



Gatwick Airport Northern Runway Project

Environmental Statement

Appendix 7.8.1: Written Scheme of Investigation for Post-Consent Archaeological Investigations –
Surrey – Clean Version

Book 5

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1 Introduction

- 1.1.1 Gatwick Airport lies within the administrative area of Crawley Borough Council (in the county of West Sussex) and immediately adjacent to the boundaries of Mole Valley District Council (Surrey) to the north west, Reigate and Banstead Borough Council (Surrey) to the north east, Tandridge District Council (Surrey) to the east, and Horsham District Council (West Sussex) to the south west.
- 1.1.2 Gatwick Airport Ltd (GAL) has prepared an application for a Development Consent Order (DCO) for works required in connection with making better use of the airport's existing runways (the Project).
- 1.1.3 The Project proposes alterations to the existing northern runway which, together with the lifting of the current restrictions on its use, would enable dual runway operations. The Project includes the development of a range of infrastructure and facilities which, with the alterations to the northern runway, would enable the airport passenger numbers and aircraft operations to increase (see **Figure 1** for Project site boundary).
- 1.1.4 **ES Appendix 7.6.1: Historic Environment Baseline Report** [APP101] includes a plan showing the Historic Environment Record (HER) entries and the locally designated areas of archaeological potential (referred to as Areas of High Archaeological Potential (AHAPs) for Surrey). This has been reproduced here as **Figure 2**.
- 1.1.5 Land within Surrey required for the Project includes an area to the north of 'Longbridge Roundabout' (at the junction of the A23 and A217 roads) which includes part of the Church Road (Horley) Conservation Area. It also includes land to the north of the South Terminal Roundabout (the junction of the M23 Spur Road and the A23 Airport Way) and to the east of the London to Brighton mainline railway (**Figures 1 and 4**). This land is known as 'Reigate Field' and is referred to as 'Area F' in **ES Chapter 7: Historic Environment** [APP-032] as this was an area reference allocation for the geophysical survey undertaken for the Project.
- 1.1.6 One further area of land within Surrey which is required for the Project and which is discussed further within this Written Scheme of Investigation (WSI) is the northern part of Car Park B, which is located to the west of the north/south aligned London to Brighton mainline railway and to the north of the A23 Airport Way (**Figures 3-7**). Proposals for this northern part of Car Park B include initial

use as a construction compound with the subsequent removal of hardstandings and the establishment of environmental mitigation measures (soft landscaping) to form an eastern extension to the existing Riverside Garden Park and replacement open space.

- 1.1.7 The northern part of Car Park B is included within a slightly larger locally designated AHAP. The designation appears to have been made on the basis of antiquarian findings likely to have occurred during the construction of the London to Brighton mainline railway which opened in 1841 (**Figure 6**). The 19th century finds included pieces of prehistoric flintwork, Late Iron Age cremation burials, and Roman pottery and coins.
- 1.1.8 Car Park B, including that part north of the A23 Airport Way, previously formed part of a larger surface car park which was in use in the 1950s following the expansion of Gatwick Airport. Much of the car park was subsequently used as a worksite during the construction of the A23 Airport Way and the M23 Spur in the early 1970s. This appears to have required the removal of the car park hardstanding and possibly the stripping of the area down to bedrock (**Figures 8-10**). Following this disturbance, the car park was resurfaced and reinstated in its current form.
- 1.1.9 At a meeting of 14th April 2023 with the Historic Environment Planning (HEP) team at Surrey County Council (SCC) it was agreed that following geophysical survey and/or archaeological trial trenching at the Longbridge Roundabout and Reigate Field (Area F) sites, no further archaeological investigations would be required at those locations following the granting of consent for the Project.
- 1.1.10 It was also agreed at the same meeting that the northern part of Car Park B was the only remaining area of possible archaeological interest for the Project within Surrey, although the archaeological potential of this car park was likely to have been severely compromised as a result of the previous ground disturbance events. As such, pre-submission trial trenching investigation is not required. Instead, it is agreed that a (potentially) staged investigation will be undertaken in order to establish whether any truncated archaeological remains survive at this location. The initial stage of the investigation will comprise the excavation of a total of five exploratory archaeological test pits. This stage of work will be undertaken at an early stage of the Project once the car park is transferred to the main contractor for use as a construction compound. The archaeological test pits will be cut through the car park surface and underlying materials in order to establish the likely degree of truncation of the basal geology below.

- 1.1.11 This WSI describes the methodologies that will be employed in the undertaking of the programme of archaeological test pits, which in the event that good preservation of the underlying geology is indicated, may lead to additional trial trenches and/or archaeological Strip, Map and Sample (SMS) fieldwork, along with appropriate reporting and archive deposition. The WSI has been prepared in accordance with the appropriate standards and guidance (ClfA 2014a; Surrey County Council Historic Environment Planning, 2023).
- 1.1.12 The locations of all pre-construction archaeological investigations would be assessed for their potential impacts on ecology and nature conservation and appropriate mitigation would be implemented. This would include altering survey locations to avoid damage to ecological and nature conservation features of high value and watching briefs to ensure such features are not impacted upon.
- 1.1.13 A similar WSI has been prepared with regard to post-consent archaeological investigations and historic building recording in West Sussex. That document is presented as **ES Appendix 7.8.2** [APP-106].

2 Geology, Topography and Truncation (Car Park B)

2.1 Geology

- 2.1.1 The British Geological Survey (BGS Sheet 302, 1972; BGS online 2012) shows the dominant basal geology within the northern part of Car Park B to be mudstone of the Weald Clay Formation, laid down in the Cretaceous period (**Figure 3**). This varies in thickness from 120 metres to 450 metres and contains bands of ironstone and clay.
- 2.1.2 The extreme south-west extent of this part of Car Park B may intercept the northern edge of a band of 'Alluvium - Clay, silt, sand and gravel' associated with the Gatwick Stream.

2.2 Topography

- 2.2.1 The Project site is low-lying and generally flat at approximately 57 metres to 61 metres above ordnance datum (AOD). The wider topographical situation of the Gatwick area can be considered as both part of the north western Low Weald (to the north west of the High Weald) between the South and North Downs, and also as

the southern extent of the Thames Valley, since its watercourses drain north to the River Thames rather than south to the coast.

2.2.2 The northern part of Car Park B is relatively flat at c. 60 m AOD.

2.3 Truncation

2.3.1 There are currently no ground investigation (test pitting or borehole) data available for this northern part of Car Park B. However, it is possible that some truncation occurred here in the mid-19th century during construction of the London to Brighton mainline railway, which runs on an embankment immediately to the east of Car Park B. In the mid-20th century, the construction of Gatwick's commercial airport led to the stripping of former farmland topsoil from the site and its use as a surface car park (**Figure 8**). This will likely have directly impacted the Weald Clay surface below as subsoils in the Gatwick landscape tend to be very thin or non-existent and therefore do not act as a 'buffer' above the geology (ASE 2021; ASE 2022).

2.3.2 Further oblique aerial photographs held by GAL show that the surface car park was removed in the 1970s during the construction of the M23 Spur Road and the A23 Airport Way and the land here was again likely to have been stripped to the bedrock geology (**Figures 9 and 10**). **Figure 10** shows the wider context of these works with Area F (Reigate Field) to the east of the London to Brighton mainline railway showing a large area of truncation and spoil heaps. The Project geophysical survey (Sumo 2019) indicated that the western part of Area F (Reigate Field) was heavily disturbed with the imposition of made ground and this western part was therefore not deemed suitable for trial trenching. The eastern part of Area F was not impacted by the construction of the M23 Spur Road and the A23 Airport Way - trial trenching here in 2022 for the Project found no evidence of truncation other than through general agricultural activities but this work produced no significant archaeological results (ASE 2022).

3 Archaeological background prior to project evaluation

3.1.1 The following background is adapted from the more detailed description provided in **ES Appendix 7.6.1: Historic Environment Baseline Report** [APP-101] and includes information from desk-based sources prior to the 2019 geophysical survey (SUMO 2019) and the 2021 and 2022 trial trenching evaluations (ASE 2021; 2022) for the Project. This is

then followed in Section 5 of this WSI by a discussion of the survey and evaluation results for the agreed investigation areas within land within Surrey required for the Project.

3.1.2 Information obtained from the Surrey and West Sussex Historic Environment Records (HERs) is summarised below where relevant to this WSI, with locational information shown on **Figure 2** ('Site' numbers are used for the purposes of the Project to represent the HER records). The defined study area extends for approximately 1 km from the Project site boundary and was used for the collection and mapping of data.

3.1.3 Details of the known archaeological background of the area is presented below. The periods discussed in this section are defined as follows:

Prehistoric	
Palaeolithic	900,000 to 12,000 BC
Late Glacial/Mesolithic	12,000 to 4,000 BC
Neolithic/Early Bronze Age	4,000 to 1,600 BC
Middle to Late Bronze Age	1,600 to 800 BC
Iron Age/Roman Transition	800 to AD 43

Historic	
Roman	AD 43 to 410
Saxon	AD 410 to 1066
Medieval	AD 1066 to 1530
Post-Medieval	AD 1530 to 1900
Modern	AD 1900 to present

3.2 Palaeolithic (c. 900,000 - 12,000 BC)

3.2.1 The complexities of hunter-gatherer occupation of Britain in the Palaeolithic within changing glacial and inter-glacial environments are provided in a publication by Pettit and White (2012). Detailed studies of the Palaeolithic artefactual resource in the south east indicate that the river valleys provide a particularly significant source of material (Wessex Archaeology, 1993a; Wymer, 1999).

3.2.2 Palaeolithic Material adjacent to the Project site boundary comprises a single Upper Palaeolithic long blade exhibiting some retouch and use damage which was recovered from subsoil during archaeological evaluation at the existing Flood Storage (Control) Reservoir to the east of the Airport and the railway line.

3.2.3 Despite the presence of 1st and 2nd terrace gravels of (cold phase) Pleistocene age associated with the River Mole and its tributaries within the western and central parts of the Project area, notwithstanding the single find described above there are currently no other sites or finds of this date recorded for the defined study area. Low Weald Clay sites elsewhere have produced sporadic evidence of activity in the Palaeolithic, usually comprising occasional artefacts. For example, several hand axes loosely recorded 'from the Crawley area', are thought to have been derived from terrace gravels, whilst Lower Palaeolithic worked flints and bifaces have been recovered in rolled condition from both the Mole and Wey valleys to the north, and in fresh condition from claylands from to the north of Reigate (CgMs, 1997, page 7; Cotton et al., 2004, page 21; Framework Archaeology 2001a).

3.2.4 There are no Palaeolithic finds in the vicinity of Car Park B.

3.3 Mesolithic (c. 12,000 to 4,000 BC)

3.3.1 Mesolithic hunter-gatherers exploited game and natural resources within the thickly wooded post-glacial forests in the Weald, with watercourses probably used as route-ways. These activities were based on seasonal mobility cycles, with the activity of small bands sometimes demonstrated by small concentrations of artefacts and animal bone at 'kill sites' or campsites. Base camps, where larger groups congregated, tended to be focused on the rivers where resources were more abundant.

3.3.2 A single early Mesolithic core was recovered from deposits associated with a palaeochannel of the River Mole in the Gatwick North West Zone (Framework Archaeology, 2001a, page 9) and Mesolithic worked flint finds (possibly early Mesolithic) were recovered during archaeological work conducted by Network Archaeology in between 2012 and 2014 within the Flood Storage (Control) Reservoir area (also known as a flood compensation area to the west of Gatwick Stream) to the east of the Airport (**Figure 2**; Sites 719 and 568). This site is just outside of the Project site boundary and comprised an initial collection of 304 worked flints found during evaluation trenching (Network Archaeology, 2012b) and a further 2,080 from a test-pitting exercise targeted on the recovery of worked flints (Network Archaeology, 2014, 'weekly reports'). The evaluation stage material was recovered from many of the 49 trenches across the 11.7 hectares of the Flood Storage (Control) Reservoir site (to the west of the Crawley STW), mainly from alluvium, but also in small quantities from one of the palaeochannels and from tree holes (Site 719 on **Figure 2**). The initial assemblage included two

microliths (composite points used as arrows and spears), 19 retouched items, four single platform cores, small blades and waste flakes (ibid). The mitigation process (Site 568) comprised two phases of test-pitting within the Gatwick Stream flood plain, with 870 worked flints recovered from phase 1 and 1,190 from phase 2. The composition of this assemblage is yet to be fully reported on.

3.3.3 A Mesolithic worked flint scatter has been investigated at Haroldslea (Horley) in the north eastern part of the defined study area (Site 508, Network Archaeology, 2012a; Archaeology South East (ASE), 2009). The most significant activity locally (beyond the defined study area) has been uncovered well above the floodplain to the north west of Charlwood, where approximately 15,000 worked flints were recovered from an area only 8 metres by 12 metres in size (Framework Archaeology, 2001a, page 9). Evidence from Charlwood has also included several relatively late Mesolithic pits containing a few scraps of roe deer bone (Cotton et al., 2004, pages 23-24) and thus indicating one of the species hunted locally. A further 'chipping floor' and other worked flints are located at another site at Charlwood (associated with Surrey County Council's AHAPs).

3.3.4 The most likely areas within the Project site where Mesolithic material may be encountered comprise river and stream corridors - particularly adjacent to the River Mole and the Gatwick Stream. In this context, despite its likely high level of truncation, it is notable that Car Park B is located immediately to the north-east of the Gatwick Stream.

3.4 Neolithic (c. 4,000 - 2,500 BC)

3.4.1 The first farmers of the Neolithic created forest clearances for the newly domesticated crops and stock. Evidence of settlements is generally restricted to flint scatters within the modern ploughsoil and sometimes to clusters of shallow pits containing artefacts, charcoal and charred cereals indicative of settlement and arable in the vicinity. Buildings remain very rare in southern and central England.

3.4.2 The mitigation for the Flood Storage (Control) Reservoir (Site 568 on **Figure 2**) adjacent to the Gatwick Stream included topsoil stripping of 'Area 3' in 2013. This work led to the recovery of a small assemblage of worked flints of possible Neolithic date including a polished stone axe. The preceding evaluation for the Flood Storage (Control) Reservoir (Site 719) included a small number of pits, one of which contained a single sherd of Late Neolithic/Early Bronze Age pottery along with wood and charcoal

fragments. *'The evaluation also found evidence to suggest that wood clearance had taken place on the site at some stage during the later prehistoric period. A number of tree bole features were identified many of which contained charcoal and worked flint which would suggest tree felling'* (Network Archaeology, 2013).

3.5 Bronze Age (c. 2,500- 800 BC)

3.5.1 Following the emergence of copper in the archaeological record from around 2,500 BC (the Chalcolithic), and within a couple of hundred years of bronze, society was transformed. This was probably associated with the arrival of newcomers from the Continent bringing with them the 'Beaker package' of Beaker pots, barded and tanged arrowheads and other archery equipment such as stone wrist-guards, and copper daggers. The form of burial remained as crouched inhumations but now often within round barrows for a single important individual.

3.5.2 The Middle to Late Bronze Age (c. 1500 - 800 BC) provides the first substantial evidence for settlement and farming within the wider area. It is also notable that the emergence of Middle and Late Bronze Age field-systems, representing a further intensification of land clearance for the first permanent farming settlements, are a common phenomenon close to the major rivers such as the Thames and its tributaries (Yates, 2007). However, once again a lower concentration of sites and field-systems tend to be found on the clay geologies of the Central West Weald.

3.5.3 The key known Bronze Age settlement site within the Project area relates to archaeological excavation works undertaken in 2001 within the c. 78 hectares of the North West Zone (Site 726 on **Figure 2**; Framework Archaeology 2001a; 2002a; 2002b; Wells et al., 2005). Excavation here defined a modest streamside Late Bronze Age settlement engaged in mixed agriculture on the edge of the River Mole floodplain, on the first gravel terrace, to the north east of Brockley Wood. The site included Late Bronze Age to Early Iron Age date activity, mostly c. 1,000 to 700 BC, and comprised an enclosure ditch around a gully-enclosed roundhouse, with associated pits and post-holes. The pits included two which contained relative concentrations of deliberately deposited pottery. However, only 272 sherds of pottery were recovered in total, probably reflecting the limited scale of occupation. The settlement was located on slightly elevated land at c. 58 m AOD adjacent to the river floodplain and it is suggested that it may have been only occupied for a short period, perhaps due to climatic factors (Framework Archaeology, 2002a). Nevertheless, a small number of sandy sherds may pre-date the Late Bronze Age period, being 'perhaps of Early or even

Middle Bronze Age' date (ibid). Regional summaries (eg Cotton et al., 2004, page 28) regard this settlement in the Weald to be 'something of a rarity' compared to those of the Thames Valley.

3.5.4 Nearby, a large (5 m wide and 2 m deep) north/south aligned ditch, also containing Late Bronze Age pottery, was identified (Site 667; Wells et al., 2005). The full extent of the 136 m long ditch was uncovered with both terminals excavated. This substantial ditch probably relates to some form of territorial or estate boundary, hence its scale. The size also implies a significant attachment to place rather than a transient population. Pollen preservation was found to be high within the deeper stratified deposits within the ditch. There is a correspondence between the alignment of the Bronze Age enclosure and the boundary ditch and later phases of enclosure, including a possible driveway and perpendicular medieval ditch (Framework Archaeology, 2002a, Figure 2). This suggests that the Bronze Age features remained as earthworks and influenced later field layouts.

3.5.5 With the exception of these sites, the extensive archaeological investigations for the North West Zone by Framework Archaeology found very little else of archaeological interest, indicating both a modest level of Bronze Age activity on the east side of the River Mole and little subsequent activity within the area. Framework Archaeology concluded that the landscape within Gatwick, to the south of the Late Bronze Age settlement and below c. 58 metres AOD, was probably too damp at that time for occupation.

3.5.6 Of particular relevance for Car Park B, some further probable Bronze Age (or possibly Neolithic) flintwork, including arrowheads (Site 540 on **Figure 2**), has been recovered from close to the railway line near the eastern end of Riverside Garden Park (north of the A23 Airport Way) and is associated with the Surrey AHAP (Site 498) that includes the entirety of the northern part of Car Park B. The location is adjacent to the Gatwick Stream and this is likely to be a primary factor for the associated activity.

3.5.7 An early Bronze Age barbed and tanged arrowhead was found at Haroldslea in Horley in the north east part of the defined study area (Site 509). A ritual association with water during this period is potentially demonstrated by a Late Bronze Age sword found to the west of Lowfield Heath, Charlwood (south of Gatwick and outside the Project site boundary (Site 646). The sword was found by workmen in 1952 at a depth of 0.6 - 0.9 m during canalization of the 'Polesfleet Stream' (the large tributary stream that runs through Langley Green). It appears to have been

recovered from an alluvial or peat deposit (John Mills pers. comm.) and is most likely to have been deliberately deposited in water as a 'votive offering' perhaps as a 'coping mechanism' adopted by a community facing rising water levels during the later stages of the Bronze Age (Cotton et al., 2004, 29). The LiDAR study undertaken for the Gatwick R2 project identified a palaeochannel at this location which would appear to represent the context for this find (Site 609).

3.5.8 Deposition of metalwork is also sometimes associated with wooden raised walkway structures or brushwood trackways across wetlands (Cotton et al., 2004, page 30) and the possibility of preserved wood structures associated with alluvium and/or peat cannot be discounted. As well as the famous Flag Fen and Must Farm sites near Peterborough, structures of this sort are known from a number of sites within the Thames marshes and also in East Sussex at Shinewater Park, Eastbourne.

3.5.9 Although peat deposits can date from the Neolithic and Bronze Age, climatic conditions (increasing rainfall) and the emergence of more intensive farming, caused increased runoff leading to the formation of alluvial deposits on floodplains. There has been limited work undertaken on the local floodplain and palaeochannels, but an initial study for the Gatwick Stream at the Crawley North East Sector by Martin Bates (1998) discussed the nature of preliminary results from test trenches as follows: *'The evidence collected from the excavation of trenches has indicated that the sediments present beneath the modern ground surface in the site are complex. Sediment types encountered in the survey are typical of those expected to occur beneath the surface of floodplains of rivers in southern England... Archaeological material may exist at any point within the sequences observed. In order to ascertain the archaeological potential of these sediments further investigation of the nature of the buried stratigraphy would be required, as would an age evaluation of the sediments observed'*.

3.5.10 Palaeochannels of prehistoric date, associated with the Gatwick Stream, were physically encountered by evaluation trenching for the aforementioned Flood Storage (Control) Reservoir adjacent to the Crawley STW north of Radford Road (Site 719). Further examples have been plotted south of Radford Road (Sites 603; 615). Due to rising sea levels in the Bronze Age, alluvial overbank flood deposits are commonly found to be of Bronze Age derivation.

3.6 Iron Age (c. 800 BC - AD 43)

3.6.1 This period is associated with the development of iron technology, changing settlement patterns reflecting environmental factors, and increased evidence for warfare reflected by a proliferation in defensive hillforts. The closest hillforts are located in a cluster on the southern edge of the North Downs, some 10.5 km to the north west of Gatwick, at Holmbury, Felday and Anstiebury. The site of the latter hillfort may have been occupied from the Late Bronze Age but appears not to have been fortified until the Late Iron Age. Felday similarly appears to have been constructed in the Late Iron Age. This evidence has been considered to reflect a general Late Iron Age expansion into parts of the Weald. It is therefore possible that these high status defensive and administrative sites may have offered protection and/or extracted taxation from the local modest farming settlements, perhaps in the early phase including the Late Bronze Age to Early Iron Age settlement at Gatwick North West Zone (Wells et al., 2005). In the Late Iron Age the Gatwick area was probably located within the territory of the Atrebatas tribe.

3.6.2 The Weald was an area of early ironworking. The earliest ironworking of the Iron Age from the western Low Weald is found sporadically to the east and south of the Gatwick area. There is some evidence of significant ironworking at the named sites close to Gatwick, at Horley or Broadbridge Heath and most significantly Late Iron Age to Roman ore roasting furnaces have been investigated at Southgate, Crawley (CgMs, 1997, page 9; Margetts 2018). Further ironworking sites at Crawley have been identified at Broadfield and at Goffs Park in Crawley, where a bloomery industrial hearth site included two early examples of cylindrical shaft smelting furnaces, suggesting a more significant scale of production (Network Archaeology, 2012a, page 12). The ironworking on this scale may have been closely linked with the local elites.

3.6.3 Other than a possible Late Bronze Age/Early Iron Age end to occupation at the Gatwick North West Zone settlement, Iron Age settlement and burial evidence from the Project area north of Tinsley Green includes the evidence from investigations by Network Archaeology for the Flood Storage (Control) Reservoir associated with the Gatwick Stream (Sites 719 and 568, Network Archaeology, 2012b; 2014; John Mills pers. comm.), from the adjacent wheel-wash area south east of the Crawley Sewage Treatment Work (STW) that is now associated with an ASA (Site 484), and from the Pollution Control Lagoon site which is incorporated within the southern zone area of a separate ANA to

the north east of the water treatment works (Sites 485 and 735, Network Archaeology, 2014).

3.6.4 The relevant AHAP that covers the northern part of Car Park B (Site 498 on **Figure 2**) includes the mid-19th century antiquarian find of a Late Iron Age urned cremation burial. This suggests the possibility that similar Late Iron Age activity may have taken place in the vicinity of the railway and Riverside Garden Park.

3.6.5 The 49 trench archaeological evaluation, test pits and open area investigations by Network Archaeology in advance of the construction of the Flood Storage (Control) Reservoir to the south of the Crawley STW (Sites 719 and 568) and evaluation and mitigation of the wheel-wash area and Pollution Control Lagoon, to the south east and north east of the water treatment works respectively (Sites 484, 485 and 735, Network Archaeology, 2014), identified a number of Iron Age round-houses, along with a field system and similar cremation burial evidence to that reported for the Car Park B area.

3.7 Roman Period (AD 43 - 410)

3.7.1 The Claudian conquest led to centralised administration and the establishment of towns associated with a proliferation of trades and business-like commerce - supported by an effective road network. This led to further agricultural expansion and minerals exploitation. The area of the Weald is most notable for its Imperial ironworks and for exploitation of timber, although some of the landscape was also occupied and farmed. Although occupation in the Weald was certainly less intensive than in coastal areas in the south east, such as the West Sussex Coastal Plain, and within the Thames Valley, there is increasing evidence for low levels of rural occupation. To date, no moderate to high status Roman villas have been found within the Gatwick area, perhaps confirming the general impression that the agricultural productivity of the clay lands (though not necessarily its mineral resources and clay for tile/ pottery manufacturing) was generally insufficient to support wealthy estates.

3.7.2 There are no major Roman routes known from the defined study area, with the closest being approximately 7 km to the east, leading from Londinium (London) to the south coast (Margary, 1955: Roman Road 150) and Stane Street, the route from Southwark to Chichester via the small town of Ewell, some 10 km to the west (ibid; Roman Road 15). These roads would not have directly affected the local settlement pattern which would have been served by minor tracks, some of which might be traceable archaeologically within the Project site.

<p>3.7.3 Beyond the defined study area, a fort with surrounding timber buildings was built in the Southgate area of Crawley and early settlement in the vicinity suggests that the military influence stimulated earlier Roman occupation which then rapidly declined (Network Archaeology, 2012a, page 13).</p>		<p>clearances made in the Iron Age and Roman period reverted to forest (Gardiner, 1990). Elsewhere in the south east, cemetery sites have been the principal means of identifying Early and Middle Saxon occupation. In Surrey these tend to cluster around the former Roman centres such as Ewell, Mitcham, Beddington and Croydon, well to the north.</p>		<p>Western Weald region is typified by a dispersed arrangement of farming small-holdings, higher status moated sites, hamlets and villages and their associated fields, indicating further encroachment into the forest. The hamlets of up to five dwellings often include the name 'green' as at Langley Green.</p>
<p>3.7.4 In addition to the possible occupation zone at the east side of Gatwick, areas of Roman farming and settlement, associated with fields and trackways, have also been excavated recently at land to the north east of Horley (ASE 2013a).</p>	<p>3.8.2</p>	<p>Settlement sites are less common but follow a similar distribution (although with a greater focus on the River Thames - see Hines in Cotton et al., 2004, Figure 7.1). These are usually defined by pits and/or sunken-floored buildings, sometimes associated with post-built halls. Excavated Anglo-Saxon occupation sites in the West Sussex Weald include an example at Bolnore (Margetts, 2018). Although such settlements remain rare in the Weald, place name evidence indicates increasing encroachment into the Wealden forest (the <i>Andredsweald</i> - the word weald itself meaning forest and the Andredsweald meaning forest of the port of <i>Anderita</i>, ie Pevensey) for farming. By the Late Saxon period the Weald had been sparsely settled.</p>	<p>3.9.2</p>	<p>The place name 'Horley' possibly means woodland clearing in a horn-shaped piece of land and originates from the 12th century (Mills, 2011) and in 1263 the Abbot of Chertsey acquired lands in Horley and annexed them to his manor of Horley (Malden, 1911).</p>
<p>3.7.5 In terms of industry, Gatwick is located just beyond the western fringe of the known Iron Age and Roman ironworking area, which covers most of the Weald east of East Grinstead (into East Sussex). The industry was closely associated with the Roman fleet, the <i>Classis Britannica</i>. The possibly peripheral nature of the Gatwick area to this industry may be reflected by an absence of major Roman roads running through the area (Margary, 1965).</p>			<p>3.9.3</p>	<p>The medieval core of Horley is centred around the Church Road (Horley) Conservation Area, c. 1.2 km to the north-west of Car Park B, and includes the church, the Six Bells Public House and a small moated site that has been designated as a (Surrey) County Site of Archaeological Interest (CSAI) within a wider AHAP (Sites 491 and 492). The Surrey HER states: '<i>On the west bank of the River Mole at Horley Street is a small sub-rectangular moated enclosure, waterfilled and in fair condition. There are remains of a retaining bank around the NW and NW sides. The moat was formerly connected with the river from the S corner. The enclosed area is hardly large enough for the smallest homestead, it may have been used for stock.</i>'</p>
<p>3.7.6 Relevant to Car Park B is the possibility of nearby Roman settlement based on mid-19th century antiquarian finds of Roman artefacts, including coins (associated with the railway construction) but located broadly and potentially inaccurately, at Car Park B between the railway line at the eastern extent of Riverside Garden Park (Site 541). The aforementioned Late Iron Age cremation burial was found from approximately the same location and suggests the possibility of a long-lived occupation in this area, perhaps suitably located adjacent to the Gatwick Steam.</p>	<p>3.8.3</p>	<p>Notwithstanding the above, there are no other Anglo-Saxon sites or finds noted within the Project site boundary or the defined study area, and it is possible that the area was largely forested until at least the later Saxon period. The presence of occupation by at least the Late Saxon period is, however, implicit in the documentary evidence and local place name evidence, including Gatwick itself.</p>	<p>3.9.4</p>	<p>An evaluation in the grounds of the late medieval Grade II listed (15th to 16th century) properties of Edgeworth House and Wing House on the west side of the Balcombe Road, outside of the Project site boundary, failed to identify remains earlier than the later post-medieval period (Sites 779 and 780, Framework Archaeology, 2007c).</p>
<p>3.7.7 Another potential Roman site within the Project site boundary, east of the Gatwick Stream and c. 900 m to the south-east of Car Park B is referred to on the West Sussex HER as 'Roman occupation' at Horley Land Farm (Site 696), which is now a Gatwick car park (South Valet Car Park/Self-park South). This identification (similarly an antiquarian find first recorded in 1857) has been based on surface finds of Roman pottery and a coin of AD 138-42 (Faustina). Its potential presence, which is somewhat conjectural (if present and surviving below the car park) is highlighted by its designation as an Archaeological Notification Area (ANA) (Site 485).</p>	<p>3.8.4</p>	<p>The place names of most of the principal villages and hamlets within the defined study area reflect clearances in woodland. For example, Horley is probably a reference to '<i>woodland clearance in a horn-shaped piece of land</i>' with the place name first mentioned in the 12th century (Mills, 1998).</p>	<p>3.9.5</p>	<p>A more detailed discussion of the medieval landscape and relatively early enclosure of the much of the common land is contained within ES Appendix 7.6.1: Historic Environment Desk-based Assessment [APP-101]. The heaths and commons probably originated in this period, including: Westfield Common (north east of the former Park Farm within Gatwick); the extant Lowfield Heath; White Common (formerly at the north west extent of Gatwick); and Horley Common (formerly occupying much of the Fernhill area to the east of the Project site).</p>
<p>3.8 Anglo-Saxon (AD 410 - AD 1066)</p>	<p>3.8.5</p>	<p>Anglo-Saxon evidence within the Project site boundary comprises a single gully traced for about 20 m at the North West Zone site which produced three sherds of Saxon pottery and was suggested as being potentially associated with a nearby settlement (Framework Archaeology, 2001b, page 13).</p>		
	<p>3.9 Medieval (AD 1066 - c. 1530)</p>			
<p>3.8.1 Early Germanic settlers of the 5th and 6th century tended to occupy the coastal and downland areas initially. There is still very little known about the Early and Middle Saxon settlement of the Weald (Drewett et al., 1988) and it has been suggested that</p>	<p>3.9.1</p>	<p>By the medieval period the Weald was increasingly densely settled. This appears to have begun with seasonal use of Wealden pastures as detached elements of manorial holdings on the fringes of the Weald, leading to permanent farmsteads and hamlets - as recently identified at 'Wickhurst Green', Broadbridge Heath (Margetts, 2018). The medieval settlement pattern of the</p>	<p>3.9.6</p>	<p>The North West Zone archaeological excavation works undertaken in 2001 (Site 666, Framework Archaeology, 2001a; 2002a; 2002b; Wells, 2005) included the identification of medieval field ditches. These confirm the existence of medieval field systems within the landscape in the vicinity of Brook Farm.</p>
			<p>3.9.7</p>	<p>The Flood Storage (Control) Reservoir project identified further medieval field boundary ditches and aerial photographs have</p>

- suggested ridge and furrow earthworks to the east in a field south of Tinslow Farm (Network Archaeology, 2012a). Further hints at elements of the medieval landscape were indicated by a walkover survey. The remains of a pattern of lost field boundaries (some of which had probably survived until enclosure at around 1840) would be expected to be present.
- 3.9.8 Medieval field ditches were also encountered within the flood attenuation works evaluation between Radford Road and the Crawley STW adjacent to the south eastern area of the Project site (Site 719).
- 3.9.9 There are two AHAPs within Charlwood, in the western part of the defined study area. AHAP MV065 (Site 493) refers to the historic core of the village, including the 11th century Church of St Nicholas (Site 14), whilst AHAP MV066 (Site 494) relates to the core area of Charlwood Green. The village core includes a number of surviving medieval sites and buildings, including the 15th century Charlwood Place (just beyond the defined study area). The village shows no sign of deliberate planning and the period in which it became nucleated is unknown (Turner in Cotton et al., 2004, page 133).
- 3.9.10 Within Horley, to the north of Gatwick, are AHAP RB045 (Site 496), which has been designed to incorporate the 12th century medieval manor and possible moated site of Court Lodge Farm and is associated with several HER references (Sites 555, 805 and 848), and AHAP RB97 (Site 499), associated with a possible moated site at Ringley Oak Cottage (Picketts Farm) (Site 545).
- 3.9.11 The Scheduled Monument of Thunderfield Castle (Site 7) in the north eastern part of the defined study area is also reflected by CSAI RB026 (Site 495). The associated gardens and park (Site 512) and the HER castle description (Site 557) are also associated with the designation.
- 3.9.12 'Ye Olde Six Bells' public house is located just north west of the Project site and dates from the 15th century - it is within the Church Road (Horley) Conservation Area. A watching brief within the grounds and on the fabric of the building recorded no finds or medieval fabric (Sites 704 and 548).
- 3.9.13 Finally, there are two closely spaced Surrey AHAPs at Burstow to the east of the M23 motorway. The westernmost AHAP TA109 (Site 502) refers to a 'Medieval Mound at Topnotch, Church Lane, Burstow' adjacent to a 12th /13th century homestead site and possible glasshouse (Site 507).
- 3.9.14 To the east is AHAP TA047 (Site 501) relating to a medieval moated site at Burstow Rectory, which is in turn related to two CSAIs, TA029 and TA135 (Sites 500; 503). This complex also includes a 16th century moated manor house at Court Lodge Farm (Site 504), the Church of St Bartholomew (Sites 505 and 556), a 14th century house and moat (Site 506), and the site of a further medieval moat and homestead and possible glasshouse (Site 507).
- The Medieval Wealden Iron Industry**
- 3.9.15 A principal area of archaeological and historical interest for the Low Weald and of particular interest within the vicinity of Horley and Crawley relates to the ironworking industry. Hodgkinson (2004) provides an exhaustive analysis of ironworking in the Low Weald, much of which is of relevance to the present defined study area. He states: *'although there is very limited evidence for iron working in the early Middle Ages, production does not seem to have developed in the district around Horley until the fourteenth century, when it formed part of a larger area that extended into northern Sussex and south-west Kent. This activity may be regarded as a precursor to the main expansion of iron production based on water power which promoted the Weald to national significance in the sixteenth and seventeenth centuries'*.
- 3.9.16 The first stage of ironworking comprised creation of a bloom of iron via smelting. This usually took place close to the source of the ore (ibid). The secondary working (at a forge) could take place further away depending on transport constraints and the availability of a water source.
- 3.9.17 At Tinsley Green this situation is reflected by the growth of the industry in the late 14th century in concert with the technological development of the blast furnace. The raw material to be gleaned from the Weald Clay around Crawley was ideal for iron production and Tinsley Forge (now Forge Farm - Site 643) was one of a number established at this time (Gwynne 1990, 70-1). The initial stage of cast iron production took place at Tilgate with the product transported to Tinsley Green for its reworking into wrought iron using the blast furnace technology (ibid, page 73). The Crawley North East Sector investigations included preliminary evaluation trenching around Forge Farm, Tinsley Green in the form of 34 trial trenches which confirmed the site as a late medieval and post-medieval ironworks (Wessex Archaeology, 1998).
- 3.9.18 In addition to the important medieval to post-medieval forge at Forge Farm (Tinsley Green), a medieval smelting site was located at Thunderfield Castle (Sites 7, 495, 512 and 557), with further possible smelting sites at Ten Acre Wood (Burstow), Burstow Park Farm and Horncourt Wood to the north east (Gwynne, 1990, pages 70-1).
- 3.10 Post-medieval (AD 1530 - 1900)**
- 3.10.1 The post-medieval period is assessed in terms of historic periods of influence as landscape layers in the sections below. With the exception of the superimposition of Gatwick Airport (Site 304) and the Manor Royal Industrial Estate, the extant surrounding rural landscape has changed very little since the post-medieval period. The key influences on inhabitation (density of occupation) up to AD 1900 have been the 16th to 17th century expansion of the iron industry, the subsequent Agricultural Revolution and the construction of the London to Brighton mainline railway.
- 3.10.2 The North West Zone excavation works undertaken in 2001 (Framework Archaeology, 2001b; 2002a; 2002b; Wells, 2005) identified medieval and undated boundaries and a possible drove route that show remarkable continuity of alignment with the Late Bronze Age enclosure ditch and appear to also respect the northern end of the large Late Bronze Age boundary ditch (Site 667). The undated elements correspond with the 1839 tithe map.
- 3.10.3 It appears therefore that banks associated with Bronze Age landscape elements may have influenced the associated landscape as late as the 19th century. Ditches shown on the 1839 Charlwood Tithe Map were identified as archaeological features by Framework Archaeology within the area for the proposed River Mole diversion corridor (notably this zone was devoid of any earlier archaeology, probably due to its low-lying and damp topography).
- 3.10.4 Several post-medieval entries on the Surrey HER are located just beyond the northern boundary of the Project site. These relate to structures within the Church Road (Horley) Conservation Area (Sites 406 and 295) including the 17th century 'High House' (Site 1017), a 16th century 'Barn 10 yards north of Ye Olde Six Bells' (Site 1018), the 1720 tomb of William Barnes (Site 1019) and the 1725 tomb of Samuel Billings (Site 1020).

4 Aims and Objectives

- 4.1.1 The following specific objectives for the previous stages of archaeological fieldwork undertaken for the Project were as follows:

- To identify the nature, character, extent and possible date of any archaeological sites and/or features within the areas subject to evaluation.
 - To assess the survival, quality, condition and significance of any archaeological remains.
 - To ensure the preservation by record of all archaeological remains revealed during the course of the archaeological evaluation.
 - To prepare an appropriate archaeological archive including the treatment and preservation of any artefacts.
- 4.1.2 These aims were realised with the result that the Longbridge Roundabout and Area F (Reigate Field) areas within Surrey were found to be almost wholly devoid of archaeological interest. The archaeological potential at Car Park B (where intrusive investigation was not possible due to ongoing use as a staff car park) was previously identified by desk-based work.
- 4.1.3 The overall aim of the currently proposed programme of archaeological fieldwork to be undertaken following the granting of the DCO is to offset the impacts on archaeological remains arising from the Project through preservation by record and dissemination of the results in accordance with 'General Standards for Archaeological Projects in Surrey' (Surrey County Council Historic Environment Planning, 2023). The fieldwork will provide further detailed information regarding the form, nature and date of archaeological remains within the area subject to investigation, resulting in an addition to local archaeological and regional knowledge.
- 4.1.4 In consultation with the HEP team at SCC, the following area where further offsetting archaeological works are considered appropriate has been identified:
 - Northern part of Car Park B – potential impacts arising from the establishment of an environmental mitigation area.
- 4.1.5 The design of the archaeological investigation is set out in Section 6 below.
- 4.1.6 An updated South East Research Framework (SERF) is currently being prepared and this will establish the regional historic environment research agenda for the area within which the Project is located. Draft chapters for the research agenda have been subject to consultation but not yet published in final form. The programme of archaeological investigation undertaken in connection with the Project may produce results which could contribute to several of the themes and issues identified with the draft research agenda.

- 4.1.7 The following further aims can now be added with regard to the post-consent investigations at Car Park B:
- Has the truncation caused by the construction of the railway in the 19th century railway, the establishment of the surface car park in the 1950s car park construction, the removal of this car park and use of the land as a construction worksite in the 1970s, and the subsequent establishment of the current surface car park construction, destroyed the integrity of the upper geological level into which archaeological features may have been cut?
 - Do the probably unstratified antiquarian finds of Neolithic or Bronze Age worked flints from the site relate to any surviving archaeological remains of these periods and, if so, what is its nature, form and date?
 - Does the antiquarian find of a presumably in situ Late Iron Age cremation burial indicate wider use of the Car Park B site as an occupation/burial zone adjacent to the Gatwick Stream during this period, and, if so, was the activity similar to locations to the south identified by Network Archaeology?
 - Does the antiquarian find of Roman pottery indicate Roman farming or occupation-related activity at Car Park B?
 - Can the archaeological remains within Car Park B make a contribution to local and regional archaeological research priorities forthcoming within the SERF?

5 Results of the area F and Longbridge roundabout evaluations and the car park B investigation requirement

- 5.1.1 Following an extensive review of available desk-based information, an initial phase of archaeological evaluation was undertaken in the form of geophysical survey (magnetometry) at Area F (Reigate Field) to the north of the South Terminal Roundabout, at the junction of the M23 Spur and the A23 Airport Way. The geophysical survey was inconclusive in terms of the presence of buried archaeology (**Figure 4**). The western field in particular (ie that part closest to Car Park B and the associated AHAP) produced very poor results, due to placement of modern made ground. The land here rises up towards the embankment which carries the A23 road over the railway and it seems that the ground was raised as part of the construction work for the road embankment.
- 5.1.2 The survey of the eastern field (Area F2) did identify some weak linear and possible pit-like anomalies but the subsequent stage of

trial trenching within the Area F2 found these to relate to undated or known post-medieval field boundaries and other undated features of no further archaeological interest (ASE 2022).

- 5.1.3 A similar trial trenching exercise at the Longbridge Roundabout site at Horley to the north east produced similar results.
- 5.1.4 As a result these areas require no further archaeological investigation to offset the respective Project impacts.
- 5.1.5 Following a meeting of 14th April 2023 with the HEP team at SCC it was agreed that the northern part of Car Park B was the sole remaining location within the Surrey land required for the Project with any surviving archaeological potential. However, as that potential is likely to have been severely diminished by the sources of truncation identified above it, was agreed that archaeological investigation should be undertaken following granting of the DCO and during the initial construction phase, after the car park has been handed over for use as a construction compound (but before the establishment of the compound or any associated activities take place).
- 5.1.6 A total of five archaeological test pits each measuring 2m x 2m (as shown on **Figure 5**) will be excavated through the surface of the car park and any underlying material ground to reveal the natural geology. These test pits will establish the likely level of truncation to the surface of the geology and therefore whether any archaeology, if it had been present, is likely to have survived in a legible state.
- 5.1.7 Following the excavation of the test pits a site meeting will be held with RPS, GAL and the HEP team at SCC to assess the potential for archaeological survival. In the event that such potential is identified, the archaeological procedures for further work will be agreed as an addendum to this WSI. The generic methodology for recording the test pits and any subsequent stages of work is provided in Section 6 below.

6 Methodology

6.1 Introduction

- 6.1.1 As described above, the investigation will comprise of five archaeological test pits whose locations are shown on **Figure 5**. Further stages of archaeological investigation such as trenching and/or Strip, Map and Sample may be required should the test pits indicate the potential for survival of archaeological features cut into the basal geology. Any further archaeological work would

<p>take place following the use of the car park as a contractor compound but ahead of or during the works required for the establishment of the environmental mitigation area. The contractor compound would be established on the existing hardstanding of the surface car park and therefore would not impact on any potential archaeological remains here.</p>	<p>6.2 Fieldwork</p>	<p>6.2.10 If SMS works are required a rolling programme of archaeological recording may be required. Thus, archaeological works will follow the stripping programme, and will be completed and signed off prior to any further construction works in those areas. If needed, the site will be broken up into areas such that these can be completed sequentially (in line with the pinch points in the construction programme) and signed off progressively by the HEP team at SCC to allow subsequent construction works within those areas.</p>
<p>6.1.2 All elements of the programme of archaeological offsetting investigations (fieldwork, reporting, publication and archive preparation/deposition) will be undertaken by a suitably experienced archaeological contractor. The contractor will be a Registered Organisation with the Chartered Institute for Archaeologists (CIfA), and the identity of the appointed contractor will be notified to the HEP team at SCC in advance of the commencement of the fieldwork.</p>	<p>Generic (applicable to test pits and SMS)</p>	<p>6.2.11 For any subsequent SMS works, machine excavation will also be utilised where acceptable to investigate large ditch features. This will only be undertaken to supplement hand-excavation and will not target complex situations such as intersections or feature relationships that have not otherwise been fully understood. The main aim of machine excavation will be to confirm ditch profiles and sequences and to recover additional artefacts. Machine excavation of features will be discussed with and agreed by the HEP team at SCC prior to implementation on site.</p>
<p>6.1.3 The archaeologists employed by the archaeological contractor will follow the CIfA Code of Conduct (CIfA, 2019) at all times. The archaeologist in charge of the fieldwork will be a full Member or Associate member of CIfA (ie MCIfA or ACIfA).</p>	<p>6.2.1 The test pit evaluation and any subsequent Strip, Map and Sample (SMS) archaeological works that may be required will be undertaken to CIfA Standards and Guidance for:</p> <ul style="list-style-type: none"> ▪ Archaeological Evaluation; and (if required) ▪ Archaeological Excavation 	<p>6.2.12 On completion of any area of required SMS, the area will be 'signed off' by the HEP team at SCC and will be handed over to the principal contractor to undertake their construction works.</p>
<p>6.1.4 The archaeological contractor will be appointed by, and monitored by, RPS on behalf of GAL.</p>	<p>6.2.2 In accepting a contract to undertake the works, the nominated contractor will take responsibility for the standards and levels of recording and reporting plus the preparation of Health and Safety documentation.</p>	<p>6.2.13 The site grid and all excavation areas will be accurately surveyed using a Total Station or GPS and will be related to the National Grid. The locations will be accurately placed on the site plan.</p>
<p>6.1.5 Additional monitoring will be carried out by the HEP team at SCC. A programme of monitoring will be agreed between RPS, GAL and the HEP team at SCC ahead of commencement of the fieldwork. The programme of monitoring will remain flexible and will be adjusted accordingly as the fieldwork progresses.</p>	<p>6.2.3 Any relevant service plans will be obtained for avoidance prior to the works. The test pits and any subsequent investigations will be designed to avoid known services. Investigation areas will also be scanned using appropriate service detection equipment prior to excavation. If services are identified during the scan they will be treated as "live". As a result test pit locations may be modified.</p>	<p>6.2.14 A series of Temporary Bench Marks shall be surveyed as necessary in relation to an Ordnance Survey Bench Mark (OSBM). The location of the bench marks and the TBM's will be recorded on the test pit/SMS plans. Plans and sections of all test pits, trenches, features and deposits will be related to their height AOD.</p>
<p>6.1.6 Access for the fieldwork, and for the programme of monitoring, will be arranged by GAL and their appointed agents.</p>	<p>6.2.4 If services are encountered during site stripping they will be treated as "live" and will be avoided.</p>	<p>6.2.15 Complex areas (areas of intercutting features, surviving layers, where features are complex in form or where surface finds may be plotted) will be planned by hand, usually at a scale of 1:20. These plans will located via total station, scanned, vectorised and imported via the archaeological contractor's CAD programme on the OS grid-based plan. Less complex areas of the site (where features are absent or rare and of simple form) will be planned using a total station with the data input directly onto CAD and the OS tiles. There will be no site grid on the ground. All site plans will show OS grid points and spot levels and will be fully indexed and related to adjacent plans. It is not anticipated that single context recording will be appropriate. However, should particularly complex sequences of deposits or features be</p>
<p>6.1.7 All archaeological work will be carried out in accordance with this WSI along with the appropriate standards and guidance (CIfA, 2014a; Surrey County Council Historic Environment Planning, 2023).</p>	<p>6.2.5 The test pits and any subsequent SMS works will be machine stripped to the level of the highest archaeologically significant layer or in the absence of such layers, to the level of the undisturbed natural.</p>	
<p>6.1.8 All relevant health and safety legislation and guidance will be adhered to. A detailed Risk Assessment and Method Statement (RAMS) will be prepared by the archaeological contractor. This RAMS will be submitted to, and agreed by, GAL or their appointed principal contractor ahead of the commencement of any fieldwork.</p>	<p>6.2.6 The test pits and any subsequent SMS works will be opened by a mechanical excavator using a toothless ditching bucket under archaeological supervision. Topsoil and subsoil will be kept separate and the associated bunds will be sealed.</p>	
	<p>6.2.7 Test pits and any subsequent SMS work areas will be left open following completion of the hand excavation for approval by the HEP team at SCC.</p>	
	<p>6.2.8 The exposed surface of the natural geology will be hand-cleaned sufficiently where necessary to define any archaeological features present.</p>	
	<p>6.2.9 Following the excavation and mapping of the test pits and any subsequent SMS works the archaeological contractor will provide a pre-excavation digital plan of features exposed. This plan will form the basis of a site meeting with RPS, the HEP team at SCC and the archaeological contractor to determine the appropriate level of detailed recording response.</p>	

- encountered, then single context recording will be undertaken. A uniform site plan will be produced showing all site features.
- 6.2.16 The AOD height of all principal strata and features will be calculated and indicated on the appropriate plans and sections. Each TBM will be levelled as part of a closed loop starting and finishing on either approved OSBMs or the schemes established secondary control. Where more than one TBM is required per site, the TBMs will be established as part of the same closed loop.
- 6.2.17 All archaeological features and deposits will be sampled by hand. For test pit stage / evaluation all discrete pits and post-holes will be half-sectioned (50% sample) as a minimum. As indicated within the guidance document 'General Standards for Archaeological Projects in Surrey' (Surrey County Council Historic Environment Planning, 2023), for any subsequent Strip, Map and Sample (excavation) stage, 50% total number of pits and post holes will be fully excavated with the remaining 50% sampled. Large amorphous features e.g. quarries and hollows will not be less than 20% sampled by area. A representative selection of 'natural' tree throws will be investigated. For linear features all terminals and intersections will be excavated for both test pit / evaluation stage and for Strip, Map and Sample. For the length exposed, 25% would be excavated at test pit / evaluation stage and between 15% and 25% for Strip, Map and Sample. Slots across linear features will be at least 1 m in width.
- 6.2.18 Any identified structures will be excavated and the precise methodology for their investigation will be pre-agreed with the HEP team at SCC following exposure and cleaning in plan. With regard to 'Structural Features (Beam slots/ring ditches) and surviving structural elements (walls, collapse/debris fields)' (*ibid*) at test pit / evaluation stages 50% of actual surviving structural elements require exposure, cleaning and preservation for excavation in more appropriate circumstances; whilst for Strip, Map and Sample works (or watching brief) 75% to 100% of 'actual surviving structural elements (walls, collapse/debris fields)' may require excavation; although this may vary on case by case basis. For domestic/Industrial working features (e.g., hearths, ovens) – unless large and structural, in which case see above - between 50% and 100% will be excavated at test pit / evaluation stage and 100% of such features will be excavated at any subsequent Strip, Map and Sample (excavation) stage. Such features would be sampled for archaeomagnetic dating at Strip, Map and Sample stage (this applies to any *in situ* burnt features unless otherwise agreed following on site discussion with the HEP team at SCC). Additional excavation, up to complete removal, may be required of any feature should the excavated samples fail to provide the necessary information to enable their purpose or date to be ascertained.
- 6.2.19 All features and deposits will be photographed using a digital camera. A scale and north arrow will be included in the photographs. The archaeological contractor will liaise with the archive repository over their photographic requirements before fieldwork starts. A full digital photographic record of the investigations will be prepared illustrating in both detail and general context the principal features and finds discovered. The photographic record will also include 'working shots' to illustrate more generally the nature of the archaeological investigation.
- 6.2.20 All finds will be bagged and labelled with their relevant context number for washing and processing.
- 6.2.21 The spoil heaps from the test pits will be scanned for metal artefacts using a metal detector. A list of finds recovered by this technique will be included in the report.
- 6.2.22 A 'Harris Matrix' stratification diagram will be used to record stratigraphic relationships. This record will be compiled and fully checked during the course of the fieldwork. Spot dating would be incorporated where applicable during the course of the works.
- Environmental Sampling**
- 6.2.23 Environmental sampling strategies will be developed (if required) subject to the requirements of the fieldwork strategy. Specialist staff will have a role in ensuring that appropriate deposits are sampled to retrieve palaeoenvironmental and economic indicators to fulfil the project aims. Preparation, taking, processing and assessment of environmental samples will be in accordance with guidance provided by Historic England.
- 6.2.24 The sampling strategy and methodology will be based on the following:
- All collected samples will be labelled with context and sequential sample numbers.
 - Appropriate contexts will be bulk sampled for the recovery of carbonised plant remains and insects. Assemblages of charred crop remains are of particular importance and will be used to provide data in addition to the associated weed flora on agricultural activities, the economy of the site and its relationship to the river valley.
 - If occupation surfaces are encountered, spatially controlled collection of environmental bulk samples may be taken to aid evaluation procedures. Spatial co-ordinates will be recorded for all samples, and the sampling grid related to the site grid and Ordnance Survey grid. Assessment of spatial information should be undertaken to enable the degree of resolution to be defined following appropriate consultation.
- Environmental samples will be taken where organic remains survive in well-stratified, datable deposits. Bulk samples (40 litres or the whole context dependent upon size) will be taken for wet sieving and flotation where there is clear indication of good analytical potential and dating evidence for such material (subject to evaluation requirements). Where there is potential for spatial variation in the distribution of such remains, the sampling strategy will include a percentage sample of each feature/deposit type, distributed throughout the excavation area, sufficient to ensure that such variation is detected.
 - Bulk samples may be taken, if appropriate, from significant datable waterlogged deposits for insects and macroscopic plant remains.
 - Sub-samples or monolith samples of waterlogged deposits and sealed buried soils with potential for pollen preservation will be taken for assessment if appropriate and columns of such samples will be taken through deposits where there is clear potential for recovering a datable sequence of environmental information.
 - Recovery of small animal bones, bird bone and large molluscs will normally be achieved through processing other bulk samples or 30 litre samples may be taken specifically to sample particularly rich deposits.
 - Undisturbed kubiena tin or column samples of sediments will be taken for micro-morphology of buried soils where these are likely to shed light on the environmental development of the area.
 - Where suitable deposit sequences are encountered (normally waterlogged deposits with high palaeo-environmental potential, in association with archaeological material), purposive radiocarbon sampling will be carried out at an appropriate interval.
 - If samples are taken, a pilot study will be undertaken as an initial stage of environmental processing. This will enable an assessment of which groups of samples are likely to be most productive for complete processing and further study.
- 6.2.25 Different sampling strategies may be employed according to the perceived importance of the deposit or feature under investigation and future mitigation strategies. Close attention will be given to

sampling for date, structure and environment. Sample size should take into account the frequency with which material is likely to occur. Bulk sieving should be considered for recovery of environmental evidence to ensure that complete samples of artefactual evidence are collected for significant deposits.

6.2.26 The strategy for sampling archaeological and environmental deposits and structures (which can include soils, timbers, pollen, diatoms, animal bone and human burials) would be developed in consultation with the HEP team at SCC.

6.2.27 All finds will be treated in a proper manner and to standards agreed in advance with the recipient museum. They will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with best professional practice.

6.2.28 Spot dating should be incorporated where applicable during the course of the works.

Human Remains

6.2.29 Human remains over 100 years old will be 100% excavated after obtaining the relevant Ministry of Justice Licence, as required by the Burials Act of 1857 (amended 1981). The **Draft Development Consent Order** [REP1-004] sets out the process that will be followed in relation to human remains under 100 years old.

Treasure Act or Potential Treasure

6.2.30 All finds of treasure or potential treasure will be recorded, removed to a safe place and reported to the Coroner in accordance with the Treasure Act 1996, updated by The Treasure (Designation) Order 2002. Where retrieval cannot be effected the same day, appropriate security measures will be put in place to safeguard the finds.

Finds and Environmental Specialists

6.2.31 Appropriate specialist staff will be used on this project depending on the type of artefacts and soil samples recovered during the course of the fieldwork. The archaeology contractor will provide details of specialists on request.

Health & Safety

6.2.32 The archaeology contractor will provide a Risk Assessment and Method Statement (RAMS) for the work prior to the commencement of the works. This will be submitted to GAL's Principal Designer and Principal Contractor for their approval.

6.2.33 Prior to any investigation the full PAS 128 Survey Category Type D 'Desktop Utility Record Search' will be obtained by the Principal Contractor and will be reviewed to ensure all areas are safely located beyond service exclusion zones. If plant needs to cross below overhead electricity cables a GS6 assessment report will be provided by the Principal Contractor with contacts made to UK Power Networks to establish goal post heights and any other restrictions.

6.2.34 No personnel will work in deep or unsupported excavations. The sides of all excavations deeper than 1.2 metres or less if the ground is considered by a competent person to be unstable will be stepped or battered. Due to the difficulty of working in shored trenches, shoring will be avoided wherever possible. All deep trenches shall be fenced off and will be clearly indicated by "deep excavation" signs.

6.2.35 The archaeologist(s) will not enter an area under machine excavation without alerting the machine driver to his/her intention and will wait in a safe location until the machine driver has acknowledged their presence with a thumbs up.

6.2.36 The archaeologist(s) shall remain alert and take due care not to impede the progress of moving machinery. He/she shall stand well back from the turning circle of an excavator's buckets and cabs.

6.2.37 Spoil will be stored at a safe distance away from excavation edges and at a safe height.

6.2.38 Suitable accommodation and welfare will be provided for staff to shelter from inclement weather and during breaks. Hand washing facilities and welfare will be provided.

6.2.39 All staff and visitors to the site will be expected to wear full PPE at all times.

6.2.40 The Principal Contractor will ensure appropriate (fenced) segregation of archaeological works from any other site works, and that safe access routes are provided for the archaeological team.

Ecological Issues

6.2.41 GAL will provide all necessary updated constraints information to RPS and the archaeological contractor regarding ecological avoidance areas or areas in which an ecological watching brief is required (eg under newt licence arrangements).

Welfare Facilities

6.2.42 Welfare facilities will be provided by the archaeological contractor where work is being undertaken prior to other contractors commencing on site.

6.2.43 Following the test pitting stage it is likely that any further archaeological works would be undertaken during occupation of the site by the Principal Contractor. In this situation welfare facilities would be provided to the archaeology contractor by the Principal Contractor.

7 Reporting

7.1 Assessment and Updated Project Design (UPD)

7.1.1 In the event of positive archaeological findings at Car Park B, thus requiring SMS investigation, an assessment report, containing an Updated Project Design, will be produced within 6-12 months of completion of the fieldwork dependent on the quantity of material and data produced. This will comprise an integrated and illustrated site narrative and specialist assessment reports that will outline the requirements for the final publication of the results of the archaeological work. A detailed timetable and format summary for the final publication will be included in the assessment report.

7.1.2 A draft copy of the/each assessment report will be issued to RPS and the HEP team at SCC for comment prior to the issue of the final version.

7.1.3 Expert advice and reporting (in relation to cultural artefacts and ecofacts) will be provided by individual Specialists as appropriate.

7.1.4 The assessment report will include, as a minimum:

- A front sheet (setting out the project/site name, National Grid References to minimum eight figures, description of task(s) undertaken, date and duration of the fieldwork, site code/number).
- A non-technical summary of the work including the results.
- Identity of the organisation and individuals carrying out the work (in particular the names of the project director, site supervisor and any specialists).
- A general introduction to the project including site description.
- Aims and objectives.
- Methodologies employed to undertake the works.

- Descriptive text presenting the results of the work including finds and environmental data where appropriate.
- Quantifications of the finds recovered and environmental samples taken.
- Interpretation and discussion of the results.
- Assessment of the significance of any cultural heritage and archaeological remains identified.
- Assessment of the potential of any data for further analysis (ie Updated Project Design).
- Proposals for publication of the further analysis in an appropriate format.
- Details of the scale, nature and location of the archive and the intended place of deposition.
- Report bibliography.
- Sufficient illustrations to support the text including figures to show the location of the scheme in a regional and local context, locations of all works undertaken, detailed plans and sections as appropriate.
- An appendix comprising a table of detailed information presented on a trench by trench basis, information to include description and depth of each recorded deposit.

7.1.5 The fieldwork assessment will also include an Updated Project Design (UPD) clearly stating the potential of each category of data to contribute to the existing project aims, identification of new project aims as a result of findings and recommendations for the detailed analysis including required staff/resource quantifications.

Analysis and Publication

7.1.6 For projects which have produced results of significant county, regional or national importance, an illustrated final report which meets the guidelines set out in MAP2 Appendix 7 and is suitable for publication in an approved archaeological journal (the archaeology contractors' in-house monograph collection, or within the Surrey Archaeological Collections (SAC)), will be provided to the HEP team at SCC within two years of the completion of fieldwork (unless a longer time period has been agreed in the UPD). The overall content of the report will be agreed with the HEP team at SCC.

7.1.7 The report will be clearly referenced in all respects to all work on the site, evaluation, excavation, watching briefs, background research including aerial photography etc., in order that a coherent picture may be presented. It will place the site in its local archaeological, historical and topographical context and include a clear location map. Each plan included will clearly relate to some

other included plan of an appropriate scale and should normally include national grid references.

7.1.8 One bound copy of the final publication and a digital copy, in pdf format, must be supplied to the Surrey Historic Environment Record. A further offprint will accompany the archive. A copy of any specialist papers relating to the site will also be supplied to the HEP team at SCC.

7.1.9 A publication grant will be provided to the publishers of the report in accordance with their requirements.

7.1.10 Copies of the reports will be provided to the Historic England Archive within 12 months of the completion of the fieldwork, unless a revised timescale is agreed in writing with the HEP team at SCC.

7.1.11 A copy of the report will be placed in the overarching project archaeology archive, for eventual deposition with the relevant recipient archive storage facility.

7.1.12 The information regarding the results of the programme of archaeological investigations will be entered onto the relevant Online Access to the Index of Archaeological Investigations (OASIS) form and submitted to the OASIS database by the archaeological contractor. Electronic copies of any reports generated will be attached to the form.

7.1.13 The involvement of GAL, RPS and the HEP team at SCC will be acknowledged in any report or publication generated by the programme of archaeological work associated with the Project.

7.1.14 Any variation or modification to the methodology (including the reporting) will be fully discussed in advance and agreed by the archaeological contractor, RPS, GAL and the HEP team at SCC.

7.1.15 Copyright of all reports prepared by the archaeological contractor will be retained by the archaeological contractor under the terms of the Copyright, Designs and Patents Act (1988) with all rights reserved, excepting that the archaeological contractor provides an exclusive licence to GAL for the use of the reports in all matters relating to the Project and to the local planning authority with regard to the provision of planning advice and public awareness of the historic environment.

8 Archive Deposition

8.1.1 The project archive consists of the records relating to the programme of archaeological work, including written records, photographs, drawings and artefacts. The archaeological contractor will ensure that the archive is fully catalogued, indexed, cross-referenced and checked for consistency.

8.1.2 The artefacts will be prepared in accordance with procedures outlined in relevant standards and guidance documents (cf. ClfA 2014c; MGC 1992; UKIC 1984) and any procedures adopted by the recipient museum.

8.1.3 The retained artefacts remain the property of the landowner with the exception of human remains and any artefacts that fall within the remit of the Treasure Act 1996. Subject to obtaining written consent from the landowner, the artefacts will be deposited along with the rest of the archive. Arrangements for the finds to be viewed by the landowner will be made on request.

8.1.4 No recovered finds will be discarded without the written consent of the recipient body. Selection and retention policy will be guided by the relevant standards and guidance documents (cf. ClfA 2014c, SMA 1993).

8.1.5 Account must also be taken of the requirements of the place of deposition regarding the conservation, ordering, organisation, labelling, marking and storage of excavated material and the archive accession number.

8.1.6 Prior to the deposition of the artefacts with the recipient Museum the following procedures will have been completed:

- Notification of the fieldwork and approximate quantity of finds will be given to the museum ahead of the fieldwork by the nominated contractor.
- Where possible the site code/accession number and context number shall be marked on all finds.
- All finds packaging, including boxes and bags will be clearly marked with the assigned accession number.
- Transfer of ownership from will be agreed in principle prior to the fieldwork and a written transfer of ownership form will be forwarded to the museum ahead of deposition. Any other finds remain the landowners to assess and dispose of.
- The archive will be deposited complete and will include a full index of contents.
- Discard or non-retention of certain artefacts of low academic value will be in accordance with SMA (1993, revised 1997).

- 8.1.7 Further guidelines and requirements of the museum for the acceptance of finds and archive as outlined in the recipient Museum's procedures for the deposit of archaeological archives will be adhered to.
- 8.1.8 A project's archive comprises every record relating to that project, from written records and illustrative material to the retained artefacts.
- 8.1.9 Digital archives must be prepared according to local requirements.
- 8.1.10 The archaeology contractor will ensure that every element of the archive is kept clean and secure, and that it is stored in a suitable environment.
- 8.1.11 The archive comprising written, drawn, photographic and electronic media, will be fully catalogued, indexed, cross referenced and checked for archival consistency.
- 8.1.12 RPS will be responsible for monitoring progress and standards throughout the project, and will be kept regularly informed during fieldwork, post-excavation and publication stages by the archaeological contractor.

9 Public Outreach

- 9.1.1 A programme of public outreach relating to the programme of archaeological work will be developed and implemented following commencement to share the findings of the ongoing archaeological investigations.
- 9.1.2 Potential measures for inclusion within this programme include:
 - (1) Provision of permanent information boards within the Museum Field Environmental Mitigation Area.
 - (2) Public access to, and participation in, the archaeological investigations at Museum Field Environmental Mitigation Area.
 - (3) Organised visits from local schools and interest groups to the archaeological investigations at Museum Field Environmental Mitigation Area.
 - (4) Provision of temporary information displays at suitable locations such as Crawley Library.
 - (5) Presentation of information on appropriate websites.

- 9.1.3 GAL already maintains contacts with a wide range of local organisations and schools, and the relevant contacts will be advised of the potential outreach opportunities.

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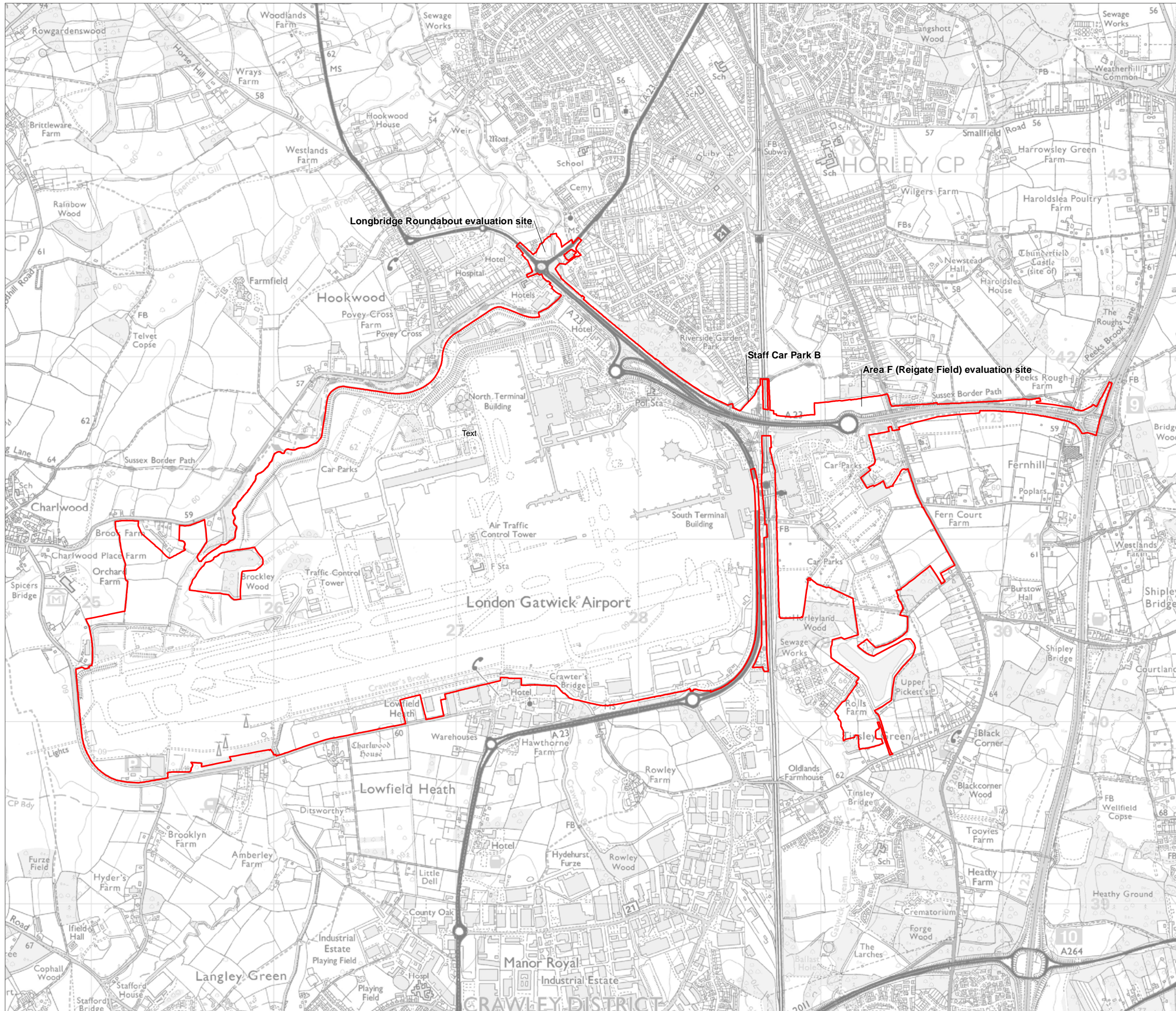
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Figures

Legend
 Project Site Boundary



DOCUMENT
Written Scheme of Investigation

DRAWING TITLE
Site Location

DATE
July 2023

ORIENTATION 	DRAWING NO. FIGURE 1	REVISION For WSI Issue
	DRAWN BY NB	PM / CHECKED BY MR

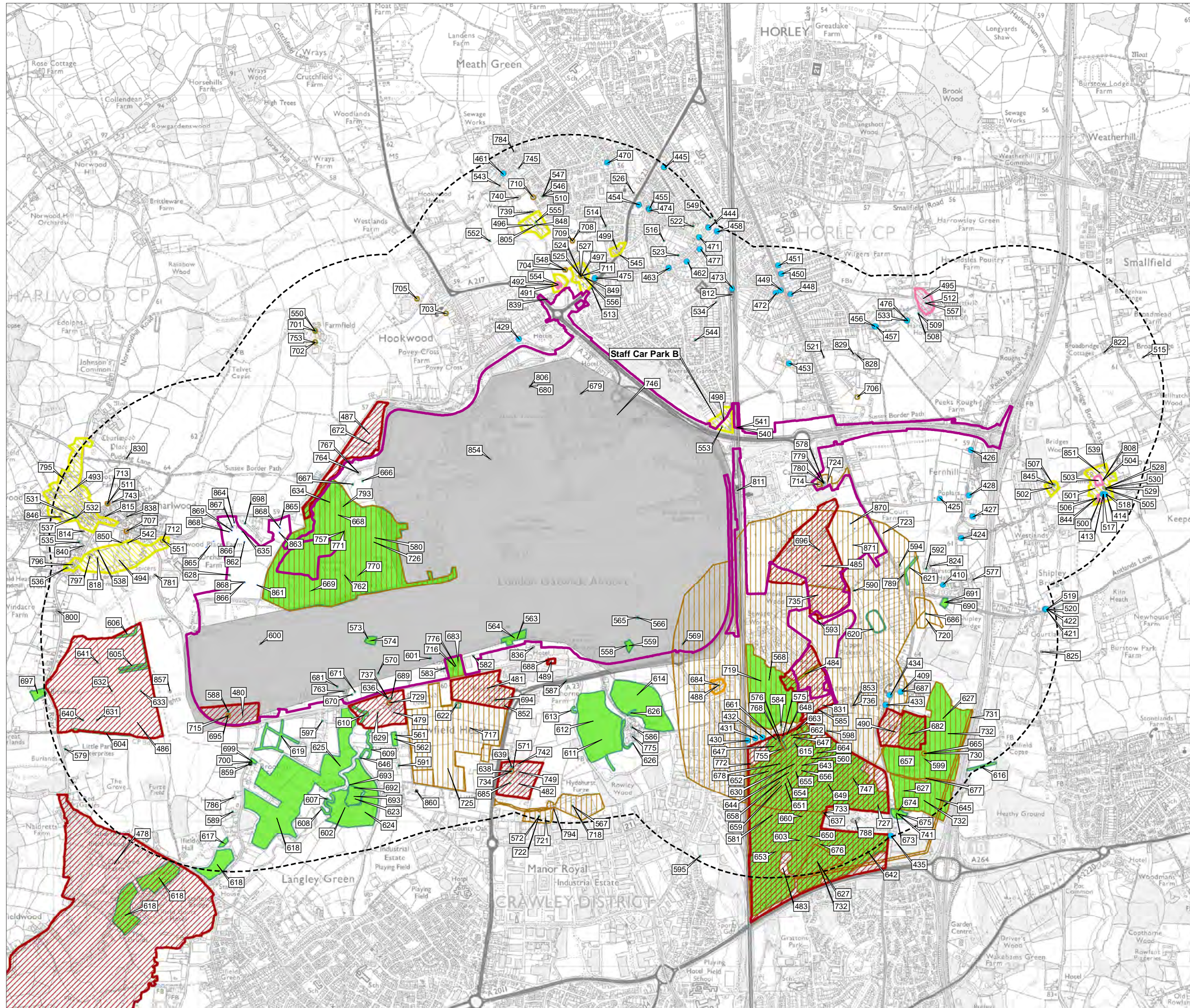


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Legend

- Project Site Boundary
- 1km buffer from Project Site Boundary
- Locally Listed Building
- Area of High Archaeological Potential (Surrey)
- County Site of Archaeological Interest (Surrey)
- Amber Archaeological Notification Area (West Sussex)
- Red Archaeological Notification Area (West Sussex)
- HER Feature
- HER Event
- NMR Record
- Other Building
- Geophysical Anomaly

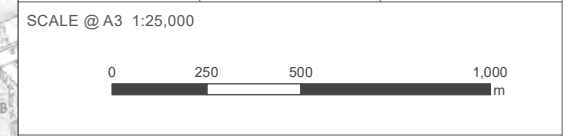


DOCUMENT
Written Scheme of Investigation

DRAWING TITLE
Non-designated Heritage Assets within 1 km of the Project Site Boundary showing location of Surrey AHAP that includes Staff Car Park B

DATE
July 2023

	DRAWING NO. FIGURE 2	REVISION For WSI Issue
	DRAWN BY NB	PM / CHECKED BY MR



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Legend

- Project Site Boundary
- Staff Car Park B

Artificial

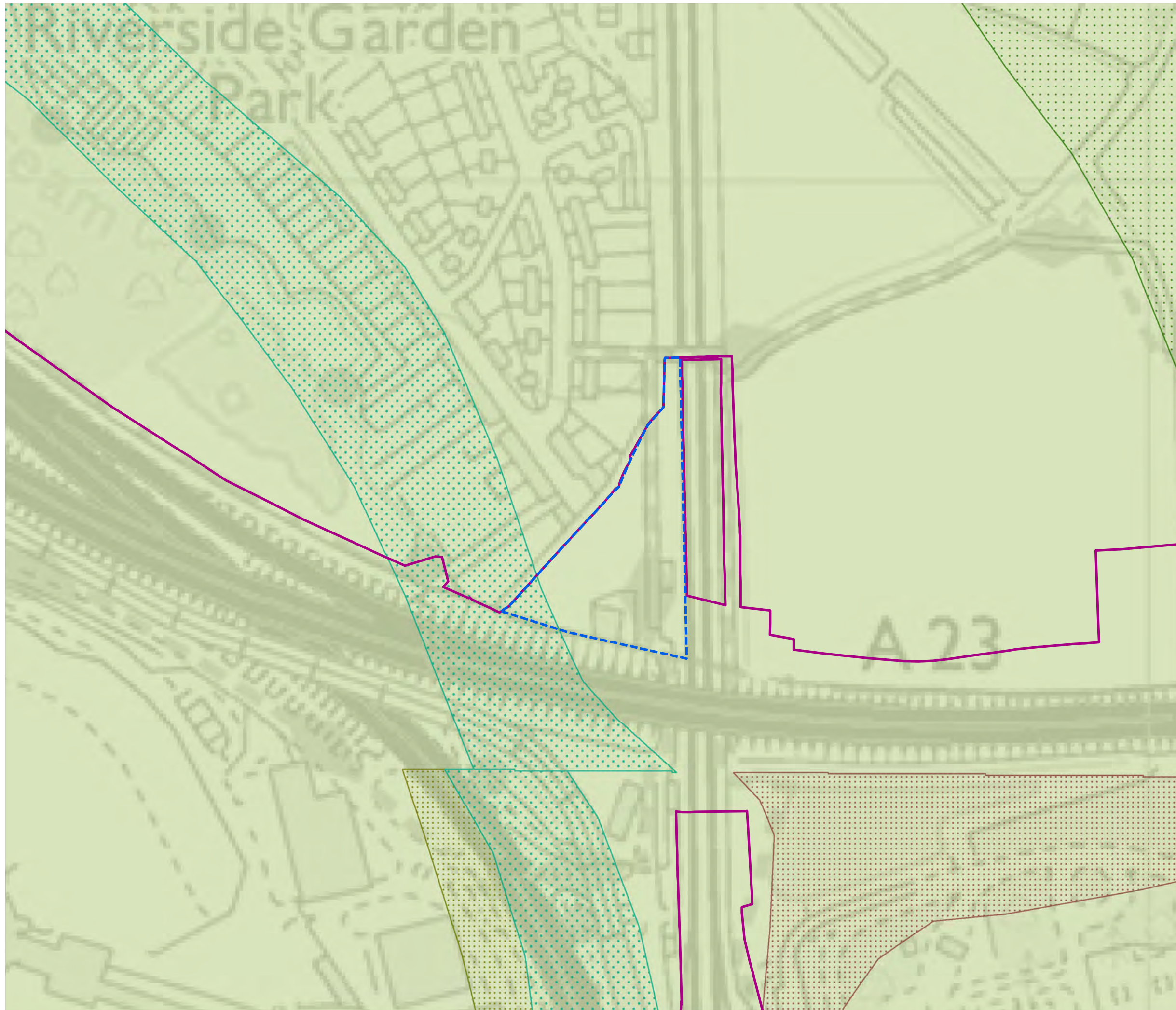
- Made Ground - Artificial Deposit

Superficial

- Alluvium - Clay, silt, sand and gravel
- Head - Clay, silt, sand and gravel
- River Terrace Deposits (Undifferentiated) - Sand and gravel
- River Terrace Deposits, 1 (Mole) - Sand and gravel
- River Terrace Deposits, 2 (Mole) - Sand and gravel

Bedrock

- Weald Clay Formation - Clay-ironstone
- Weald Clay Formation - Mudstone
- Upper Tunbridge Wells Sand - Mudstone
- Upper Tunbridge Wells Sand - Sandstone and mudstone
- Upper Tunbridge Wells Sand - Sandstone and siltstone, interbedded



DOCUMENT

Written Scheme of Investigation

DRAWING TITLE

Geology Map

DATE

July 2023

ORIENTATION



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FIGURE 3

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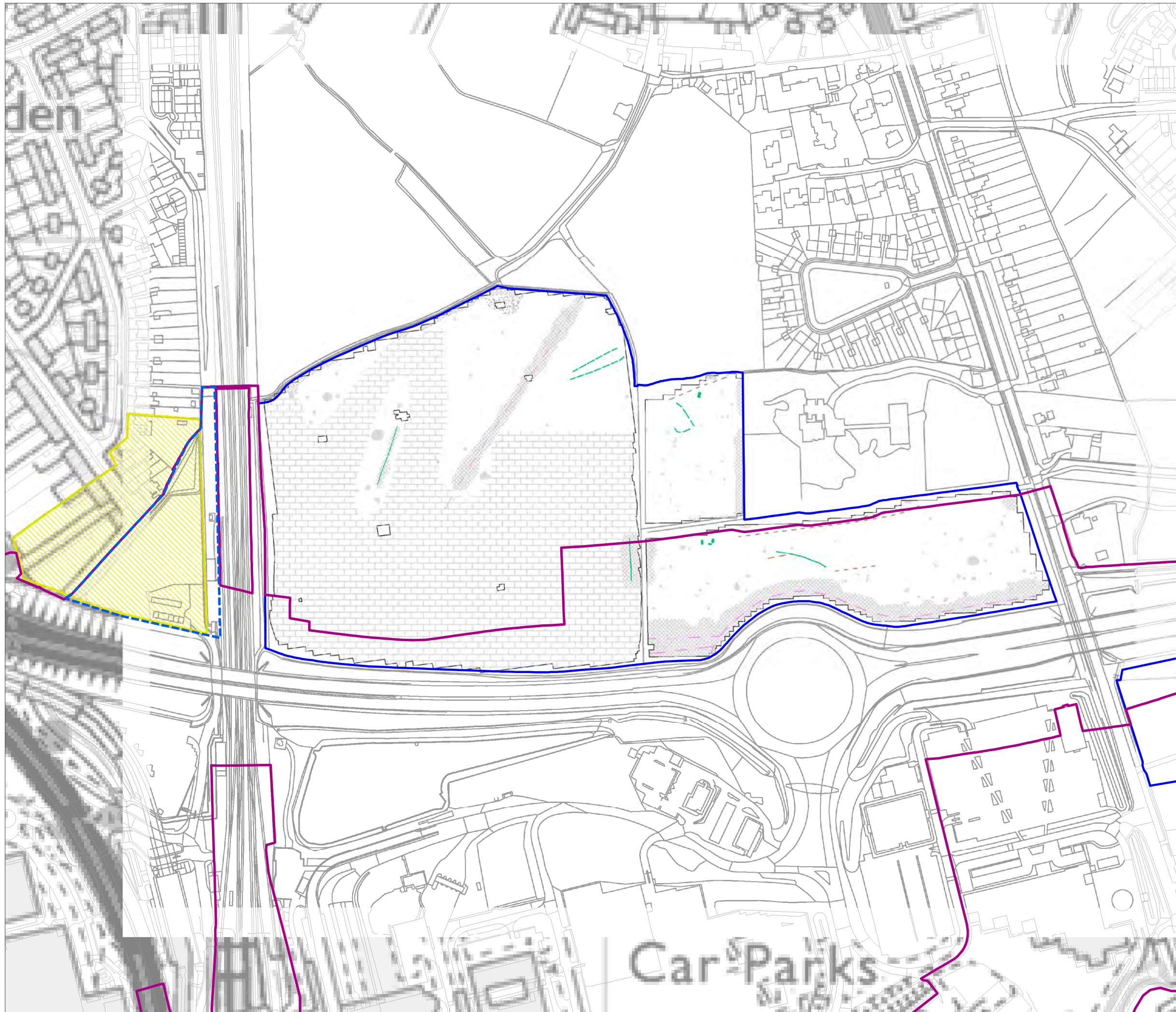
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Legend

- Project Site Boundary
- Staff Car Park B
- 2019 Geophysical Survey Areas
- Area of High Archaeological Potential (Surrey)

KEY

	Uncertain Origin (discrete anomaly / trend)
	Agriculture (plough)
	Possible service / track
	Magnetic disturbance
	Strong magnetic disturbance - made ground
	Ferrous (discrete / zone)



DOCUMENT
Written Scheme of Investigation

DRAWING TITLE
Area F (Reigate Field) – location in relation to designated AHAP at Staff Car Park B

DATE
July 2023

	DRAWING NO. FIGURE 4	REVISION For WSI Issue
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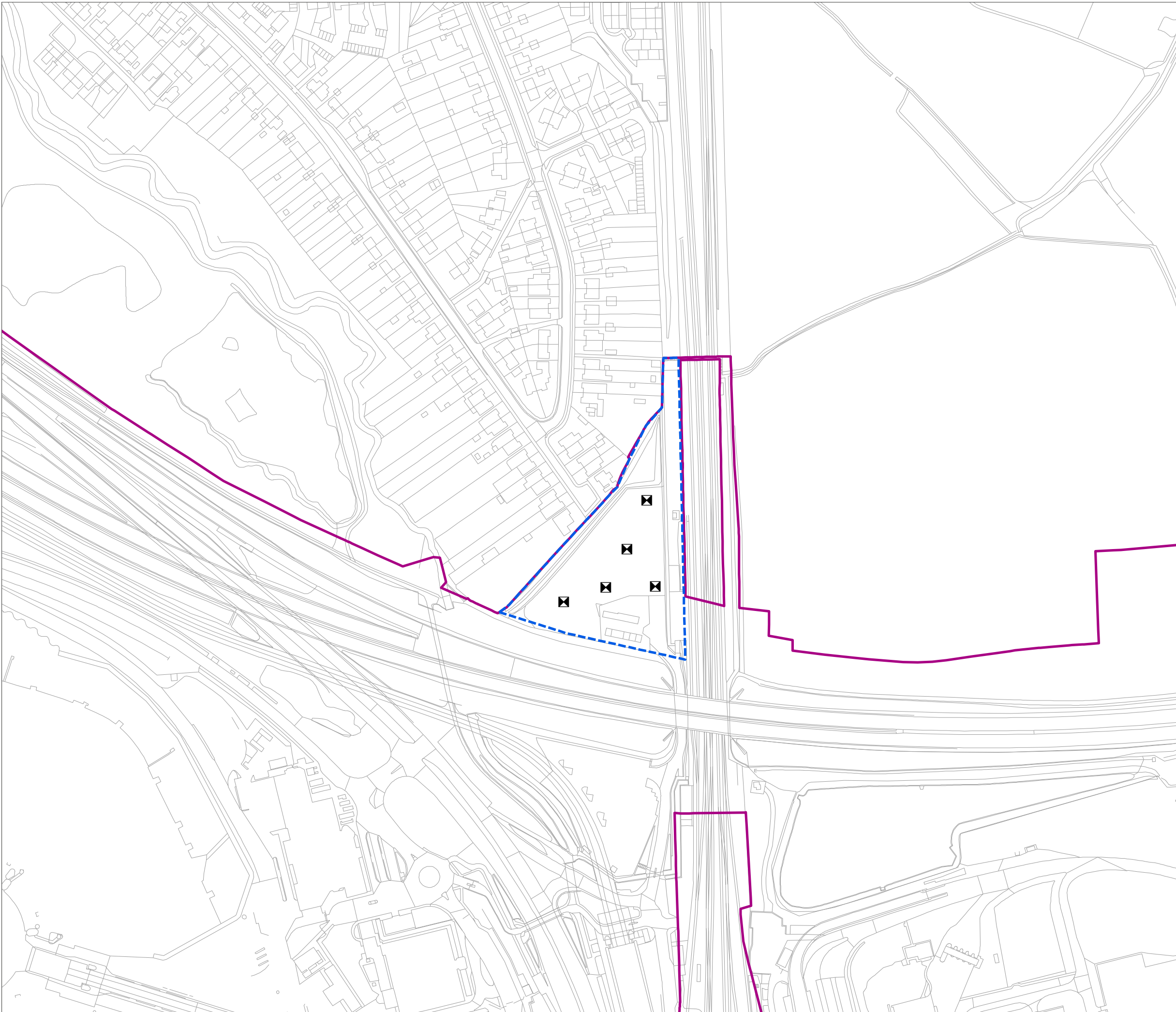
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Legend


- ▭ Project Site Boundary
- ▭ 2019 Geophysical Survey Areas
- ⊠ Proposed test pits (2m x 2m)




DOCUMENT
Written Scheme of Investigation

DRAWING TITLE
Staff Car Park B Showing Indicative Location of Stage 1 Archaeological Test Pits

DATE
July 2023

 N	DRAWING NO. FIGURE 5	REVISION For WSI Issue
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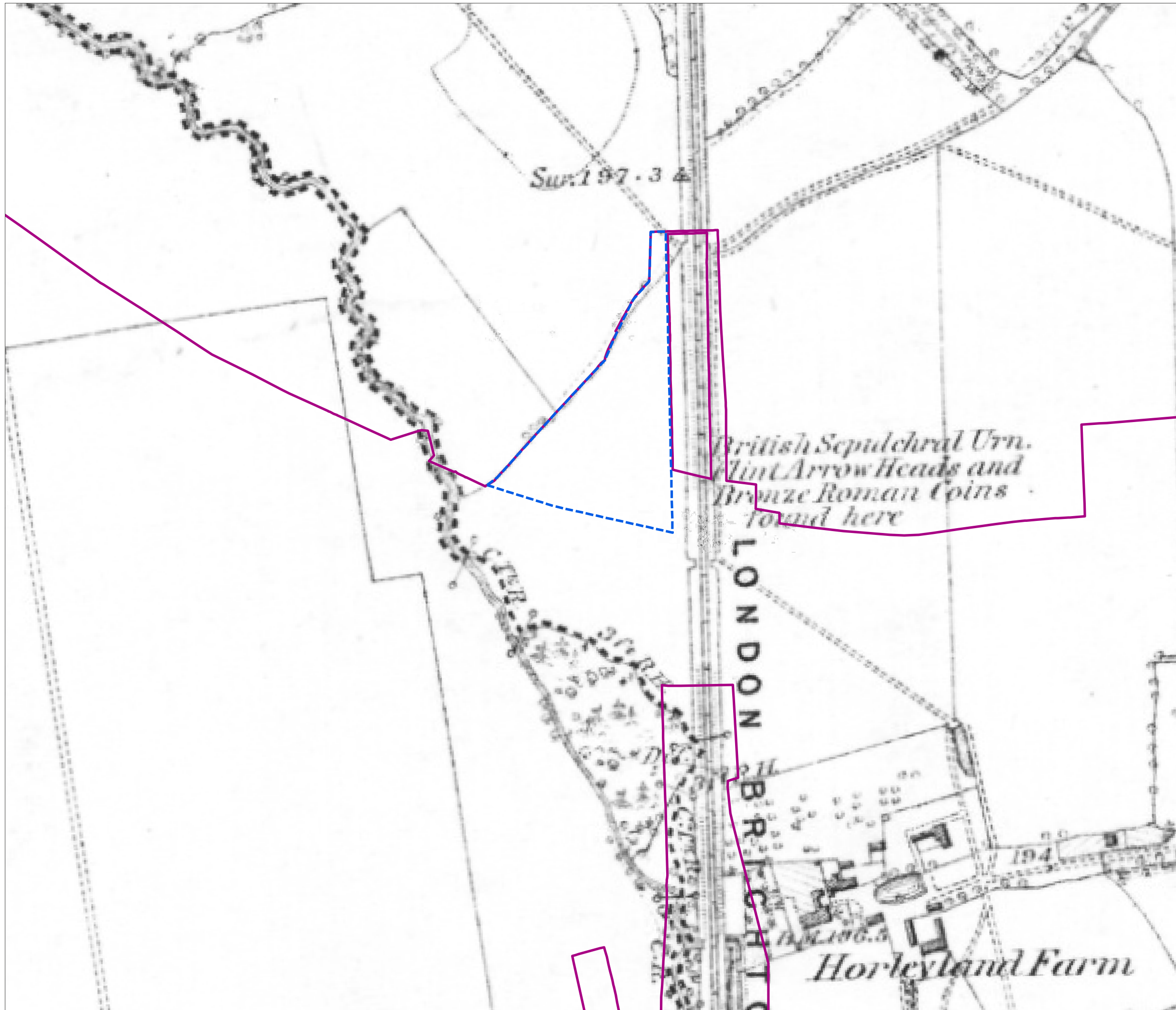


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Legend

- Project Site Boundary
- Staff Car Park B



DOCUMENT

Written Scheme of Investigation

DRAWING TITLE

1st Edition OS (6" to 1 mile) map

DATE

July 2023

ORIENTATION



DRAWING NO.

FIGURE 6

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Legend

- ▭ Project Site Boundary
- ▭ Staff Car Park B
- ⊠ Proposed test pits (2m x 2m)



DOCUMENT
Written Scheme of Investigation

DRAWING TITLE
Google Earth Image of Car Park B showing proposed archaeological test pits

DATE
July 2023

ORIENTATION 	DRAWING NO. FIGURE 7	REVISION For WSI Issue
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Written Scheme of Investigation

DRAWING TITLE

A23 1950'S Staff Car Park (now Ashdown House) - Showing AHAP top right

DATE

July 2023

ORIENTATION

DRAWING NO.

FIGURE 8

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MR

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Legend

DOCUMENT

Written Scheme of Investigation

DRAWING TITLE

 1973 M23 Extension (showing
Car Park B Surrey AHAP bottom left)

DATE

July 2023

ORIENTATION

DRAWING NO.
FIGURE 9
REVISION
For WSI Issue
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Legend

DOCUMENT

Written Scheme of Investigation

DRAWING TITLE

1973 M23 Extension showing Surrey AHAP and western zone of Area F worksites (top left)

DATE

July 2023

ORIENTATION



DRAWING NO.

FIGURE 10

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For WSI Issue

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