Channel Tunnel Rail Link
Union Railways (South) Limited

Project 440

Archaeological Investigations at Saltwood Tunnel, Near Folkestone, Kent

ARC SLT98
ARC SLT98C
ARC SLT99
ARC SFB99

DETAILED ARCHAEOLOGICAL WORKS ASSESSMENT REPORT

Volume 1 of 3: Archive Assessment

Contract no. S/400/SP/0009/P484A
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18th March 2002

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Summary

Canterbury Archaeological Trust (CAT) and Wessex Archaeology (WA) were commissioned by Union Railways (South) Limited (URS) to undertake detailed archaeological investigations in the vicinity of Saltwood Tunnel in Kent, immediately to the south of the M20 motorway. This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL). The fieldwork considered for this assessment report took place between December 1998 and August 2000.

The Saltwood Tunnel plateau proved to have been the focus for complex and long-lived activities. The earliest remains comprise stray pieces of worked flint, some of which are considered to be Late Upper Palaeolithic, the first coherent remains comprising two Early Neolithic pits containing pottery and worked and burnt flint. Whether the pits represent domestic or ritual activity is unclear. During the Early Bronze Age the plateau was utilised for the establishment of a funerary landscape, comprising at least five annular or penannular ring-ditches (barrows), one of which contained a central crouched inhumation, and other funerary remains including an unenclosed crouched inhumation and isolated unurned cremation deposits. By the Later Bronze Age and Early Iron Age settlement and agriculture appeared to encroach into this funerary landscape, with the establishment of at least two possible settlement enclosures centrally within the barrow zone, with associated field systems primarily but not exclusively extending to the east. However, funerary activity in the area seems to continue, with a series of generally undated unurned cremations, often recorded in the vicinity of the earlier barrows.

The Early Iron Age witnessed the establishment of the trackway/ hollow-way network that criss-crossed the site, with at least four such routes eventually recorded at Saltwood. These routes are clearly associated with the earlier barrows, demonstrating that the latter remained dominant defining forces within the later prehistoric landscape. A cluster of Early/Mid Iron Age inhumations, extend and continue the tradition of funerary activity at Saltwood Tunnel into the Early/ Middle Iron Age. By the Late Iron Age a small settlement was established at the western end of the site that was to remain the focus of activity through to the early medieval period. This settlement was situated at the junction of two of the trackways. The settlement developed and expanded throughout the Romano-British period, together with the establishment of a small cremation cemetery within the associated field system to the east of the settlement.

Unlike many other sites at the end of the Romano-British period throughout England, activity at Saltwood continues into the Anglo-Saxon period, and if anything increases. Although limited occupation evidence was recorded (two sunken-featured buildings, several pits etc.), this activity is principally reflected in the establishment of at least three inhumation cemeteries. Not surprisingly, they are focussed on the three largest barrows, again demonstrating the defining force that these early monuments had on the developing landscape. The cemeteries appeared to have been established sequentially, although with periods of overlap between each, ranging in date from the very late 5th century, through to at least the end of the 7th century.

Virtually no evidence was recovered to indicate activity on or near the site during the later Saxon periods, with the next coherent remains indicating settlement during the early medieval period (predominantly the 11th and 12th centuries). This activity had two focii, on the site of the former Late Iron Age - Early Anglo-Saxon occupation area, and immediately south of the easternmost barrow (coincidentally also the earliest established Anglo-Saxon cemetery).

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1 INTRODUCTION

1.1 Project Background

The Site

1.1.1 The site comprises a elongated sub-rectangular area adjacent to the southern side of the M20 motorway, and overlying the Ashford to Folkestone railway as it passes through the Saltwood Tunnel (**Figure 1**), the latter constructed during the 19th century. The site measures *c*. 110m by 820m extending from URL grid co-ordinates 95348 16940 to 96160 16925 (OS NGR TR 15345 36940 to TR 16157 36925), covering an approximate area of 8.82 hectares. The excavation area limits were broadly defined by the M20 motorway to the north, the Saltwood Tunnel portals to the east and west, whilst the southern edge of excavation corresponded to the limit of construction, and did not correlate with existing field boundaries (**Figure 2**).

Scope of Report

1.1.2 This assessment report covers a number of archaeological investigations carried out by Canterbury Archaeological Trust (CAT) and Wessex Archaeology (WA) at Saltwood Tunnel between January 1999 and August 2000 (**Table 1**). All work was commissioned by Union Railways (South) Limited (URS), and comprised evaluations, 'Strip, Map and Sample' and 'Detailed' archaeological investigations, and watching brief.

1.1.3 This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL). The archaeological Written Scheme of Investigation (URS 1999) was prepared by Rail Link Engineering (RLE) on behalf of URS, and agreed in consultation with English Heritage (EH) and Kent County Council (KCC) acting on behalf of the Local Planning Authority.

Developmental history of CTRL investigations at Saltwood

1.1.4 A number of CTRL Fieldwork Events have been commissioned at Saltwood Tunnel (**Figure 2**). Initial investigations at Saltwood Tunnel comprised fieldwalking carried out by Oxford Archaeological Unit (OAU) in 1994. This identified a diffuse surface scatter of worked and burnt flint, as well as prehistoric, Iron Age, Roman, medieval and post-medieval pottery to the north of Saltwood Tunnel, and extending west of Stone Farm Bridleway.

1.1.5 On the basis of the fieldwalking results OAU were commissioned in 1997 to excavate 16 evaluation trenches (ARC SLT97) to examine the fieldwalking artefact scatter towards the western end of the Saltwood Tunnel. This revealed a concentration of Early Roman ditches, pits and a "linear hollow", and a late 2nd century cremation burial with accessory vessels. The site was interpreted as the southern periphery of a Late Iron Age/early Roman settlement, linked with similar remains reported from watching brief work during construction of the M20.

1.1.6 The first phase of excavation (ARC SLT98), targetting the evaluation results towards the western tunnel portal, was carried out by Canterbury Archaeological Trust (CAT) in December 1998, revealing evidence for a complex multi-period site,

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including Bronze Age, Iron Age, Romano-British, Early/ Middle Saxon and Early medieval remains. Based on the results of the excavation, CAT were then commissioned to carry out a second programme of evaluation trenching (ARC SLT98), between the excavation and Stone Farm Bridleway to the east.

1.1.7 The evaluation yielded largely negative results except for the easternmost trench adjacent to the bridleway, which revealed four Early Saxon graves. As a result a discrete area measuring approximately 40 x 45m was subsequently stripped by CAT around this trench, revealing at least 55 more Early Saxon inhumation burials. These were concentrated on and around an Early Bronze Age barrow (ARC SLT98C), and apparently extending beyond the site limits eastwards beneath Stone Farm Bridleway, into an area hitherto not examined for the CTRL.

1.1.8 As a result, Wessex Archaeology (WA) were commissioned to excavate the section of the CTRL between Stone Farm Bridleway and the eastern tunnel portal in August 1999 (ARC SFB99), to ensure that the construction programme was not adversely affected. CAT carried out a watching brief and excavation of all remaining stripping on the western side of Stone Farm Bridleway.

1.1.9 It is important to emphasise that the investigations carried out to the east of Stone Farm Bridleway (ARC SFB99 and ARC SFB01) were commissioned without any prior evaluation investigations in this area (apart from the 1994 Environmental Assessment). The need for investigation was based on the likelihood that that the archaeological remains recorded to the west of Stone Farm Bridleway would continue to the east of the bridleway. This belief was correct, and has resulted in the discovery of an impressive multi-period archaeological landscape that is unparalleled on the CTRL.

1.1.10 By August 2000 all accessible sections of the CTRL route between the west and east tunnel portals had been stripped and investigated, although, because of construction programme constraints a few areas remained to be examined. Most notably, these remaining areas comprised land beneath the Saltwood Tunnel bund east of the bridleway, Stone Farm Bridleway itself and a soil storage area at the southern edge of the site. However, in order to allow post-excavation assessment to commence without the need to reconsider additional later information, August 2000 was considered the 'cut-off' point for assessment purposes.

1.1.11 The final areas beneath the bund and bridleway were stripped and investigated by WA during the spring and summer of 2001 (ARC SFB01). The results of this most recent work are shown on **Figure 3**, but will not be considered further here.

Associated Fieldwork Events

1.1.12 As noted above, a number of Fieldwork Events (**Figure 2**) have been incorporated into this assessment report (**Table 1**). Brief summaries of fieldwork that are not incorporated into this assessment report are provided below.

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Table 1: Fieldwork Event Details

Event Type	Event Name	URS site code	Contractor	Dates
Fieldwalking	-	-	*OAU*	*1994*
Evaluation	*North of Saltwood Tunnel*	*ARC SLT97*	*OAU*	*Oct 1997*
Excavation	North of Saltwood Tunnel	ARC SLT98	CAT	Dec 1998 – Mar 1999
Excavation	North of Saltwood Tunnel	ARC SLT98C	CAT	Apr – Sept 1999; Jan – Feb 2000
Excavation	North of Saltwood Tunnel	ARC SLT99	CAT	Apr – June 1999; Sept 1999 – Jan 2001
Watching brief	North of Saltwood Tunnel	ARC SLT99WB	CAT	June – Sept 1999
Excavation	Stone Farm Bridleway	ARC SFB99	WA	Aug 1999 – Apr 2000; July – Aug 2000
Excavation	*Stone Farm Bridleway*	*ARC SFB01*	*WA*	*Feb – Mar 2001; June – July 2001*

Events in italics are not considered for the purposes of this assessment report

Constraints

1.1.13 CTRL investigations at Saltwood Tunnel have been carried out under a number of operational constraints, not least of which being the developmental nature of the site history (see above), resulting in three separate contracting units carrying out the fieldwork.

1.1.14 In addition, the Folkestone Beds on which the site is situated are notoriously difficult geological conditions in which to identify and excavate archaeological remains. Compounded by poor weather and the presence of subsoil obscuring the upper edges of features, this ensured that feature visibility was at best poor, and often almost impossible.

1.1.15 However, possibly the greatest constraint was the construction programme itself, which precluded the possibility of entire areas being stripped, excavated and recorded *en masse*. Rather the site was investigated (particularly ARC SLT99 and ARC SFB99) in sections as the land became available for development once Health and Safety issues were approved, in accordance with the requirements for the archaeological works and construction programme.

1.1.16 As a result adjoining areas within Fieldwork Events were often excavated under very different conditions, occasionally by different teams. Given the difficulties noted above concerning feature visibility, this approach almost inevitably resulted in the disappearance of some features from one area to the next.

1.1.17 Furthermore, because of this piecemeal approach it was necessary to remove archaeological teams from the field on several occasions whilst awaiting access to the next excavation areas. Inevitably, due to poor communication during these periods of absence, some unmitigated impact on *in situ* unexamined archaeology occurred.

1.1.18 Stratigraphic analysis has been carried out for the purposes of this assessment. However, detailed examination of all aspects of the Saltwood archive (i.e. degree of abrasion and/or fragment size for artefacts, volume of modern rooty material in environmental sample residues etc.) will need to be collated to fully determine the extent of intrusiveness and/or residuality within the archive.

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1.2 Archaeological Background

Introduction

1.2.1 In order to place the results from Saltwood Tunnel into a broader regional context, the following period summaries are presented. These are generally focussed on the actual periods represented at Saltwood Tunnel, and include a consideration of current research themes where appropriate.

Neolithic (4000 – 2400 BC)

1.2.2 Apart from the better-known monuments, including for instance the Medway megaliths, very little was known of the nature and extent of Neolithic activity in Kent (c.f. Leach 1982) until recently. Investigations associated with the CTRL, such as Sandway Road and most notably the longhouse identified at White Horse Stone have slowly added to our knowledge of this elusive period of prehistory (Glass 2000). Moreover, other work has contributed to the paucity of evidence for Neolithic activity in Kent, and most notably the discovery of two probable Early Neolithic causewayed enclosures, at Chalk Hill, Ramsgate, and Kingsborough Farm, Sheppey, monument types that were hitherto unknown in Kent. Furthermore, aerial photographs have suggested additional causewayed enclosures are also located at Burham in the Medway valley and one near Tilmanstone, Sandwich (Dyson *et al* 2000). However, although these are all important discoveries in their own right, Neolithic evidence in Kent remains at best patchy, and as such any opportunity must be taken to further research into this period.

Bronze Age (2400 – 700 BC)

1.2.3 Evidence for Bronze Age settlement in East Kent has changed somewhat since the last review of the subject, which painted a realistic but depressing view (Champion 1982). To some extent, the depression continues, particularly in respect of the numerous unpublished barrows from the Lord of the Manor and other sites on the Isle of Thanet. A review of prehistoric settlement on that island, to be published shortly, points both to the abundance of monuments and to the lack of their publication (Rady *et al* forthcoming).

1.2.4 A better-developed view of Bronze Age settlement has emerged over the last ten years through excavations on the Channel Tunnel and at Monkton, Whitfield, North Foreland and Ramsgate. Further work is currently in progress at Kelmsley Field (Sittingbourne), Iwade and other, smaller sites, and this can be tied to a burgeoning publication programme for sites in northern France.

1.2.5 An Early Bronze Age settlement has been excavated near to the study area at Holywell Coombe, situated on rising ground at the western foot of Sugar Loaf Hill (Preece 1998). Traces of several other, contemporary sites could also be seen within that area, which lies just a few kilometres to the east of the Saltwood excavations. Most of the ceramics from that site lay within the Beaker tradition. A hollow-way was identified, fringed by a small settlement, with numerous post-hole structures, resembling those seen at Saltwood. Three burial mounds with ring ditches of Bronze Age date were located nearby, immediately to the south of Castle Hill. Other barrows are still visible to the north of Saltwood, on the edge of the Downs, and these represent part of only a handful of such monuments to have survived

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ploughing. There is little doubt that Bronze Age barrows were very common in East Kent, but the vast majority are no longer visible.

1.2.6 Bronze Age barrow groups are often located on hilltops and (as at Saltwood) valley-edge 'false-crests' which would have provided skylines from the valley floor. Such monuments, particularly the larger examples, represent a major investment of resources in the burial and commemoration of a relatively small number of powerful and/or 'special' individuals.

1.2.7 Opportunities for the excavation of an extensive barrow cemetery are rare in Kent. Outside of the CTRL this has occurred on the scale witnessed at Saltwood only at Monkton and Ramsgate on the Isle of Thanet, although the North Foreland barrows are also of note (Diack *et al* 2000, 472-3). Several Early Bronze Age burial mounds were discovered to the south of Castle Hill during earlier work on the Channel Tunnel, to the east of Saltwood (*Canterbury's Archaeology* 1987-8, 53), as well as examples of single-ditched penannular ring-ditches on the Isle of Thanet.

1.2.8 One of the major innovations introduced during the Beaker period of the Early Bronze Age was the change in burial rite from former collective burial to individual or isolated graves (Megaw and Simpson 1979, 189). The most common form of burial at this time was inhumation beneath a burial mound, normally within a roughly oval pit with the body often placed in a crouched position. These barrows were often very small. The Early Bronze Age also saw the decline in the provision of grave goods, many individuals only being supplied with a pot.

1.2.9 In about the 15th century BC, burial rites began to change from inhumation beneath a barrow to cremation and burial in an open cemetery (Piggott 1965, 145), although cremation as a rite had existed much earlier. During the later Bronze Age (*c.*1500-700 BC), patterns of agriculture and settlement began to change across Southern England. Many areas which had once been intricate patchworks of arable land, pasture and woodland were cleared for agriculture on a much larger scale, concomitant perhaps with the more permanent division of land. Traces of similar settlements have been revealed further to the east, both on Creteway Down (where they have not been excavated) and at Holywell Coombe.

1.2.10 Locally, earlier and later Bronze Age settlement traces were discovered during the Channel Tunnel works, particularly at Holywell Coombe. The investigation revealed 'a small settlement with a trackway…a bewildering profusion of post-holes, associated with the old buried topsoil and trackway, probably marked the location of timber-framed huts and fence-lines established there during a long occupation sequence' (*Canterbury's Archaeology 1987-8*, 52). Settlement traces of this date have also been established at Hawkinge (Luke Barber, *pers. comm*.).

Iron Age (700 BC – AD 43)

1.2.11 Iron objects arrived from the continent in *c*. 700 BC and this period saw major changes in the exploitation of the landscape. Intensive farming methods were introduced during the Early Iron Age over an increasingly wide area and the introduction of a heavier type of plough permitted arable farming on previously unusable land.

1.2.12 Many Early to Middle Iron Age sites are concentrated on hilltops and south-facing slopes, as at Saltwood. Comparatively few have been discovered in East Kent and,

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as with other prehistoric periods, several important sites have yet to be published. They include the multi-period site at Highstead, near Chislet, as well as the settlement at Whitfield, near Dover (Tatton-Brown 1976; Parfitt forthcoming). The important cemetery at Mill Hill, Deal, accompanies earlier evidence for settlement traces of this date in that area (Stebbing 1936; Parfitt 1996).

1.2.13 A wealth of prehistoric evidence was uncovered during excavations to the south-east of Canterbury, and this included a significant sequence of early Iron Age ceramics (Macpherson-Grant 1980). Evidence for early ironworking has been recovered from South Street, on the Thanet Way, near Whitstable, a further area where early Iron Age occupation is prominent (Allen, forthcoming). More locally, the extensive settlement at Dolland's Moor goes back to the early Iron Age (Bennett 1991, 13).

1.2.14 Iron Age hillforts are not a feature of the East Kent landscape. Bigbury, near Canterbury, is now more credible as an example, and other possibilities (generally still unproven) include Borstal Hill at Whitstable and Dover Castle (Allen forthcoming). The Folkestone area provides possible sites, but none have yet been proven by excavation.

1.2.15 The association of earlier barrows with trackways and field systems can be seen at Whitfield, where a double-ditched barrow is crossed by an Iron Age ditch. The barrow was no longer used for burial, and its mound had been reduced in size.

Late Iron Age/ Romano-British (100 BC – AD 410)

1.2.16 By the time of the Roman conquest, agriculture was flourishing in south-eastern England. Much of the large population would have lived in rural farmsteads, with associated field systems for arable production and the raising of livestock. Although actual settlement remains of this date were limited at the Saltwood site, the presence of field systems implies a relationship with just such a farmstead economy.

1.2.17 Both settlement and cemetery evidence from this period is abundant in East Kent. Although, once again, much of this has not been published, sufficient is known to be able to place the Saltwood landscape within a reasonable context for its period. The transition from Late Iron Age to early Roman is familiar across East Kent, as seen, for example, at Great Hougham Court Farm, Capel, Church Hougham and Creteway Down, amongst a number of sites located to the east of Folkestone (Parfitt forthcoming). A high density of settlement can be established for this period, a number of settlements lying close to Roman roads and other forms of routeway. Some of these sites are sufficiently close together to suggest that they were related to each other. It is not clear, however, whether they are merely successive replacements of a single farmstead.

1.2.18 Collections of burials of this date are widespread throughout Kent. Cremations with a similar array of grave goods, largely consisting of brooches of pre-Conquest date, are known from Harrietsham and East Malling, as well as sites to the east of Saltwood at Hougham Court and Alkham (Philp 1991; Parfitt forthcoming). Cremation is the dominant burial rite at this time and inhumation burials of this period are very scarce, although they are not unknown. Precise dating of these cremations is difficult, in the absence of many grave goods, and neither brooches nor ceramics are entirely reliable as a straightforward indicator, and need to be considered in terms of their manufacture, use and deposition.

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1.2.19 The relationship of the area to the Roman road system is pertinent. Margary (1949, 88-9; 1967, 49) proposed that the Roman road from Lympne to Dover passed inland, rather than running along the coast. This road has not been observed in very many archaeological interventions in the general area and its course remains largely conjectural (see for example Detsicas 1983, 37 and fig 7), although it should pass to the south of the Saltwood excavations.

1.2.20 'Foundations and building debris' were found to the west of the village of Saltwood (to the south-west of the site), and were thought to be part of a farm building of Roman date (Detsicas 1983, 97). Quantities of Roman ceramics were found in the Saltwood area during the construction of the M20 motorway, suggesting that the focus of roadside settlement lay to the north of the CTRL excavations.

1.2.21 Late Iron Age and Roman sites excavated in the Folkestone area over the last 15 years have produced a large number of pottery assemblages. The Folkestone Transfer Pipeline exposed sites at Capel le Ferne, Great Hougham (3 sites) and Church Hougham (Lyne, forthcoming), and further sites were excavated at Dolland's Moor and Peene during work on the Channel Tunnel (Rady 1990). The Kent Archaeological Rescue Unit has also carried out excavations on the site of the Folkestone Roman villa. Study of the various ceramic assemblages from these sites would enable us to observe any spatial fluctuations in pottery supply within a comparatively small area brought about by variations in social status, communications, specialised activities and other unforeseen factors.

1.2.22 Romano-British activity at Saltwood must be viewed in the context of local discoveries. These include a substantial building *c*. 2km to the south-west near Pedlinge and, further afield, the villa and buildings at Folkestone and the Saxon Shore fort at Lympne, as well as the Roman road along Stone Street, which connected Canterbury with Lympe (Cunliffe 1980, 227-88; Reece 1989, 152-7). Further to the east lay the villa complex at Folkestone, as well as an industrial complex producing quernstones for distribution throughout Kent (Winbolt 1925; Keller 1989).

1.2.23 It has been suggested that Folkestone was connected with the *Classis Britannica* system, as some form of outpost, and a lighthouse and signal station may have been located there (Blagg 1982, 58; Rigold 1972). There are few other villas in the area and the landscape is dominated instead by farmsteads, which have been excavated at Dollands Moor, Peene, Great Hougham Court Farm, Capel-le-Ferne and Church Hougham (Parfitt forthcoming; Rady forthcoming).

1.2.24 Late Roman occupation is widespread in East Kent. It is probably most familiar from excavations in Canterbury. Notable examples include late buildings within the Marlowe Theatre area of the city (Blockley *et al* 1995, 171-264) as well as the Stour Street burial group (Bennett 1980). Late Roman occupation is attested also at Rochester (Detsicas 1983, 181). Equally, the shore forts at Lympne, Richborough and Reculver were a significant element of the landscape at this time, and formed part of a network which included Canterbury and Dover, as well as the industrial complex at Ickham (Riddler, Lyne and Mould, forthcoming).

1.2.25 Villas are a notable part of the East Kent landscape but few appear to have continued far into the fourth century (Drewett, Rudling and Gardiner 1988, 216). Exceptions include Ickham, Folkestone and Wingham, all of which are the centres of estates which have unfortunately not been excavated in modern times. Extensive

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work at Eccles, Maidstone has shown that it, too continued into the fourth century, but that it was no longer in use when an Anglo-Saxon cemetery was established (Shaw 1994).

1.2.26 Late Roman roadside settlement can be seen at Ash (Hicks 1998) but is otherwise difficult to define for this period. A number of rural settlements can be placed into this period, usually on the basis of their ceramics, as at Harrietsham, for example, or Monkton. The evidence for industrial practices comes predominantly from the Ickham area, where a complex of watermills lies close to the site of the Preston pottery kilns, providing evidence for an extensive industrial estate of the fourth century (Riddler, Lyne and Mould forthcoming). Preston products had not reached Saltwood, however, where the ceramics come from a source near Lympne (a possible reason for the continued use of Track 1 lies with the supply of pottery from the Lympne area to nearby markets) and from Thameside.

1.2.27 Activity at Ickham ceased in the early 5th century, possibly around *c*. AD 405. Fifth century occupation is known from Canterbury and Richborough, and recent research on ceramics is suggesting a broader presence than was formerly accepted. There remains the problem, however, that there are no early (5th century) burials in East Kent: Kentish Phase I exists, as yet, only from settlement evidence (Böhme 1986). Continuity of occupation has been proposed for Canterbury (Brooks 1986) but this has not been universally accepted.

Anglo-Saxon (AD 410 – 1066)

1.2.28 The first half or middle part of the 5th century saw the beginnings of the Anglo-Saxon settlement of Kent. Its geographical position was exploited both to maintain strong links with Scandinavia (specifically Jutland and the North Sea littoral) and to carve out mercantile and dynastic links with the Merovingian Franks on the other side of the Channel. The county soon became 'the most cosmopolitan, prosperous and influential of the English kingdoms' (Hawkes 1982, 64), its wealth and status being clearly reflected in the provision of extravagant grave goods in many of its cemeteries.

1.2.29 At the beginning of the 6th century, Kent appears to have received an influx of affluent Franks or, at least, a considerable quantity of objects from that area of the Continent. At this time, Clovis (the Merovingian king) was expanding his sphere of influence and it has been suggested that 'some of the Frankish notables may have found it expedient to seek service overseas with the king of Kent' (Hawkes 1982, 72).

1.2.30 Others have suggested that Kent became, in effect, a sub-kingdom of the Merovingians at this time (Wood 1983; 1992). Outstandingly rich graves indicating such contacts have been excavated at Bifrons, Sarre, Finglesham (Hawkes 1958; Hawkes, Ellis Davison and Hawkes 1965; Campbell 1980, 24-5) and Lyminge (Warhust 1955), the latter adjacent to a royal vill. It is important to note, however, that the cosmopolitan nature of many of the excavated burial assemblages indicates that the real situation was more complex and cannot simply be explained by the immigration of peoples from one area. A re-evaluation of the Jutes of Kent, for example, has shown that most of the characteristic artefacts from southern Scandinavia, like cruciform brooches, are found in comparatively late graves with no other objects of that type (Pernille Sørensen, *pers. comm.*).

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1.2.31 Towards the end of the 6th century, Kent was selected as the base for the Roman missionaries under St Augustine, charged with the conversion of the English. From the beginning of the 7th century, it was, nominally at least, a Christian kingdom. There are numerous burials of the 7th century from East Kent, though comparatively few of the later 6th to early 7th century have been excavated in the post-War years.

1.2.32 The areas of Kent settled during the Anglo-Saxon period are notably those with well-watered loam soils, many of which had been in cultivation since Roman times. Such settlements clustered around coastal ports or along inland waterways, the agricultural economy being supplemented by fishing and maritime trade (Hawkes 1982, 74). Another consideration was the proximity to routeways, particularly to surviving major Roman routes. The paramount concern, however, must have been the quality of land.

1.2.33 One particularly fertile area was 'the well watered Lower Chalk and Greensand country between Folkestone and Maidstone' in which the Saltwood cemeteries are located. Settlement along this stretch of land is known to have existed from at least the early 6th century, although the requirement for further cemetery excavation in the locality has been noted (Hawkes 1982, 64). Traces of settlements are known to the east of Saltwood at Dolland's Moor. Early Anglo-Saxon settlements have now been discovered in East Kent at a number of other locations, including Canterbury, Whitfield, Ramsgate, Harrietsham, Wainscott and Dartford (Andrews and Riddler, forthcoming).

1.2.34 Saltwood lies just 4km to the south of the royal vill at Lyminge (OE *Limen-ge*, 'the Limen district capital'; Smith 1956) and between two ports, at West Hythe (*Sandtun*) and Dover, although they are much closer to West Hythe. Activity at both of these ports is evident as early as the 7th century. Close relationships with the Continent are echoed in the quantity and variety of imported (and particularly) Frankish objects found in East Kent cemeteries. Despite the substantial material evidence for their presence, very few actual burials of Franks or Scandinavians have yet been identified with certainty, as recognising ethnicity in the archaeological record can be a difficult proposition (Brugmann 1999).

1.2.35 Contemporary Kentish cemeteries and relevant continental examples include a multitude of East Kent cemeteries such as those at Lyminge (Warhust 1955); Mill Hill, Deal (Parfitt and Brugmann 1997); Buckland, Dover (Evison 1987; Parfitt, Haith and Riddler forthcoming), Eastry (Hawkes 1979) and Sarre (Perkins 1991 and 1992). In addition, examples on the Isle of Thanet include Monkton (Hawkes, Hogarth and Denston 1974; Hawkes and Hogarth 1974), St Peter's, Broadstairs (Hogarth 1973), Mount Pleasant (Riddler and Haith forthcoming) and Margate (Perkins 1987). Other regional parallels include relatively late cemeteries in West Kent such as Holborough (Evison 1956) and Polhill (Philp 1973), as well as Cuxton, also investigated during construction of the CTRL.

1.2.36 Beyond Kent parallels exist, including several important inhumation cemeteries in East Anglia, many of which are either about to be (re-) published or are undergoing analysis. These include Suffolk examples, such as at Lakenheath (Caruth forthcoming), Westgarth Gardens (West 1988; Penn forthcoming) and Snape (Filmer-Sankey and Pestell forthcoming). Further afield, comparable examples in Norfolk include Harford Farm (Penn 2000), Morning Thorpe (Green *et al* 1987; Penn forthcoming), Bergh Apton (Green and Rogerson 1978; Penn forthcoming)

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and Spong Hill (Hills *et al* 1984; Penn forthcoming). The relationship of burials in Kent to those in East Anglia remains a key element of the analysis.

1.2.37 Equally, the cemetery evidence from southern and eastern England needs to be viewed against the contemporary situation on the Continent, particularly within the area of Pas-de-Calais and Picardy. Aside from the important cemetery at Vron, near Boulogne, new work at Longroy, Goudelancourt-les-Pierrepont and Limé, amongst other sites, has recently produced settlements and cemeteries of this period (Delestre and Perin 1998; Bilan 1998; Pachocinski 1998). Summaries of collections in Berlin and Luxembourg have also appeared, which include many comparable objects and burials (Franken 1996; Bertram 1996; Schaaff 1993).

1.2.38 The re-use of prehistoric burial grounds and the construction of new burial mounds are well-attested features of Early Anglo-Saxon cemeteries, and are common both locally in East Kent (as at Mill Hill, Deal and Dover, Buckland), regionally (such as Holborough) and further afield (Lucy 2000, figure 5.1; Van de Noort 1993, figure 2; Williams 1998, figure 1). Bronze Age round barrows were favoured for reuse, accounting for 61% of the total in a recent survey of known examples (Williams 1998, 92). The selection by the Anglo-Saxons of ancient burial sites for reuse has been interpreted as indicating a symbolic relationship: 'ancient monuments were probably envisaged as powerful, liminal places, that may have been regarded as the dwellings of supernatural beings, ancient or ancestral peoples' (Williams 1998, 103).

1.2.39 A general trend has been observed that, when placed in connection with prehistoric barrows, Anglo-Saxon cemeteries tend to be located towards the south and east (74% of all cases in the recent survey by Williams). This practice has been interpreted as indicating the provision of access to the mound either for ritual processions or display. The construction of new mounds could take place at the same time as the reuse of old ones, emulating earlier forms. The construction of new mounds reached its peak during the 7th century (Williams 1998, 95) and both the increase in mound reuse and mound construction noticeably coincide with the conversion period. Some scholars have taken this to imply a reaction against the introduction of Christianity.

1.2.40 Prehistoric features such as ditches and trackways were also used as cemetery boundary markers and often influenced burial orientation (for a recent summary, see Lucy 2000, 128-130). Other East Kent Anglo-Saxon cemeteries sited adjacent to trackways include Eastry, Monkton and Finglesham. In the two latter cases, the routes served as cemetery boundaries in the early phases of burial (Hawkes *et al* 1974, 51). Normally such boundaries lie to one side of a cemetery, although examples from Monkton and elsewhere show that burial extended out to the other side of a trackway or other boundary marker such as a major ditch. In other cases, like Eastry, burial is presumed (but not proven by excavation) to have been bounded by a trackway.

1.2.41 Burial alignment remains a critical consideration in cemetery studies and may be influenced by a number of factors including spiritual or religious belief, affiliation to a group or individual, the position of a significant structure or feature (such as a building or road) and local topography. Grave orientation and particularly the significance of the position of sunrise, have been much debated by Anglo-Saxon scholars (Wells and Green 1973, Rahtz 1978, Hawkes 1976; Evison 1987, 152-161). This research has led to some startling conclusions about religious belief, the

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seasonal date of burial and, by implication, likely causes of death. While the reliability of and reasoning behind some of this work was questionable and is now generally considered out-dated, consideration of grave orientation in relation to local, topographic factors is a significant element which must form part of the future analysis of the Saltwood data.

1.2.42 There is clear evidence for the influence of inherited topography on burial placement, with reference to both Bronze Age barrows and Iron Age trackways. Other examples of burials aligned with a prehistoric routeway include Empingham II in Rutland (Timby 1995, 15). In some other cemeteries burials were positioned in a 'fan' shape, with their heads towards the centre of the mound.

1.2.43 Kentish graves are noted for the presence of associated structures, which have been defined as integral (*e.g.* ledges in a grave cut), external (*e.g.* penannular ditches) and internal (*e.g.* wooden 'biers', stones placed either side of the skull; Hogarth 1973, 109). At Snape (Suffolk), for example, at least one possible hurdle used as a bier was recorded, along with a number of dug-out type boats (Tim Pestell, pers. comm.).

1.2.44 The presence of encircling ditches as well as grave spacing may indicate the original presence of small individual mounds. These are often interpreted as a later phenomenon, with the development from earlier flat-grave cemeteries to burial beneath barrows and, finally, to burial with a range of structural features (Shephard 1979). Burial within penannular ditches in particular generally occurs in the 7th and early 8th centuries and it is notable that the largest number of this type of burial occurred in the central cemetery which appears to be the latest of the three burial groups.

1.2.45 Comparable examples are known at St Peters (Broadstairs; Hogarth 1973, 118), Finglesham (Hawkes 1976) and Polhill (Hawkes 1973). There are also continental parallels for lines of graves with penannular ditches. A note of caution should, however, be sounded in terms of the surviving evidence. It is possible that more such ditches and other mounds were once present, but had been obliterated by later activities such as ploughing.

1.2.46 At some Anglo-Saxon cemeteries penannular ditches around graves may have held wooden fences (Hogarth 1973, 113) although no evidence for this was apparent at Saltwood. It has been noted that 'graves within penannular ditches are usually placed with their foot end towards the causeway' (Hawkes 1976, 48). Recent work by John Blair has studied cemetery structures, such as row-graves (some of which he terms 'shrines'; Blair 1995).

1.2.47 Horse burials are generally placed to the north of the associated human burial (Tim Pestell, pers. comm.). Both the practice of unaccompanied, isolated horse burial and the separate interment of harness items appear to date to the 7th century (Geake 1997, 101). Kentish parallels of 7th century date come from Faversham and Bishopsbourne, both discovered in the 19th century (Geake 1997, 101).

1.2.48 New examples of Anglo-Saxon horse burial come from two Suffolk sites: Lakenheath (Caruth forthcoming) and Snape. In the former case, the horse was buried in the same grave as its warrior 'rider'. At Snape, a horse-head still wearing its harness and bridle-bit was buried to the north-west of an associated boat burial dating to *c*. AD 600 (Tim Pestell pers. comm.). Examples of isolated horse burial

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include those at Sutton Hoo, Mound 17, where the animal was placed in an individual pit. At West Heslerton, a horse had been interred alone, with its head placed between its legs (Powesland *et al* 1986, 163).

1.2.49 A gazetteer and overview of European horse burials is provided by Müller-Wille (with a sub-section on examples from Anglo-Saxon England), although some of the accompanying interpretations are now out-dated (Müller-Wille 1970-71). The forthcoming publication on the recently excavated example from Snape will, however, include an updated review of the rite, as will the publication of the Sutton Hoo burials (Filmer-Sankey and Pestell, forthcoming; Care-Evans forthcoming).

1.2.50 The profusion of Kentish cemeteries in the 5th to 7th centuries implies that settlement was dense. There is, however, a notable dearth of Early Anglo-Saxon settlement remains, the majority of known examples coming from urban sites (Hawkes 1982, 74). New work has redressed this imbalance and has linked settlements to cemeteries more closely (Andrews and Riddler forthcoming). The relationship to the ports of *Sandtun* (at West Hythe) and Dover should also be considered, particularly as both sites go back to the 7th century at least.

1.2.51 Nearby, Early Anglo-Saxon settlement traces have been recorded at Dolland's Moor and at Newington, several kilometres to the east. Each of these settlements is likely to be linked to one or more cemeteries, which generally lie in close proximity. The density of Early Anglo-Saxon settlement in this area may, therefore, approach that to be seen elsewhere in Kent, particularly on the outskirts of Canterbury.

1.2.52 The evident contrast between the poverty implied by the small domestic finds assemblage and the rich grave groups is familiar from many Anglo-Saxon sites (such as West Stow). Early Anglo-Saxon settlements in East Kent have not provided many objects, with the exception of sunken-featured buildings from Ramsgate (which can be associated with the Ozingell cemetery) and Canterbury, where the city is fringed by Anglo-Saxon cemeteries. Other sites, like Dolland's Moor and Whitfield, are relatively sparse in terms of their material culture.

1.2.53 Dispersed settlement patterns for this period are known, as at Abbots Worthy, for example, or Whitfield, where sunken-featured buildings encompass a wide area of settlement, linked both to field systems and to a changing pattern of settlement in the landscape, and both structures and cemeteries move their location over time.

Medieval (AD 1066 – 1500)

1.2.54 Evidence for early medieval rural settlement in Kent is surprisingly sparse (Drewett, Rudling and Gardiner 1988, 339-41; Rigold 1982). Excavated sites of this date are limited to Monkton and Northfleet (Gardiner 2000; Rady *et al* forthcoming), outside of the work elsewhere on the route of the CTRL, particularly at Parsonage Farm, Mersham and Westenhanger. In this particular area of study, CTRL investigations are likely to contribute to our understanding of the nature and organisation of settlement.

1.2.55 The same is true, also, of ceramic industries, and particularly those of the Ashford area, which have not been studied in recent decades. The nature of their distribution in relation to East Sussex wares and to ceramic traditions nearby at Dover has yet to be established.

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1.3 Topography, Geology, Pedology and Hydrography

Topography

1.3.1 The study area straddles the surface (at a maximum height above Ordnance Datum of *c*. 96 m) of a gently domed broad plateau-like promontory with a steep south-facing edge overlooking Saltwood Tunnel village. In general, the surface of this plateau slopes gently down to the north towards the foot of the North Downs chalk escarpment, corresponding to the incline of the subsurface *in situ* bedded geology. The Saltwood Tunnel railway tunnel, constructed in 1843, passes through this promontory.

Geology

1.3.2 The underlying solid geology comprises Cretaceous Lower Greensand Folkestone Beds, a distinct formation of lower Cretaceous sandstones that outcrop from the base of the North Downs chalk escarpment, and across which a significant proportion of the CTRL passes in Kent (British Geological Survey Sheet 305/6). On the highest parts of the site, a bed of decayed greensand blocks survived, although elsewhere the geology consisted of very soft green sand. A distinctive and very localised deposit of loessic drift material up to 0.5m thick capped the solid geology in places, consisting of brown, sandy clay containing weathered flints and calcareous concretions.

Pedology

1.3.3 The site is in an area of broadly mapped typical argillic brown earth soils (Malling or Fyfield 2 Association) on Cretaceous sands and loams. Some of the soils are more acidic, sandy humo-ferric podzols developed on the sandy Folkestone Beds. These have acidic pH 3 values and are prone to water erosion, but well-drained and easily cultivable. The acidic nature of the soil hinders the preservation of bone and molluscs in archaeological contexts.

1.3.4 Topsoil consisted of a ploughsoil (0.25-0.30m in depth) beneath which was a homogeneous deposit containing redeposited finds, suggesting a period of deep-ploughing that preceded the laying of field drains. With the exception of that portion of the site protected beneath the 19th century tunnel bund (see below) both deep ploughing and land drainage are likely to have had the most significant impact during the 20th century.

Hydrography

1.3.5 Although there are no extant watercourses within the site limits, the south-flowing Slay Brook passes *c*. 400m to the south-west, whilst an unnamed east-flowing stream passes to the north of the site.

1.4 Previous investigations at Saltwood

M20 construction

1.4.1 The first major archaeological discoveries on the site were made in 1979 during the construction of the M20 motorway. Watching brief observations made during the earth-moving operations indicated the presence of an extensive settlement here centred at TR 15500 37000 (OAU No. 1103; Willson 1985). Structural remains and

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stray finds recovered suggested occupation of the site during the Late Iron Age, Roman and possibly later periods (including a single Mid/Late Saxon loomweight). Discoveries include an undated probable Saxon sunken-featured building, imprecisely located in the general vicinity of the current Saxon Shore Way footbridge (Stone Farm bridleway) across the M20 motorway.

Environmental Assessment

1.4.2 As noted above, during the collation of data to inform the CTRL Environmental Assessment, fieldwalking identified a diffuse surface scatter of worked and burnt flint, as well as prehistoric, Iron Age, Roman, medieval and post-medieval pottery. These were all located to the north of Saltwood Tunnel, and extending west from Stone Farm Bridleway. The site was identified as potentially of regional significance (URL 1994; No. 1368, p A71, p 185, plan OELK/900-1804/3057).

Other Work

1.4.3 Despite the discoveries currently under assessment, no burials or objects of Anglo-Saxon date had previously been recorded within the immediate locale of the event zone, with the exception of the loomweight and the imprecisely located undated sunken-featured building noted during the 1974 M20 construction watching brief. There is however evidence of Anglo-Saxon activity nearby, with 6th and 6th/7th cemeteries recorded at Lyminge (Warhurst 1955) to the north and Dover Hill (Folkestone) to the south-east respectively.

1.4.4 In addition, part of a contemporaneous settlement east of Dolland's Moor (*c*. 1.6 km to the east of Saltwood Tunnel) was excavated by CAT as a part of the Channel Tunnel project in the 1980s (*Canterbury's Archaeology 1987-1988*, 58-9). It produced two sunken-featured buildings and several related features. Traces of a second settlement of this date were located to the north-west of Biggins Wood, below Cheriton Hill. These included a sunken-featured building associated with a trackway, rubbish pits and fence lines.

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2 ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Landscape Zone Priorities

2.1.1 The site is located within the Wealden Greensand Landscape Zone (URS 1998, Appendix 1), for which the Contract Area 440 Written Scheme of Investigation (WSI) highlighted three principal landscape zone research priorities;

- *A reconstruction of the changing palaeo-environment for all time periods present, through 'on-site' and 'off-site' studies and the interaction with past economies:*
- *Establish the basis of the rural economy for the area for all time periods, but especially through the recovery of material and environmental remains:*
- *Ritual and ceremonial use of the landscape.*

2.2 Fieldwork Event Aims

ARC SLT98 Excavation and Evaluation

2.2.1 The original Fieldwork Event Aims, as set out in the WSI and based on the results of the ARC SLT97 evaluation carried out by OAU are summarised below:

- *Determine the morphology and organisation of the local Roman landscape;*
- *Establish a dated sequence for the origin and development of settlement including associated enclosures and trackways, etc.;*
- *Establish the association between land divisions and possible settlement focii;*
- *Determine the contemporary local environment;*
- *Recovery of dated environmental and economic indicators if these are found to be present on site;*
- *Establish a chronology and sequence of development for the cemetery if one is present;*
- *Determine burial practice as preserved by archaeological remains, including artefact assemblages;*
- *Recovery of information on Romano-British burial practice, palaeo-pathology and demographic studies.*

2.2.2 It is of note that whilst it is clear the last three aims refer to the Romano-British burials recorded from the initial evaluation, they remain equally valid for the Anglo-Saxon cemeteries subsequently discovered.

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ARC SLT98C and ARC SLT99 Excavation and Watching Brief

2.2.3 As a result of the ARC SLT98C evaluation, identifying Anglo-Saxon graves on the west side of Stone Farm Bridleway, a second set of Fieldwork Event Aims were issued, which applied to all further fieldwork west of Stone Farm Bridleway. These are summarised below:

- *To identify the nature of the prehistoric activity, determine its extent and place in the landscape;*
- *To establish a chronology for the Anglo-Saxon cemetery;*
- *To investigate the relationship between the prehistoric features and the Anglo-Saxon cemetery;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of the cemetery;*
- *To identify the use of space within the burial landscape.*

ARC SFB99 Excavation

2.2.4 Because ARC SFB99 was commissioned without any prior evaluation information, with the exception of the Environmental Assessment, it was not possible to issue specific Fieldwork Event Aims, as there was no data on which to base the creation of such aims. As such, ARC SFB99 (and the later work at ARC SFB01) effectively operated under the same aims as the Fieldwork Events to the west of the bridleway.

2.3 Fieldwork Methodology and Summary of Excavation Results

Methodology

2.3.1 Fieldwork was carried out in accordance with the methodologies specified in the various WSIs issued for all fieldwork at Saltwood Tunnel, and it is not proposed to reiterate these documents in detail here. Minor variations in methodology between Canterbury Archaeological Trust (CAT) and Wessex Archaeology (WA) are highlighted where appropriate.

2.3.2 In summary, the limits and locations of all evaluation trenches and excavation areas were established based on digital mapping provided by RLE, and utilising URL project grid. As noted above, due to construction programme constraints, it was only possible to strip and excavate some sections of the CTRL route at Saltwood Tunnel in relatively small discrete areas. This was particularly so for ARC SLT99 and ARC SFB99.

2.3.3 All bulk earth removal at Saltwood Tunnel was undertaken using 360º tracked excavators equipped with toothless buckets under constant archaeological supervision. All bulk soil removal continued in discrete 0.1 - 0.2m spits until archaeological features and/or deposits, *in situ* geological deposits or the formation level for anticipated impact was reached, whichever was encountered first.

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2.3.4 All archaeological features/deposits encountered were hand-cleaned and recorded to current best archaeological practice using appropriate *pro forma* record sheets. Large scale pre-excavation plans were either produced by hand and digitised where necessary (CAT), or plotted and converted into appropriate format drawing files (AutoCAD v.12 DWG or DXF files) using an on-site Total Station (WA, and CAT during later stages). Hand-drawn plans and sections were recorded at appropriate scales (generally 1:20 and 1:10 respectively). Graves and grave goods were plotted at 1:5 (WA) or even 1:1 (CAT) where occasion demanded.

2.3.5 A full photographic record in both monochrome prints and colour transparencies was produced to illustrate both archaeological features and the general progress of fieldwork. In addition, aspects of work at Saltwood Tunnel were also recorded using digital cameras (WA). To facilitate both artefact recovery, and on occasion feature identification, metal detectors were extensively used, particularly within the Romano-British and Anglo-Saxon cemeteries.

2.3.6 Where necessary, and again, particularly in relation to the Anglo-Saxon graves, a considerable proportion of artefacts (and human remains) were block-lifted *in situ* for detailed x-radiography and excavation in laboratory conditions. The majority of these block lifts were performed by CAT.

Summary of Results

EARLIER NEOLITHIC (4000 – 3000 BC)

2.3.7 The investigations at Saltwood Tunnel have revealed a complex multi-phase landscape (**Figure 3**) originating with isolated pits located towards the eastern end of the site during the Early Neolithic, although stray finds may indicate sporadic transient Upper Palaeolithic activity in the area.

EARLY/ MIDDLE BRONZE AGE (2400 – 1100 BC)

2.3.8 Sustained occupation/ activity in the area appears to begin with the establishment of an Early Bronze Age barrow cemetery, comprising five ring-ditches of varying diameter, only one of which contained a (surviving) central burial. The barrow cemetery extends from east to west across almost the full width of the plateau on which the site is located. Other 'ritual' features include an unenclosed crouched burial and an unurned cremation.

LATE BRONZE AGE/ EARLY IRON AGE (1100 – 400 BC)

2.3.9 During the Late Bronze Age the barrow cemetery is encroached by settlement activity, with at least one occupation enclosure established approximately centrally within the former funerary landscape, as well as an associated field system to east and west. In addition, a Late Bronze Age/ Early Iron Age small sub-square enclosure, apparently associated with cremated human remains, was constructed at the extreme eastern end of the barrow cemetery, which may possibly be some form of mortuary enclosure

EARLY/ MIDDLE IRON AGE (700 – 100 BC)

2.3.10 Although the Iron Age is not coherently represented, it is probable that the hollow-ways that developed during the Romano-British period are established during the Iron Age as trackways. The hollow-ways recorded within the site limits are apparently focussed on the earlier Bronze Age barrows, suggesting that the latter remained dominant landscape features throughout prehistory.

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LATE IRON AGE/ ROMANO-BRITISH (100 BC – AD 410)

2.3.11 A settlement, possibly established during the Late Iron Age and located towards the western end of the site and apparently focussed at the junction of two of the hollow-ways noted above, appears to remain in use throughout the Romano-British period. Features associated with this settlement include ditches, pits, post-holes, quarry pits and the development of the trackway network noted above. In addition, a small group of cremation burials were also recorded adjacent to the settlement.

EARLY ANGLO-SAXON (AD 410 – 650)

2.3.12 Anglo-Saxon occupation remains are not prolific within the excavation area, suggesting that the cemeteries recorded are associated with settlement centres located beyond the line of the CTRL. Primarily, occupation remains are restricted to two widely-spaced possible sunken-featured building, potentially contemporaneous with the poorly provenanced similar feature recorded during the construction of the M20.

2.3.13 Anglo-Saxon funerary remains, however, represent the most coherent phase of activity at Saltwood Tunnel, with at least 200 burials in three distinct areas recorded. The burials are focussed on the three largest Bronze Age ring-ditches and span the late 5th to 7th centuries. Some of the burials were of high status, particularly within the central, most recent cemetery adjacent to the Stone Farm Bridleway.

EARLY MEDIEVAL (AD 1066 – 1300)

2.3.14 Although later Anglo-Saxon activity is not recorded at Saltwood Tunnel, early medieval remains are noted from two distinct zones towards the western and eastern ends of the site. These include ditches that modify and clarify the edges of the hollow-ways passing through these areas; as well as pits, post-holes and other possible structural remains (i.e. putative beam slots). Many of the features associated with this phase, particularly those to the east, are characterised by 'midden'-like deposits of shellfish and animal bone, including articulated remains of both fish and dog.

POST-MEDIEVAL/ MODERN (AD 1800 – PRESENT)

2.3.15 Post-medieval and modern activity which had an impact on the archaeological remains, includes the construction of the Saltwood Tunnel and associated tunnel bund in 1843, the intensification of ploughing during the 19th and 20th centuries, and military occupation during the First World War (including buildings, pits and drainage features).

PHASES

2.3.16 Activity at Saltwood Tunnel can therefore be attributed to the following phases;

- *Phase 1: Earlier Neolithic (4000 – 3000 BC)*
- *Phase 2: Early/ Middle Bronze Age (2400 – 1100 BC)*
- *Phase 3: Late Bronze Age/ Early Iron Age (1100 – 400 BC)*
- *Phase 4: Early/ Middle Iron Age (700 – 100 BC)*
- *Phase 5: Late Iron Age/ Early Romano-British (100 BC – AD 150)*

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- *Phase 6: Romano-British (AD 43 - 410)*
  - *Phase 6a: Early/ Mid Romano-British (AD 43 – 250)*
  - *Phase 6b: Late Romano-British/ 'Sub-Roman' (AD 250 – 450)*
- *Phase 7: Early Anglo-Saxon (AD 410 - 650)*
- *Phase 8: Early medieval (AD 1066 - 1300)*
- *Phase 9: Post-medieval/ Modern (AD 1800 - present)*

2.4 Assessment Methodology

2.4.1 This assessment report was commissioned by URS to the specification for assessment reports produced by RLE (*CTRL Section 1 Archaeology: Post Excavation Assessment Instruction no. 000-RMA-RLEVC-00030-AB*), as discussed with English Heritage and Kent County Council. This specification follows national guidelines prepared by English Heritage, including *Management of Archaeological Projects II* (English Heritage 1991), and provides additional information regarding the format and level of detail required for CTRL assessment reports.

2.4.2 Numerous internal and external specialists were employed to assess material groups (see below - section 6.4). Each specialist was provided with the relevant part of the stratigraphic narrative, together with supporting documentation. All artefacts requiring conservation or other specialist treatment from ARC SLT98, SLT98C and SLT99 are currently stored at the City of Lincoln Conservation Laboratories, Friars Lane, Lincoln, along with the Anglo-Saxon artefacts from ARC SFB99. The remaining archive components are currently housed at the offices of CAT (ARC SLT98, SLT98C and SLT99) or WA (ARC SFB99).

2.4.3 Specialists examined materials in Lincoln wherever possible and few objects were removed from the laboratories, the principal exception being artefacts that included mineralised textile remains, which were temporarily transported to York and then returned to Lincoln. To gain an holistic overview, RLE required that specialists were to view material from across the project as a whole, rather than from the collections of specific excavation phases. Supporting documentation from unpublished sources in the area has been provided to specialists, where available.

2.4.4 To ensure that the full potential of the site could be realised, it was decided by RLE, in consultation with CAT, WA, EH and KCC, to undertake a combined assessment, encompassing the results of all the individual Fieldwork Events that comprise the Principal Site.

2.4.5 To differentiate between Canterbury Archaeological Trust and Wessex Archaeology context reference numbers (as the number sequences used by each organisation on site were not mutually exclusive), all context and other reference numbers appearing either in text or on figures for this report have been prefixed with a "**C**" or "**W**" respectively.

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2.4.6 Although not an RLE-specified format, the results of the assessment have been collated into four volumes for ease of use, as follows;

- *Volume 1: Archive Assessment*
- *Volume 2: Illustrations*
- *Volume 3: Specialist Appendices*

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3 FACTUAL DATA AND QUANTIFICATION

3.1 The Stratigraphic Record

Stratigraphy

3.1.1 The archaeological features recorded during the excavation predominantly survived as cuts into the surface of the natural geology, sealed by subsoil and topsoil. No stratification of features within the subsoil was observed during its removal by machine.

3.1.2 The soft, friable, upper exposures of natural Folkestone sand was marked by an almost fractal incidence of macro- and micro variations in texture and/or colour. Some of these may have been due to in-filling of natural hollows or scoops, but many others will have resulted from decay of sandstone in situ, re-deposition of soluble iron compounds, selective leaching or soil enrichment, or from past animal or root disturbance.

3.1.3 With increasing depth, natural sands became very pale yellow or white, marked by irregular pink iron-precipitation layers. Thin inclined bands of white or occasionally red quartz sandstone ("ragstone") were present within the sand, occasionally outcropping at the machined Site surface.

3.1.4 Across the eastern end of the Site, a thin bed of natural fossiliferous marine marl or mudstone was present, overlain (presumably unconformably) by undated stiff orange-grey clay containing brecciated flint fragments. These deposits capped and protected the underlying Folkestone sand.

3.1.5 Numerous tree throws were identified across the Site. These spanned a wide range of preservation from 'textbook' examples to mere pale silty patches with no identifiable structure. There is little dating evidence from these features, and they probably represent natural or deliberate tree felling over a wide time-span.

3.1.6 Other identifiable stratigraphic units include relict soils and deposits of possible archaeological origin, such as putative denuded barrow material, and in particular from the ring-ditch to the west of Stone Farm Bridleway, partially sealed beneath the Victorian tunnel bund.

Truncation and Re-working

3.1.7 Areas of the site are stratigraphically complex, with many inter-relationships recorded during fieldwork, allowing stratigraphically secure chronological frameworks to be constructed. However this palimpsest of archaeological remains has resulted in some truncation and reworking of earlier deposits over time, slightly reducing the potential to combine detailed stratigraphic analysis with associated secure artefactual and environmental evidence. This is particularly so for material remains recovered at the intersections of features from differing phases.

3.1.8 As noted above (see Topography), the site is located on a gentle generally north-facing slope. As such, it is unlikely that the impact from more recent agricultural practices has been exacerbated significantly as a result of accelerated downslope

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movement of agricultural soils. However, relatively modern ploughing is thought to have occurred across the entire site and is likely to have contributed a residual aspect to the finds assemblage that may need further consideration during analysis.

3.1.9 The east to west aligned tunnel bund, generated during the construction of Saltwood Tunnel in 1843, occupies the central portion of the site. The tunnel was constructed through the excavation of regularly spaced shafts down to the base level of the tunnel, at which point the shafts were extended laterally to the east and west, connecting with each other to form the tunnel itself. The excavated spoil was transported to the surface via the shafts, and then bunded in a long narrow corridor along the line of the tunnel itself.

3.1.10 As a result, although the excavation of the shafts themselves completely removed any archaeological remains in the area, the subsequent creation of the bund protected that portion of the site beneath it from any further 19th and 20th century disturbance.

Research Objective: Hunter-foragers (400,000 – 4500 BC)

PRE-NEOLITHIC

3.1.11 Although not considered as part of the site phasing, a small number of diagnostic worked flint pieces have been identified as Mesolithic or earlier in origin, including at least two microliths and a potentially earlier (Late Upper Palaeolithic?) burin on a truncation. All were recovered either as unstratified or residual finds, and cannot be considered anything more than indicative of contemporaneous transient small-scale activity in the general area.

Research Objective: Early Agriculturalists (4500 – 2000 BC)

PHASE 1: EARLIER NEOLITHIC (4000 – 3000 BC)

3.1.12 Early Neolithic activity recorded at the site (**Figure 4**) includes:

- *Settlement-type features (pits) probably indicating either low level activity, or the fringes of more intensive occupation focussed beyond the CTRL.*

3.1.13 Two isolated pits (W136 and W175), located in the south-eastern part of the Site, produced finds assemblages containing Early Neolithic pottery (two distinct fabrics), as well as worked and burnt flint. Stratified evidence of Early Neolithic date is rare in Kent, although stray finds are more common in the eastern part of the county (**Figure 4 – inset**).

3.1.14 The pits and the deposits they contain are not presently well understood. They may represent denuded settlement evidence, with crop-processing debris recovered from processed soil samples. Alternatively, they may represent deliberately selected and placed deposits with symbolic or locational meaning for those creating the features.

3.1.15 Although a large number of tree-throws were present across the Site, many of which were investigated, there is a lack of evidence to indicate any systematic woodland clearance for agricultural purposes during the Neolithic period as a whole.

3.1.16 Although elements of Later Neolithic material may emerge from detailed analysis of the flint assemblage, no finds or features of Later Neolithic date are currently identified within the Site.

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Research Objective: Farming Communities (2000 – 100 BC)

3.1.17 Although Phases 2, 3 and 4 predominantly fall within this research objective, it is important to note that Phase 2 begins at a transitional period between *Early Agriculturalists* and *Farming Communities*. As such Phase 2 is particularly critical to considerations of landscape development and the changing patterns of human exploitation within that landscape.

PHASE 2: EARLY/ MIDDLE BRONZE AGE (2400 – 1100 BC)

3.1.18 Early/ Middle Bronze Age activity recorded at the site (**Figure 4**) includes:

- *The development of a formalised (and potentially planned) funerary landscape, including barrows and unenclosed burials, and*
- *The possible fringes of associated settlement and agriculture*

3.1.19 A group of five prehistoric ring-ditches was recorded crossing the Saltwood Tunnel plateau on a broadly east to west alignment. Although little evidence survived to indicate the location and nature of any associated upcast earthwork, limited evidence was recorded to suggest that the majority of the ring-ditches represent the denuded remains of barrows with central mounds (see C3766 and C1041 below), and will therefore be referred as barrows hereafter.

3.1.20 All barrows were single-ditched, four were annular, and one originally penannular. The possibility that the latter may represent some form of mortuary enclosure rather than barrow cannot be wholly discounted. With the exception of the easternmost barrow (W33), which was only *c*. 75m from its nearest neighbour (W201), the barrows were regularly spaced approximately 170m apart from each other (centre to centre). The relative size of each, from west to east is given in **Table 2**.

Table 2: Summary of Early Bronze Age Barrows at Saltwood

Ref. No	Details	External Diameter	Ditch width (w) and depth (d) in metres	Mound Material?
C4639	Annular? barrow	15.8m	*c*. 1.00w x 0.50d	No
C3766	Annular barrow with central burial	42.5m	*c*. 3.50w x 1.20d	?yes
C1041	Penannular barrow	28.8m	*c*. 3.20w x 1.30d	?yes
W201	Annular barrow	26.8m	*c*. 2.00w x 0.75d	No
W33	Annular barrow	42.5m	*c*. 4.30w x 1.50d	No

3.1.21 The possible exception to the 'barrow' theory is the smallest example located at the western end of the group (C4639), that may represent a round-house rather than barrow (albeit at the upper limit of the size range for round-houses). However, similar small barrows are known in East Kent (such as that at North Foreland, Broadstairs; Diack *et al* 2000), and combined with the probable annular nature of the ring-ditch and its landscape location in relation to the other confirmed barrows, this feature is therefore interpreted as a barrow. A group of three irregular undated features (C4672, C4674 and C4755) within this barrow are provisionally included in this phase.

3.1.22 Barrow C3766 was the only barrow of the group with a confirmed associated internal feature. This comprised a centrally placed crouched burial (C4619) with an Early Bronze Age pottery food vessel. In comparison with other more recent (i.e. Anglo-Saxon) graves excavated at Saltwood, bone preservation was surprisingly good with a virtually complete (although friable) skeleton surviving. The burial was

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orientated north to south (head to north) with the head and knees facing east and the pottery vessel positioned above and behind the skull. Denuded mound material was identified in the immediate vicinity of this monument, comprising an indeterminate mixed interface between the archaeology and topsoil. The preservation of this deposit was possibly in part due to the 19th century tunnel bund that overlay the southern half of the ring-ditch.

3.1.23 The central barrow in the group (C1041) was situated adjacent to Stone Farm Bridleway. This was the only member of the group to be originally defined by a penannular ditch, with a *c*. 5.5m wide causeway or entrance facing north-east that was subsequently closed by a short length of narrow ditch. No central burial of prehistoric date could be located, although several irregular scoops (including C1124 and C1152) located within the ditch circuit may have been contemporaneous. Again, denuded mound material was identified, partially sealing and obscuring the south-east quadrant of the ring-ditch.

3.1.24 Barrow W201, although broadly comparable in diameter to barrow C1041, was a relatively slight monument, with a narrow, shallow ditch. Given the highly mobile nature of soils derived from the local sand geology, it is likely that the ditch infilled rapidly, with no evidence for maintenance or re-cutting identified. As with barrow C4639 to the west, neither of the smallest barrows subsequently became the focii for Anglo-Saxon burials, suggesting that they did not survive as extant earthworks for as long as the larger barrows.

3.1.25 Barrow W33, the easternmost member of the group, was of comparable size to the largest example to the west of Stone Farm Bridleway. Although direct evidence for mound material was not positively identified, the apparent juxtaposition of some later features with this monument appears to suggest that the ring-ditch enclosed a central mound. Again, no evidence for maintenance or re-cutting of the ring-ditch was noted.

3.1.26 In addition to the barrows, an east to west aligned near-complete isolated crouched inhumation burial (C4507) was located approximately equidistant between barrows C4639 and C3766. The inhumation was placed with head to the east and facing upwards and the knees drawn up towards the south. The fill of the grave contained frequent irregular greensand blocks, especially within the upper grave fills, that may have been deliberately placed to protect the body and contributed to the relatively good bone preservation. A similar burial, at an equivalent depth of 0.70-0.80m and covered with stones, has recently been excavated by CAT at North Foreland, Broadstairs (Diack *et al*, 2000).

3.1.27 Non-funerary remains attributed to this phase comprise a pit (C6153) and ditch (W142). The pit was located *c*. 60m to the south of barrow C1041, and contained a significant quantity of Bronze Age pottery. The north to south aligned ditch was located to the south of barrow W33, aligning with the west edge of the barrow, and was cut by an element of the Late Bronze Age field system. Although undated, due to the stratigraphic relationship of this feature with later dated remains and its apparent spatial association with one of the barrows, the ditch is tentatively considered to be of Early/ Middle Bronze Age date.

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PHASE 3: LATE BRONZE AGE/EARLY IRON AGE (1100 – 400 BC)

3.1.28 Late Bronze Age/ Early Iron Age activity at the site (**Figure 5**) includes:

- *Continued use of the barrow cemetery for funerary/ ritual purposes; and*
- *Encroachment into the earlier funerary landscape by settlement, field system and the origins of the trackway network.*

3.1.29 No subsequent re-use of the barrows after their initial construction has been identified, but continued use of the easternmost barrow W33 and its environs as a centre for funerary or ceremonial activity may have occurred. This activity includes a small sub-square enclosure (W62) immediately east of the barrow ditch, possibly oriented with respect to the adjacent field system (see below). The enclosure appears to have comprised a continuous ditch, although the north-west corner is truncated by later trackway W34, and was associated with features containing cremated bone (W102 cut by the enclosure ditch; W99, W100, W101, W106 and W107 cutting the enclosure ditch fill).

3.1.30 Although stratigraphically earlier than the sub-square enclosure, it is assumed that W102 represents the first later Bronze Age cremation burial in an area that is subsequently formalised through enclosure for that purpose. In addition, an unaccompanied, unurned cremation burial (W223) was located adjacent to the east side of Stone Farm Bridleway, cut by a LBA/EIA ditch (W165 - see below), and with charcoal eroded from the truncated burial observed in the later ditch fill.

3.1.31 A further five confirmed (C3709, C3711, C3739, C3806 and C3896) and two possible (C3777 and C3935) cremations were located on the south and east sides of barrow C3766. Although predominantly undated, with the exception of a small sherd of Early Bronze Age Beaker pottery from (C3777), the spatial arrangement of these cremations in relation to barrow C3766 suggests they may represent LBA/EIA satellite cremations associated with the EBA barrow. However, their location within the corner formed by trackway C2 and LIA/ERB ditch C4706 *et al* (see below) cannot be wholly discounted, and the possibility that they may be later Iron Age or Romano-British in date must therefore also be considered.

3.1.32 Late Bronze Age/ Early Iron Age settlement activity is focussed on the partially exposed remains of at least one and possibly two enclosures; both located in the immediate vicinity of Stone Farm Bridleway (i.e. between EBA barrows W201 and C1041). The southernmost enclosure (W227) was the most coherently represented, comprising an approximately sub-rectangular area at least partially truncated by the route of Stone Farm Bridleway. The construction of the enclosure appears to combine both ditched elements as well as post lines (i.e. W245 – W253 inc.), although whether the two construction techniques represent differing phases of activity, cannot be confidently determined. Apart from two pits (W235 and W236), cutting through subsoil (W234) that may therefore also be Late Bronze Age, no other remains were recorded within the enclosure.

3.1.33 Although not stratigraphically associated, a palimpsest of post-holes (group C7) immediately to the west of enclosure W227 may represent contemporaneous activity (either as structural remains or fence lines). Although the arrangement of the post-holes is not immediately clear, there are apparent alignments within the group, generally tending approximately south-west to north-east, with shorter lengths at

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right angles to this alignment. The outer limits of this post-hole group generally mirror the outer limits of the ditched side of the enclosure to the east of the bridleway, and therefore, the possibility that the posts and the enclosure ditch combine to define a single larger sub-rectangular occupation area cannot be wholly discounted.

3.1.34 To the south of enclosure W227, the truncated remains of two generally north-north-east to south-south-west aligned ditches (W124 and W165) were located immediately adjacent to the east side of the modern bridleway. The alignment of these ditches, which are generally parallel to Stone Farm Bridleway, appears to coincide with the apparent dichotomy between the ditched remains to the east and the post-holes to the west of the bridleway.

3.1.35 Further to the north were the remains of a possible second enclosure (W210), comprising the south-east corner of a putative double-ditched enclosure (incorporating ditch W209). Although little could be observed to identify any structural remains within or associated with this enclosure, a number of large pits with distinctive 'cinder-capping' were noted both within (W207, W208, W211 and W212) and outside (W206) the enclosure ditch circuit. The pits generally produced significant quantities of Late Bronze Age/ Early Iron Age pottery, in large relatively unabraded fragments that suggest that they have not moved far from an activity centre. Although cinder-capping is an activity more generally associated with medieval refuse pits, sealing full refuse pits with a thick layer of charcoal, ash etc. to act as an odour plug, the Late Bronze Age/ Early Iron Age dating evidence for these pits is unequivocable.

3.1.36 In addition, the truncated remains of a second pit (W81) was located to the west, partially obscured by the former pre-M20 route of Stone Farm Bridleway. Although interpreted as a pit, the eastern half of the feature had been completely removed by the bridleway, and therefore it may alternatively represent the west terminal of a ditch.

3.1.37 Other probable settlement remains in the general vicinity of Stone Farm Bridleway include a considerable number of discrete features focussed in the area to the south-west, west and north-west of post-hole group C7/ enclosure W227. Although many were undated, stratigraphic relationships with later Iron Age and Anglo-Saxon features suggests that the majority at least could be Late Bronze Age/ Early Iron Age.

3.1.38 These include four ovate pits (C6367, C6369, C6371 and C6603), adjacent to a short west-north-west to east-south-east alignment of five small post-holes (group C6351). To the north of group C6351 were three uniform 1.10m diameter shallow pits (C6563, C6381 and C6365), spaced in such a way that they appeared to represent three corners of a 10m by 7m area. Two large 'cinder-capped' pits (C6489 and C6499) similar to those recorded in and around northern enclosure W210 were located on the line of the approximate northern extent of post-hole group C7/ enclosure W227. Both pits contained pottery fragments from several forms of vessel include a high percentage of Late Bronze Age/Early Iron Age wares. A relatively isolated similar, though smaller feature (C1491) was located further to the north-west beyond field system ditch C3948 (see below), containing a quantity of carbonised grain in its lower fill.

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3.1.39 Probably associated with the settlement evidence is the development of a field system, again encroaching in to the area occupied by the earlier funerary monuments, and most coherently represented to the east of the probable settlement centre(s). Although to the east of Stone Farm Bridleway the field system ditches were generally aligned east-south-east to west-north-west with shorter elements at right-angles, the only confirmed ditch (C3948) considered to be part of this system to the west of the bridleway is aligned east to west.

3.1.40 The field system includes elements that are aligned both on the central points (i.e. ditches W1, W35, W49 and W63), and tangental with the outer edges (i.e. ditches C3948, W3, W187 and W188) of the earlier barrows, demonstrating that the barrows remained dominant (and defining) elements of the landscape. In particular, east to west aligned ditch C3948 is aligned with the north-east quadrant of barrow C3766, turning to the north-west and terminating at its intersection with the outer edge of the barrow ditch.

3.1.41 In addition to the field system, excavated evidence has indicated that the earliest phases of the trackway network at Saltwood Tunnel may originate by at least the Early Iron Age, if not the Late Bronze Age. This is most evident for trackway C1, passing from south-west to north-east across the western end of the site, and in a pattern reflected in the field system, tangentally truncating the north-west quadrant of EBA barrow C4639 in the process. The ephemeral truncated remains of two parallel ditches (W55 and W56) also indicate the origins of trackway W33. Given the spatial relationship between the remaining tracks and Early Bronze Age barrows, it is conceivable that the majority, if not all of the remaining trackways are initiated during the Late Bronze Age/ Early Iron Age encroachment into a previously funerary landscape.

PHASE 4: EARLY/ MIDDLE IRON AGE (700 – 100 BC)

3.1.42 The Early/ Middle Iron Age phase of activity at the site (**Figure 5**) consists of:

- *The formalised establishment of the trackway network at Saltwood,*
- *The continuation of funerary activity to the east of EBA barrow W33, and*
- *Isolated features and finds possibly indicative of settlement.*

3.1.43 As noted above, it is very probable that most, if not all of the trackways recorded at Saltwood Tunnel originate by the Early Iron Age. It is important to emphasise at this stage that the original trackways were probably only defined by flanking ditches; the development of the hollow-ways *per se* is a later aspect, representing truncation, erosion and infilling of the routes during their use.

3.1.44 As a result, the majority of the dating evidence recovered was hence of later Iron Age and/or Romano-British pottery, recovered from the basal fills of the later hollow-ways. In general the fills of the track/hollow-ways were notably darker in colour than earlier archaeological deposits, suggesting that agriculturally 'enriched' soils were contributing to their infilling. The trackway network is summarised in relation to its landscape associations below (**Table 3**).

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Table 3: Summary of Saltwood Tunnel trackway network details

Trackway	Alignment	Landscape associations
C1	*c*. SW/NE	Truncates the north-west quadrant of EBA barrow C4639. Joined by trackway C1 from the south-west at right-angles.
C2	*c*. SE/NW	Truncates the south-west quadrant of EBA barrow C3766. Forms 'T'-junction with C2 at its north-west end. Coincidentally (?) passes directly over unenclosed EBA crouched burial C4507. Alignment preserved as modern private track to either side of the site and as a relatively modern (i.e. pre-1843) cinder track beneath the tunnel bund itself.
W226	*c*. NNE/SSW	Stone Farm Bridleway Passes to the east of EBA barrow C1041. May define the western limit of LBA settlement enclosures.
W34 (i.e. W55, W56)	*c*. NNE/SSW (tending to NE/SW)	Southern section aligned centrally on EBA barrow W33, before turning to the right to truncate the south-west quadrant. Aligned on modern routes/ field boundaries further to the south.

3.1.45 Track C1 follows the natural contours in this area, and presumably represents an early route up a south-west facing coombe adjacent to the present day Saltwood Tunnel west portal. Track C2 may be a slightly later development, although as discussed above, the limited dating evidence is not necessarily indicative of its establishment.

3.1.46 The differing field system alignments to either side of Stone Farm Bridleway suggests that the bridleway itself may mark a significant division in the landscape as far back as the Late Bronze Age/ Early Iron Age. Beneath disturbance associated with the modern Stone Farm Bridleway, a pair of ditches (W80 and W225) *c*. 5.2m apart were recorded, possibly indicating the route of a prehistoric precursor (W226) to the bridleway. The westernmost ditch (W80) produced two small relatively abraded sherds of Early/Middle Iron Age pottery.

3.1.47 Although the earliest dating evidence recovered from trackway W34 is Late Iron Age in date, two earlier undated parallel ditches (W56 and W55) flanking W34 are considered to represent the earliest formalisation of the trackway through this area.

3.1.48 A dispersed non-Saxon group of distinctive 'kidney'-shaped graves to the east of EBA barrow W33 (W64, W68, W69, W97 and W98) is considered to belong to this period. However, only graves W68 and W69 contained secure dating evidence, with single stray probably intrusive (though possibly residual) Late Iron Age/ Romano-British sherds recovered from W97 and W98. An additional feature in the same area, W105, is also considered to be part of this grave-group on morphological grounds, though no human bone was identified during excavation. Post-hole W67, located adjacent to graves W68 and W69 and thought to represent a grave marker, is included in this phase group.

3.1.49 Although AMS radiocarbon dating of this group may be viable, despite the paucity of surviving human remains (with the notable exception of W68), the success of such an approach is entirely dependent on surviving collagen, which can only be viably assessed during the laboratory dating process. Although in general sufficient collagen is more likely to be recovered from greater quantities of bone, this cannot be assumed with absolute certainty.

3.1.50 Other features include ditch terminal W169, a poorly understood curvilinear ditch terminal immediately adjacent to the bridleway containing a small EIA/MIA

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assemblage of pottery. To the west was pit C350, sealed by a layer forming the basal fill of trackway C1.

3.1.51 In general terms, it is of note that the majority of the scant Early to Middle Iron Age evidence recorded to date at Saltwood Tunnel appears to focus on the trackway network.

Research Objective: Towns and their rural landscapes (100 BC – AD 1700)

PHASE 5: LATE IRON AGE/ EARLY ROMANO-BRITISH (100 BC – AD 150)

3.1.52 This phase deals specifically with the transitional period between prehistory and the establishment of the Romano-British settlement at Saltwood. Late Iron Age/ Early Romano-British activity at the site (**Figure 6**) therefore includes:

- *The establishment of a settlement and associated enclosures, as well as other activity including quarrying and field systems.*

3.1.53 A small settlement (C15) was established during this phase, focussed at the junction of trackways C1 and C2. A complex of small post-holes (C333) on the north-west side of trackway C1 may indicate the presence of a discrete structure or structures, although specific alignments, groups etc. are not immediately apparent. The post-holes covered an approximately rectangular area of *c*. 10m by 18m. Some of the post-holes were recut and/or replaced, suggesting more than one structural phase.

3.1.54 The settlement itself appears to be predominantly concentrated to the north-west of the trackway C1 and C2 junction, and is evidenced by a complex series of predominantly linear features, generally coaligned with either trackway C1 or trackway C2. It is not clear at this stage precisely what the stratigraphic phasing is for this area, but Phase 5 would appear to comprise elements of at least two ditched enclosures (groups C273 and C525) adjacent to the putative post-built structure(s) noted above.

3.1.55 A number of ditches that define the edges of trackways are attributed to this phase. These include a curvilinear pair (group C119), originating parallel to the north-east side of trackway C2 but then curving away to the north, possibly indicating an access point from trackway C2 into fields to the north. Similarly, two short segments of east to west aligned ditch (C275 and C320) adjacent to the south-east side of trackway C1 may also indicate an entrance point into fields in that area.

3.1.56 Beyond the settlement centre were elements of what may have been a contemporaneous field system. To the south of trackway C2 were a pair of broadly north-north-east to south-south-west aligned parallel ditches (C4588 and C4696), spaced approximately 35m apart, the westernmost of which (C4696) appeared to be segmented. Although not perpendicular to the line of trackway, neither of the ditches continue beyond the line of trackway C2.

3.1.57 To the north-east of trackway C2, and on the south-east side of EBA barrow C3766 were a group of ditches possibly forming the north-west corner of a ditched enclosure/ field. Ditch C4706, in particular passed the eastern edge of the barrow, the outer edge of the latter also appearing to be redefined by a short section of curving ditch (C3918). Dating evidence recovered from this group of features ranges from mid 1st century BC to early 2nd century AD.

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3.1.58 Other features include a small, isolated cluster of two shallow pits and three post-holes (group C17), located to the south of the intersection of trackway C1 and C2, in an area that would have presumably represented open fields at the time. Within the southern corner formed by the junction of trackways C1 and C2 was an irregular oval area of quarry pits (group C11), extracting the natural clay. Other possible quarry pits of indeterminate date were identified throughout the western end of the site. Within the north-east quadrant of EBA barrow W33, a single NNW-SSE aligned inhumation grave (W103) has been assigned to this period on the basis of the extensive LIA/ERB pottery assemblage in its backfill. It should be considered possible that two other similar features in this area (W97 and W98) may belong to this period, although currently assigned to an Early/ Middle Iron Age grave group.

PHASE 6A: EARLY/ MID ROMANO-BRITISH (AD 43 – 250)

3.1.59 Early/ Mid Romano-British activity at the site (**Figure 6**) includes:

- *Continued alterations/ improvements to the trackway network, particularly adjacent to the settlement (i.e. trackways C1 and C2),*
- *Expansion of the established settlement, including pitting and possible quarrying activity, and*
- *Establishment of a small cremation cemetery.*

3.1.60 By this phase the trackway network as a whole was probably already developing into the truncated hollow-ways recorded. Presumably as a result of this erosion, a thin and discontinuous metalled surface was laid down along part of the surface of trackway C1 (C814), particularly directly opposite post-hole group C333. The drainage/ defining ditch along the north-west side of the trackway was also recut in two areas (C901 and C193), with stone slabs placed along the outer edge of the ditch. The slabs presumably helped consolidate the sides of the ditches, but also acted as footings for a dry-stone wall (C739) constructed along the north-west side of the trackway, between post-hole group C333 and the junction with trackway C2. The dry-stone wall served as a revetment along the side of the developing hollow-way, and can be compared with, for instance, similar remains recorded at Dolland's Moor (*Canterbury's Archaeology 1987-8*).

3.1.61 The ditches defining the edges of trackway C2 were also recut on a number of occasions throughout the Romano-British period. In addition, as with trackway C1, a dry-stone revetment wall was constructed along the sides of the developing hollow-way. This predominantly survived as discontinous lengths along the north-east edge of the trackway (i.e. C76, C874), but with a short section also recorded along the opposite south-west side (C886). Unlike trackway C1, little trace of metalling was noted, possibly to due later robbing or pitting along the line of the trackway.

3.1.62 At the junction of the two trackways, a partially exposed probable oval-shaped pit (C159) partly filled with rubble may have served as a sump, fed by the various trackway ditches. Other trackway related features include additional dry-stone wall sections to the north-west of trackway C1 which may imply that an offset continuation of trackway C2 continued to the north-west. Insufficient of this walling was exposed however to confirm this.

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3.1.63 To the north-east of trackway C1/ C2 junction was the remains of a ditched enclosure (C27), comprising the south-east (i.e. C173 and C189) and north-east (i.e. C164 and C166) sides of an enclosure that would have measured *c*. 60m by 30m if extended as far as the trackway edges. The long axis of the enclosure was aligned with trackway C2. The south-eastern side comprised at least two phases of construction. Additional north-west to south-east aligned ditches (C197, C199 and C237) were located against the outer edge of the enclosure corner, suggesting the continuation of either a field system, or perhaps smaller ancillary sub-enclosures in this area. These features were truncated towards the south-east, their full extent therefore not known.

3.1.64 A number of pits and post-holes (e.g. C140, C142, C176, C178, C318 etc.) were recorded within enclosure C27, although no clearly defined structural remains could be identified. Possible quarrying consisted of both large (C2341 and C2350) and small (C2339, C2357, C2359 and C2361) shallow scoops along the northern edge of Bronze Age barrow C3766. Although the precise function of these features is uncertain, it is possible, given the localised clayey nature of the *in situ* geology in the area that these are extraction pits, presumably for either ceramics or daub.

3.1.65 A small group of nine cremation burials (group 25: cremations C6, C12, C14, C15, C16, C19, C20, C21 and C337) accompanied by pottery vessels and copper alloy brooches was situated within enclosure C27. These were adjacent to trackway C2 and with the exception of C337, were situated within the inner curve of earlier curvilinear ditches C119.

3.1.66 A further two pairs of slightly later cremation burials (C233 and C240; C22 and C73) were situated towards the north-east corner of enclosure C27, generally in a line parallel with and adjacent to the south-east side of the enclosure. A further cremation burial accompanied by pottery of the late 2nd century AD was recovered from an OAU evaluation (ARC SLT97 – not illustrated) trench in this area.

3.1.67 Many of the features investigated further to the east of the main Romano-British settlement focus produced contemporaneous pottery, usually as small abraded sherds, although none could be positively identified as of that date. It is likely that the area to the east was therefore open fields, with the quantities of pottery indicative of manuring/ night-soiling etc. during this period.

PHASE 6B: LATE ROMANO-BRITISH/ 'SUB-ROMAN' (AD 250 – 450)

3.1.68 Late Romano-British/ 'Sub-Roman' activity at the site (**Figure 6**) comprises:

- *Late Roman deposits in trackway C1, as well as the construction of an oven and additional pits,*
- *Inhumation burials, and*
- *An extensive midden(?) deposit*

3.1.69 Trackway C1 continued in use into the Late Roman period, accumulating dark silts containing quantities of midden-like occupation debris. Although few features or artefacts were recovered to indicate trackway C2 continued in use into this phase, it is probable that it remained at least as a landscape feature. Moreover, a number of late pits were recorded along the line of trackway C2, which although possibly

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impeding the route along the trackway, nevertheless indicate a continuation of activity along the trackway.

3.1.70 The most significant feature of Late Roman date to the west of the site was an oven with stoke-hole (C630), constructed on the south-east side of trackway C1. This comprised an oval stoking pit with the base of the circular oven chamber surviving at the south-east end of the stoking pit. The stoking pit itself had cut into the edge of trackway C1, and produced a wide range of 4th-century pottery. Although structural remains were absent in the area, a small cluster of pits (i.e. C301, C313, C329, C502, C612, C741, C743, C746, C755 and C867) containing Late Roman pottery was located adjacent to the north-west side of trackway C1, at its junction with trackway C2.

3.1.71 An undated east to west aligned (head to the west) extended adult inhumation burial (C212) was situated adjacent to the north-east side of trackway C2. Although undated, this unaccompanied (apparently Christian?) burial had cut the edge of the trackway C2 flanking ditch, and is therefore considered Late Romano-British in date. An isolated unaccompanied east to west aligned inhumation (C2164) was also situated well beyond the settlement centre to the east. A possible large, trapezoidal structure (C2174), represented by four small, very shallow clay-lined post-holes, was located immediately to the east of the inhumation, although no definite function or association with it could be established.

3.1.72 An extensive deposit (C621) containing late 4th century coins and late 3rd to early 5th century pottery was encountered in the far south-western corner of the site, overlying both earlier quarry pits and elements of the enclosure system. A similar broadly contemporaneous deposit (W46), interpreted as either a possible remnant ploughsoil or erosion-related, was recorded much further to the east partially sealing the ditch for EBA barrow W33.

PHASE 7: EARLY ANGLO-SAXON (AD 450 – 650)

3.1.73 The Early Anglo-Saxon phase of activity recorded at the site (**Figure 7**) includes:

- *Focussed and dispersed settlement remains, comprising sunken-featured buildings, ditches, pits and a possible drying oven, and*
- *At least three cemeteries focussed on the EBA barrows and prehistoric trackway network.*

3.1.74 Although the prehistoric trackway/ hollow-way network was probably infilled by this phase, evidence suggests that the routes themselves remained in use. For instance, a short 13m length of ditch (C738) was recorded following the north-western edge of trackway C1, recutting the hollow-way fill. Although the full extent of the ditch to the north-east is uncertain, to the south-west the ditch turned to the north-west through 90° adjacent to earlier post-hole group C333.

3.1.75 Whether this suggests continued occupation in that area is not certain, although Early to Middle Saxon pottery recovered from ditch C738, and the identification of four similarly dated pits (C285, C307, C570 and C568) situated within the area of the earlier post-holes, would suggest occupation somewhere in the immediate area. Furthermore, a contemporaneous large oval pit (C416) on the western limits of the site containing carbonised remains may have been used as a corn dryer or malting oven, although no structural evidence was recorded to support this interpretation.

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3.1.76 Other settlement evidence includes two sunken-featured buildings (sunken-featured building). One (C35) was located *c*. 120m to the east of ditch C738 in an area that with the exception of one small pit (C42) was otherwise devoid of Early Anglo-Saxon remains, and one undated but morphologically distinct example (W61) situated *c*. 30m to the east of EBA barrow W33 in the vicinity of the eastern cemetery (see below). As noted above, a third sunken-featured building was imprecisely recorded in the vicinity of the Stone Farm Bridleway bridge across the M20 during the motorway construction.

3.1.77 Building C35 was coincidentally (?) aligned with the adjacent Romano-British enclosure and was of standard rectangular plan with major post-holes in the middle of each side and smaller posts at the corners. This arrangement suggests a superstructure with a ridged roof along the long axis. Only two sherds of pottery were retrieved from layers within it, dating to the period *c*. AD 450 – 650.

3.1.78 The second undated building (W61) was identified as such on the grounds of form and size, although in this instance no end- or internal post-settings were present. Sunken-featured buildings without posts, although uncommon, are recognisable forms for such structures, although the absence of structural elements precludes a secure interpretation of the shape of the accompanying superstructure. Approximately 70-80m to the south-west of this building, a group of four deep, steep-sided pits (W74, W203, W204 and W205) produced an unusually well preserved assemblage of animal bone, as well as fragments of Rhenish (*Neidermendig*) lava quern.

Cemeteries: General

3.1.79 A total of 219 burials (including a horse burial and one cremation) are attributed to this phase. The burials are grouped into three distinct zones, focussed on the larger EBA barrows C3766, C1041 and W33, and will hereafter be referred to spatially as the western, central and eastern (respectively) cemeteries. None of the cemeteries appeared to have defining boundaries, although all have evidence for internal subdivisions with regard to burial practice and cemetery arrangement. It can be suggested that the focus of these cemeteries on earlier prehistoric barrows indicates that the latter were almost certainly still visible as extant earthworks by this period. Similarly, by inference the two smallest barrows (C4639 and W201) were presumably slighted, either through natural erosion or truncation, by this period.

3.1.80 Chronologically, although there is a degree of overlap between the cemeteries, dating evidence from the burials excavated indicates that the eastern cemetery (comprising 18 burials) is the earliest established, with material ranging from the late 5th to mid/ late 6th century recovered. The western cemetery (59 burials) follows on from the mid 6th to early/ mid 7th century, with the largest central cemetery (142 burials) probably in use throughout the 7th century.

3.1.81 Bone preservation was generally poor throughout all three Anglo-Saxon cemeteries, with the majority only producing teeth and/or scraps of surviving long bone. Occasionally bone preservation was good, possibly due in part to differing organic component in the grave fill (perhaps derived from decaying accompanying organic grave goods), allowing for slightly anaerobic conditions to prevail. There was a perception, particularly in the eastern and central cemeteries, that where bone preservation was better than expected, skull fragments appeared to dominate the human bone assemblages. No clear reason for this effect can be given at this stage.

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3.1.82 Investigation into the possibility that significantly differing pH levels were a contributing factor to bone survival, either at the macro-level between graves, or at the micro-level within individual graves, has failed to confirm the hypothesis. It should be noted that whilst bone preservation was similarly generally poor for the later prehistoric burials, the two Early Bronze Age inhumations were surprisingly well-preserved, as were animal remains attributed to the early medieval period. Whilst it is acknowledged that the medieval remains have had approximately 400 years less time to decompose than the Anglo-Saxon remains (yet still have been interred for at least 8 or 900 years), this argument clearly cannot apply to the Early Bronze Age remains. The mound sealing burial C4619 in barrow C3766 may have contributed to the survival of the skeleton, although again, this argument does not necessarily explain the similarly good preservation of the contemporaneous unenclosed inhumation C4507. In the latter instance the presence of numerous greensand blocks is suggested as a contributing factor towards better bone survival. It would seem, therefore, that bone preservation is affected by many factors, including depth of burial from ground surface, material (organic or otherwise) accompanying the burial, and composition of the grave fill (including material introduced into the soil profile through the dominant agricultural/domestic regime at the time).

Eastern Cemetery

3.1.83 Focussed on the south-west side of EBA barrow W33, a cluster of 16 graves and grave-like features (W38 – 43, W45, W60, W109, W111, W119 – W123 and W190) was identified (**Figure 8**). The burials were arranged in two irregular rows, the rows being approximately parallel to the north-west edge of trackway W34. The burials themselves were generally aligned west to east, although a significant proportion were rotated so as to be closer to perpendicular to the line of the adjacent trackway.

3.1.84 Three graves were particularly well furnished with grave goods present; graves W40 and W60 contained glass and amber beads, as well as brooches dating from the later 5th century AD; grave W41 contained a sword, shield and fittings, as well as other unidentified iron objects.

3.1.85 A further two burials (W57 and W104) were situated within the north-east sector of the EBA barrow W33, aligned parallel to the adjacent trackway, and both producing evidence for wooden coffins. Grave W57 contained a relatively well-preserved skeleton, with decayed amber beads recovered near the head, and the remains of a chatelaine set placed near the feet, suggesting this individual may have been female, though not confirmed through examination of the skeletal remains. Grave W104 included a shield boss, iron object (knife or spearhead?) and a fragmentary (but complete) 'Kempston' type green glass drinking vessel. The significance in these two relatively richly-furnished burials being set apart from the remainder of the small cemetery group on the far side of what was presumably an extant Bronze Age barrow mound cannot be determined with any certainty. It is common practice in Anglo-Saxon cemeteries for small groups of graves to be set apart from the remainder, often according to status, but also due to kin groups, different ethnic background etc.

Western Cemetery

3.1.86 This cemetery was focussed on EBA barrow C3766, and whilst its full extent may not have been uncovered within the CTRL construction limits, the majority of the burials were clustered on the south-east side of the barrow and on the north-east side of trackway C1 (**Figure 9**). A smaller number were situated on the south-west side

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of the trackway, and a few were cut into the trackway itself, suggesting that the trackway route beyond this point may have been closed. However, the majority of all burials in the western cemetery were aligned parallel to the trackway, with a closely-spaced coaligned group of graves forming a line perpendicular to the trackway, suggesting the route was still in existence. The distinctive closely-spaced group of burials in a line to the south-west of the trackway, comprising at least nine graves (graves C138, C156 etc.), is reminiscent of the Merovingian *Reihengräberfelder* (or *cimetières par rangées*) row-grave cemeteries common in northern Gaul.

3.1.87 The cemetery comprised 58 inhumations and a single cremation (C3705), the latter undated but cutting into the fill of an earlier grave (C118), indicating it is probably of Anglo-Saxon date. Cremation burial in Early Anglo-Saxon East Kent, although very rare, has been recorded at a few sites, such as Westbere. The presence of possibly cremated metalwork from the site could indicate the original presence of other cremations of Anglo-Saxon date, although these disturbed burials are more likely to have been made earlier.

3.1.88 Four burials (C143, C172, C173 and C174) within generally east-south-east facing penannular ditches, and the fragmentary remains of a fifth penannular ditch (without burial), were located towards the south-eastern recorded extent of the cemetery. As is the case with regard to the recorded extent of this cemetery, penannular burials are often located towards the periphery of cemeteries. Grave goods were evident in all four penannular burials, with grave C174 being the richest. It is of note that those diagnostic elements present indicate that these burials may be slightly later than the remainder of the cemetery, being of early to mid 7th century date.

3.1.89 As with the eastern cemetery, a relatively small proportion of the graves produced evidence for coffins (comprising C138, C156, C157 and C158), although another (C129) had a substantial stone lining of large, irregular greensand blocks. The latter was rich in grave goods indicative of both male and female gender, and it is possible that it was originally a double burial. Other graves had partial stone linings (C117, C124, C126 and C150) of which C126 was unaccompanied, although burnt organic material within its fill may indicate the original presence of an above-ground structure.

3.1.90 Many graves contained weapons; with six swords, eight spearheads, three shield-bosses and at least twenty knives recovered. Three glass beakers were also present in the assemblage (two from grave C151 and one from grave C118). Various items of jewellery were recovered, including a silver-mounted rock crystal sphere, various silver and copper alloy brooches set with garnets and a range of semi-precious stones (from graves C113, C117, C124 and C156). Grave C112 contained a gold strip forming a head-band, probably indicating the burial of a high status female.

Central Cemetery

3.1.91 The largest central cemetery was focussed on EBA barrow C1041, the burials predominantly located on the barrow itself, and extending to the south as far as the site limits to the west of Stone Farm Bridleway (**Figure 10**). On the opposite side of the bridleway the additional work to the south carried out under Fieldwork Event code ARC SFB01 failed to reveal any further burials, and it is therefore probable that the recorded southern extent of the central cemetery is close to its full extent. The recorded southern extent also marks a change in topography, with the ground surface dropping away to the south. The majority of the burials in this cemetery,

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although in general aligned west to east (head to the west where identifiable), are in essence aligned perpendicular to the line of Stone Farm Bridleway.

3.1.92 To the north burials continued to the site limit, any that may have been located significantly beyond this point to the north would have been removed during the construction of the M20 motorway. The fragmentary remains of enclosing penannular ditches predominate at the recorded northern extent, as with the western cemetery suggesting that these graves are close to the northern extent of the cemetery.

3.1.93 To the west, apart from a single partially exposed north to south aligned grave (C1072), there is a clear north/ south line beyond which there are no further graves. Apart from corresponding roughly with the western edge of EBA barrow C1041 (and coincidentally the western limit of stripping for excavation ARC SLT98C), it was not possible to identify a subsurface feature corresponding to this boundary. There is no recorded evidence for truncation affecting either the survival/ visibility of graves to the west of this line, or preservation of a defining boundary. The absence of truncation is in part confirmed by the survival of Bronze Age ditch C3948 as a ditch of relatively uniform dimensions across this area.

3.1.94 To the east the cemetery arrangement is less clear. Burials are recorded to the east of Stone Farm Bridleway, extending the burial area to a distance of at least 50-60m east to west. However, a clear gap is present between the burials to either side of Stone Farm Bridleway, measuring at least 18m, and closer to 35m between the main concentrations of burials to west and east. Furthermore, the character and layout of the burial groups to either side of Stone Farm Bridleway (as discussed below) exhibit a number of distinctive differences. The possibility therefore remains that the two groups within the central cemetery may actually represent distinct separate cemeteries, divided by hollow-way/ trackway W225 that originated by at least the Early Iron Age according to current dating evidence.

3.1.95 However, there are numerous examples of Anglo-Saxon cemeteries, in East Kent (i.e. Finglesham, Dover Buckland and Broadstairs) and elsewhere, that concentrate on Bronze Age barrows, and in almost all incidences the burials extend for some distance to the south and east of the barrow. Furthermore, sub-sets of graves within such cemeteries are a common feature, such as at Buckland, where Evison identified nine separate burial plots (and six phases of burial activity). As a result, on balance, although the eastern group may indicate a separate burial plot/ sub-set, it is considered unlikely at this stage to be a separate cemetery.

3.1.96 Three well-furnished graves (C200, C7 and C5), on an approximate south to north line, have been identified as 'founder' graves for this particular cemetery. Each included a 'Coptic' bowl, a full set of weapons (including an angon and at least two shields in each case) and elements of horse harness. Spatially, a fourth (less well-furnished) grave (C190) appears to form part of the group of founder graves, with C200, C190 and C7 spaced at regular *c.* 15m intervals, with C5 a further 19m to the north (approximately centrally located within what may have been the surviving barrow mound). These graves are of such high-status that they warrant specific comment.

3.1.97 The northernmost grave (grave C5) was a large (i.e. 3.35m long by 1.65m wide) west to east aligned rectangular feature, located slightly to the south of the barrow central point. Although no human bone survived, slight traces of soil lines to the

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south-east suggested that a coffin may have been present, although there was no obvious chamber despite the size of the grave. The lack of any other burials within a 4m radius of this grave may indicate that it was originally either covered by a mound or demarcated by some other means. Including the coptic bowl, weapons etc. the grave contained almost seventy separate objects. Probably associated with this grave, an unaccompanied horse burial (grave C27) was located 4.5m to the east.

3.1.98 To the south, grave C7 measured 3.8m long by 2.5m wide, and was enclosed in a large 2.5m wide north-facing penannular ditch measuring *c*. 18m in outer diameter, the entrance of which appeared to respect the outer edge of the barrow ditch, again suggesting that the prehistoric earthwork was still visible. The skeleton was reasonably well-preserved in a coffin which was situated in the northern part of the grave in a deeper chamber. Some of the grave goods lay in this chamber. Although this grave produced only nine separate items, each was of exceptional quality. The ditch surrounding this burial was eventually cut by penannular ditches surrounding two graves.

3.1.99 Graves C190 and C200 were characterised by lengths in excess of 3m and widths of over 1.90m. As with most of the other burials here, they were aligned slightly off the east-west axis to be perpendicular to the line of Stone Farm Bridleway. Coffin staining was evident in both graves, along with coffin furniture and grave C200 provided evidence for burial in a chamber. Female grave C190 contained some exceptionally rich jewellery. Evidence for human remains in this grave was limited to fragments of tooth enamel and a few foot bones.

3.1.100 Although enclosing ditches were not evident around C190 and C200, grave C190 may have been encircled by a series of undated post-holes (group C46). This group appears to have formed an irregular north-facing penannular arrangement, with an approximate diameter of 13m and respecting the outer edge of the ditch enclosing grave C7. Grave C190 also had a similar sized post-hole near its eastern end which may have represented a grave marker. Eight other graves (graves C185, C186, C188, C199, C191, C192, C193 and C196) that appear to respect the arc of these post-holes, may have been satellite burials around grave C190.

3.1.101 As with the western cemetery, for the burials to the west of Stone Farm Bridleway, graves enclosed by penannular (and annular) ditches appear to concentrate towards the periphery of the cemetery. In several cases these ditches are enclosing multiple burials, and were generally relatively shallow, measuring between 4 and 6m in diameter. Perhaps the most distinctive group of such burials comprised the fragmentary remains of two (or possibly three) lines extending south from the east edge of the barrow, apparently facing (and respecting) the line of Stone Farm Bridleway.

3.1.102 Where stratigraphic relationships were observed, the easternmost line (graves C59, C63, C175, C181, C195 and C204, plus one ring ditch with no surviving grave) closest to the bridleway were the earliest burials, followed by the westernmost line (graves C18, C39, C53, C54, C83, C176, C185, C193, C201, C202, C205 and C206). The presence of two further penannular ditches at the southern limit of excavation indicates the possible continuation of both lines to the south. One ditch segment towards the southern limit of excavation could imply the position of a third row of graves extending in this direction, or may simply have been an outlier to the main group of ditched burials.

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3.1.103 To the east of Stone Farm Bridleway the cemetery changes significantly in character. As with the west side of the bridleway, graves were aligned so as to be perpendicular to the line of the bridleway, and generally laid out to form one single dispersed line of at least 15 graves parallel to the trackway and covering a distance of at least 100m. The graves within this line comprise a mix of single (W29 and W12), paired (W83 and W84; W11 and W27; W125 and W126) and tripled (W92, W93 and W94; W231, W232 and W233) groups. At the northern end of this line a relatively haphazard cluster of six graves (W216 – W221 inc.) appear to focus around the eastern side of a possible ring-ditch (W214 and W215), the alignments of the graves almost becoming radial to the curve of the putative ring-ditch.

3.1.104 Co-aligned with, and located behind this line (i.e. to the east) is a closely grouped row of twelve graves (W13, W17 – W24, W78, W79 and W185) measuring *c*. 14m in length. Although similar in layout to the closely spaced row discovered in the western cemetery (see above), the group was distinctive by being flanked by a pair of ditches to east (W5 and W6) and west (W8 and W10). These flanking ditches were recut and extended, presumably as burials were added to the group. Stratigraphic relationships indicate that the extensions to the ditch moved from south to north. Although the purpose of the flanking ditches is unclear, they were relatively deep features and may therefore have provided excavated material with which to enclose this group under a single long mound, or barrow. A single unaccompanied grave enclosed within an east-facing penannular ditch measuring *c*. 7.4m in diameter was located to the south of the closely-spaced group identified, with a further unenclosed burial (W127) situated approximately 63m to the south of W7.

3.1.105 Other features within the central cemetery that may therefore be related to the funerary rite included four small post-holes (group C47) in an east to west aligned 6.2m long gentle arc, convex side facing north. Although a specific structural form cannot be identified, these were virtually the only features within this cemetery that produced Early Anglo-Saxon pottery, along with nearby graves C199 and C200. However, the juxtaposition of these features and the Late Bronze Age post-hole group C6351 (see above) is of note.

PHASE 8: EARLY MEDIEVAL (AD 1066 – 1300)

3.1.106 Early medieval activity at the site (**Figure 11**) comprised:

- *Two foci for settlement activity, including possible structural remains and storage/ refuse pits, and*
- *Enclosures and/or field systems.*

3.1.107 Settlement evidence appears to be focussed in two distinct zones at either end of site, at the west end in the area of the former Romano-British settlement, and at the east end immediately south of EBA barrow W33 and the eastern Anglo-Saxon cemetery. As with much of the archaeology at Saltwood Tunnel, these zones also correspond to areas accessed by the prehistoric trackway network.

3.1.108 To the west, adjacent to the junction of trackways C1 and C2, a series of ditches, pits and post-holes containing 11th and 12th century pottery enclosing an area of *c*. 33m by 22m appears to indicate the presence of an early medieval sub-rectangular settlement enclosure (group C48). The south-east and south-west sides are ditched, and whilst the north-west side is unclear, the north-east side is constructed from a

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series of five regularly spaced post-holes/ pits approximately 5-6m apart. Within the enclosed area, pits and post-holes suggest the presence of structures, although it was not possible to determine specific forms.

3.1.109 The probable settlement area C48 appears to be located within the north-east corner of a large enclosure (C634, C794 and C903) measuring at least 75m by 62m, within which some ditched internal divisions are evident. Several of the ditches are recut at least once, with lenses of stone rubble often recorded within ditch fills, possibly indicating that stone walls were formerly located alongside.

3.1.110 The south-east side of this larger enclosed area is formed from two co-aligned lengths of ditch that follow the south-east side of trackway C1. The north-east component (C903 – forming the south-east side of enclosure C48 – see above) cuts across the junction of trackway C2. This suggests that the latter may no longer be in use at this phase, although a *c*. 1.4m wide gap between the north-east terminal of this ditch and the trackway revetment wall constructed during the Romano-British period may indicate a narrow entrance allowing access to and from trackway C2.

3.1.111 The larger interval, measuring *c*. 3.5m wide, between the two ditches forming the south-east boundary may indicate the location of at least one entrance into the enclosure. The apparent spatial relationship between the south-west side of this entrance and an undated east to west aligned feature closer to trackway C2 may indicate an alternative access route to and from the trackway.

3.1.112 To the east, adjacent to the intersection of trackway W34 and EBA barrow W33, settlement evidence is far less tangible, although a considerable proportion of the early medieval remains in this area were probably obscured by the Victorian tunnel bund that was not removed until ARC SFB01. The evidence comprised a dispersed, but focussed cluster of pits and small ditches, some producing pottery of 11th-12th century date. Although neither function nor interpretation can yet be assigned with any reliability to these remains, they may represent boundary or enclosure ditches and refuse/midden deposits, potentially indicative of a settlement site.

3.1.113 Pits in this area (i.e. W47, W48, W53, W75, W154 and W156) are generally characterised as steep-sided deep features, often containing deposits of marine shell with occasional animal bone. Pit W47 for instance, contained both semi-articulated fish remains and an articulated dog skeleton. Ditches W44, W50, W150, W153, W155 and W202 have also been assigned to the early medieval phase, principally on grounds of artefact dating, presence of marine shell inclusions, or stratigraphic position.

3.1.114 Located between the two occupation zones were elements of a ditched field system (C2101, C2113, C2131, C2174 and C2182), apparently forming the south-east extent of one or more sub-rectangular enclosures broadly co-aligned with trackway C2. The field system extended to the north beyond site limits, whilst to the south both the south-west and south-east boundaries appeared to respect the line of the major east to west Late Bronze Age/ Early Iron Age ditch in this area. Whether this indicates the prehistoric feature was still an extant earthwork is unclear. Although the south-western boundary (C2101, C2113 and C2182) appeared to comprise a double-ditched feature, the presence of an apparent entrance through the outer ditch which is not mirrored by a similar feature through the inner ditch would suggest that the two ditches are not contemporaneous.

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Research Objective: The recent landscape (AD 1700 – 1945)

PHASE 9: POST-MEDIEVAL/ MODERN (AD 1800 ONWARDS)

3.1.115 Post-medieval/ modern activity at the site (**Figure 12**) predominantly comprises;

- *Post-18th century agricultural impact,*
- *The 19th century construction of Saltwood Tunnel, and*
- *20th century military activity.*

3.1.116 As noted above, intensification of agricultural exploitation in the area during the 19th and 20th centuries has resulted in some truncation of the upper levels of deeper features, and possibly the complete removal of shallower remains. This has also resulted in the formation of deep subsoil over much of the site.

3.1.117 The construction of Saltwood Tunnel was begun in 1843, by excavating regularly spaced shafts to the base level of the tunnel, at which point extending laterally to the east and west to form the tunnel itself. Although the shafts themselves either completely removed or severely truncated all archaeological remains in their immediate vicinity, the subsequent creation of a bund from the excavated tunnel spoil in effect protected the portion of site beneath the bund footprint from any further 19th and 20th century disturbance.

3.1.118 During the First World War, an army camp was established on the site, predominantly adjacent to the west side of Stone Farm Bridleway. The military activity, which continued into the Second World War took the form of:

- *Post-pads for wooden barrack blocks, which had a minimal archaeological impact,*
- *Trenches/ drain cuts that truncated a number of features, particularly within the central Anglo-Saxon cemetery, and*
- *A small number of features further to the west that may have been the remnants of air-raid shelters. These, however, were stratigraphically isolated, resulting in little archaeological impact.*

3.2 The Artefactual Record

Introduction

3.2.1 Artefactual material, in a range of material types, was recovered from Fieldwork Events at Saltwood Tunnel. The overall date range of the finds assemblage is early prehistoric to post-medieval, and the reworking of deposits by later activity has resulted in higher levels of residuality amongst the artefactual assemblage from certain areas of the site. This is particularly apparent adjacent to Stone Farm Bridleway and towards the western end of the site, where human activity over many different periods has focussed.

3.2.2 Finds were recovered from a range of context/feature types, including isolated early prehistoric pits, later prehistoric field system ditches, a small group of Early Iron

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Age inhumation burials, a Romano-British settlement and associated cremation cemetery, and the truncated remains of early medieval settlement.

3.2.3 The assemblage also includes an important group of material from several clusters of Early Saxon ($6^{th}/7^{th}$ century) inhumation burials. These burials, which form three distinct cemeteries, include several rich weapon burials of which one (grave C5), also containing an imported copper alloy bowl and a set of antler gaming pieces, standing out as the burial of an individual of considerable social standing. The imported bowl is one of three such recovered from the cemeteries; other imports include a rock crystal in a silver frame (grave C117) and an unparalleled set of harness (grave C121) comprising elements of a baldric, probably worn by the deceased. The weaponry also shows continental influences, although only a few of the shields and the angons (throwing spears) may be of direct Frankish provenance, other pieces representing Anglo-Saxon copies of continental artefacts.

3.2.4 The finds are briefly discussed below. Non-grave goods are considered first (but including the Anglo-Saxon pottery vessels from the cemeteries). The Anglo-Saxon grave goods are then grouped together, and follow an order of precedence which reflects standard functional groupings for such assemblages, rather than the recommended order, since some categories include items of more than one material type, and many are cross-related. The supporting data (and detailed specialist reports) are presented in **Appendices 7.1-7.50**.

Pottery

PREHISTORIC (**APPENDIX 7.1**)

3.2.5 The prehistoric pottery assemblage includes material of Early Neolithic (48 sherds), ?Middle Neolithic (4 sherds), ?Early/Middle Bronze Age (152 sherds + 1 complete vessel), and Late Bronze Age to Late Iron Age (3002 sherds). A total of 75 sherds remain undated. Overall condition is fair to poor, with many sherds small and moderately or heavily abraded, and several burnt; this is reflected in the relatively high number of undated sherds. There are, however, three virtually complete vessels.

3.2.6 The bulk of the assemblage derived from stratified feature fills, with small quantities from colluvial deposits, and unstratified or topsoil layers. The reworking of deposits by later activity has resulted in a relatively high level of residuality. Two groups, one including at least three partially reconstructable profiles, came from graves; and presumably represent deliberately placed grave goods.

LATE IRON AGE/ ROMANO-BRITISH (**APPENDIX 7.2**)

3.2.7 Late Iron Age pottery recovered from the settlement (C15) established at the west end of the site during this period amounts to 231 sherds, most of which comes from a single cremation vessel. A further incomplete cremation vessel came from a feature further to the east. Two Late Iron Age ceramic phases can be distinguished.

3.2.8 For the early Roman period, the pottery totals 900 sherds, predominantly derived from the occupation contexts in C27, C333 etc. There are also 23 cremation urns and ancillary vessels from cremation cemetery group C25, ranging in date from just after the Roman Conquest to the Antonine period. The small amounts of Samian ware and a lack of open forms in Upchurch grey fine ware fabric R16 hints at the low social status of the site, but there are significant numbers of sherds from flagons in a variety of Canterbury fabrics. Small numbers of Cologne rough-cast beakers

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and BB2 (Black Burnished) dishes and bowls arrived on site during the late 2nd and early 3rd centuries.

3.2.9 The late Roman period saw radical changes in pottery supply. Native Coarse Ware was replaced by low-temperature fired Late Kent Grog-Tempered cooking-pots and other forms from a source thought to be near Lympne, and supply of Canterbury vessels ceased. Small quantities of late Thameside grey wares continue to be supplied and the few finewares that there were came from the Oxfordshire kilns. Most of the 379 sherds of pottery attributable to this phase could well belong to the period before AD 300 and the impression is given of a decline in activity during the early 4th century.

3.2.10 There is very little pottery (18 sherds) attributable to the late 4th century. Pottery supply changed again after *c*. AD 370, as evidenced by jars in Alice Holt/Farnham grey ware, a flagon in Much Hadham oxidised fabric and an imported Argonne Samian rouletted bowl.

ANGLO-SAXON (**APPENDIX 7.3**)

3.2.11 This assemblage includes both sherds recovered from settlement contexts, principally within the western part of the site, and complete vessels from a number of graves within both the western and central cemeteries. No Saxon pottery was recovered from graves or other features to the east of Stone Farm Bridleway. The early Anglo-Saxon sherds occur in 14 separate fabrics but most of these can be described as sandy (both coarse and fine), grog-tempered or chalk-filled sandy wares. The sherds have few diagnostic decorative attributes and most can only be placed within a broad dating band of *c*. AD 450-650.

3.2.12 The complete vessels from the cemeteries are rather different. All but one of them are locally-made, generally in sandy fabrics, although three vessels (from graves C22, C38 and C133) are organic-tempered. Only a single vessel had been placed in each grave. They were found both within the western cemetery (graves C117, C126, C129, C133 and C169) and the central cemetery (graves C22, C29, C32, C34, C37, C38, C39, C81 and C184). They include both cooking pots and small accessory vessels, one of which (from grave C32) is a small pot with exterior lugs, comparable with an example from Northfleet. There is one imported vessel - a Frankish grey sandy ware bottle of Evison type 1 (1979), which came from grave C169. Provisional phasing suggests that most of these vessels are of 7th century date, some of them (from graves C34, C37 and C39) probably belonging to the second half of that century.

3.2.13 Twenty sherds can be placed in the Middle Saxon period, with the likelihood that they are of 7th or early 8th century date. A few sherds were stray finds in the area of the western cemetery (and may have come from graves) and the remainder came from a few contexts in the central cemetery. They do not necessarily imply occupation beyond the dating of the last graves of the cemeteries (in the early 8th century) and they are more likely to be contemporary with the cemetery landscape. Thereafter there are no sherds before the late Saxon period, with ten sherds of Canterbury-type sandy ware (*c*. AD 850-1066) and three of an unfamiliar fabric, probably a local variant of a similar date. These sherds were once again dispersed thinly across a few contexts within the western part of the landscape.

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MEDIEVAL AND POST-MEDIEVAL (**APPENDIX 7.4**)

3.2.14 This assemblage covers the period *c*. AD 1066 – 1900. A total of 409 post-Saxon sherds (weighing 4.269 kg) was recovered to the west, and 41 sherds (0.412 kg) recovered to the east of of Stone Farm Bridleway. These totals may alter slightly during the analysis stage as problem pieces (e.g. ambiguous Saxon/ early medieval sherds) are re-identified and re-allocated to different period groups.

3.2.15 The bulk of the pottery dates to the early medieval period and more specifically to *c.*1066 – 1125, with much smaller quantities of pottery dating as late as the 19th or early 20th century. The pottery has been identified by fabric and consists largely of sandy wares from the Canterbury area together with more local shelly wares and flint and shell-tempered wares.

*Ceramic Building Material (**Appendix 7.5**)*

3.2.16 The majority of the ceramic building material (88 framents) was recovered to the west of Stone Farm Bridleway. A number of these fragments are identifiable as Romano-British, and include *tegula* and *imbrex* roof tiles, and two tesserae; the remainder comprise medieval roof tile and post-medieval brick fragments. A further 23 fragments were recovered to the east of Stone Farm Bridleway, consisting entirely of roof tile of medieval or early post-medieval date.

*Ceramic Loomweights (**Appendix 7.6**)*

3.2.17 Three fragments of ceramic loomweights came from settlement contexts in the western part of the excavation area. A fourth fragment was retrieved from the fill of grave C14 (central cemetery). Two of the fragments come from annular loomweights of Early Anglo-Saxon date, a third comes from an intermediate or bun-shaped loomweight which should be of Middle to Late Saxon date; the fourth piece is indeterminate.

*Fired Clay (**Appendix 7.7**)*

3.2.18 The majority of the fired clay recovered was derived to the west of Stone Farm Bridleway (14.896 kg). Most of this comprises small, featureless and undiagnostic fragments, probably of structural origin, an interpretation strengthened by the presence of some fragments with surfaces and/or wattle impressions. The fired clay occurred generally as a low level scatter, but small concentrations (i.e. greater than 1 kg) were noted in three features.

3.2.19 A much smaller quantity (0.302 kg) was recovered to the east of the bridleway, again comprising small, undiagnostic and undatable fragments. The material was generally in poor condition and only a small proportion could be linked to well-stratified contexts.

*Prehistoric Worked Bone (**Appendix 7.8**)*

3.2.20 A fragment of a red deer antler, comprising tine and part of the beam, was recovered from the fill of Early Bronze Age ring ditch C1041. It survives in poor condition, but presumably represents casual discard of a digging implement, possibly used to excavate the ring-ditch itself.

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*Worked and Burnt Flint (**Appendix 7.9**)*

3.2.21 Although the majority of the worked flint was recovered as redeposited material, the assemblage provides evidence of human activity in the area, albeit perhaps intermittent, since the last glaciation. Diagnostic material indicative of early transient hunting-gatherer groups includes a Late Glacial burin made on a truncated blade and two Mesolithic microliths.

3.2.22 A small number of stratified flints were found in two Early Neolithic pits including a relatively high proportion of scrapers and microdenticulates. In association with the pottery and environmental data also recovered, the pit contents provide extremely rare *in situ* evidence of short-term domestic or ritual activity in the area by the first farming communities. Other probable Early Neolithic artefacts, including a leaf arrowhead, scrapers and fabricators, were found as redeposited finds in later contexts.

3.2.23 Very little worked flint was associated with the construction of the probable Early Bronze Age ring ditches, although two redeposited barbed and tanged arrowheads were found in late prehistoric (Iron Age) hollow-ways. A small group of stratified core preparation waste from the upper silts of ring ditch W33 may relate to Late Bronze Age occupation of the site. Concentrations of redeposited flint in Anglo-Saxon graves throughout the site is also likely to be associated with Bronze Age features in the general area.

3.2.24 Burnt, unworked flint was recovered in small quantities from several contexts across the site. This material type is intrinsically undatable, but is often taken as an indicator of prehistoric activity, which is possible here given the low level background scatter of worked flint. This material category has not been assessed by a specialist.

*Romano-British Coinage (**Appendix 7.10**)*

3.2.25 Twelve coins were recovered, of which all but one are of late Roman date, spanning a fifty year period from late Constantinian issues onwards (*c*. AD 330-380). They may have been in circulation up to and around AD 400, and indicate activity around the trackway network and accompanying features at the western end of site during the middle and later part of the 4th century. One coin from an Anglo-Saxon grave in the central cemetery represents a late 2nd century issue which may originally have been placed within or near the mouth of the deceased.

*Romano-British Brooches (**Appendix 7.11**)*

3.2.26 Nine Roman brooches were recovered, eight from the settlement area to the west (six from four cremation burials in group C25) and one from a penannular ditch surrounding an Anglo-Saxon grave in the central cemetery. Six of the brooches can be identified to type and two others can be placed with the same broad chronological framework, even though they cannot be assigned to a specific type.

3.2.27 All of the identifiable brooches are relatively early (Late Iron Age to Early Roman) types, including Harlow, Langton Down and Colchester forms. They span a narrow time band of manufacture between *c*. AD 35–75 and represent a typical Kentish group for this period. They can be compared with similar groups from settlement

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contexts further to the east at Dollands Moor and at Canterbury, as well as with cremation groups nearby at Church Hougham.

*Romano-British Copper Alloy and Silver Objects (**Appendix 7.12**)*

3.2.28 Thirty-three copper alloy and silver objects of Roman date were recovered. Most of the objects consist of small, indeterminate fragments which had been burnt in the cremation process, or represent waste from non-ferrous metalworking carried out near to one of the trackways, probably in the Late Roman period.

3.2.29 The identifiable items include at least one mirror, which is elaborately decorated on its reverse and is likely to be of Early Roman date. In contrast, two bracelets are common Late Roman strip forms, and a fragmentary silver pin is also likely to be of this date. An amphora-shaped strap-end represents the only object to have any official or military connotations.

3.2.30 Dress accessories and toilet items dominate the assemblage, emphasising the domestic character also demonstrated by the brooches and other objects of Roman date.

*Romano-British Iron Objects (**Appendix 7.13**)*

3.2.31 A total of 219 objects of iron was recovered to the west of Stone Farm Bridleway; the few recovered to the east of the bridleway are all of post-medieval date and are not discussed here. Most of the objects are either nails or are indistinct, small fragments of objects that have not at this stage been identified. Objects other than nails comprise two fragments of bars, five strap fittings, an implement, a knife and a possible pin. The knife and the pin are of intrinsic interest but the object series cannot be dated, other than in broad terms, and it is of little significance in terms of the Fieldwork Event Aims for the project.

*Romano-Britsh, medieval and post-medieval lead alloy objects (**Appendix 7.14**)*

3.2.32 A small assemblage of lead alloy objects came from settlement C27, C333 etc. to the west. Four items are of Roman date and include a plumb-bob, a vessel repair, a folded sheet and a line spacer, used either with a fishing net or a line. Other objects include a small part of a medieval plumb-bob and a post-medieval cloth seal.

3.2.33 The character of the Roman group largely reflects that observed in other material categories. The vessel repair was probably used on a ceramic pot, from which it is now dissociated. The plumb-bob resembles modern examples in its shape, although it is made of lead alloy, with an iron suspension ring. The lead sheet is probably blank although it is possible that the folded section includes a curse. The line spacer points to the availability of marine and riverine resources in the vicinity of the site.

*Romano-British metalworking waste (**Appendix 7.15**)*

3.2.34 A small amount of smithing slag was recovered from the backfill of a Roman grave and in what may be remnants of road metalling (trackway C1); fragments of crucible were also found.

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*Romano-British Worked Stone (**Appendix 7.16**)*

3.2.35 Four Roman stone objects were recovered, consisting of two incomplete shale bracelets and fragments of a hone and a quern. The raw material for the shale bracelets probably came from Dorset. These examples are comparable to others found in Roman contexts in East Kent. The hone has been made from a micaceous Kentish ragstone and is of a familiar, if slightly unusual Roman type. The quern fragment had probably been discarded after it had fractured. It is made from basalt lava, probably of Rhenish origin.

3.2.36 All four objects are reasonably common in Roman contexts, although lava querns are also a reasonably common Anglo-Saxon find. The bracelets further emphasise the quantity of dress accessories present within the Roman finds assemblage.

Anglo-Saxon Grave Goods

INTRODUCTION

3.2.37 Many of the artefact groups discussed below have been categorised into chronological groups, set out in detail by Brugmann (Parfitt and Brugmann, 1997, 94-109 and Table 11; Brugmann 1999). From this work six phases (labelled Phases I-VI) have been established and correlated with Continental practice. The juxtaposition of relative and absolute dating systems both elsewhere in England and abroad has however, led to a confusing over-complexity (Parfitt and Brugmann 1997, 94). The initial Kentish phase (Phase I) relates to the invasion period during the 5th century for which, as yet, there are no known burials in Kent. The other phases can be summarised as follows;

- *Phase II: c. AD 500 – 530/40,*
- *Phase III: c. AD 530/40 – 560/70,*
- *Phase IV: c. AD 560/70 – 580/90,*
- *Phase V relates to the 7th century, and*
- *Phase VI (which is not as yet well-defined) to the second half of the 7th century and the first few decades of the 8th century.*

3.2.38 For clarification, spatial references to grave goods and other items and/or objects within graves are generally made as if the observer was standing at the foot of the grave. In the majority of cases, this will therefore be the westernmost end of each grave.

SWORDS (**APPENDIX 7.17**)

3.2.39 Ten swords dating from the 6th to early 7th centuries AD were recovered from the Anglo-Saxon cemeteries at Saltwood. At least one of the swords has hilt-fittings of Continental origin, although the questions of importation or possible origins of the owner must be considered in conjunction with the technological study of the blades.

3.2.40 Both the elaborate nature of the hilt-fittings and quality of the blades seem likely to reflect the rank and status of the sword-bearers and the total assemblages from graves C5, C7, C127 and C200 appear to be of particular value in this respect. The

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main comparisons will be with swords from the Anglo-Saxon cemeteries of East Kent, such as Buckland (Dover), Mill Hill and Faversham.

SPEARS (**APPENDIX 7.18**)

3.2.41 In total, a relatively large assemblage of 31 spearheads has been recovered from individual graves; they are the commonest weapons to occur in graves at Saltwood. They have been identified to type and most of the forms present are those common in East Kent during the 6th and 7th centuries, although there are several examples that are rare in Kent and more common further to the west and north. One example has a rare inlaid pattern on the blade seen only on a few other spearheads of Kentish provenance. Almost all of the spearheads are complete or nearly complete, allowing them to be assigned to type and examined for the technology of their manufacture.

3.2.42 The spearheads can be compared with those from related cemeteries in East Kent, and assist in determining changes in weapon burials in East Kent throughout the 6th and 7th centuries. Several burials include spearheads that are pointing to the foot of the grave, rather than the head; these may be the graves of Franks, or of Anglo-Saxons buried in a Frankish fashion, and may therefore assist in establishing the nature of relationships with the continent at the time.

ANGONS (**APPENDIX 7.19**)

3.2.43 Three angons were recovered from graves in the central cemetery at Saltwood. Each came from a large and conspicuously wealthy grave of the early 7th century (graves C5, C7 and C200). The angons are very similar in form, with narrow, forked barbs. They represent a Frankish weapon type which is found in Kent during the later 6th and early 7th century, generally in wealthy weapon graves. A few examples have been found from graves outside of Kent. Although possibly Frankish, the Saltwood Tunnel examples may be Anglo-Saxon copies or variants. They almost double the number known from Kent and therefore provide useful corroboratory evidence for the date and distribution of such a weapon type, and its occurrence in Anglo-Saxon contexts.

ARROWHEADS (**APPENDIX 7.20**)

3.2.44 A set of approximately twelve iron arrowheads was found in grave C5 (central cemetery). They lay on the left side of the grave, close to a shield boss, spear and angon. They were found in a group, with their blades pointing towards the head of the grave. They remain accreted together as a single group of objects. The space in the grave immediately to the east would have been sufficient to accommodate wooden shafts for each of the arrowheads.

3.2.45 The set of arrowheads can be compared with auspicious male graves at Chessell Down on the Isle of Wight and Buttsole in East Kent. The placing of groups of arrowheads in burials is noticeably rare in England, but more common on the Continent; some form of continental influence is therefore probable.

SHIELDS (**APPENDIX 7.21**)

3.2.46 Shield fittings comprising bosses, grips and board studs were recovered during the excavation of the Anglo-Saxon cemeteries at Saltwood. All the fittings are iron, although some rivets and board studs are plated with copper alloy or silver, and they range in date from *c*. AD 550 to 700. Shield bosses of Dickinson's group 3/6, 6 and 7 and grips of Härke's type I are believed to have been locally produced. Bosses of the recently-identified sub-type 3bii, associated with long grips of Härke's type III

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and domed, plated rivets, are almost certainly Frankish in provenance, recovered from richly-furnished multiple-shield burials dating to *c*. AD 600.

HORSE HARNESS (**APPENDIX 7.22**)

3.2.47 Elements of horse harness were retrieved from graves C5 and C7 in the central cemetery. The assemblage from grave C5, located to the left of the skeleton, included several cleats and strap distributors, and may be associated with an adjacent horse burial (grave C27). A larger and more complete assemblage, including a bridle bit, was recovered from grave C7; some of the iron components appearing to be decorated with silver inlay. In addition, an unusual harness arrangement from grave C121 in the western cemetery lay underneath the ring sword in that grave. It comprised elements of a baldric, and was probably worn by the deceased.

3.2.48 Horse harness occurs in a relatively small number of graves of the early Anglo-Saxon period, extending from the middle of the 6th century onwards. The Saltwood Tunnel assemblages cannot be closely dated but they are comparable with Sutton Hoo grave 17 and other large, conspicuous graves of the first part of the 7th century. They reflect the value of the horse at this time and its association with male burials of high status.

JEWELLERY (**APPENDIX 7.23**)

3.2.49 At least 20 graves from Saltwood Tunnel contain items of dress-jewellery (brooches, metal fittings from necklaces, pins, bracelets and finger-rings). As a percentage of the overall combined cemetery populations, this quantity is relatively low, reflecting a pattern developing into the 7th century, when burial of women with conspicuous dress accoutrements was becoming less common.

3.2.50 The jewellery assemblages are characteristic of burial fashions in Kent during the 6th and 7th century. Diagnostic elements have contributed to the suggestion that the cemeteries were at least established in the order eastern, western and finally central. The jewellery items are, however, too few and restricted in content to provide a viable base for seriation.

BEADS (**APPENDIX 7.24**)

3.2.51 A large number of beads (813) were recovered from 32 Anglo-Saxon grave contexts in all cemeteries, with a small quantity (21) from other contexts on site. The assemblage includes beads of glass, amber, amethyst, rock crystal, bone and copper alloy. It is probable that many represent at least non-local items, and possibly continental imports – in particular the amber, amethyst and rock crystal examples.

GOLD STRIP (**APPENDIX 7.25**)

3.2.52 Lengths of gold strip were recovered from grave C112 (western cemetery), possibly from a head-band. This is the only gold thread/strip to be recovered from any of the Saltwood Tunnel Early Anglo-Saxon cemeteries. The presence of gold of any sort is a symbol of wealth/status.

WORKED STONE (**APPENDIX 7.26**)

3.2.53 A single example of a spherical rock crystal with a silver frame came from a grave in the western cemetery. It probably lay between the legs of the deceased and it may have been placed in a leather container. Most of the examples of rock crystals have come from rich female graves which, in Kent, belong essentially to Kentish Phase

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III. The Saltwood Tunnel example can be compared with recent discoveries from Mill Hill Deal and Dover Buckland, as well as older discoveries and contemporary Continental graves.

BUCKLES AND BELT FITTINGS (**APPENDIX 7.27**)

3.2.54 A total of 48 buckles and six belt fittings was recovered from the three cemeteries, generally spanning a date range from the 6th to 7th centuries AD, although examples possibly extending back to the late 5th century. The buckles were made from both copper alloy and iron, with two instances of gilding, at least two cases of wire-inlay (potentially silver wire) and one case of garnets set on gold foil.

3.2.55 The range of buckles encompasses types that are known from other Kentish cemeteries, as well as some extremely rare finds for Anglo-Saxon England and one piece that is so far unparalleled. Culturally, Anglo-Saxon buckles predominate, but there are also a significant number of Frankish-style pieces. In one instance, it is even possible that the buckle demonstrates an Italo-Byzantine influence.

GLASS VESSELS (**APPENDIX 7.28**)

3.2.56 Four glass vessels and one fragment of glass were recovered from graves within the Saltwood Tunnel Anglo-Saxon cemeteries. A 'Kempston' type cone beaker was recovered from grave W104 (eastern cemetery). The remainder were from graves in the western cemetery, comprising a bell beaker from grave C118, as well as an unusual combination of palm cup and another bell beaker from grave C151. In addition, a sherd of Roman vessel glass was recovered from grave C53 in the central cemetery.

3.2.57 All of the glass vessels are broadly contemporaneous early/ middle 6th century date. The bell beaker from grave C118 belongs to Harden's Group Vaii, the example from grave C151 belongs to Group Vb of the same date, and the palm cup appears to have been produced in a white, cloudy glass. Although provenance cannot be determined at this stage, it is considered likely that the vessels all represent imported items.

KNIVES (**APPENDIX 7.29**)

3.2.58 Eighty-four complete or nearly complete knives were recovered from both male and female graves of early Anglo-Saxon (6th/ 7th century) date, distributed throughout each of the cemeteries at Saltwood. This is one of the largest collections from East Kent Anglo-Saxon cemeteries, with the notable exceptions of Finglesham and Dover Buckland.

3.2.59 Although the original provenance of the knives cannot be positively ascertained, it is likely that the majority of the knives were made locally, perhaps with the exception of a small number of short seaxes.

KEYS AND GIRDLEHANGERS (**APPENDIX 7.30**)

3.2.60 Iron keys were found in several graves at Saltwood. Almost all of the keys are larger forms, with the T- or L-shaped wards characteristic of the early Anglo-Saxon period, or simple latchlifter devices. There is one example of a small padlock key. With one exception, graves with keys do not include any jewellery, although they are frequently associated with beads.

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3.2.61 Most of the sets of keys and girdle-hangers from Saltwood Tunnel probably derive from graves of the 7th century, although the keys themselves cannot be closely dated. They are functional objects but they also have a symbolic value in delineating the 'keeper of the keys' within a household or kin group.

MINERALISED LEATHER (**APPENDIX 7.31**)

3.2.62 The mineralised remains of scabbards and sheaths are preserved on a number of swords and knives from the Saltwood Tunnel cemeteries. In addition, a fragment of skin or leather was found within a copper alloy Byzantine bowl also containing a set of antler gaming counters. Evidence for the use of leather in Britain in the early Anglo-Saxon period is extremely scarce until the late 6th/early 7th century, when 'Rhenish-type' leather sheaths were introduced, and leather was used frequently in artefact production.

TEXTILE REMAINS (**APPENDIX 7.32**)

3.2.63 A number of objects, mostly of iron, from the Saltwood Tunnel cemeteries have been identified as having mineralised textile on or near them. These textiles relate mainly to the clothing of the interred individuals; the fabric-types identified so far fall within the expected range for an Anglo-Saxon cemetery, although there are some unusual items.

TEXTILE IMPLEMENTS (**APPENDIX 7.33**)

3.2.64 A fragment of a bone or antler double-pointed pinbeater was recovered from the fill of an early medieval post-hole, and is almost certainly of Early or Middle Saxon date. Double-pointed pinbeaters are relatively common implements from England and the Continent, although perhaps underrepresented in Kent. Several examples have been found on other sites along the line of the high-speed rail link, as at Mersham, for example.

3.2.65 A complete iron weaving batten was recovered from Grave C117 in the western cemetery. It lay to the left of the deceased, close to a mass of glass and amber beads. It is not clear at this stage whether it is pattern-welded, and if it has been cut down from a sword. Equally, it may be an imported item. Around twenty examples are known from Early Anglo-Saxon England, the majority of which have come from East Kent graves. They span the period *c*. AD 550 – 625; the Saltwood Tunnel example may be one of the earliest of the series, although the dating of battens needs to be critically examined. Weaving battens are associated with rich female burials, as is the case here. Conservation work continues on the weaving batten and this should determine whether it has been pattern-welded, as well as revealing the nature of the handle, which could have been made from bone, ivory or wood. The knop at the opposite end is also enigmatic, and may also have been covered by an organic material.

BYZANTINE ('COPTIC') BOWLS (**APPENDIX 7.34**)

3.2.66 Three cast bronze 'Coptic' bowls were found in separate graves in the central cemetery. As with most of the Byzantine bronze bowls in Kent and Suffolk, the bowls are of similar type with openwork pedestal feet and drop handles of semi-circular or rectangular form. They were found in the large and conspicuous male graves within the cemetery that may be founder graves (graves C5, C7 and C200). Each one came from a different location in the grave. The bowl from grave C5 contained 45 gaming pieces and fragments of leather. There were no surviving contents in the other bowls.

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3.2.67 The bowls provide important evidence for trading contacts during the early Anglo-Saxon period. Although their origins are not known, they may have been made in Italy, Egypt or Syria, they were produced in the later 6th century, and presumably at Saltwood Tunnel deposited in graves shortly afterwards. Elsewhere in Kent and Suffolk they have predominantly been recovered in rich graves, apparently forming a component of burial ritual during the later 6th and early 7th centuries.

IRON-BOUND CONTAINERS (**APPENDIX 7.35**)

3.2.68 Iron bindings from three wooden buckets were associated with three of the four richest burials in the central cemetery, all dating from *c*. AD 575 – 625. In addition, the iron handle (but no bindings) from another bucket was recovered from a fourth grave in the same cemetery. In all four instances the bucket had been placed in the corner of the grave, outside the coffin.

3.2.69 Iron-bound containers are quite rare, in comparison with those bound by copper alloy. They are not found in England before the mid 6th century, and it is difficult to establish their precise significance in early Anglo-Saxon graves. The Saltwood Tunnel buckets can be compared with others from wealthy graves of the early Anglo-Saxon period, including Sutton Hoo and Swallowcliffe Down. Although single examples found elsewhere in Kent have been associated with female burials, in general buckets are associated with male burials.

GAMING PIECES (**APPENDIX 7.37**)

3.2.70 Forty-five antler gaming pieces, some decorated on their plano-convex surfaces, were discovered within and below the Byzantine bowl in grave C5. Although a few were excavated by hand, the majority were removed as a soil block and excavated in the City of Lincoln laboratories. The gaming pieces had originally been placed in a leather container within the bowl, and included two sizes of counter. They are similar to assemblages recovered from male graves in East Kent and further afield, and probably date to the first half of the 7th century.

3.2.71 The gaming pieces form an important assemblage for early medieval board games studies. They are one of only a handful of assemblages to have come from early Anglo-Saxon inhumation burials, and are one of the few groups to have been recovered under modern, controlled conditions, in a well-stratified deposit.

STRUCTURAL IRONWORK (**APPENDIX 7.38**)

3.2.72 A small range of structural items (nails, cleats and staples) provides evidence for coffins and other wooden grave furniture in up to 17 graves within the three cemeteries.

3.2.73 Structural ironwork is not common within early Anglo-Saxon cemeteries in Kent. Structural fittings, of whatever type, tend to be centred on 7th century graves, although they are found in burials from the middle of the 6th century onwards. At Saltwood Tunnel there is clear variation over time, with different structural elements occurring within the different cemeteries during the later 6th and 7th centuries.

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3.3 The Environmental Record

Introduction

3.3.1 A full sampling programme was conducted during excavation for the retrieval of charcoal and charred plant remains to provide information and interpretation of the economic and palaeo-environmental aspects of the site. The information presented below aids in determining the preservation, character, rarity and significance of the palaeo-environmental data and provides the basis for constructing a targeted and justified analysis programme to help understand and interpret the excavated remains.

3.3.2 A selection of 109 bulk samples (representing *c*. 55% of the total bulk samples obtained) was processed, including a representative sample of most features and phases. The samples were processed from a range of Neolithic, Early Bronze Age, Late Bronze Age/Early Iron Age, Early Iron Age, Romano-British, Early to Mid Saxon, medieval and undated features for the recovery and assessment of charred plant remains and charcoal. Standard processing methods were used. A number of samples (*c*. 45%) remain unprocessed at this stage. In addition, a further 128 specific samples taken for consideration for soil chemistry (phosphate, organic content, magnetic susceptibility etc), as well as four monoliths and/or kubiena tins to assist in the consideration of pollen analysis and soil micromorphology.

*Plant Remains (**Appendix 7.42**)*

3.3.3 The processed samples produced flots of varying quantities (average flot size for a 10 litre sample is 60 millilitres), with between 1 – 70% rooty material and from low to high numbers of uncharred weed seeds. Higher quantities of either may be indicative of stratigraphic movement.

3.3.4 The Neolithic samples contained charred grain fragments in seven samples, and in high numbers in one of them; and charred weed seeds, including hazelnut fragments in all samples, with large amounts in seven. A few charred chaff fragments were recorded in the sample from pit 175. Burnt bone fragments were recorded in five of the flots. The Early Bronze Age samples from the ring ditch W33 produced no recorded charred remains.

3.3.5 The Late Bronze Age/ Early Iron Age samples produced charred grain fragments in 11 samples (with high numbers in five of them), and charred chaff fragments in four of the samples (large amounts in two cases). Charred weed seeds, including hazelnut fragments, were observed in 13 of the samples, of which one produced large quantities. The three samples from Pit W207 contained exceptional quantities of charred pea/bean fragments with a few pea/bean fragments present in another sample. Burnt bone fragments were present in six of the flots, bone fragments in a single flot and small mammal bones in one flot. Molluscs were observed in a single flot.

3.3.6 The Early Iron Age samples contained charred grain fragments in small quantities in four samples, a few charred chaff fragments in a single sample and low numbers of charred weed seeds in two samples. Bone fragments were present in two samples and molluscs in a single sample.

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3.3.7 The Late Iron Age/Early Romano-British samples produced charred grain fragments in three samples, one of which produced a large amount, a small quantity of charred chaff fragments in a single sample and low numbers of charred weed seeds in five samples. Burnt bone fragments were observed in four samples. The 'sub'-Roman samples contained varying quantities of charred grain fragments and low levels of charred weed seeds, including hazelnut fragments. A few charred chaff fragments were retrieved from one sample.

3.3.8 The Saxon samples produced charred grain fragments in 29 samples, in large quantities in eight of them and low levels of charred chaff fragments in five of the samples. Small amounts of charred weed seeds including hazelnut fragments, were observed in 25 samples. A few charred pea/bean fragments were recorded in a single sample. Bone fragments were present in four flots and molluscs in four samples.

3.3.9 The Saxon/ medieval sample contained a moderate amount of charred grain fragments and a few charred pea/bean fragments. The medieval samples all produced high numbers of charred grain and small quantities of charred weed seeds and charred chaff fragments.

3.3.10 The undated samples contained charred grain fragments in twenty samples, in very high numbers in a single sample, low levels of charred chaff fragments in four of them, and small quantities of charred weed seeds, including hazelnut fragments in 22 samples. Pea/bean fragments were observed in two samples, one containing large amounts. Burnt bone fragments were present in seven flots and molluscs in two flots.

3.3.11 Charcoal fragments of greater than 5.6 mm were recovered from 73 of the samples. Eight of the Neolithic samples, nine of the Late Bronze Age/Early Iron Age samples, one of the Late Iron Age/ Early Romano-British, one of the Saxon samples and six of the undated samples contained large quantities of charcoal. The identifiable charcoal fragments were mainly large wood fragments.

*Pollen analysis (**Appendix 7.43**)*

3.3.12 Several monoliths were taken of undisturbed soil sequences that would facilitate both more detailed pedological description, but also sub-sampling for pollen. None of the sampled contexts provide long sequences for which a wider landscape picture would be gained. Those from individual pits are unlikely to greatly increase our interpretation of activity and function over and above the charred remains (c.f. Dimbleby 1985; Scaife pers. comm.). Only those contexts for which soil micromorphology (see below) is considered viable are worth pursuing for pollen.

3.3.13 Thus the assessment to date is largely assessment of context value, rather than pollen preservation. Comments concerning suitable samples to consider for pollen in conjunction with soil micromorphology are given below.

*Soil Micromorphology (**Appendix 7.45**)*

3.3.14 A suite of both monoliths and smaller kubiena samples suitable for soil miromorphology were taken. These small, stratified undisturbed samples have the potential to provide information about the wider landscape (e.g. buried soils etc.), and specifically of activities on site (i.e. sunken-featured building floor surfaces).

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They may also provide information of activity associated with funerary practices (e.g. turves in graves and old land surfaces beneath barrows etc.). Analysis can provide detailed information about specific features, pits and activities on the site scale, and about activities associated with the wider land-use and landscape.

*Soil Chemistry (**Appendix 7.46**)*

3.3.15 Small samples for pH and soil phosphate analysis were routinely taken by WA from inhumation burials, comprising one control sample from the upper grave fill, and a further three from the (presumed) head, torso and feet area of the basal fill. This generated approximately 130 samples. The purpose was to test the hypothesis that differing soil chemistry conditions existed in micro-zones within grave fills, allowing differing preservation of body parts both within individual graves, and between graves. Three measurements of each were made and the average was recorded. Soil pH was tested on a random subset of six samples representing four features (**Table 4**):

Table 4: Soil pH results

Sample	Phase	Feature	Context	PH
52	EIA/MIA	Grave W64	1306	6.3
182	Saxon	Grave W109	1845	6.4
214	Saxon	Grave W127	3087	6.4
215	Saxon	Grave W127	3087	6.3
216	Saxon	Grave W127	3087	6.4
33	Saxon	Grave W27	1322	6.5

3.3.16 Soil pH was sub-alkali and typical of the natural brown earth soils of the area. No significant variation was seen either between graves or within individual graves. The potential for further work therefore seems negligible, although further analysis may identify values sufficiently beyond the norm to warrant comment.

3.3.17 No phosphate analysis was undertaken. Rapid assessment of phosphate (available phosphate) would include that derived from the manuring regime. While total phosphate might indicate increased levels at both occupation and burial areas, the analytical potential is low (Canti pers. Comm.; Macphail pers. comm., Crowther pers. comm.). In order to define a body within a grave, a sampling grid of *c*. 0.05m density at a minimum of three levels would have been necessary. Therefore, no further phosphate analysis is deemed useful on this suite of samples.

*Human Bone (**Appendix 7.47**)*

3.3.18 Unburnt human bone, primarily derived from inhumation burials, was recovered from 162 contexts. The large majority of the contexts were of Anglo-Saxon date, but others of Bronze Age (two), Late Bronze Age/Early Iron Age (three) and Late Iron Age/Early Romano-British (three) date were also examined. The unburnt bone assemblage is characteristically in very poor condition, the vast majority of individuals being represented by little other than tooth enamel. The Saxon cemetery populations include individuals of both sex and cover a wide age range from young infant to older adult.

3.3.19 It should be possible to extract tighter age ranges and attribute a sex to more of the individuals from the inhumation burials and thereby broaden the demographic database. Due to the very poor bone survival, the scope for assessment of assemblage homogeneity based on skeletal indices, and to comment on health, diet

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and status based on pathological data will be severely limited. The recovered data will be compared with contemporaneous sites within the region and nationally.

3.3.20 Cremated bone was recovered from 119 contexts, all dating from the Late Bronze Age through to Romano-British, with the exception of a single Anglo-Saxon burial. Many of the prehistoric burials appear to have been redeposited in antiquity, though several deposits appear to represent redeposited pyre debris. A minimum of 12 cremation burials appear to be represented amongst the deposits from Romano-British contexts, and though a variety of cremation-related deposits are likely to have been present many of the deposits again appear to comprise disturbed and redeposited material.

3.3.21 The potential for DNA analysis on the surviving skeletal material will be extremely limited due to the poor bone survival. Certain questions may be asked, such as the possible relationship (if any) between the conspicuous burials within each of the Anglo-Saxon cemeteries, but even the better preserved skeletons may still not contain sufficient suitable material for DNA analysis. Regretably, the only way to test material for its suitability for DNA analysis is to carry out the analysis, which is a destructive process.

3.3.22 Other techniques such as strontium and/or lead isotope analysis are perhaps more feasible, particularly as these work well with teeth, which are generally all that survived of some Anglo-Saxon skeletons. These analyses may determine, for instance, variability in geographical origin between each of the three cemetery groups, or between different status burials within individual cemeteries.

*Animal Bone (**Appendix 7.48**)*

3.3.23 The excavations at Saltwood Tunnel produced mammal bone from Late Iron Age through to modern contexts, including an Early Anglo-Saxon horse burial. The bone assemblages were retrieved both by hand recovery and through environmental processing. The condition of preservation is generally poor. The assessment has concentrated on the most coherent assemblage, comprising 1,258 fragments (weighing just over 10kg), recovered from the Romano-British and later occupation at the west end of the excavation.

3.3.24 Cattle dominates the assemblage by number of fragments, bone weight and context frequency. Curiously, dog is the next most abundant species, although these remains stem largely from a single individual. Sheep is more common here than pig. Horse provides more bone weight, but a larger mean fragment weight, double that of the similar sized cattle, suggesting that it did not undergo the same level of butchery and may not have had much importance as a food-animal. A single fragment of burnt deer antler was identified. The specimen is probably from red deer (there is some surface pearling evident), although fallow deer has been recorded from securely-stratified Roman deposits in Kent.

3.3.25 Comparison of the hand-recovered bone with the bulk-sieved bone reveals differences in the representation of the main domestic animals. Cattle are over-represented in the hand-recovered material compared to the bulk-sieved material, and the reverse is true for sheep. This observed bias is an expected product of the different methods of recovery. The occurrence of pig is roughly the same. Goat and fox have also been identified from the samples.

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Differential bone survival

3.3.26 Depositions of unburnt bone (both as human burials and discarded faunal remains) occur throughout the major chronological periods represented at Saltwood, with no coherent pattern relating to whether the skeletal remains survived or not apparent. In general, the Bronze Age and Romano-British burials and early medieval faunal remains survive reasonably well, whilst the Iron Age and Anglo-Saxon burials do not. However, considerable variability within distinct periods of activity (and particularly the Anglo-Saxon cemeteries) does also occur.

3.3.27 It is apparent therefore that the survival of bone is not simply related to how long the remains have been buried. One of the key factors is undoubtedly geology; this effects the nature and pH balance in the soil into which the body, or coffined body, is placed. Calcium phosphates tend to be lost in acid burial conditions and proteins in alkali burial conditions.

3.3.28 However, there are a very large number of variables about the body, nature of burial etc. that make it impossible to predict the degree to which bone may or may not survive. The nature of initial decay, unless in a sealed casket, is largely determined within the first 2 to 4 weeks of burial. Factors relating to the nature of the body and burial environment which may determine decay levels include:

- *condition of the body prior to burial*
- *the form of burial*
- *the moisture regime in the soils at the time of burial*

3.3.29 Some aspects of each factor are given below:

CONDITION OF THE BODY PRIOR TO BURIAL

- *age and robustness of the individual*
- *body weight*
- *amount of fat on the body*
- *length of time between death and interment*
- *ambient atmospheric conditions between time of death and burial*

3.3.30 The internal organs start to decay within hours of death. An increase in, and creation of high levels of, bacterial activity within internal organs prior to burial has considerable effects upon the rate and level of decay.

FORM OF BURIAL

3.3.31 Whether the body was in a wooden coffin, or laid bare into the soil will have significant effect upon decay levels and rates. Again this may vary between shrouded, clothed or unclothed corpses.

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MOISTURE REGIME

3.3.32 The moisture regime on the soil immediately after burial (within the critical 2-4 week period) will also have significant effects on the levels and rates of decay. This may vary seasonally within the same graveyard, but also between different phases of burial activity at Saltwood – dictated by the dominant domestic/ agricultural economy at the time.

3.3.33 The above are just some of the conditions that might affect body and skeletal decay. Many of these do not require spatial or geological elements to determine the level of survival. Where skeletal survival is highly variable, therefore, it is not possible to simply define this in terms of length of burial, nor even purely on type of burial; the numbers of unquantifiable or unqualifiable variables is too high.

3.3.34 In this context it is therefore considered beyond the remit of this assessment to determine in detail the explicit reasons for differential bone survival at Saltwood. Some or many of the contributing factors listed above (i.e. amount of body fat, ambient conditions at time of burial etc.) will probably never be determined with any degree of accuracy. This is not to say that some form of spatial/ temporal analysis should not be attempted, perhaps coupled with pH and/or phosphate analysis in order to attempt to chart and explain differential bone survival at Saltwood.

3.4 Dating

Absolute spot dates

3.4.1 Many of the phases of activity at Saltwood would benefit from absolute spot dates, aiming to provide fixed chronological markers rather than identifying sub-phases. In particular, the Early Neolithic pits, Bronze Age barrows and settlement(s) and Early/ Middle Iron Age burials provide the opportunity to give absolute dates for prehistoric activity. In addition, the Romano-British settlement remains and burials (both cremation and inhumation) would benefit from absolute dates, as would the limited early medieval evidence.

3.4.2 Although the Anglo-Saxon cemeteries would not repay detailed sub-phase definition (see below) through radiocarbon dating, absolute dates for specific graves, to both identify marker events within each cemetery and confirm/ deny artefactual dating, would be considered viable.

Sub-phase definition

3.4.3 Few periods of activity at Saltwood would repay detailed radiocarbon analysis, either due to insufficient spatial/ stratigraphic data, insufficient potential dating resource, or the restricted radiocarbon plateau prohibiting statistical differentiation. Groups that would perhaps repay detailed sub-phase definition would be the group of cremation and cremation-related deposits/ features to the east of the Romano-British settlement C15 and the largely undated group of possible Bronze Age cremations associated with barrows C3766 and W33.

3.4.4 With particular reference to the Anglo-Saxon burials within the eastern, western and central cemeteries, the presence of human bone provides the opportunity for radiocarbon dating. However, the condition of the bone may not yield high collagen levels, and although it would be possible to take some samples for high precision

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dating (HPD), the scope of this is limited by the extremely poor bone survival. Even where a higher proportion of the skeleton survives, this may only comprise the mineral component, and there may not be sufficient collagen for dating purposes. Realistically a fairly wide suite of samples would need to be taken to make sub-phase definition worthwhile, and this is unlikely to be feasible for the Saxon burials.

3.4.5 Recent work using Baysian statistics and high-precision determination (The Queen's University of Belfast) has demonstrated the ability of radiocarbon dating for defining a series of chronological and developmental parameters of Anglo-Saxon cemeteries (e.g. Scull and Bayliss 1999). The definition of artefactual and attribute chronology can also be tested (*op cit.*).

3.4.6 There is potential to separate physical development (how did the cemeteries physically develop), longevity of a cemetery, where there any hiatuses (50-100 years +) in the use of the cemetery. There is also the potential to pinpoint with more accuracy the date of establishment of the cemetery and consider refinement of the artefacts dating of key graves (Scull and Bayliss 1999, 43). One such project was undertaken at Buttermarket, Suffolk, but to do so required 16 high precision determinations (±19 – 23).

3.4.7 High-precision radiocarbon dating, allied with explicit mathematical modelling of chronological problems, now has the potential to deliver calibrated ranges of about 50 years at the 95% confidence level for the first half of the 5th century, for example (Scull and Bayliss 1999, 39). Unfortunately the calibration curve does not allow such precise calendrical date ranges to be obtained from the intervening period between the middle of the 5th century and late 6th century. During this period the best expected date range is about a century or more at the 95% confidence level (Scull and Bayliss 1999, 39).

3.4.8 Normally this high-precision method has required a large sample size (see for example, Pearson 1984; McCormac and Housely 1995). The poor preservation of bone and likely low survival of collagen at Saltwood is therefore very likely to prohibit the use of this method. However, more recently techniques have been refined where processing using the small-sample high-precision process has recently become available at Belfast (Wilson *et al.* 1996).

3.4.9 In view of the condition of the bone, it seems unlikely that even small-sample high-precision of the available material will be productive (P. Marshall pers. comm.). There is the potential, however, to date key burials within each cemetery using AMS with a precision of ±50 years to aid in defining some basic chronological issues. In addition it is important to date charcoal relating to pyre materials from the cremation cemetery and compare these events chronologically with the inhumations.

3.5 Archive Storage and Curation

3.5.1 The archives generated from investigations at Saltwood Tunnel are summarised below according to the relevant Fieldwork Event. The paper and photographic archive are presently held at the offices of Canterbury Archaeological Trust (ARC SLT98, SLT98C and SLT99) and Wessex Archaeology (ARC SFB99). The finds and environmental samples (processed and unprocessed) are also held at the relevant offices, with the exception of the Anglo-Saxon and other artefacts requiring conservation, which are currently held at City of Lincoln Conservation Laboratories (CLCL).

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3.5.2 The final destination of the CTRL Section 1 Archaeological Archive is not known. It is hoped that it will be deposited locally in Kent, and for the purpose of assessment it should be assumed that a Kent museum destination (in this instance most probably Folkestone) would be achieved. However, without a certain destination, decisions concerning long term storage, curation, discard etc. cannot be finalised. It is recommended that the entire artefactual and ecofactual assemblage, with the possible exception of post-medieval and modern material, should be retained for long term storage.

3.5.3 Clearly, with the quantity of metal and other artefacts recovered that required stabilisation, primarily from the Anglo-Saxon cemeteries, long term conservation and storage are very important issues. As a result, these are considered as a specialist assessment in their own right (**Appendix 7.50**).

3.5.4 The archives for Fieldwork Events considered for this assessment currently comprise the following components (**Tables 5 – 9**).

Table 5: North of Saltwood Tunnel (ARC SLT98) archive components

Item	**Number of Items/ Boxes**	**Quantity**	**Condition (No. of items)** (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
Contexts records	945	-	I
Plans	83	-	I
Sections	194	-	I
Small finds	Boxed individually	146	With specialists
Films (monochrome)	18	-	I
Films (colour)	17	-	I
Pottery	2 x Size 1	777	P, I
Fired clay/ daub	3 x Size 1	886	P, I
CBM	1 x Size 1	38	P, I
Worked Flint	3 x Size 1	189	P, I
Burnt flint	-	-	
Stone	2 x Size 2	76	P, I
Shell	-	-	
Metalwork	-	-	
Glass	-	-	
Slag	2 x Size 1	1,121g	P, I
Human Bone	2 x Size 1	49 contexts 2.395kg	W, P, I (Inhumed) W, P, I (Cremated)
Animal Bone	3 x Size 2	10.054kg	P, I (represents all CAT animal bone from Saltwood)
Soil Samples	-	2,550 litres	P, I
Soil Samples (Kubiena tins etc.)	-	-	

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Table 6: North of Saltwood Tunnel (ARC SLT98C) archive components

Item	**Number of Items**	**Quantity**	**Condition (No. of items)** (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
Contexts records	1556	-	I
Plans	174	-	I
Sections	379	-	I
Small finds	Boxed individually	598	With specialists
Films (monochrome)	52	-	I
Films (colour)	52	-	I
Pottery	2 x Size 2	2,635	W, M, P, I
Fired clay/ daub	1 x Size 1	16	W, M, P, I
CBM	1 x Size 2	50	W, M, P, I
Worked Flint	1 x Size 1	406	W, M, P, I
Metalwork	1 x Size 1 3 x Size 2 1 x Size 3	662	P, I
Human Bone	3 x Size 2 1 x Size 3	19 contexts 2.3g	W, P, I (Inhumed) W, P, I (Cremated)
Animal Bone	-	-	See **Table 5**
Soil Samples	-	2,001 litres	I, P
Soil Samples (Kubiena tins etc.)	-	-	

Table 7: North of Saltwood Tunnel (ARC SLT99) archive components

Item	**Number Of Items**	**Quantity**	**Condition (No. of items)** (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
Contexts records	1099	-	I
Plans	182	-	I
Sections	200	-	I
Small finds	Boxed individually	337	With specialists
Films (monochrome)	31	-	I
Films (colour)	34	-	I
Pottery	2 x Size 2	1,112	P, I
CBM	1 x Size 3	7	P, I
Worked Flint	1 x Size 3	123	P, I
Burnt flint	-	-	
Stone	-	-	
Shell	-	-	
Metalwork	1 x Size 1 3 x Size 2 1 x Size 3	105	P, I
Human Bone	4 x Size 3	53 contexts 2.422kg	W, P, I (Inhumed) W, P, I (Cremated)
Animal Bone	-	-	See **Table 5**
Soil Samples	-	410 litres	P, I
Soil Samples (Kubiena tins etc.)	-	-	

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Table 8: Stone Farm Bridleway (ARC SFB99) archive components

Item	Number of Items	Quantity	Condition (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
Contexts records	1887	-	P, I
A1 plans and sections	45	-	P, I
A3 plans and sections	142	-	P, I
A4 plans and sections	253	-	P, I
Small finds	366 items	-	P, I (inc. beads in 1 x Size 6) N.B. all metal small finds at CLCL.
Films (monochrome)	78	-	P, I
Films (colour)	79	-	P, I (PRs submitted as deliverables)
Pottery	2⅓ x Size 4	1,236	W, M, P, I
Fired clay	⅓ x Size 4	61	W, M, P, I
CBM	⅓ x Size 4	26	W, M, P, I
Worked Flint	2 x Size 4	861	W, M, P, I
Burnt flint	⅓ x Size 4	234	W, M, P, I
Stone	⅔ x Size 4	5	W, M, P, I (inc. burnt stone)
Shell	-	-	
Metalwork	See Table 9	90	P, I N.B. all metalwork at CLCL.
Glass	1 x Size 5	102	W, M, P, I
Slag	1 x Size 5	2	
Human Bone	2 x Size 4	1,919	W, P, I
Animal Bone	-	1,907	With specialist
Soil Samples	391	5,972 litres	109 P, I (environmental samples) 62 P, I (artefact samples) 123 UP, I (phosphate/ pH samples) 86 UP, I (environmental samples) 4 UP, I (soil description) 1 UP, I (soil chemistry) 1 UP, I (C^{14}/ charcoal sample)
Soil Samples (Kubiena tins etc.)	4	-	UP, I
Residues	2 x Size 4 1 x Size 6	171 samples	109 P (unsorted sample residues) 62 P (unsorted Human Bone residues)

3.5.5 The total number and capacity of all finds boxes for Fieldwork Events associated with this assessment report held at Canterbury Archaeological Trust (CAT), Wessex Archaeology (WA) and the City of Lincoln Conservation Laboratory (CLCL) is as follows;

Table 9: Quantification of finds by box volume

Size	Description	Capacity	No.	Total Volume
1	CAT: Large	0.0570 m³	13	0.7410 m³
2	CAT: Museum Box	0.0303 m³	20	0.6060 m³
3	CAT: Half Museum Box	0.0131 m³	8	0.1048 m³
4	WA: Large Cardboard	0.0290 m³	10	0.2900 m³
5	WA: Large plastic ('Stewart')	0.0075 m³	2	0.0150 m³
6	WA: Medium/ Large plastic ('Stewart')	0.0065 m³	1	0.0065 m³
-	CLCL: Ferrous objects (CAT)	-	215	3.0000 m³
-	CLCL: Ferrous objects (WA)	-	16	0.2000 m³
-	CLCL: Non-ferrous objects (CAT)	-	36	0.5000 m³
-	CLCL: Non-ferrous objects (WA)	-	3	0.0200 m³
-	CLCL: Inorganic objects (CAT)	-	38	0.2000 m³
-	CLCL: Organic objects (CAT)	-	8	0.1000 m³
		Totals	**370**	**5.7833 m³**

3.6 Documentary and Historical Research

3.6.1 Following the excavation at Saltwood, documentary evidence was assessed in order to establish whether there were any extant sources that may aid the understanding of

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the site. At the same time it was necessary to examine the secondary literature covering Saltwood Tunnel and its environs for the Anglo-Saxon period and the early Middle Ages.

3.6.2 The investigation was divided into four parts: a survey of the cartographic evidence, a listing of the potential primary sources from a number of archive catalogues, a brief examination of the potentially most useful printed primary sources and a survey of the secondary literature.

3.6.3 A detailed quantification of the available documentary sources is given in **Appendix 7.49**. They are located in several major works/collections as follows: the Anglo-Saxon charter, the British Library, Canterbury Cathedral Archives and Library, East Kent Archives (Whitfield) and Lambeth Palace Library. It is possible there are other materials at the Public Record Office and among the unclassified collections for the Saltwood Tunnel area held at Whitfield.

3.6.4 From the historical standpoint an investigation of a small area to the north of the village of Saltwood Tunnel for the Late Anglo-Saxon and Norman/Angevin periods is extremely difficult because there is only one Anglo-Saxon charter (according to Sawyer 1968) that relates to land in Saltwood. Furthermore, for the post-Conquest period the manor of Saltwood Tunnel was primarily under the jurisdiction of the Archbishop of Canterbury and relatively few medieval manorial records have survived. Also, the early medieval livestock enclosures and settlement are not identifiable within the documentary sources because they cannot be linked to a particular named settlement or farm from the Middle Ages, which would allow the use of place name evidence. It must therefore be concluded that the potential for documentary and/or historical research is low.

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4 STATEMENT OF POTENTIAL

4.1 Introduction

4.1.1 The results of the Fieldwork Events as itemised in **Table 1** have been assessed against the *CTRL Archaeological Research Strategy* (URS 1999a, 63-7), the *Landscape Zone Priorities* (*ibid.* 34-6) and the specific *Primary Fieldwork Event Aims*, as detailed above.

4.1.2 The site occupies the Wealden Greensand Landscape Zone (URS 1998, Appendix 1), for which the Contract 440 WSI has highlighted three principle Landscape Zone Research Priorities;

- *A reconstruction of the changing palaeo-environment for all time periods present, through 'on-site' and 'off-site' studies and the interaction with past economies:*
- *Establish the basis of the rural economy for the area for all time periods, but especially through the recovery of material and environmental remains:*
- *Ritual and ceremonial use of the landscape.*

4.1.3 Within these Landscape Zone Research Priorities, the phasing of the site, as described above, has demonstrated activity at Saltwood Tunnel during the following broad time periods.

- *Early Agriculturalists (4500 – 2000 BC),*
- *Farming Communities (2000 – 100 BC), and*
- *Towns and their rural landscapes (100 BC – AD 1700)*
- *The recent lanscape (AD 1700 – 1945)*

4.1.4 Relevant research topics and questions (i.e. Fieldwork Event Aims) therefore comprise (in broad chronological order):

- *To identify the nature of the prehistoric activity, determine its extent and place in the landscape;*
- *Establish a dated sequence for the origin and development of settlement including associated enclosures and trackways, etc.;*
- *Establish the association between land divisions and possible settlement focii;*
- *Determine the morphology and organisation of the local Roman landscape;*
- *Establish a chronology and sequence of development for the [Romano-British] cemetery if one is present;*

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- *Determine [Romano-British] burial practice as preserved by archaeological remains, including artefact assemblages;*
- *Recovery of information on Romano-British burial practice, palaeo-pathology and demographic studies.*
- *Determine the contemporary [Romano-British] local environment;*
- *To establish a chronology for the Anglo-Saxon cemetery;*
- *To investigate the relationship between the prehistoric features and the Anglo-Saxon cemetery;*
- *To establish the range variation in [Anglo-Saxon] burial rites, and to view possible change in rite over time;*
- *To indicate the general development of the [Anglo-Saxon] cemetery;*
- *To identify the use of space within the burial landscape.*
- *Recovery of dated environmental and economic indicators if these are found to be present on site;*

4.1.5 This assessment report will therefore initially assess the archive potential for each category against the site-specific Primary Fieldwork Event Aims, followed by a broader consideration of the chronozones represented at the site in relation to the Landscape Zone Priorities.

Saltwood Tunnel 20th century military landscape

4.1.6 It will be noted that the Primary Fieldwork Event Aims listed above do not, as defined, encompass the 20th century military remains at Saltwood. Although activity at Saltwood is not particularly well documented in studies of this period, the remains are within a wider landscape that increasingly over recent years has merited greater recognition and research in the archaeological record (e.g. Dobinson *et al* 1997, English Heritage 1998 and 2000). Saltwood will therefore make a small contribution to the growing *corpus* of investigated remains that document this period.

4.2 Stratigraphic Potential

Introduction

4.2.1 Detailed stratigraphic analysis will contribute to all aspects of the Fieldwork Event Aims, Landscape Zone Priorities and Research Objectives through the construction of a chronological framework from which reliable (and unreliable) contexts can be identified. This will allow all subsequent analysis to focus on contexts considered to be stratigraphically secure, and reduce the effect of intrusiveness and/or residuality.

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Fieldwork Event Aims

TO IDENTIFY THE NATURE OF THE PREHISTORIC ACTIVITY, DETERMINE ITS EXTENT AND PLACE IN THE LANDSCAPE.

4.2.2 The earliest evidence for concerted activity at Saltwood Tunnel comprises two Early Neolithic pits, a period considerably under-represented in the archaeological record of Kent. It may be possible through comparison with similarly dated remains recorded elsewhere, to determine whether the various artefact and ecofact assemblages recovered from these pits is more closely symptomatic of ritual or domestic activity. For instance, although not considered as part of this assessment, a third pit recorded during ARC SFB01 investigations produced a small assemblage of flint tools (primarily serrated blades) that could be considered as a 'placed-deposit'. Therefore, although structually in isolation the morphology of these features contributes little to this aim, the opportunity to compare and contrast potentially domestic and ritualistic activities at Saltwood has rarely been available to date in Kent.

4.2.3 Opportunities for the investigation of an extensive Early Bronze Age barrow cemetery are similarly rare in Kent, occurring on this scale only at Monkton and Ramsgate on the Isle of Thanet, although the North Foreland barrows are also of note (Diack *et al* 2000, 472-3). Whilst it remains possible that the monuments originally formed part of a wider funerary landscape, any consideration of this possibility would have to include consideration of such issues as topography, sight-lines and the local geo-morphology. Furthermore, the mixed burial rites employed at Saltwood Tunnel (i.e. enclosed and unenclosed crouched inhumations and unurned cremations) almost certainly indicate chronological distinctions that may not be clearly identified from just the artefactual evidence. Parallels for this pattern will therefore be sought from a structural perspective.

4.2.4 Of particular interest is the encroachment of apparent Late Bronze Age and Early Iron Age domestic occupation into what appeared to be very much a funerary landscape during the earlier Bronze Age. Although parallels for such activity do exist further afield (e.g. Tidworth, Wiltshire; Andrews forthcoming), Kentish examples are rare; the latter usually suggested by indirect evidence such as localised concentrations of Late Bronze Age domestic material recovered from barrow ditch fills, such as at East Northdown, Margate (Smith 1987, 273). At Saltwood this encroachment appears to include possible post-built structures associated with settlement enclosures, and whilst this assessment has not determined definitive structural forms, the potential to do so through comparison with other such remains (e.g. Creteway Down, Holywell Coombe).

4.2.5 By the Early/ Middle Iron Age it is assumed that the trackway network at Saltwood Tunnel was established, although the earliest dating evidence so far identified comprises Late Iron Age pottery. Given the highly mobile nature of the underlying *in situ* Folkestone Beds, it is likely that this trackway network originated as ground surface routes, developing into the hollow-ways observed during excavation through erosion (both from traffic and other agencies such as weather).

ESTABLISH A DATED SEQUENCE FOR THE ORIGIN AND DEVELOPMENT OF SETTLEMENT INCLUDING ASSOCIATED ENCLOSURES AND TRACKWAYS, ETC.

4.2.6 The stratigraphic record has allowed a comprehensive stratigraphically secure phased sequence of developments at Saltwood Tunnel to be proposed. Artefact dating has allowed broad date ranges to be applied to this sequence, but subsequent

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detailed stratigraphic analysis may allow the identification of sub-phases of activity within these periods. This is particularly valid in critical areas of the site, such as the settlement centres; comprising the Late Iron Age to Early Anglo-Saxon occupation to the west, and the prehistoric occupation within the central zone.

4.2.7 As noted above, the establishment of the trackway network is problematic, and further work may focus equally on inter-site parallels as definitive intra-site dating recovered from what, for all intents and purposes, are severely truncated features.

ESTABLISH THE ASSOCIATION BETWEEN LAND DIVISIONS AND POSSIBLE SETTLEMENT FOCII.

4.2.8 The stratigraphic record has demonstrated a persistance of focus throughout prehistory/ history at Saltwood, clearly associated with the barrow cemetery and later trackway network. Moreover, it is apparent that even the trackways themselves are focussed on the barrows. This is a pattern reflected both elsewhere in Kent (e.g. Whitfield) and further afield (e.g. Tidworth).

4.2.9 However, at Saltwood Tunnel the picture is less clear. The barrow landscape is encroached during the Late Bronze Age/ Early Iron Age by both settlement enclosure(s) and associated field system. Although elements of both the settlement pattern and subsequent trackway network clearly relate not only to the barrow cemetery but each other, much of the trackway network cuts across (and possibly therefore invalidates) the associated field system. It is therefore critical to accurately determine the sequence of events through the transition from what is primarily a funerary landscape into a domestic one, and attempt to determine if indeed the enclosure(s) remained active once the trackway network had effectively disrupted, if not removed the field system.

4.2.10 The Later Iron Age, Romano-British and early medieval settlement centres are clearly associated with the trackway network. This is a pattern that is typical for the region, with other sites laid out on morphologically broadly similar lines, such as Great Hougham Court Farm, Capel, Church Hougham and Creteway Down (Parfitt forthcoming). It is also of note that despite many direct stratigraphic associations, it is clear that the trackway network determined the location and alignment of associated field systems from the Late Iron Age onwards.

4.2.11 It is clear, however, that through both detailed stratigraphic and artefact analysis it may be possible to determine in more detail the nature of the association between principal land divisions and settlement, and the stratigraphic record is therefore regarded as having good potential to satisfy this aim.

DETERMINE THE MORPHOLOGY AND ORGANISATION OF THE LOCAL ROMAN LANDSCAPE.

4.2.12 The stratigraphic record, combined with dating evidence, has identified several phases of occupation throughout the entire Romano-British period. There is no clear evidence for any periods of abandonment, and as such the excavated remains offer the opportunity to record and characterise the nature of settlement at Saltwood Tunnel througout this period. Little of the field system associated with this occupation could be identified, with the notable exception of sub-rectangular enclosures adjacent to the settlement centre, one of which housed a small cremation cemetery.

4.2.13 The small Romano-British settlement on the western side of the site can be viewed in the context of the adjacent trackway network. The stratigraphic evidence for structures and associated features provides the potential to indicate the nature of

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settlement, and future analysis will seek to clarify the layout and function of the buildings and other structures that these remains may represent. This will involve a critical examination of land use and exploitation, including the possible clay quarrying pits.

4.2.14 The association between trackways and settlement persists. An unusual feature of the major ditches bordering the trackways was the presence at some points of dry-stone walls that were founded in the outer edges of the ditch and which appeared to have once supported walls separating the roadway from open ground beyond. Ceramics from these walls are notable as they include both Roman and Middle Saxon sherds, the latter perhaps deriving from later patching. Interestingly, similar dry-stone walling was recorded further to the east at the Dolland's Moor farmstead, where it served as a revetment for a timber-framed building (*Canterbury's Archaeology 1987-8*, 57).

4.2.15 The few Late Roman features and deposits recorded at Saltwood have the potential to outline the nature of activity on the site at this time. Contemporary activity included an oven (which became disused in the 4th century), a small number of pits and a single burial. An extensive deposit in the south-western part of the site provides important dating evidence for the abandonment of earlier land boundaries, as it sealed part of the former enclosure system. It contained both late 4th century coins and pottery spanning the late 3rd to early 5th century.

4.2.16 As noted above, during the Roman period the rite of cremation burial was generally replaced by inhumation. The Saltwood grave provides a lone example of a burial type well-known from rural sites – the unaccompanied inhumation set into an earlier feature, often close to the boundary of an enclosure. Possibilities for palaeo-pathology and demographic study are very limited, although the acquisition of a radiocarbon date would clarify the burial date.

4.2.17 Elsewhere at Saltwood Tunnel, abraded Romano-British material (primarily pottery) was recovered in considerable quantities from many features as residual material. This would suggest that beyond the immediate environs of the settlement agricultural practices followed an 'open-field' form.

ESTABLISH A CHRONOLOGY AND SEQUENCE OF DEVELOPMENT (IF ONE IS PRESENT) FOR THE [ROMANO-BRITISH] CEMETERY.

4.2.18 Stratigraphically the cremations are isolated features, and it is therefore not possible to establish a chronology for these features through stratigraphic means. The single undated inhumation was cut into the fill of an earlier ditch, allowing only a very general determination of its place within the stratigraphic record to be made. The stratigraphic record therefore has no potential to satisfy this aim.

DETERMINE [ROMANO-BRITISH] BURIAL PRACTICE AS PRESERVED BY ARCHAEOLOGICAL REMAINS, INCLUDING ARTEFACT ASSEMBLAGES.

4.2.19 Confirmed Romano-British burials at Saltwood Tunnel comprise cremations, the majority dated to the 1st and 2nd centuries AD. A single undated inhumation, which are generally later in date (i.e. 3rd to 5th century AD), has been identified as Romano-British, although the possibility, however unlikely, that some of the unaccompanied burials within in the area of the Anglo-Saxon cemeteries may also be earlier must be considered.

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4.2.20 The cremation burials were badly truncated and the associated vessels fragmented, the truncation not only removing the upper part of the vessels but also the form of any grave pits and evidence for markers or ephemeral enclosures around the groups. The inhumation was cut partially into the trackway ditches. As a result, the potential for the stratigraphic record to assist in the determination of Romano-British burial practices is severely limited.

RECOVERY OF INFORMATION ON ROMANO-BRITISH BURIAL PRACTICE, PALAEOPATHOLOGY AND DEMOGRAPHIC STUDIES.

4.2.21 As noted above, the degree of truncation that the cremation-related features appear to have experienced probably precludes all but the most general statement regarding the morphology of the features. No information is available regarding surrounding features, grave markers etc., and as a result of the truncation, the cremated human remains will have been partially scattered, limiting palaeopathological study of what may have been only a token sample. As a result, the possibility for the stratigraphic record to contribute to this aim must be considered very low.

DETERMINE THE CONTEMPORARY [ROMANO-BRITISH] LOCAL ENVIRONMENT

4.2.22 This aim will primarily be addressed by environmental analysis, although the morphology and layout of the Romano-British enclosures and/or fields may afford some information regarding contemporaneous agricultural practices. As a result, the potential for stratigraphic analysis to contribute to this aim is considered very low.

TO ESTABLISH A CHRONOLOGY FOR THE ANGLO-SAXON CEMETERY(IES)

4.2.23 From a stratigraphic perspective, the three Anglo-Saxon cemeteries at Saltwood Tunnel are mutually exclusive, and it is therefore not possible to establish an intra-cemetery chronology through stratigraphy.

4.2.24 A limited series of stratigraphic relationships were observed between elements within individual cemeteries to be able to determine some sub-phases within each. Most notably, these were observed between the two north to south alignments of graves marking the eastern boundary along the southern extent of the central cemetery, and the sequential construction of flanking ditches alongside the row-grave in the same cemetery.

4.2.25 On spatial grounds it is also possible to identify subsets of burials within the cemeteries, and suggest a relative chronology for some of these. For instance, the line of 'founder' graves in the central cemetery, and the predominance of ring-ditch enclosed burials towards the periphery of the western and central cemeteries.

TO INVESTIGATE THE RELATIONSHIP BETWEEN THE PREHISTORIC FEATURES AND THE ANGLO-SAXON CEMETERY(IES)

4.2.26 There is a clear correlation at Saltwood Tunnel between the prehistoric ring-ditches and the later Anglo-Saxon burials. This is a pattern which is well-attested elsewhere and considered by some to be indicative of a society that viewed the earthworks as "…powerful, liminal places, thay may have been regarded as the dwellings of supernatural beings, ancient or ancestral peoples" (Williams 1998, 103).

4.2.27 In the majority of cases the focii for Anglo-Saxon cemeteries are Bronze Age barrows, with the majority of the Anglo-Saxon burials in these cemeteries concentrated on the south and/or east (sunrise?) side of barrows. Furthermore, it can be suggested that the association with prehistoric burials perhaps goes further than merely spatial patterning. For a period, predominantly during the 7th century, burials

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are frequently enclosed in annular or more often penannular ditches, implying the burials were covered by small barrow mounds. Although it is possible that this activity is a manifestation of a desire to replicate or be identified with the "…dwellings of…ancient or ancestral peoples…", few commentators have chosen to make this observation.

4.2.28 Saltwood Tunnel is interesting in this respect, for whilst the western and central cemetery generally conform to this pattern, the easternmost cemetery neither conforms to the distribution of graves in relation to an earlier mound, nor in the construction of monuments that mimic such mounds. Both practices increase in frequency during the Early Anglo-Saxon period, reaching a peak in the 7th century (Williams 1998, 95). This is considered by many to be a pagan reaction to the spread of Christianity; in that scenario, the eastern (earliest) cemetery may have therefore been predominantly in use before such social pressures were felt.

4.2.29 The stratigraphic record at Saltwood Tunnel has produced sufficient examples of Anglo-Saxon graves cutting the upper fills of prehistoric ring-ditches to suggest that the ring-ditches must have virtually completely infilled at the time of the later burials. This would imply that the denuded remains of the barrow must have therefore been the visible element surviving in the landscape. Furthermore, although not definitive proof, the absence of Anglo-Saxon burials associated with the two smallest Bronze Age barrows would similarly suggest that these were no longer visible in the landscape.

4.2.30 In addition to the barrows, there is an apparent relationship between the trackway network established during the Iron Age and the Anglo-Saxon cemeteries, again a pattern observed elsewhere (for a recent summary, see Lucy 2000, 128-130). Many of the burials in the Saltwood Tunnel cemeteries, whilst generally aligned east to west (head to west where identifiable), are in fact more closely aligned either parallel or perpendicular to their adjacent trackway. Normally such boundaries lie to one side of a cemetery, at Saltwood Tunnel both the western and central cemeteries extend across their adjacent trackways (similar to other sites such as Monkton).

TO ESTABLISH THE RANGE VARIATION IN [ANGLO-SAXON] BURIAL RITES, AND TO VIEW POSSIBLE CHANGE IN RITE OVER TIME.

4.2.31 The predominant burial rite represented at Saltwood Tunnel is inhumation, with a single cremation cutting the upper fill of an earlier inhumation. Therefore insufficient evidence exists to characterise the change in burial rite (*vis* inhumation versus cremation) through time. There are, however, significant variations in grave design within the inhumation culture that may address this aim. For instance, variations in inhumation burial have been identified in grave alignment, grave cut morphology (i.e. size, depth, profile), associated features (e.g. penannunular ditches, enclosing posts, grave-markers, partial or complete stone-linings, adjacent horse burial etc.), presence/absence of coffin and most notably quantity and range of grave goods.

4.2.32 As with the majority of such discrete features, few relationships exist to allow such changes to be mapped over time from a stratigraphic perspective. Such work will primarily rely on artefact analysis, although spatial analysis of the composition of cemetery subsets, combined with stratigraphic relationships where present may complement such analysis. However, once detailed dating exists for those graves that contain sufficiently diagnostic artefacts, it may be possible to revisit this aim from a stratigraphic perspective and accurately map any such changes accordingly.

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Therefore, if viewed in conjunction with reliable artefact dating, it is considered that stratigraphy has good potential to satisfy this aim.

TO INDICATE THE GENERAL DEVELOPMENT OF THE [ANGLO-SAXON] CEMETERY(IES).

4.2.33 For all intents and purposes, this aim is intimately associated with the previous aim, both should be addressed in a study of burial sequence based primarily on artefact dating, supported by stratigraphic relationships where available.

TO IDENTIFY THE USE OF SPACE WITHIN THE BURIAL LANDSCAPE.

4.2.34 This aim can be considered from three perspectives;

- *The use of space within individual graves (i.e. the layout of the body and any associated items),*
- *The use of space within cemeteries as a whole, and*
- *The use of space between separate cemeteries.*

4.2.35 Aspects of the placement of items within individual Anglo-Saxon graves can follow prescribed patterns that may be repeated from cemetery to cemetery, such as the conspicuous burials from, for instance Bifrons, Sarre, Finglesham (Hawkes 1958; Hawkes, Ellis Davison and Hawkes 1965; Campbell 1980, 24-5) and Lyminge (Warhust 1955). For instance, items related to feasting and drinking are often at the feet of the deceased and spears tend to point to the feet also. Therefore, stratigraphic analysis of the layout of items within graves will allow Saltwood Tunnel to be compared and contrasted with other broadly contemporaneous cemeteries, both in England and also potentially on the continent. Furthermore, such work may allow the identification of subsets within and between the Saltwood Tunnel cemeteries themselves.

4.2.36 Furthermore, spatial analysis of the structure of cemeteries themselves, combined with stratigraphic data, will assist in the identification of the sequential development of a cemetery, and thus identification of grave subsets which can be paralleled (or not) with cemetery groups elsewhere. For instance, row-graves are a feature commonly observed in Anglo-Saxon cemeteries, possibly originating from the Merovingian *Reihengräberfelder* (or *cimetières par rangées*) style. As such, the positioning of the three row-graves at Saltwood, both physically within their respective cemeteries, and temporally within the development of the cemeteries can be examined through explored parallels.

4.2.37 The cemeteries at Saltwood Tunnel are between 120 and 200m apart, and appear to represent three different sequential developments. On other sites where multiple Anglo-Saxon cemeteries have been discovered (the presence of two cemeteries being a fairly common circumstance) they are at least 400m apart and more usually in the region of 800m, as at Winnall, Buckland and Eastry, for example. The proximity of the Saltwood Tunnel cemeteries to each other indicates that they may have formed part of what was effectively a single burial place. This suggestion will need to be tested against the many other East Kent Anglo-Saxon cemeteries already examined, possibly critically evaluating previous concepts concerning cemetery layout in the process. Therefore, the wealth of stratigraphic/ structural information derived from the Saltwood Tunnel burials clearly has high potential to address this aim.

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RECOVERY OF DATED ENVIRONMENTAL AND ECONOMIC INDICATORS IF THESE ARE FOUND TO BE PRESENT ON SITE.

4.2.38 Stratigraphic analysis will not contribute to this aim *per se*, but will allow the construction of a secure chronological matrix to identify those critical contexts, in terms of both stratigraphic reliability and dating that can be prioritised to achieve this aim.

Landscape Zone Priorities

4.2.39 The Landscape Zone priorities will be addressed against the significant research objective time periods represented at the site.

A RECONSTRUCTION OF THE CHANGING PALAEO-ENVIRONMENT FOR ALL TIME PERIODS PRESENT, THROUGH 'ON-SITE' AND 'OFF-SITE' STUDIES AND THE INTERACTION WITH PAST ECONOMIES.

Early Agriculturalists (4500 – 2000 BC)

4.2.40 The Early Neolithic remains recorded to date can provide little from a stratigraphic viewpoint to contribute to the pursuit of this objective, apart from the identification of stratigraphically secure contexts from which detailed artefact and ecofact analysis can be derived.

4.2.41 Stratigraphic analysis of the Early Bronze Age features, and in particular the ring-ditch fills, may identify buried soils and/or stabilisation horizons (and potentially marker events observed across all fills) that may assist in the determination of the palaeo-environment through subsequent environmental analysis. Furthermore, detailed soil micromorphological examination of potential barrow mound material may contribute to achieving this objective. This will be particularly critical as the construction of these barrows may straddle the transition between *Early Agriculturalists* and *Farming Communities*.

Farming Communities (2000 – 100 BC)

4.2.42 Although stratigraphic analysis *per se* will contribute little to the pursuit of this objective, the morphology of, for instance, the Late Bronze Age/ Early Iron Age settlement(s) and associated field system(s) may determine the agricultural basis for such communities, and hence a better understanding of the contemporaneous palaeo-environment.

4.2.43 Similarly, the structural remains associated with this period may identify through parallels specific structural forms associated with certain activities (i.e. grain storage, crop-processing etc.), which again may contribute to the reconstruction of the palaeo-environment.

Towns and their rural landscape (100 BC – AD 1700)

4.2.44 Excavations at Saltwood Tunnel have produced a wealth of data attributable to the Late Iron Age/ Romano-British, Early Saxon and medieval periods within this Research Objective time period, comprising both domestic and ritual activity in most cases. As such, detailed stratigraphic analysis, combined with definitive dating evidence, will allow the identification of stratigraphically secure dated contexts on which to base environmental analysis to achieve this objective.

4.2.45 As with other periods, the morphology of contemporaneous landscapes may inform considerations of structural type, land division and agricultural practice, all of which will contribute to the determination of this objective. In particular, detailed structural analysis, coupled with comparative off-site information, may identify

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specific structural forms from the remains located in and around the area of Late Iron Age/ Romano-British setlement to the west.

ESTABLISH THE BASIS OF THE RURAL ECONOMY FOR THE AREA FOR ALL TIME PERIODS, BUT ESPECIALLY THROUGH THE RECOVERY OF MATERIAL AND ENVIRONMENTAL REMAINS:

Early Agriculturalists (4500 – 2000 BC)

4.2.46 The stratigraphic record has little potential to contribute to this objective for the either the Early Neolithic or Early/ Middle Bronze Age periods at Saltwood Tunnel. Although many tree-throws were investigated, very few produced reliable dating evidence, and it is therefore not possible to determine tree-clearance activity associated with the *Early Agriculturalists* or the transition into *Farming Communities*.

Farming Communities (2000 – 100 BC)

4.2.47 As noted above, the morphology of the Late Bronze Age/ Early Iron Age landscape may inform considerations of land division and agricultural practice. The establishment of the trackway network during the Iron Age period is of note, and demands closer analysis on the basis of livestock (and human) movement through the landscape. For instance, Stone Farm Bridleway continues to the north onto the chalk upland of the North Downs; does this route therefore represent a drove-way for livestock to be taken to/ from summer pastures?

Towns and their rural landscape (100 BC – AD 1700)

4.2.48 As for *Farming Communities*, the stratigraphic record for this period at Saltwood Tunnel may help determine specific activity zones (and hence economies) associated with the periods that comprise *Towns and their rural landscapes*.

RITUAL AND CEREMONIAL USE OF THE LANDSCAPE.

Introduction

4.2.49 It is fortunate that ritual activity appears to be present at Saltwood Tunnel throughout all the major periods represented in the archaeological record. This includes possible Early Neolithic placed-deposits, Early Bronze Age inhumations, monuments and later cremations, Early to Mid Iron Age inhumations, Late Iron Age to Early Romano-British cremations, Late Romano-British inhumations and Early Saxon inhumations (and one cremation). As such, there is a wealth of stratigraphic data to map the changing use of the landscape for ritual purposes.

Early Agriculturalists (4500 – 2000 BC)

4.2.50 Although few comparisons for the Early Neolithic features at Saltwood exist within East Kent, detailed analysis of the placement of items, and the items themselves, to determine the nature of activity represented may be assisted by comparable data recently recovered from other CTRL investigations (i.e. White Horse Stone, Eyhorne Street etc.). It may also be considered viable to seek parallels beyond the region, or even county, where contemporaneous activity is better recorded. A broadly contemporaneous pit recorded in ARC SFB01 may also be used as comparative material.

4.2.51 The establishment of the Early Bronze Age cemetery, with burials where present comprising single isolated crouched inhumations, perhaps marks Beaker influence within the Early Bronze Age (c.f. Megaw and Simpson 1979, 189). As noted above, opportunities to examine cemeteries of this scale are rarely avalaible in Kent as a whole, the Saltwood examples therefore allowing a significant contribution to this objective. In particular, the arrangement of the barrows, and the morphology and

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size of the cemetery elements themselves can be compared and contrasted with similar remains elsewhere, such as Northumberland Bottom.

Farming Communities (2000 – 100 BC)

4.2.52 A number of unurned cremations are considered to post-date the Early Bronze Age inhumation/ barrow cemetery, as suggested by patterns recorded elsewhere, with the dominant burial rite shifting to cremation by about the 15th century BC (Piggott 1965, 145). Detailed stratigraphic analysis may therefore assist in refining this hypothesis, and the pattern of landuse related to this later ritual use of the landscape (c.f. the apparent focus on and re-use of earlier monuments).

4.2.53 Similarly, the group of non-Saxon inhumation burials, a small number of which contain Early/ Mid Iron Age pottery, may reflect a further transition back from cremation to inhumation. However, the paucity of stratigraphic relationships, together with limited artefact dating and few skeletal remains hinders the potential for these features to be confidently used within a broader discussion of the changing use of the landscape for ritual purposes during this period.

Towns and their rural landscape (100 BC – AD 1700)

4.2.54 Burials associated with all phases of the Late Iron Age/ Romano-British settlement appear to exist at Saltwood Tunnel. Romano-British society practised both cremation and inhumation burials rites, the former dominating 1st and 2nd century cemeteries, the latter 3rd and 4th/5th century cemeteries. As such, although few stratigraphic relationships exist, particularly for the isolated discrete cremations, nevertheless the morphology of the burials can be considered indicative of the changing burial rite at Saltwood Tunnel over time. For comparative purposes, similar cemetery evidence is abundant in Kent, such as Great Hougham Court Farm, Capel, Church Hougham and Creteway Down.

4.2.55 The opportunity to examine the relationship between three associated Early Anglo-Saxon cemeteries within one site is extremely rare, and offers some opportunities for further research, as outlined below. The stratigraphic evidence for burial within each cemetery provides ample data upon which to establish a sound chronology for each burial group and the implications that this has for the funerary/ ritualistic use of the Saltwood plateau. Stratigraphic and spatial analysis will also contribute to the understanding of the overall development of each cemetery, reflecting for example the gradual spread of graves from a point of origin at one (or more) focii, the focus on prehistoric earthworks and the preference for unenclosed or enclosed graves.

4.3 Artefactual Potential

Introduction

4.3.1 An important and wide-ranging artefactual assemblage was recovered during the excavations. The bulk of the material, both in terms of quantity and significance to the project's stated research aims, was of Early Anglo-Saxon date, although smaller groups of prehistoric, Romano-British and medieval material were also recovered.

4.3.2 The potential contribution of this suite of artefactual data is therefore set out below in relation to the appropriate Fieldwork Event Aims and Landscape Research Objectives. Those aims and objectives not considered appropriate to be addressed by the artefactual data are not considered below.

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4.3.3 In general, where further analytical techniques are proposed, these would comprise fabric analysis, form identification, spatial analysis and comparative study, paricularly for ceramics. Individual specialist assessments deal with specific techniques in detail, and will not be repeated here. Technological attributes are also considered as a viable avenue for further research, in particular for the metal finds of all periods, and most notably the Anglo-Saxon remains. Again, these are considered in detail, both within individual specialist assessments for artefactual/ material categories, and within the specialist assessments dealing specifically with Technology.

Fieldwork Event Aims

TO IDENTIFY THE NATURE OF THE PREHISTORIC ACTIVITY, DETERMINE ITS EXTENT AND PLACE IN THE LANDSCAPE.

4.3.4 Prehistoric artefacts include pottery, worked and burnt flint, and a few miscellaneous items such as an antler tool. The earliest evidence, in the form of worked flint and, from the Early Neolithic, pottery, is sporadic, but has the potential to contribute in broad terms to a consideration of the nature of contemporaneous activity in the area. Evidence from the Late Neolithic/Early Bronze Age period is sparse, but later prehistoric material is more forthcoming, in the form of flintwork and pottery relating to the enclosures and associated features of Late Bronze Age to Late Iron Age date. The quantities, range and condition of the later prehistoric pottery assemblage in particular can be used to suggest the nature of on-site activity at this period, while fabric analysis can help to locate this assemblage, and hence the site itself, within its local and regional context.

ESTABLISH A DATED SEQUENCE FOR THE ORIGIN AND DEVELOPMENT OF SETTLEMENT INCLUDING ASSOCIATED ENCLOSURES AND TRACKWAYS, ETC.

4.3.5 For the prehistoric period, the primary dating evidence is provided by the ceramic assemblage, within the limitations placed by the non-chronologically distinctive nature of a significant proportion of the assemblage, and the redeposition of earlier material in later contexts. However, in general datable artefact groups from most contexts attributed to this period are small and have a correspondingly limited potential for refined dating. Later pottery assemblages, from the Late Iron Age through to the post-Roman period, are more susceptible to close dating, and have already informed the preliminary phasing of the site; further analysis may be able to refine this dating slightly, although the overall sequence is unlikely to change.

4.3.6 Other artefact types can be dated with more precision; these include coinage and other metalwork (brooches and other non-ferrous objects) which enable a dated sequence to be compiled for the origins and development of the Romano-British settlement.

4.3.7 Evidence for Anglo-Saxon settlement, to accompany the cemeteries, is more elusive, but is represented by a handful of artefacts, including ceramic loomweights and a bone pinbeater. There is sufficient evidence to posit the continuation of this settlement into the Late Saxon period.

DETERMINE THE MORPHOLOGY AND ORGANISATION OF THE LOCAL ROMAN LANDSCAPE.

4.3.8 The Late Iron Age/Romano-British pottery provides evidence for changes in land usage at Saltwood during the early Roman period, in the form of a sharp fall off in field-marling sherds during the 2nd century AD. Examination of the composition of pottery assemblages from the settlement itself may supply evidence for specialised

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activities taking place in discrete areas and for the social status of the site. Preliminary examination of the pottery, supported by the paucity of ceramic building materials, suggests that the site was of fairly low status at this time.

ESTABLISH A CHRONOLOGY AND SEQUENCE OF DEVELOPMENT FOR THE [ROMANO-BRITISH] CEMETERY IF ONE IS PRESENT.

4.3.9 Dating evidence from the two groups of Romano-British cremation burials is provided primarily by the accompanying pottery vessels, which as a group can be dated to the late 1st or 2nd century AD; fineware vessels within this group canbe dated relatively closely. Other dating evidence is in the form of brooches from four of the burials.

DETERMINE [ROMANO-BRITISH] BURIAL PRACTICE AS PRESERVED BY ARCHAEOLOGICAL REMAINS, INCLUDING ARTEFACT ASSEMBLAGES.

4.3.10 Pottery from the early Romano-British cremation cemeteries will contribute to the understanding of ritual activities associated with the burial of the dead during this period. The pots and their treatment at Saltwood, in terms of, for example, ritual damage, can be compared with the treatment of those at other contemporary cemeteries in East Kent. The deposition of brooches in the cremation burials can also be considered in the light of regional practices and of burials within East Kent as a whole.

TO ESTABLISH A CHRONOLOGY FOR THE ANGLO-SAXON CEMETERY(IES).

4.3.11 A wide variety of items was recovered from the graves within the Anglo-Saxon cemeteries, and many of these can aid in the establishment of an overall chronology for the cemeteries within the broad range of 6th to 7th century, and the more specific dating of certain graves. The more closely datable artefacts include jewellery (particularly brooches and beads), weapons (swords, spears, shields, etc), glass vessels, iron weaving batten, metal drinking vessel mounts, and rare and 'exotic' items such as a rock crystal sphere, a set of gaming pieces and three 'Coptic' bronze bowls. Much of this material finds ready parallels within other Kentish cemeteries, but also with Continental material. The rock crystal sphere, for instance, is a rare, imported object that has the potential not only to assist in issues of chronology, but also trade and exchange mechanisms and the development of costume over time.

4.3.12 Many of these artefacts, such as weapons, can be broadly ascribed to existing typological frameworks, but the wealth of dating evidence from Saltwood is significant in its potential to enable the testing of existing phasing based on specific artefact types, and hence to review the dating of other Kentish cemeteries. Less important for dating purposes is the pottery assemblage from the cemeteries, since pots occurring with metalwork in the graves are already "dated" by association, and the chronology of Early Anglo-Saxon ceramics from this part of East Kent is little researched and is not well-understood. The cemetery assemblage, however, gives scope for the reviewing of the ceramic sequence through dated associations.

4.3.13 It will also be possible to relate the Saltwood ceramics to groups from Dolland's Moor and from the recent work at the Buckland cemetery. The Saltwood ceramics derive both from small-scale settlement and cemetery contexts and they need to be viewed together and compared with published and unpublished material from the region. They form one of the most important groups for this period within this region of East Kent and there is the potential to establish whether influences in potting traditions come from the Continent, from Sussex, or from the Canterbury area.

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4.3.14 To date, little work has been done on the fabric types in the region, and it is suggested that a programme of scientific analysis could be undertaken in order to clarify the major fabric types. Bearing in mind the fact that the site is situated on a complicated geological zone, it is proposed that a series of thin section and possible ICPS (Inducto-Coupled Plasma Spectography) samples be analysed, using fabric examples from Canterbury, Saltwood and the adjacent Channel Tunnel sites. The sourced fabrics from both Saltwood and Canterbury are visually indistinguishable, and it is proposed that the fabrics are scientifically analysed in order to characterise their petrological differences. This would also help to categorise the sand and glauconite-tempered vessel from grave 32, a very unusual and rare form in Kent, the abundance of glauconite being more commonly seen with Roman ceramics.

TO ESTABLISH THE RANGE VARIATION IN [ANGLO-SAXON] BURIAL RITES, AND TO VIEW POSSIBLE CHANGE IN RITE OVER TIME.

4.3.15 Variations in burial rites and the general development of the cemetery can be highlighted by a study of the pottery; do the vessels, for example, come from the graves of males or females, juveniles or adults? Provisional results suggest that they are found in burials of both males and females, without any obvious patterning; but that they are prominent in the graves of children and juveniles, and less apparent in the graves of adults. In addition, it may be possible to determine whether the pottery was deliberately made for burial in the grave, or whether vessels were re-used (*i.e.* evidence for wear, sooting and completeness). Vessel form and size will be a further consideration.

4.3.16 The artefactual assemblage from the cemeteries allows the identification of two groups of particularly significant burials, one of wealthy females, lavishly furnished with jewellery and other 'luxury' items, and the other of wealthy male weapons burials, also containing exotic items such as 'Coptic' bronze bowls. The identified time-span of the use of the cemeteries (6^{th} to late 7^{th} centuries AD), and the presence/absence of closely datable artefact types, will allow the examination of changes in the way in which wealthy individuals were treated during burial, for example in the differing ways in which weapons were selected and placed in the graves of males, or in the varying range of non-jewellery items accompanying females, such as keys/girdlehangers, glass vessels, rock crystal sphere, iron weaving batten.

4.3.17 Both groups confirm the high status association of containers (glass vessels, iron-bound buckets, wooden boxes, bronze bowls). The nature of Frankish-Kentish relations can be explored through the use of the Continental rite in the deposition of certain weapons types, and Frankish influences on rich female costume and its accessories. From a wider perspective, the quantity of weapons at Saltwood, including less common types such as angons and arrowheads, will allow a re-examination of the role of the weapon burial rite in Kentish cemeteries.

4.3.18 The less richly furnished graves, however, are equally important for an understanding of burial rites, and here there is the potential to study variation in the deposition of the more common artefact types such as pottery, knives, buckles and belt fittings, and also changes in the use of grave furniture through an examination of the iron fittings. Some variation may be gender- or age-related (for example, pottery vessels in the graves of children and juveniles), and some chronological (such as the postulated decreasing frequency of knife deposition over time).

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4.3.19 Also of interest is the presence of the early Roman coin in a grave in SLT98C, one of the few pieces of Roman *spolia* to have been recovered from the cemeteries, perhaps kept for its amuletic value or as something more symbolic.

TO INDICATE THE GENERAL DEVELOPMENT OF THE [ANGLO-SAXON] CEMETERY(IES).

4.3.20 Datable artefacts have already indicated that the three Anglo-Saxon cemeteries were used sequentially in the order SFB99, SLT99 and SLT98C, although certain artefact types, notably the weapons and knives, suggest that some of the graves within the SLT99 cemetery could be relatively late, extending to the 7th century and overlapping with those from SLT98C.

4.3.21 Within this overall sequence of development, certain key moments can be identified, in the form of the burial of significant individuals with accompanying rich (and closely datable) artefactual assemblages. The relationship of grave goods and status is a complex one, but it should be possible to establish a series of pivotal burials (both male and female) within the various cemeteries, and to view these in a chronological progression. By relating these topographically and in terms of their assemblages to the other graves, it should be possible to propose models for the nature and development of the Saltwood burial grounds, supported by the chronological evidence of other artefact types.

TO IDENTIFY THE USE OF SPACE WITHIN THE BURIAL LANDSCAPE.

4.3.22 It has been noted that graves with shields tend to cluster together, and similar spatial studies are possible for spearheads in relation to male graves in general and to weapon graves as a subset of those burials. It is possible to look at the use of space and the grouping of weapon graves over time, in relation to the development of the various cemeteries.

4.3.23 Within the graves themselves, the arrangement of grave goods is of interest in terms of the symbolism of functional spaces, and the use of space can be examined through the deposition of various artefact types, and the changes in this deposition through time. The results from Saltwood therefore offer significant potential to examine this objective.

RECOVERY OF DATED ENVIRONMENTAL AND ECONOMIC INDICATORS IF THESE ARE FOUND TO BE PRESENT ON SITE.

4.3.24 Some indication of the site economy can be gained from certain artefact types. Utilitarian items have the potential to inform on domestic and small-scale craft/industrial activities such as fishing (Romano-British lead line spacer), metalworking (Romano-British metalworking residues), textile-working (Anglo-Saxon loomweights and pinbeater) and dairying (the high proportion of wide bowls in the early medieval pottery assemblage).

4.3.25 The loomweights, for instance, potentially indicate settlement activity of both Early and Late Saxon date. The Early Anglo-Saxon evidence can be placed alongside the structural evidence recorded (i.e. building C35). The Late Saxon material is less obvious but is nonetheless apparent, and it is even possible that there was some form of continuity of settlement here across the Anglo-Saxon period, although this suggestion is not supported by the pottery evidence.

4.3.26 In a wider context, to set the site within the local and regional economic network, various artefact types can be examined in terms of known or potential source areas. For the later prehistoric, Romano-British and post-Roman periods the pottery

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assemblages are important in this respect, and fabric analysis, conducted against the background of the known ceramic sequence for the region and supplemented by petrological analysis where appropriate, will help to identify the changing sources of supply, local, regional and Continental.

4.3.27 The small quantity of Romano-British stone objects, some of which are long-distance traded items, can also add to this picture. It is the artefactual assemblage from the Anglo-Saxon cemeteries, however, which has perhaps the best potential for the examination of trading networks, through the presence of a number of imported objects, which demonstrate both cultural affinities and trading links with the Continent, such as jewellery, weapons, rock crystal sphere, 'Coptic' bronze bowls, glass vessels, and horse harness.

Landscape Zone Priorities

4.3.28 The Landscape Zone priorities will be addressed against the significant research objective time periods represented at the site.

ESTABLISH THE BASIS OF THE RURAL ECONOMY FOR THE AREA FOR ALL TIME PERIODS, BUT ESPECIALLY THROUGH THE RECOVERY OF MATERIAL AND ENVIRONMENTAL REMAINS:

Early Agriculturalists (4500 – 2000 BC)

4.3.29 Artefactual evidence for the early prehistoric period is sparse, and the potential for examination of the rural economy correspondingly limited. What evidence there is – pottery and flintwork of Early Neolithic to Early Bronze Age date – could have resulted from either domestic or ritual activity of a short-term nature.

Farming Communities (2000 – 100 BC)

4.3.30 With the establishment of settlement and associated field systems from the Late Bronze Age/Early Iron Age artefactual evidence becomes more plentiful, although direct evidence for the rural economy is still restricted. Pottery is the most common material type, and the assemblage suggests a relatively modest domestic assemblage from a range of sources, most if not all local to the site.

Towns and their rural landscape (100 BC – AD 1700)

4.3.31 Continuity of settlement into the Romano-British period is marked by no great changes in the artefactual assemblage beyond an extension in the range of material types represented. This is still an assemblage of largely domestic nature, although there is some scope for an exploration of the rural economy through the presence of coinage, regional and imported pottery wares. Evidence to suggest small-scale industrial activity was recorded, potentially comprising both iron- and copper alloy-working, either within or just outside the Roman settlement.

4.3.32 Apart from the cemetery assemblages, economic evidence from the Anglo-Saxon period is limited to textile-working equipment and a small quantity of locally-produced pottery.

4.3.33 Because of the fairly small quantities involved, their generally poor state of preservation and unremarkable character, the medieval assemblage is of limited value in terms of further advancing our knowledge of post-Saxon pottery in this part of Kent. However, the medieval pottery assemblage provides a window into the ceramics of an area of rural Kent where virtually no ceramic research has been conducted previously, and the utilitarian nature of the pottery provides a degree of information on the relatively low status and economy of the site – the high

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proportion of wide bowls, generally considered indicative of dairy farming, is therefore suggestive of a pastoral economy.

4.3.34 Therefore, the potential of the medieval pottery assemblage is centered mainly in terms of the local wares that have received little detailed investigation until now. Their association with better-understood Canterbury wares is particularly useful in establishing more accurate estimates of their dates of circulation. In this respect it does have some potential to enhance our knowledge of ceramic traditions in the Wealden/south coast area of Kent.

RITUAL AND CEREMONIAL USE OF THE LANDSCAPE.

Early Agriculturalists (4500 – 2000 BC)

4.3.35 As noted above, the sporadic artefactual evidence from the early prehistoric period (pottery and flintwork from Early Neolithic pits) could relate either to domestic or ritual activity; further comparative analysis may clarify this issue.

Farming Communities (2000 – 100 BC)

4.3.36 More conclusive evidence for the ritual use of the landscape comes from the Early Bronze Age, when a series of barrows were constructed and other funerary remains deposited. Funerary activity continued into the later prehistoric period with a number of cremation-related deposits, probably Late Bronze Age or Early Iron Age, followed by a cluster of inhumation burials in the Early/Middle Iron Age. Apart from a complete Food Vessel which accompanied one of the Early Bronze Age inhumation burials, there are no associated artefacts from any of these deposits, and the only other evidence is therefore derived from the human remains themselves.

Towns and their rural landscape (100 BC – AD 1700)

4.3.37 Two small groups of cremation burials were deposited in the early Romano-British period (c.AD 43 - 200). Artefactual evidence from these burials – pottery vessels and brooches – allows some examination of burial ritual, while the cremated human bone has some limited potential for the examination of demography and palaeopathology.

4.3.38 The most significant evidence for the ritual use of the landscape, however, comes in the early Anglo-Saxon period, with the sequential establishment and use of three inhumation cemeteries, each containing a number of burials, including some, of both male and female individuals, which were particularly richly furnished. There is significant potential here for the exploration of the development of the cemeteries through artefact analysis, and the burial rites practised therein, against the background of the substantial data base of contemporary cemetery sites in Kent, and the demonstrably close cultural links with the Continent.

4.4 Environmental Potential

Introduction

4.4.1 A large suite of samples were collected and processed, including several monoliths (description and pollen) and kubiena tins (soil mircomorphology), with hand collection of animal bone facilitating the retrieval of palaeo-environmental remains. The potential contribution of this suite of environmental data is therefore set out below in relation to the appropriate Fieldwork Event Aims and Landscape Research Objectives. Those aims and objectives not considered appropriate to be addressed by the environmental data are not considered below.

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Fieldwork Event Aims

TO IDENTIFY THE NATURE OF THE PREHISTORIC ACTIVITY, DETERMINE ITS EXTENT AND PLACE IN THE LANDSCAPE.

4.4.2 The charred remains provide the potential to define a number of landscape-related activities and site-based activities relating to agricultural practices from the Early Neolithic period onwards. The charcoal has the potential to define the nature of the exploited landscape and place that activity within the landscape

DETERMINE THE CONTEMPORARY [ROMANO-BRITISH] LOCAL ENVIRONMENT.

4.4.3 The charred remains have the potential to provide some indication of the nature of the Romano-British environment. Pollen, if present, has the potential to define the precise nature of this landscape and land-use over limited time periods (i.e. ditch infill sequences), but the lack of good contexts inhibits high resolution interpretation of land-use and its economic inferences. The poor preservation of land snails hinders detailed understanding of local land-use.

RECOVERY OF INFORMATION ON ROMANO-BRITISH BURIAL PRACTICE, PALAEOPATHOLOGY AND DEMOGRAPHIC STUDIES.

4.4.4 Information on palaeopathology and demography for the Romano-British period comes from the cremated and human human remains from the small groups of burials. Preservation of the cremated bone is generally good, and will allow comment on funerary rites through pyre technology and bone collection strategies, as well as a limited assessment of demography and palaeopathology. The preservation of the inhumed bone, although poor, may also contribute to this aim, although the small population size will hinder meaningful analysis.

TO ESTABLISH A CHRONOLOGY FOR THE ANGLO-SAXON CEMETERY(IES).

4.4.5 The environmental remains cannot contribute to this. Charcoal may be able to facilitate radiocarbon dating, but the likelihood is that a closer and more useful chronology will be established through artefact analysis. The human bones themselves have the potential to provide a chronology and chronological development of the cemeteries providing that a statistically representative and large enough population is sampled and statistically modelled.

4.4.6 However, the sample population available from Saltwood (i.e. the quantity of suitable bone) is too small to facilitate detailed modelling and the resultant determinations will need to have standard deviations of less than ±40 BP (Bayliss pers. comm.) due to the resolution of the calibrated results at this period. There is little or no potential for a series of high precision dates because of the poor preservation (McCormac pers. comm.).

RECOVERY OF DATED ENVIRONMENTAL AND ECONOMIC INDICATORS IF THESE ARE FOUND TO BE PRESENT ON SITE.

4.4.7 There is the potential of both the charred remains and the faunal remains to provide radiocarbon dates to construct a dating framework. The range and diversity of remains also potentially allows environmental and economic 'bench marks' to be established for each major phase of activity as defined in the excavation and stratigraphic record. This will facilitate comparison through time and thus explore the potential of development and change in ecology and local environment.

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Landscape Zone Priorities

4.4.8 The Landscape Zone priorities will be addressed against the significant research objective time periods represented at the site.

A RECONSTRUCTION OF THE CHANGING PALAEO-ENVIRONMENT FOR ALL TIME PERIODS PRESENT, THROUGH 'ON-SITE' AND 'OFF-SITE' STUDIES AND THE INTERACTION WITH PAST ECONOMIES.

Early Agriculturalists (4500 – 2000 BC)

4.4.9 The Neolithic data although not exceptional in its own right, will contribute significantly to the pursuit of this objective, not just for Saltwood, but to research into this period for East Kent as a whole. Other recent investigations in Kent, both associated with the CTRL and elsewhere (i.e. causewayed enclosures at Ramsgate and Sheppey), have made a significant contributed to the availability of comparable material.

4.4.10 Most of information for Neolithic cereals and cultivation for Kent is obtained from either grain impressions in pottery (Helbeck) or the wider national picture. Detailed work on weed seeds, chaff and crop processing, and of the full range of charcoal, rather than larger hand-picked specimens, is only available for very few sites in south-eastern England. Such data is not just important in understanding these elements of Neolithic society and economy in Kent, but nationally.

4.4.11 Few other contexts relate to this phase, and most belong to the latter end of this timescale (Early Bronze Age). Where sampled, there are so few, if any, charred remains from these later samples that there is little or no potential for the environmental remains to contribute to this theme. Some comparable Early Bronze Age remains have been noted during construction of the CTRL, such as the double inhumation at Northumberland Bottom (URS 1999). However, although some regional information is available (especially from the pollen record at Frogholt - Godwin 1962) Saltwood provides little or no data with which to compare or contrast.

Farming Communities (2000 – 100 BC)

4.4.12 There is limited potential to examine changes through time of the local environment. The typical lack of well-preserved and well-stratified deposits suitable for the recovery of good pollen sequences provides little or no potential to significantly contribute to this theme.

Towns and their rural landscape (100 BC – AD 1700)

4.4.13 Although the charred remains and faunal evidence can contribute a little towards this theme, lack of suitable long sequences for pollen and lack of good survival of land snails do not enable the environmental remains to significantly contribute to this theme.

ESTABLISH THE BASIS OF THE RURAL ECONOMY FOR THE AREA FOR ALL TIME PERIODS, BUT ESPECIALLY THROUGH THE RECOVERY OF MATERIAL AND ENVIRONMENTAL REMAINS:

Early Agriculturalists (4500 – 2000 BC)

4.4.14 Again, the Neolithic material will contribute to this poorly understood period of prehistory in Kent, although the relatively small number of features and/or deposits may hinder definitive statements regarding the rural economy. Because of the paucity of charred remains associated with the later phase of this period, there is little or no potential for that environmental data to significantly contribute to this theme.

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Farming Communities (2000 – 100 BC)

4.4.15 The comprehensive range of charred remains provides a good opportunity to significantly contribute to the nature, scale, and form of farming during this period. Such data can be related to the present understanding in Kent and make a significant contribution to the farming economy. The limited faunal assemblages, however, constrain the potential for examining animal husbandry and pastoral economy.

Towns and their rural landscape (100 BC – AD 1700))

4.4.16 In the earlier part of this defined phase, the environmental remains can significantly contribute towards the understanding of the rural landscape, however contexts for the latter phases are sparse, and as such the environmental record potential is diminished.

RITUAL AND CEREMONIAL USE OF THE LANDSCAPE.

Early Agriculturalists (4500 – 2000 BC)

4.4.17 If it can be confidently determined that the Neolithic features represent 'placed-deposits', a significant opportunity will be allowed for study of the role of ecofacts within such ritual.

Farming Communities (2000 – 100 BC)

4.4.18 Funerary activity during this period comprised a number of cremation-related deposits, probably Late Bronze Age or Early Iron Age, and a small group of inhumation burials in the Early/Middle Iron Age. In general, of the buried human remains recorded, the cremated bone is the better preserved, and therefore has the greater potential, although still somewhat limited, for an assessment of demography and palaeopathology, as well as comment on the funerary rites which resulted in these deposits, only one of which seems to relate to *in situ* burial.

Towns and their rural landscape (100 BC – AD 1700)

4.4.19 The ecofact assemblage in, and associated with, the Saxon graves have the potential to provide some, albeit limited, information on ritual practices associated with the funerary process. In particular, both charcoal derived from pyres and charred seed heads from pyre-related contexts can provide information on rituals of cremation and burial.

4.4.20 The associated human remains unfortunately do not survive so well, but it should be possible to extract tighter age ranges and attribute a sex to more of the individuals from the inhumation burials and, thereby broaden the demographic database. The scope for assessment of assemblage homogeneity based on skeletal indices and of health, diet and status based on pathological data will be severely limited due to the very poor bone survival.

4.5 Dating Potential

4.5.1 The presence of discontinuous activity from the Early Neolithic through to the early medieval period provides a useful sequence against which a suite of radiocarbon determinations could be applied. On the basis of recovered material, radiocarbon dating would significantly enhance the potential of the following features/ phases;

- *The Early Neolithic features – to complement the diagnostic artefacts and place them within a secure chronological framework in relation to similarly dated remains elsewhere in Kent,*

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- *The Bronze Age barrows – to place these into a secure chronological framework and to assist in the determination of the cemetery development (i.e. phased vs single event),*

- *The non-Saxon (Iron Age ?) inhumations – to confirm their phasing and therefore confidently identify ritual activity associated with this phase, and*

- *The Early Anglo-Saxon occupation on a Late Roman site – evidence for continuity between these periods is rare (although abandonment and reuse less so) and it may therefore be possible to confirm through radiocarbon determinations that activity between the periods is continuous.*

4.5.2 Although radiocarbon dating for the Anglo-Saxon burials would assist in refining the relative and absolute chronologies for Early Anglo-Saxon burial based on artefact analysis, the amount of available bone for such determinations is poor at best. It would therefore only be considered viable to obtain radiocarbon determinations from the cemeteries to date individual burials. Statistically it is very unlikely that significant differentiation could be obtained to confidently identify burial phases, either within individual cemeteries, or even between cemeteries.

4.5.3 The selection of appropriate contexts for such analysis will be determined through a combination of criteria, not least of which would be detailed stratigraphic analysis and a consideration of associated diagnostic artefacts.

4.5.4 Specific needs can also be identified, including;

- *The inhumation burial lying over metalworking debris beside trackway C2. This burial is thought to be of Late Roman date on stratigraphic grounds.*

4.5.5 Although other dating techniques have been considered, such as nuclear magnetic resonance dating and OSL dating, none are considered viable given the nature of the archaeological resource from Saltwood Tunnel.

4.6 Documentary potential

4.6.1 Few documents are known that can contribute significantly to the specific study of the development of the archaeological landscape at Saltwood Tunnel. Those that have been traced do, however, consider the wider picture, particularly with regard to the latter stages of *Towns and their rural landscapes* and *The recent landscape*. Nevertheless, it is concluded that the potential for documentary and/or historical research to contribute to the site narrative is low.

4.6.2 Of note in the documentary assessment is the possible proximity to the meeting place of the Heane Hundred; barrows were frequently used as markers in the Hundred boundary system during the later Anglo-Saxon period (Semple 1998, 113).

4.7 Overall Potential

4.7.1 Investigations at Saltwood Tunnel have identified a complex multi-phase landscape, demonstrating sustained human activity on the plateau from at least the Early Neolithic onwards. Although the Anglo-Saxon burials, and the Early Bronze Age barrows on which they focus, would be considered significant finds in isolation, the

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remainder of the remains by period are perhaps unremarkable when viewed in isolation.

4.7.2 What is of greater significance at Saltwood is the potential that the site as a whole offers. There have been few, if any opportunities to examine the development of an archaeological landscape to such a scale as offered by the CTRL investigations at Saltwood Tunnel (and elsewhere, such as Springhead). Therefore, care must be taken to avoid focussing too closely on specific periods or activities, losing a more holistic view of the landscape development.

4.7.3 In this context, specific elements of the landscape development can be highlighted, predominantly focussing on the transitional periods during the site development;

- *The earliest activity on the plateau during the Early Neolithic,*
- *The juxtaposition of the later prehistoric domestic and ritual landscapes,*
- *The trackway development and its role in defining the subsequent landscape,*
- *The Romano-British settlement and its possible transition through to Anglo-Saxon occupation of the area, and*
- *The Anglo-Saxon cemeteries.*

4.7.4 Although evidence for prehistoric settlement patterns has been increasing over recent years, particularly as a result of CTRL investigations, the picture for Kent as a whole is still patchy. The Kent Sites and Monuments Record (SMR) notes a mere 131 entries that are dated as generic Neolithic (see **Figure 4 – inset**). Of these eight relate to the well-known Medway megaliths, and a further 57 comprise stray finds (primarily worked flint and stone), some of which cannot be more closely dated than 'Late Neolithic/ Bronze Age'. The remainder comprise 20 occupation sites, 11 flint working sites, 15 burials and 20 stray features or groups of features that cannot be confidently identified as occupation remains. The majority of these remains focus on the Medway megaliths, the A2 corridor and the Isle of Thanet; few are recorded in the vicinity of Saltwood with the exception of some occupation evidence in the vicinity of Folkestone. The Neolithic potential can therefore be considered from two viewpoints;

- *The site offers the opportunity to expand our knowledge base for this period in the history of Kent, in a part of the region that is particularly under-represented in the corpus to date; however*
- *The absence of comparanda with the Neolithic remains at Saltwood will restrict detailed analysis, and the ability to place these results into a broader context, although recent discoveries have made significant contributions to the available comparable evidence.*

4.7.5 The Neolithic of Kent had been 'neglected' (Clarke 1982, 25) in the early 1980s when it was claimed that the prehistory of Kent as a whole had been 'virtually ignored' (Clarke 1982, 25). Barbers' paper illustrates the rarity of Neolithic sites in Kent, as throughout the paper he struggles to find sites in Kent and nearly all the sites and examples he quotes are drawn from Sussex or much wider afield, in the absence of referenceable sites or data from the county.

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4.7.6 One of the major exceptions is the nationally important work at White Horse Stone, where exceptional Neolithic settlement evidence (see for instance Darvil and Thomas 1996; Barber 1997) was preserved under hillwash. This site has recently revealed an almost unparallelled Neolithic long-house during investigations associated with the CTRL. Other recent investigations also include the discovery of at least two causewayed enclosures, a monument type hitherto unknown in Kent, at Ramsgate and Sheppey, with a further two more provisionally identified from aerial photographs in the Medway Valley and near Tilmanstone (Dyson *et al* 2000).

4.7.7 From a more holistic perspective, there is very good potential here to view the various phases of prehistoric activity from the Neolithic period onwards, although in the absence of secure artefact dating and/or complex stratigraphic relationships, absolute dating would be essential to pursue this aim. The precise date at which the area became a burial landscape is as yet uncertain, but an Early Bronze Age date would accord well with the evidence from elsewhere in the county. The dispersed nature of the barrows is clear, as also is the formation of intrinsically related routes, possibly of ceremonial function. There is the potential to view Saltwood Tunnel in a broader, regional framework for this period, in relation to, for instance, Dollands Moor. There, both barrows and accompanying settlements (with trackways) have also been found, reflecting the apparent encroachment of domestic/ agrarian activity into a former funerary landscape.

4.7.8 The transition to an area of rural settlement can be seen very well at Saltwood Tunnel. The potential exists to examine the Bronze Age settlement for its layout and spatial organisation. Fortuitous survivals of plant remains enable something to be said of the economic basis of this settlement.

4.7.9 The trackways, at least from the Iron Age onwards, appear to exert a defining influence on the subsequent development of the archaeological landscape, as much so as the Bronze Age barrows. A wider consideration of the role of the trackways may therefore contribute to consideration of their significance at other sites. The relationship of the area to the Roman road system, and the way in which the earlier tracks were maintained and incorporated into such a system is also therefore pertinent.

4.7.10 Analysis of the evidence for the enclosure/field boundary system at Saltwood Tunnel has considerable potential for the study of Roman settlement organisation in view of the rarity of such sites in the area. In particular, it will illustrate the layout of those enclosures set on the periphery of the settlement and the means of providing physical barriers around their margins. The dry-stone footings associated with ditches are unexpected, although similar remains were noted at Dollands Moor to the east.

4.7.11 The ceramic assessment has identified potential changes and spatial fluctuations in pottery supply, specifically between the Late Iron Age and Late Roman periods. The proportion of ceramics present indicates a decline in activity in early 4th century AD. The assemblage also points to changes in agricultural use; the large numbers of abraded pottery sherds recovered from the site probably indicate field marling.

4.7.12 The Anglo-Saxon cemeteries, by virtue of the impressive array of artefacts recovered, are one of the most striking discoveries at Saltwood Tunnel. They offer the best opportunity for hypothesis testing since Dover, Buckland and the unparalleled potential for examination of a series of burial groups in their landscape

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setting. Early Anglo-Saxon Kent is both under-excavated (Hawkes 1982, 75) and under-published (Dickinson 1980, 16; Geake 1997, 23).

4.7.13 Although the location of any settlement(s) related to the Saltwood Tunnel cemeteries remains unknown, further consideration of its likely size and nature will be necessary at the analysis stage. Questions relating to the burying community will include consideration of whether the buried populations came from the same settlement and, in particular, why at least two of the cemeteries remained in use at the same time. Early Anglo-Saxon settlement traces at Saltwood Tunnel here can be compared, in broad terms, with evidence from *Sandtun* (West Hythe) to the west and Dolland's Moor to the east, thereby providing a broader settlement landscape. The presence of buildings and graves in close proximity at this period mirrors the situation seen earlier in the Late Bronze Age and Late Iron Age periods.

4.8 Updated Research Aims and Objectives

4.8.1 Specialist assessments, particularly related to the Anglo-Saxon grave goods, have identified a number of new research themes that could be considered at the analysis stage. Those that cannot be considered under a broader interpretation of existing aims and objectives have been synthesised into the following updated Research Aims and Objectives;

- *To critically examine trade and exchange, ethnicity, and foreign/ external influences for all periods represented at Saltwood Tunnel, and in particular the Early Anglo-Saxon cemeteries, and note developments and changes over time.*

4.8.2 Pending the results of detailed analysis, certain of the objects deposited in graves at Saltwood Tunnel appear to come from from a very great distance. These include the 'Coptic' bowls, many of which reached Britain during the reign of Ethelbert in the second half of the 6th century. The bowls originated in Byzantium and would have travelled 'across the Mediterranean to Aquileia, then over the Alps and down the Rhine, and finally to England' via one of the Kentish entry ports (Hawkes 1982, 74 and fig.33).

4.8.3 The crystal ball may have originated in Germany, Switzerland or northern Italy, while many other items indicate links with Scandinavia or Francia. Several other categories of finds and individual items may have been imported to Kent and distributed from there, such as the glass vessels from the Rhineland or France, and continental buckles, including one particularly significant item of possible Mediterranean origin.

4.8.4 Consideration will be given to the identification of alternative dynamic forces contributing to the evidence recovered at Saltwood. Do long-held views regarding apparent continental trade and exchange remain viable, particularly utilising higher precision provenancing techniques that were not necessarily available when many of the comparable datasets were under analysis.

- *To examine and determine material technology, and potentially identify production centres.*

4.8.5 Technological analysis could focus on material identification and constructional information for certain categories of finds. Detailed technological research will

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include, for example, the identification of alloys and inlays on the cabochon pendants. Scientific study of the sword blades (metallurgy and radiography) is likely to have implications for the effectiveness of weapons in combat.

4.8.6 Another issue to be addressed is that of sources/production centres. There are also implications for the nature of importation: the swords, for example, may have been brought into Kent from the continent as blades, with the hilts added locally. Analysis of Anglo-Saxon ceramic types will entail a programme of scientific analysis to clarify the major fabric series.

- *To critically examine gender, age, social status and wealth as evidenced from the skeletal and material record.*

4.8.7 Many of the categories of finds recovered from the Anglo-Saxon burials are traditionally considered gender and/ or age-specific (e.g. jewellery, weapons, weaving battens, boxes etc.). It may prove possible to compare sexing achieved through skeletal analysis (and other techniques such as DNA analysis) with the results of artefact-based gender analysis. Child burials also have distinctive artefact traits. To a lesser extent, this may also be applied to the Late Iron Age/ Romano-British burials, and in particular the accompanied cremations.

4.8.8 Although no royal burials are known in Kent, to compare with, for example, those excavated at Sutton Hoo in Suffolk (Meany 1964; Bruce-Mitford 1975, 1978, 1983; Longworth and Kinnes 1980; Carver 1992, 1993) it is likely that the other known social ranks are represented. Beneath the king would have come the *Eorlcynd* or *Gesithcynd* – the high nobility, followed by the *Ceorl* – free land-holder of lesser status. These were succeeded by several levels of half-free *Laet* and finally those classes that were wholly servile (Hawkes 1982, 75). However, here again assumptions have often been made concerning the direct relationship between grave goods and status, which are now seen to be unfounded or difficult to reconcile with the cemetery evidence.

4.8.9 The deposited wealth within East Kent cemeteries remains something of a mystery. Seen from one perspective, for example, the Saltwood Tunnel burial landscape closely parallels that at Sutton Hoo in terms of the presence of several cemeteries positioned quite close to a royal vill (in the case of Saltwood at Lyminge), with a number of rich graves surrounded by satellite burials. If examples of the most richly furnished graves at Sutton Hoo are absent from Saltwood, the next level down is very well represented. In theory, Saltwood Tunnel can demonstrate a series of further tiers of graves below that one.

4.8.10 However, given that there is so much wealth at Saltwood, why are there so many unfurnished or sparsely furnished graves? Is this a question of ethnicity (the unfurnished natives buried alongside the incoming foreigners) and does this model really work for the 7th century? To what extent does deposited wealth accurately reflect social status? Can it realistically be correlated with the legal system known for Kent? These are questions that can be examined, if not necessarily answered with the information available. It could be argued that these are questions of a broader scale, which extend beyond the remit of this archaeological work.

- *To critically examine the symbolic, religious and occupational value of grave goods in the Early Anglo-Saxon burial rite.*

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4.8.11 Geake's recent publication usefully outlines her consideration for both the function and social meaning of each artefact category for the Conversion period (Geake 1997). Her analyses, which have been widely used already in the assessment stage, provide also a basis for further considerations.

4.8.12 Areas of the grave itself may have had symbolism (see above), while the buried items have their own meaning. Some, such as the keys, may indicate female domestic responsibility, although this interpretation has recently been brought into question (Geake 1997, 58). Others (such as the horse harness) may represent symbols of office. The iron-bound wooden vessels in the founder graves for the central cemetery (dating to Kentish Phase V) have been interpreted as liquid containers (or 'beer buckets') – the larger examples being communal and the smaller individual. As at many other Anglo-Saxon cemeteries, there is a general lack of everyday objects within the graves. Where these occur, as with the shoe fragments, they can frequently be exotic imports in any case, rather than mundane items. The gaming pieces can also be viewed as symbols, in this case indicating the pursuits of the elite and signifying both recreation and skill in strategy.

4.8.13 Comparatively few Early Anglo-Saxon graves indicate the professions of the deceased, and this situation is more readily seen in the Viking Period, with the graves of smiths, comb makers etc. A few items from Saltwood Tunnel provide indications of craft activities, as with the weaving batten, for example. Härke has shown convincingly that weapon graves are not warrior graves, and similar research which links the evidence of textile remains to that provided by dress accessories can be used to examine the statements made in the grave about the dress of the deceased and, correspondingly, their possible role in life. However, the absence of a detailed dataset for gender and age means that it is unlikely that age thresholds can be examined through skeletal analysis.

- *To critically examine the juxtaposition, development and relationship between adjacent Anglo-Saxon cemeteries and their associated trackways.*

4.8.14 The opportunity to examine the dates of and relationship between three associated Early Anglo-Saxon cemeteries in one sample is extremely rare and offers some exciting opportunities for further research. Although Saltwood is not unique in possessing three cemeteries in the same landscape, there have been very few comparable excavation opportunities. Lyminge and Eastry may have had similar numbers of burial areas (Eastry possibly having up to as many as four cemeteries), and there is certainly another cemetery to the west of Dover Buckland. Prior to Saltwood, however, there was no example of a landscape with potentially three cemeteries or more that had been tested by excavation.

4.8.15 Burials in the cemeteries at Saltwood span a substantial part of the Anglo-Saxon period, reaching into the beginning of the so-called 'conversion period' during the 7th to mid 9th centuries. Assessment of the artefact assemblages indicates that the eastern cemetery is the earliest, dating to the late 5th to mid 6th century (Phase II). There are no Kentish Phase I burials from Saltwood and there are none, as yet, from East Kent as a whole. This has clear implications for the nature of early settlement in Kent (Böhme 1986). It should be noted, however, that ceramics and other artefacts of Phase I date have come from settlement contexts within Canterbury itself (Blockley *et al* 1995). Finds from the western cemetery indicate its use from the mid 6th to 7th century (Phases III-VI, possibly with no burial during Phases IV

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and V), while the central cemetery includes burials dating to the 7th century (Phases V-VI).

4.8.16 A sub-set of burials with flanking ditches in the central cemetery may owe its character to Merovingian *Reihengräberfelder* or *cimetières par rangées* (essentially row-grave cemeteries) which were particularly common in north-eastern Gaul. Frankish influence on burial practice cannot be discounted. Dover Buckland, which is the most Frankish of all known Anglo-Saxon cemeteries, includes several similar neat rows of graves, as does Finglesham.

- *To examine the nature of Early Anglo-Saxon settlement, in relation to the nearby cemeteries.*

4.8.17 The few Early Anglo-Saxon objects from contexts outside of graves include ceramics, a loomweight fragment, a pair of tweezers and a bone or antler pinbeater. Early Anglo-Saxon settlement traces here can be compared, in broad terms, with evidence from *Sandtun* (West Hythe) to the west and Dolland's Moor to the east, thereby providing a broader settlement landscape. The presence of buildings and graves in close proximity at Saltwood during this period mirrors the situation seen in the Late Bronze Age and Late Iron Age periods.

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6.2 Post-excavation

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Table 10: Internal and External Specialists

Category	Appendix	Specialist	Organisation
Prehistoric Pottery	7.1	Lorraine Mepham	WA
Late Iron Age and Romano-British Pottery	7.2	Malcolm Lyne	Ext. Spec.
Anglo-Saxon Pottery	7.3	Mark Davey	CAT
Medieval and post-medieval Pottery	7.4	John Cotter	CAT
Ceramic Building Material	7.5	Louise Harrison Lorraine Mepham	CAT WA
Ceramic Loomweights	7.6	Ian Riddler	CAT
Fired Clay	7.7	Louise Harrison Lorraine Mepham	CAT WA
Prehistoric Worked Bone	7.8	Ian Riddler	CAT
Worked and Burnt Flint	7.9	Phil Harding Tania Wilson Andrew Crockett	WA Ext. Spec. WA
Romano-British Coinage	7.10	Ian Anderson	CAT
Romano-British Brooches	7.11	Don Mackreth	Ext. Spec.
Romano-British Copper Alloy and Silver Objects	7.12	Ian Riddler	CAT
Romano-British Iron Objects	7.13	Ian Riddler	CAT
Romano-British, med. and post-med. Pb Alloy Objects	7.14	Ian Riddler	CAT
Romano-British Metalworking Waste	7.15	Lynn Keys	Ext. Spec.
Romano-British Worked Stone	7.16	Ian Riddler	CAT
Anglo-Saxon Swords	7.17	Barry Ager Janet Lang	Ext. Spec. Ext. Spec.
Anglo-Saxon Spears	7.18	Axel Kerep	Ext. Spec.
Anglo-Saxon Angons	7.19	Axel Kerep Ian Riddler	Ext. Spec. CAT
Anglo-Saxon Arrowheads	7.20	Axel Kerep	Ext. Spec.
Anglo-Saxon Shields	7.21	Stephanie Spain	Ext. Spec.
Anglo-Saxon Horse Harness	7.22	Angela Care-Evans Ian Riddler	Ext. Spec. CAT
Anglo-Saxon Jewellery	7.23	Tania Dickinson	Ext. Spec.
Anglo-Saxon Beads	7.24	Sue Hirst Lorraine Mepham	Ext. Spec. WA
Anglo-Saxon Gold Strip	7.25	Penelope Walton Rogers	Ext. Spec.
Anglo-Saxon Stone Object	7.26	Ian Riddler	CAT
Anglo-Saxon Buckles and Belt Fittings	7.27	Sonia Marzinzik	Ext. Spec.
Anglo-Saxon Glass	7.28	Win Stevens	Ext. Spec.
Anglo-Saxon Knives	7.29	Ian Riddler	CAT
Anglo-Saxon Keys and Girdle Hangers	7.30	Ian Riddler	CAT
Anglo-Saxon Mineralised Leather	7.31	Esther Cameron	Ext. Spec.
Anglo-Saxon Textile Remains	7.32	Penelope Walton Rogers	Ext. Spec.
Anglo-Saxon Textile Implements	7.33	Ian Riddler Penelope Walton Rogers	CAT Ext. Spec.
Anglo-Saxon Byzantine 'Coptic' Bowls	7.34	Ian Riddler	CAT
Anglo-Saxon Iron-bound Containers	7.35	Jean Cook Ian Riddler	Ext. Spec. CAT
Anglo-Saxon Box Fittings	7.36	Ian Riddler	CAT
Anglo-Saxon Gaming Pieces	7.37	Ian Riddler	CAT
Anglo-Saxon Structural Ironwork	7.38	Ian Riddler	CAT
Anglo-Saxon Miscellaneous Objects	7.39	Ian Riddler	CAT
Anglo-Saxon Non-Ferrous Object Technology	7.40	Catherine Mortimer	Ext. Spec.
Anglo-Saxon Ferrous Object Technology	7.41	Brian Gilmour	Ext. Spec.
Charred Plant Remains and Charcoal	7.42	Enid Allison Mike Allen	CAT WA
Pollen	7.43	Mike Allen Rob Scaife	WA Ext. Spec.
Mollusc Remains	7.44	Mike Allen	WA
Soil Micromorphology	7.45	Mike Allen	WA
Soil pH and Phosphates	7.46	Mike Allen	WA
Human Bone	7.47	Jackie MacKinley	WA
Animal Bone	7.48	Robin Bendrey Pippa Smith	CAT WA
Documentary Research	7.49	Sheila Sweetinburgh	Ext. Spec.
Conservation	7.50	Rob White	Ext. Spec.

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