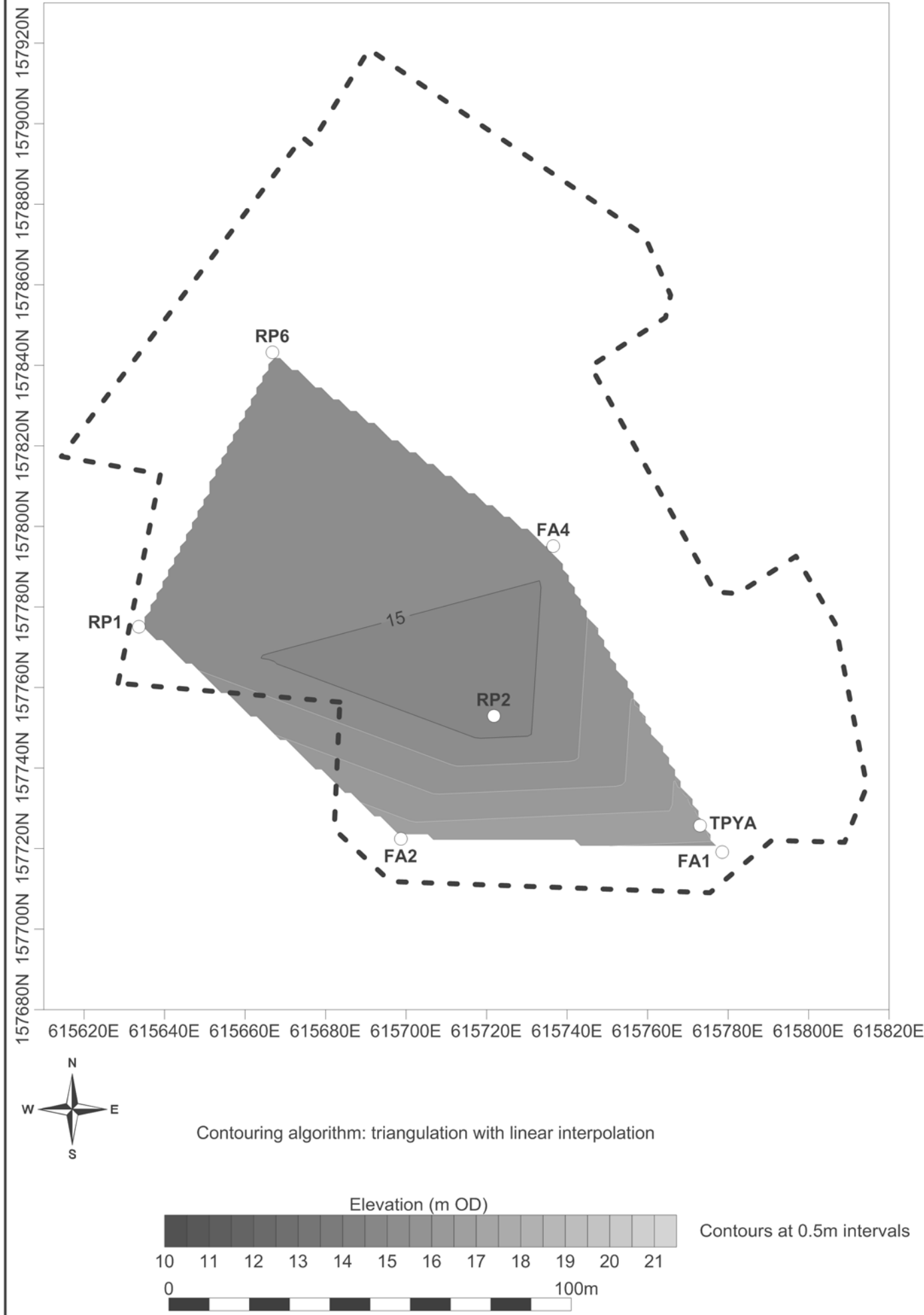


Fig 9 Interpolated uppermost surface of Phase B3 (1:1250).

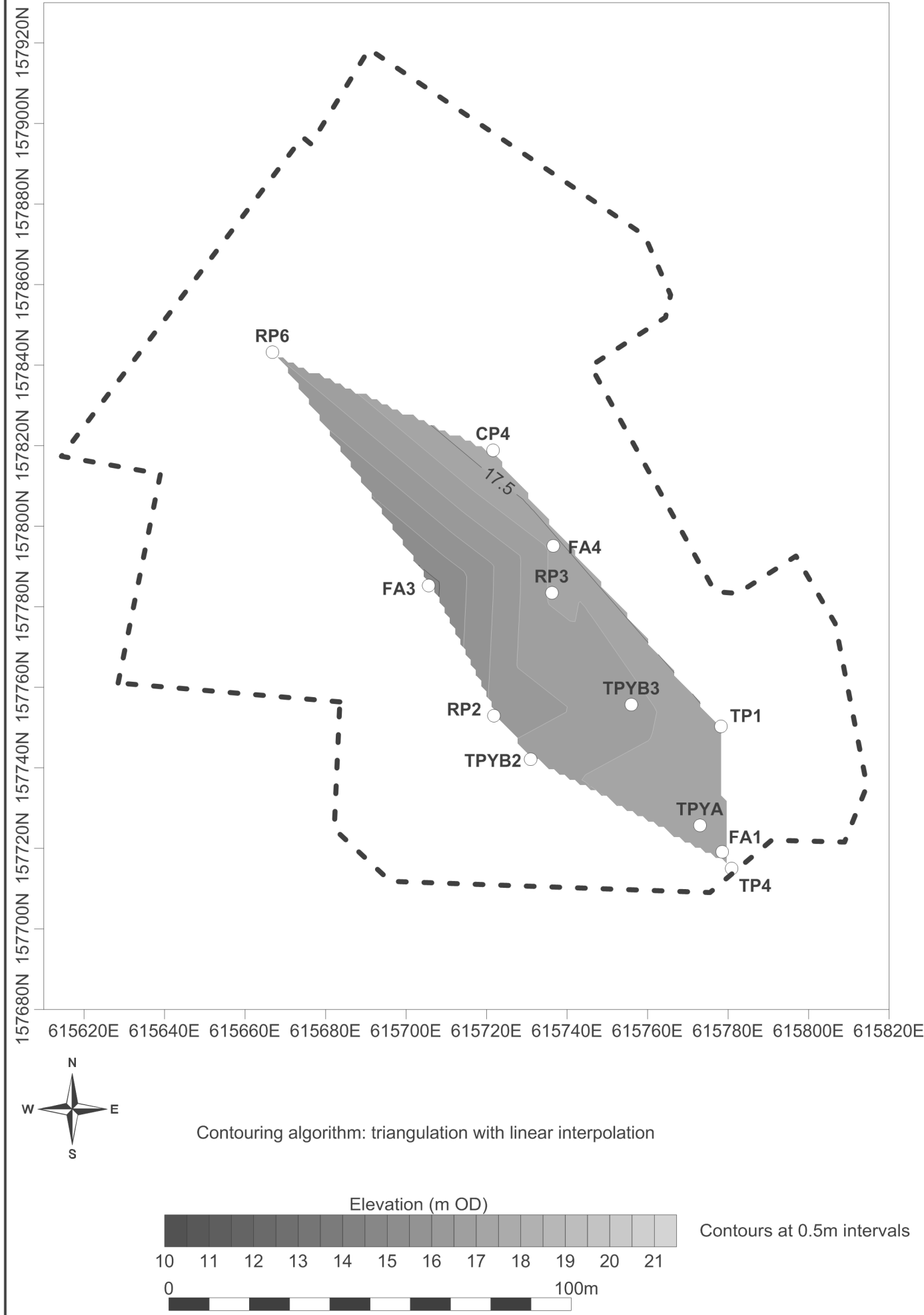


Fig 10 Interpolated uppermost surface of Phase B4 (1:1250).



Fig 11 Interpolated uppermost surface of Phases B3-B5 (1:1250).



Fig 12 Keys to transects.

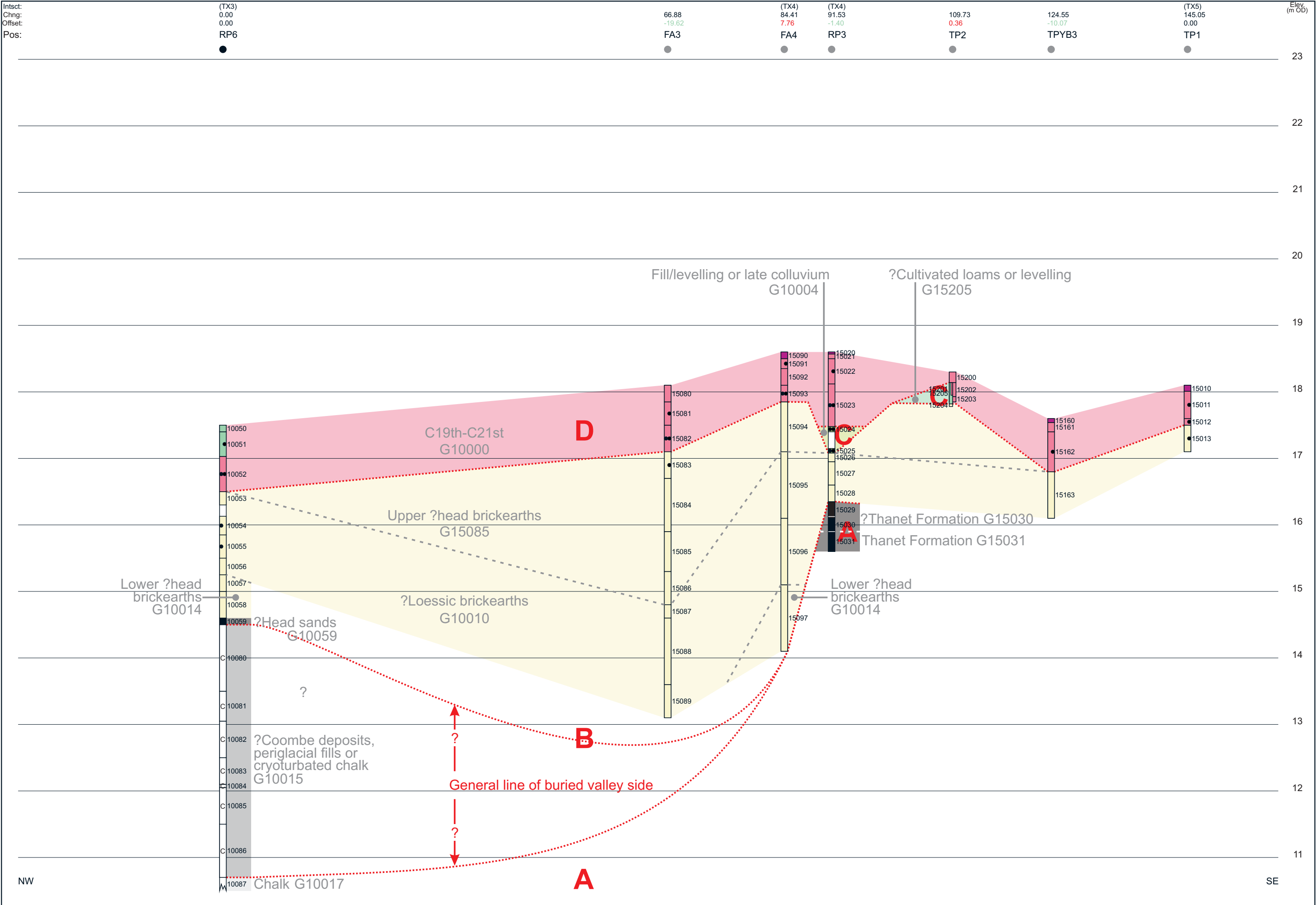


Fig 13 Borehole transect TX1 (vertical scale 1:50, ave. horizontal spacing 1:500).

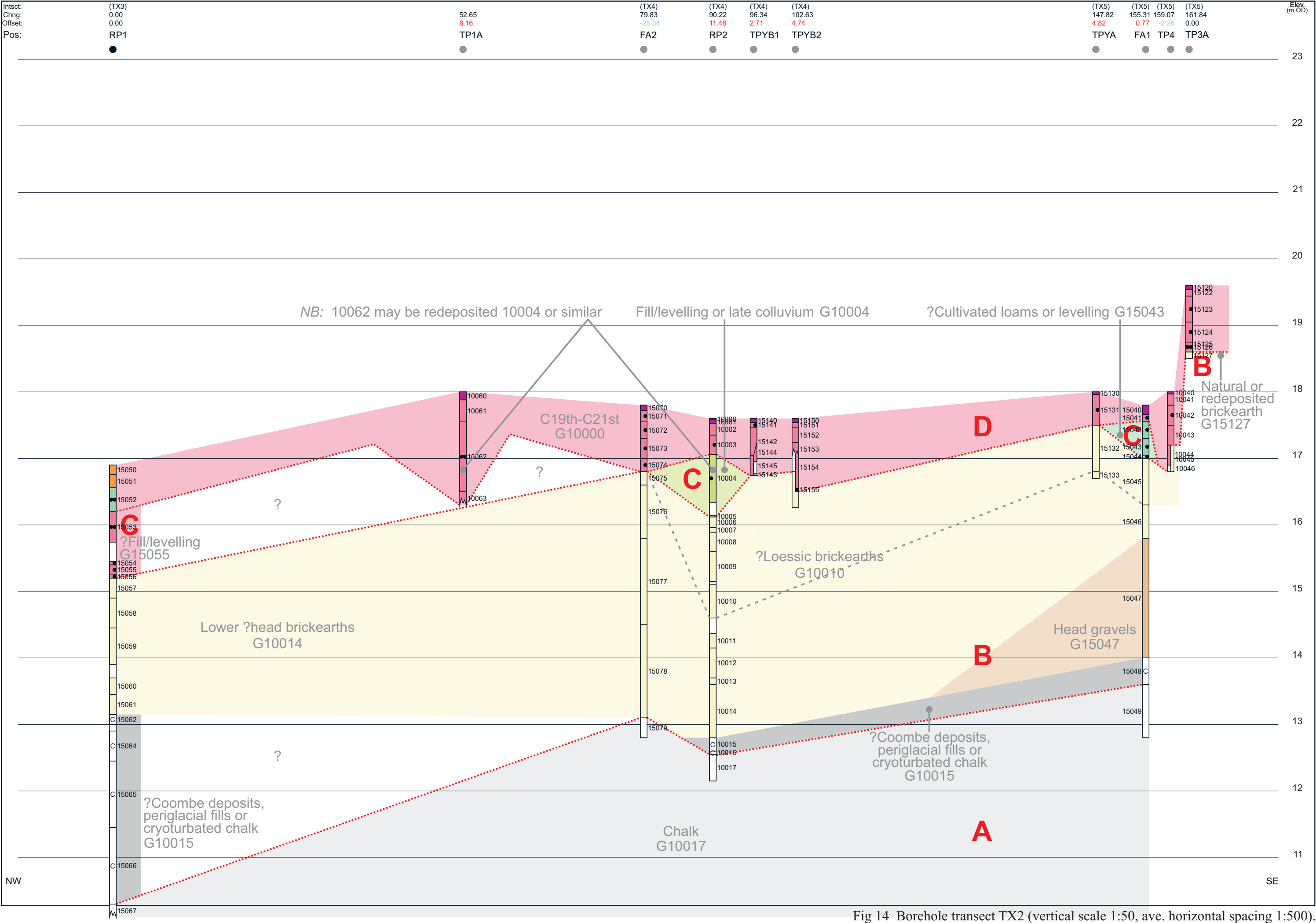


Fig 14 Borehole transect TX2 (vertical scale 1:50, ave. horizontal spacing 1:500).

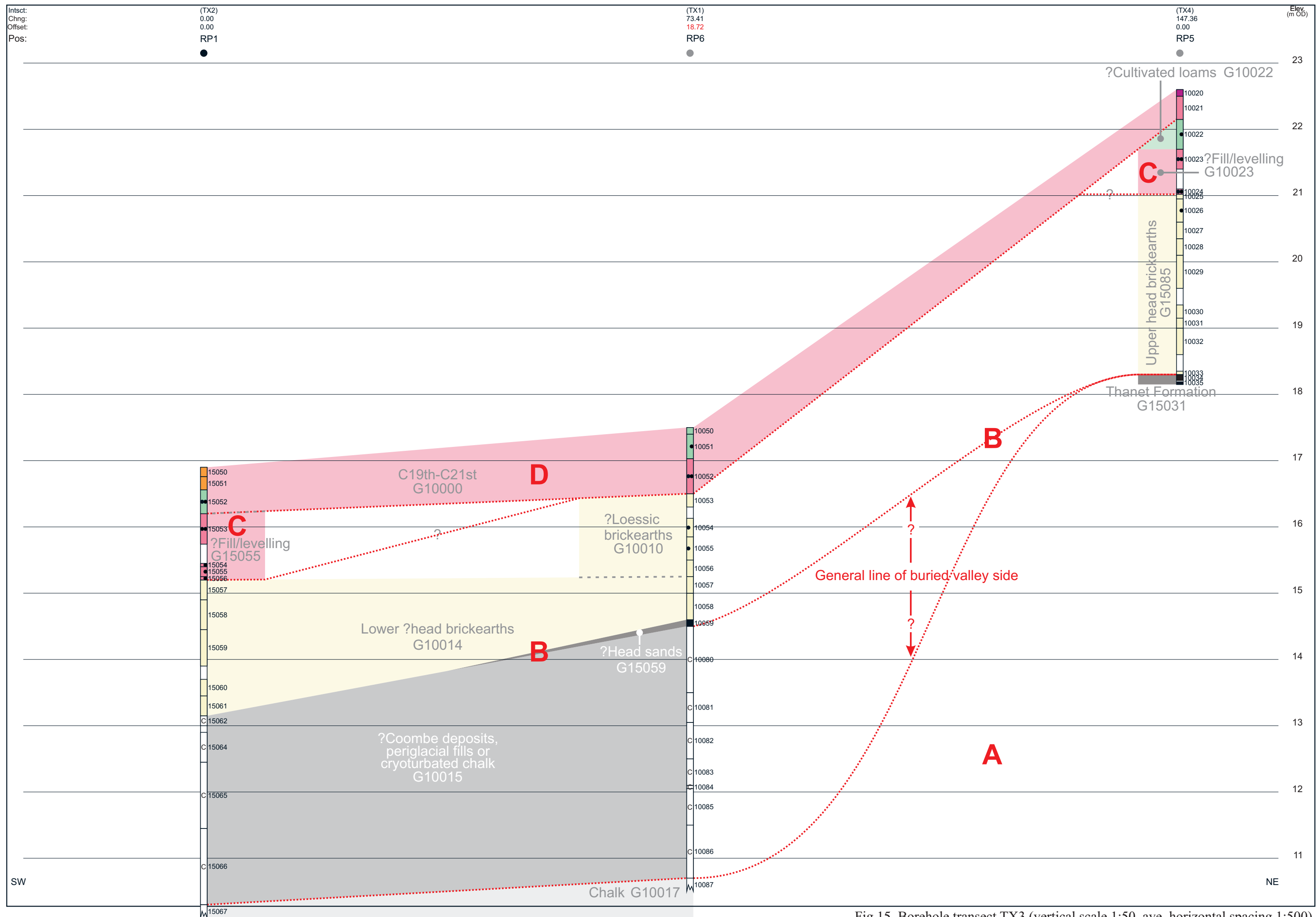


Fig 15 Borehole transect TX3 (vertical scale 1:50, ave. horizontal spacing 1:500).

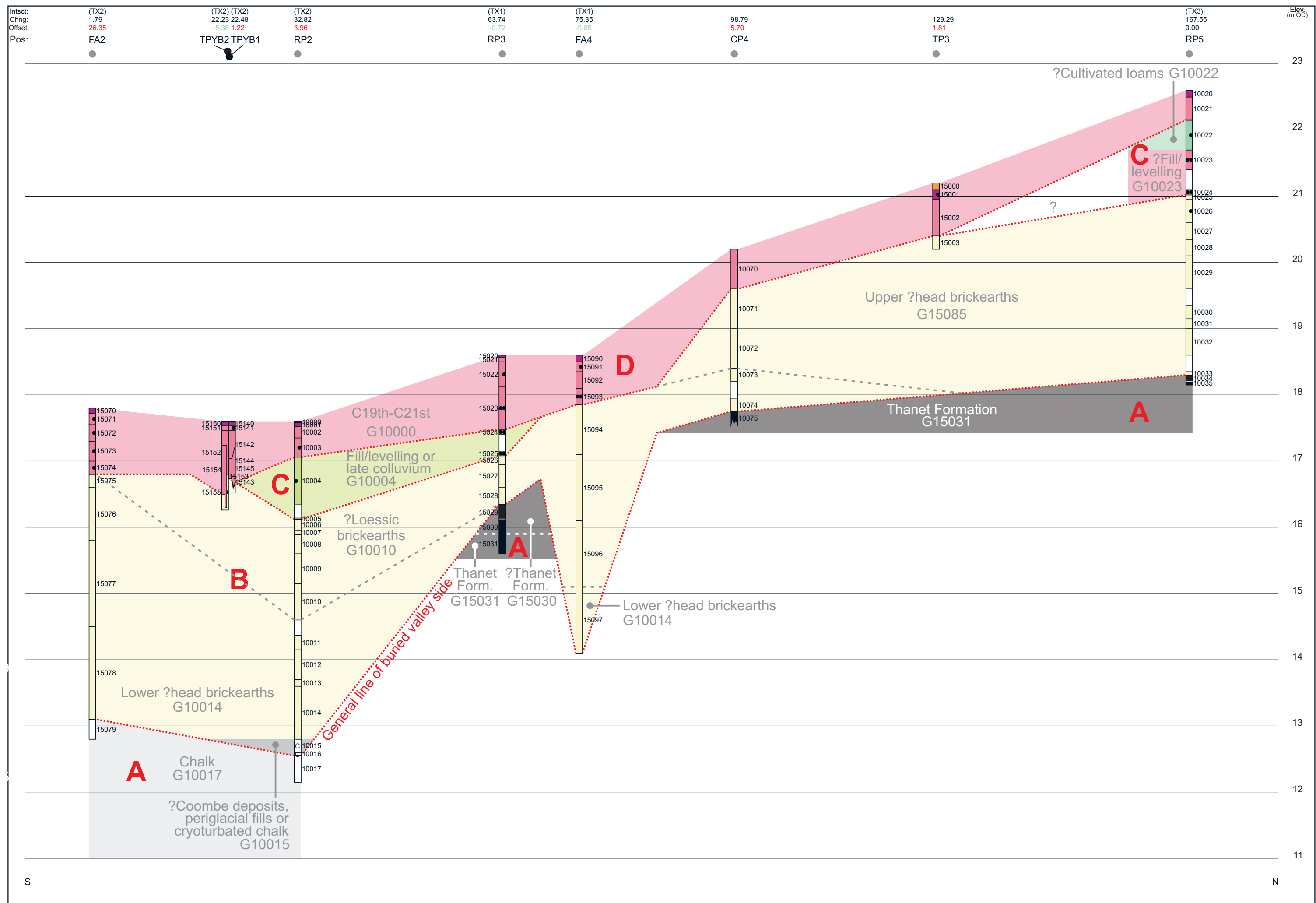


Fig 16 Borehole transect TX4 (vertical scale 1:50, ave. horizontal spacing 1:500).

