

# ARCHAEOLOGICAL DESK BASED ASSESSMENT

Land at Anderson Way, Belvedere, DA17 6BG

JAC27035  
Land at Anderson Way,  
Belvedere, DA17 6BG  
Version 3 Final  
April 2021

### Quality Management

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Version	Status	Authored by	Reviewed by	Approved by	Date
Version 1	Draft for Comment	James Archer	Robert Masefield	Robert Masefield	29/01/2021
Version 2	Final	James Archer	Robert Masefield	Robert Masefield	03/02/2021
Version 3	Updated London Plan	James Archer	Robert Masefield	Robert Masefield	13/04/2021

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## EXECUTIVE SUMMARY

- Land at Anderson Way, Belvedere, DA17 6BG has been assessed for its below ground archaeological potential in advance of proposed redevelopment comprising the demolition of existing buildings and redevelopment of the site to provide a deck for the storage of operational vehicles, associated parking, access alterations, guard hut, welfare block, landscaping, and associated infrastructure.
- The proposed development will not impact on any designated archaeological assets. The study site lies within an Archaeological Priority Area for 'Thameside and Erith Marshes' as defined by the London Borough of Bexley.
- This assessment has considered a low to moderate archaeological potential at the site for Mesolithic flintwork at great depth underlying a peat sequence. A generally low archaeological potential is considered for all other past periods of human activity, although traces of ephemeral marshland activity or prehistoric trackways at depth cannot entirely be discounted. The site's historic location within the Erith Marshes is indicative of a high geoarchaeological and palaeoenvironmental potential for associated alluvial and peat deposits. If present, any archaeological remains would most likely be of a local significance, although it is possible that large quantities of Mesolithic flintwork indicative of seasonal campsites, or prehistoric trackways, could be considered of a regional significance.
- Modern development impacts are likely to have been severe across the top of the underlying alluvial sequence, as shown in recent geotechnical work by extensive depths of made ground over at least circa 1m depth. The existing building is anticipated to have utilised piled foundations which, if present, would have impacted to a greater depth into the underlying alluvial sequence.
- As development proposals comprise the demolition of existing buildings and the construction of new hardstanding and excavations for a van storage deck and associated services, it is generally considered likely that a majority of excavation impacts for hardstanding van parking to circa 0.8m depth will be contained within existing depths of made ground. It is possible that piled foundations and other localised excavations for drainage works, attenuation works, and a petrol interceptor will be required which would reach the upper levels of the underlying alluvial sequence. Piled foundations would be very localised and would reach up to circa 25-30m depth; indicative density plans have suggested a piling impact of between 1.68% and 2.97% across the site.
- However, overall, given that the site retains only a modest archaeological potential and that this is anticipated at depth within the site, the indicative localised piled foundation impact is considered unlikely to be either significant or widespread. Additional proposed excavation impacts are likely to be very localised and generally confined to the existing made ground or upper alluvial levels where the archaeological potential is low. It is considered that further archaeological work could be limited to a programme of borehole survey and palaeoenvironmental assessment, to build upon existing geoarchaeological deposit models for the Erith Marshes.
- As remains of a high significance which might preclude development are not anticipated, it is suggested that this assessment is sufficient to support a planning application at the site and that, if required, further work could be secured by an appropriate planning condition attached to the granting of planning consent.

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# 1 INTRODUCTION AND SCOPE OF STUDY

- 1.1 This below ground archaeological desk-based assessment has been researched by Alex Slater, prepared by James Archer, and approved by Robert Masefield of RPS Heritage on behalf of Lysander.
- 1.2 The subject of this assessment, also known as the study site, is land at Anderson Way, Belvedere, DA17 6BG. The site is approximately 2.14ha in extent and is centred at TQ 49954 79932 (Fig. 1) within the administrative area of the London Borough of Bexley.
- 1.3 Lysander has commissioned RPS Heritage to establish the archaeological potential of the site and to provide guidance on ways to address any archaeological constraints identified.
- 1.4 In accordance with relevant policy and guidance on archaeology and planning, and in accordance with the 'Standard and Guidance for Historic Environment Desk-Based Assessments' (Chartered Institute for Archaeologists October 2020), this assessment draws together the available archaeological, topographic and land-use information in order to clarify the archaeological potential of the site.
- 1.5 This desk-based assessment comprises an examination of evidence on the Greater London Historic Environment Record (GLHER), and other sources, and includes the results of a comprehensive map regression exercise.
- 1.6 This assessment thus enables relevant parties to assess the archaeological potential of various parts of the site and to consider the need for design, civil engineering, and archaeological solutions to the archaeological potential identified.

## 2 PLANNING BACKGROUND AND DEVELOPMENT PLAN FRAMEWORK

- 2.1 National legislation regarding archaeology, including scheduled monuments, is contained in the Ancient Monuments and Archaeological Areas Act 1979, amended by the National Heritage Act 1983 and 2002, and updated in April 2014.
- 2.2 In March 2012, the government published the National Planning Policy Framework (NPPF), which was most recently revised in June 2019. The NPPF is supported by the National Planning Practice Guidance (NPPG), which was published online 6th March 2014 and has since been periodically updated.
- 2.3 The NPPF and NPPG are additionally supported by three Good Practice Advice (GPA) documents published by Historic England: GPA 1: The Historic Environment in Local Plans; GPA 2: Managing Significance in Decision-Taking in the Historic Environment (both published March 2015). The second edition of GPA3: The Setting of Heritage Assets was published in December 2017.

### National Planning Policy

- 2.4 Section 16 of the NPPF, entitled 'Conserving and Enhancing the Historic Environment' provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 16 of the NPPF can be summarised as seeking the:
- Delivery of sustainable development;
  - Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
  - Conservation of England's heritage assets in a manner appropriate to their significance; and
  - Recognition that heritage makes a contribution towards our knowledge and understanding of the past.
- 2.5 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 189 states that planning decisions should be based on the significance of the heritage asset and that level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient to review the potential impact of the proposal upon the significance of that asset.
- 2.6 *Heritage Assets* are defined in Annex 2 of the NPPF as: a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).
- 2.7 Annex 2 also defines *Archaeological Interest* as a heritage asset which holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point.
- 2.8 A *Nationally Important Designated Heritage Asset* comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.
- 2.9 *Significance* is defined as: The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

- 2.10 *Setting of a heritage asset* is defined as: The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
- 2.11 In short, government policy provides a framework which:
- Protects nationally important designated Heritage Assets;
  - Protects the settings of such designations;
  - In appropriate circumstances seeks adequate information (from desk based assessment and field evaluation where necessary) to enable informed decisions;
  - Provides for the excavation and investigation of sites not significant enough to merit *in-situ* preservation.
- 2.12 The NPPG reiterates that the conservation of heritage assets in a manner appropriate to their significance is a core planning principle, requiring a flexible and thoughtful approach. Furthermore, it highlights that neglect and decay of heritage assets is best addressed through ensuring they remain in active use that is consistent with their conservation. Importantly, the guidance states that if complete, or partial loss of a heritage asset is justified, the aim should then be to capture and record the evidence of the asset's significance and make the interpretation publicly available. Key elements of the guidance relate to assessing harm. An important consideration should be whether the proposed works adversely affect a key element of the heritage asset's special architectural or historic interest. Additionally, it is the degree of harm, rather than the scale of development, that is to be assessed. The level of 'substantial harm' is considered to be a high bar that may not arise in many cases. Essentially, whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the NPPF. Importantly, harm may arise from works to the asset or from development within its setting. Setting is defined as the surroundings in which an asset is experienced and may be more extensive than the curtilage. A thorough assessment of the impact of proposals upon setting needs to take into account, and be proportionate to, the significance of the heritage asset and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.
- 2.13 In considering any planning application for development, the planning authority will be mindful of the framework set by government policy, in this instance the NPPF, by current Development Plan Policy and by other material considerations.

## Local Planning Policy

### London Plan

- 2.14 The proposed development has been assessed against relevant policies in the London Plan (March 2021). Chapter 7 'Heritage and Culture' contains relevant policies. Of particular relevance to archaeological sites within Greater London is policy HC1 as follows:

#### **Policy HC1 Heritage conservation and growth**

- A. Boroughs should, in consultation with Historic England, local communities and other statutory and relevant organisations, develop evidence that demonstrates a clear understanding of London's historic environment. This evidence should be used for identifying, understanding, conserving, and enhancing the historic environment and heritage assets, and improving access to, and interpretation of, the heritage assets, landscapes and archaeology within their area.**

- B. Development Plans and strategies should demonstrate a clear understanding of the historic environment and the heritage values of sites or areas and their relationship with their surroundings. This knowledge should be used to inform the effective integration of London’s heritage in regenerative change by:**
- 1. setting out a clear vision that recognises and embeds the role of heritage in place-making**
  - 2. utilising the heritage significance of a site or area in the planning and design process**
  - 3. integrating the conservation and enhancement of heritage assets and their settings with innovative and creative contextual architectural responses that contribute to their significance and sense of place**
  - 4. delivering positive benefits that conserve and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing.**
- C. Development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets’ significance and appreciation within their surroundings. The cumulative impacts of incremental change from development on heritage assets and their settings should also be actively managed. Development proposals should avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process.**
- D. Development proposals should identify assets of archaeological significance and use this information to avoid harm or minimise it through design and appropriate mitigation. Where applicable, development should make provision for the protection of significant archaeological assets and landscapes. The protection of undesignated heritage assets of archaeological interest equivalent to a scheduled monument should be given equivalent weight to designated heritage assets.**
- E. Where heritage assets have been identified as being At Risk, boroughs should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use.**

## **London Borough of Bexley**

- 2.15 The site is located within the administrative area of the London Borough of Bexley, which has adopted its Local Plan comprising of the Core Strategy (adopted February 2012) and saved policies within the Unitary Development Plan (adopted 2004).
- 2.16 The Core Strategy 2012 contains the following policy relevant to archaeology within the Borough:

### **Policy CS19 Heritage and archaeology**

**The Council will manage its heritage and archaeological assets, whilst seeking opportunities to make the most of these assets, including adapting to and mitigating the effects of climate change. This will enhance the local sense of place and underpin the revitalisation and development of the borough, including promoting the visitor economy. This will be achieved by:**

**a promoting the borough’s heritage assets, such as Danson Mansion, Hall Place and Gardens, Crossness Beam Engine House and Red House;**

**b reviewing the status of existing and identifying new heritage and archaeological assets;**

**c conserving and enhancing the significance of heritage assets, their setting, and the wider historic environment, including statutorily listed buildings; locally listed buildings of architectural or historic interest, conservation areas, registered parks and gardens, and archaeological sites;**

**d protecting heritage assets from development that is likely to adversely impact on the significance, integrity, character or appearance of an asset or its setting;**

**e supporting historic restoration schemes through partnership working and seeking funding to enhance heritage and archaeological assets in an appropriate and sympathetic manner; and**

**f retaining, in situ, archaeological evidence within sites, wherever possible. Where archaeological evidence cannot be retained, the appropriate levels of archaeological investigation and recording should be undertaken prior to the redevelopment of the site.**

2.17 The saved policies of the UPD do not contain any policy relevant to archaeology within the Borough as relevant policies were replaced by the adoption of the Core Strategy in 2012.

2.18 The Borough is currently reviewing their Local Plan to eventually replace the current Core Strategy and saved UPD policies with a new Local Plan. The Bexley Preferred Approaches to Planning Policies and Land-Use Designations document was published in February 2019 as part of the preparation of a new Local Plan. This document contains the following statement giving the preferred strategic approach to Bexley's Heritage assets in a future Local Plan:

**Preferred strategic policy approach to managing Bexley's heritage assets**

**1. The Council will manage its heritage and archaeological assets, whilst seeking opportunities to make the most of these assets; including adapting to and mitigating the effects of climate change. This will enhance the local sense of place and support the revitalisation and development of the borough, including promoting the visitor economy. This will be achieved by:**

**a) promoting the borough's heritage assets, such as Danson Mansion, Hall Place and Gardens, Crossness Beam Engine House and Red House;**

**b) reviewing the status of existing and identifying new heritage and archaeological assets;**

**c) applying the National Planning Policy Framework (NPPF) 2018 and London Plan requirements for development proposals affecting heritage assets to conserve and enhance the significance of heritage assets, their settings, and the wider historic environment, and the requirements to protect assets from development that is likely to adversely impact on the significance, integrity, character or appearance of those assets or their settings;**

**d) protecting the internal features of Council owned non-designated heritage assets where they contribute to the asset's significance;**

**e) supporting historic restoration schemes through partnership working and seeking funding to enhance and utilise heritage and archaeological assets in an appropriate and sympathetic manner; and,**

**f) retaining, in situ, archaeological evidence within sites, wherever possible. Where archaeological evidence cannot be retained, the appropriate levels of archaeological investigation and recording should be undertaken prior to the redevelopment of the site.**

## Relevant National and Local Designations

- 2.19 In terms of relevant designated heritage assets, as defined above and as shown on Figure 2, no designated World Heritage Sites, Scheduled Monuments, Historic Battlefield sites or Historic Wreck sites lie within the vicinity of the study site.
- 2.20 In terms of relevant local designations, the study site lies within an Archaeological Priority Area for 'Thameside and Erith Marshes' as defined by the London Borough of Bexley. Whilst no description is provided for this APA on the GLHER, it is assumed that this area covers the extended Thames marshland which covers the area between the River Thames to the north and the natural east-west ridge which bisects the Borough to the south.
- 2.21 In line with relevant planning policy and guidance, this desk based assessment seeks to clarify the site's archaeological potential and the need or otherwise for additional mitigation measures.

## 3 GEOLOGY AND TOPOGRAPHY

### Geology

- 3.1 The solid geology of the London area is shown by the Institute of Geological Sciences (IGS 1979) as London Clay deposits forming the London Basin. Overlying the London Clay is a series of gravel terraces deposited during periods of glacial and inter-glacial conditions (Bridgland 1996).
- 3.2 Further detail is provided by the British Geological Survey (BGS Online 2021), which shows the underlying bedrock geology at the study site as Lambeth Group (Clay, Silt & Sand), overlain in turn by alluvial deposits associated with the River Thames to the north.
- 3.3 Geotechnical site investigations have been undertaken within the study site and are included within Appendix 1 (Delta Simons 2021). These investigations comprised shallow hand dug test pits to circa 1.2m depth and have identified made ground of at least circa 1m depth across the study site. This made ground overlay alluvial deposits in 4 of the 11 test pits, comprising test pits HP03, HP06, HP09 and HP10 generally situated in the western part of the study site.
- 3.4 A similar sequence of Made Ground to at least 1m depth overlying an alluvial and peat sequence can therefore be anticipated across the study site.

### Topography

- 3.5 The study site is generally level at c.1.5m Above Ordnance Datum (AOD). The nearest natural watercourse to the study site is the River Thames which is located circa 700m to the north of the site and then loops southwards circa 750m to the east of the site. The site is located within an area of the former Erith Marshes and various drainage channels are recorded within the nearby area on historic maps.

## 4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND WITH ASSESSMENT OF SIGNIFICANCE

### Timescales used in this report

#### Prehistoric

Palaeolithic	900,000 -	12,000 BC
Mesolithic	12,000 -	4,000 BC
Neolithic	4,000 -	2,500 BC
Bronze Age (including Chalcolithic)	2,500 -	800 BC
Iron Age	800 -	AD 43

#### Historic

Roman	AD 43 -	410
Saxon/Early Medieval	AD 410 -	1066
Medieval	AD 1066 -	1485
Post Medieval	AD 1486 -	1799
Modern	AD 1800 -	Present

### Introduction

- 4.1 This chapter reviews the available archaeological evidence for the study site and the archaeological/historical background of the study site and surrounding area, and, in accordance with NPPF, considers the potential for any as yet to be discovered archaeological evidence on the study site prior to any assessment of any later development or below ground impacts.
- 4.2 What follows comprises a review of known archaeological assets within a 1km radius of the study site (Fig. 2), also referred to as the study area, held on the Greater London Historic Environment Record (HER), together with a historic map regression exercise charting the development of the study area from the 16<sup>th</sup> century onwards until the present day.
- 4.3 In general, the majority of HER records within the study area comprise evidence for former marshland alluvial and peat deposits found across the study area. In addition, prehistoric flint scatters, possible trackways, and possible boat remains have also been identified, suggesting prehistoric utilisation of the marshland area.
- 4.4 The map regression exercise has demonstrated that the study site comprised open land until the 1980s when the site was developed for an industrial use.
- 4.5 Chapter 5 subsequently considers the site conditions, later development and below ground impacts, and whether the proposed development is likely to impact archaeological assets and potential archaeological assets identified below.

### Previous Archaeological Work

- 4.6 Previous archaeological work undertaken within the immediate vicinity of the study site has generally comprised phases of geoarchaeological work and deposit modelling, in particular to the immediate north of the site at Alchemy Park (HER Ref: ELO16645), and to the immediate south and south west

(HER Refs: ELO18689, ELO14557, ELO14327, ELO7741). These works have confirmed the underlying geological sequence in the nearby area as comprising an alluvial sequence over natural gravel terraces, with survival of peat deposits and environmental deposits enabling palaeoenvironmental sampling to provide information on this historic environment. The underlying gravel terrace is shown on Figure 3 (reproduced with permission from Quest 2018).

### Early Prehistoric – Palaeolithic

- 4.7 No Palaeolithic artefacts are recorded within the study area on the GLHER. The presence of Palaeolithic material can be notoriously difficult to predict and is typically dependent upon the presence of an appropriate underlying geology sequence (such as terrace gravels or brickearth), as well as suitable topography and access to nearby resources and water. Overall, the alluvial deposits underlying the study site are considered too late in date to contain Palaeolithic material and, combined with the paucity of evidence from the nearby area, the archaeological potential at the site for the Palaeolithic period is therefore considered to be low.

### Later Prehistoric – Mesolithic, Neolithic, Bronze Age & Iron Age

- 4.8 The systematic sampling of sandy lower alluvium deposits at depth below the peat levels was undertaken during construction work along Bronze Age Way to the south east of the study site in the 1990s (HER Refs: MLO71814, ELO2738 and RPS Clouston 1997). This identified scattered areas of late Mesolithic flintwork and burnt flint in an area c.1.1km to the south east of the site, indicating a series of seasonal campsites sited near to braded channels of the Thames, likely to take advantage of the seasonal resources available in the riverine environment.
- 4.9 A Mesolithic to early Neolithic crested blade was found at Norman Park c.130m to the south west of the study site during archaeological test pitting (HER Ref: MLO71430, TQ 4978 7983). A further Neolithic polished flint axe and a flint scraper have supposedly been found c.600m east of the study site, although the GLHER also notes that these could be forgeries (HER Refs: MLO33082-3, TQ 5045 7973).
- 4.10 Further finds during the Bronze Age Way work included an early Neolithic carinated bowl found in an area c.1.2km to the south east of the study site (RPS Clouston 1997).
- 4.11 Archaeological works at Church Manorway c.400m to the south east of the study site have identified large timbers dating to the early Neolithic period which were posited as the remnants of a possible timber trackway through the marshland (HER Ref: MLO99178, TQ 50492 79438). A further trackway, dated to the Middle Bronze Age and constructed using woven panels, was recorded during work along Bronze Age Way c.1.2km to the south east of the study site (RPS Clouston 1997).
- 4.12 Excavations through peat deposits for a ditch in 1885 in the Erith Marshes c.600m to the east of the study site identified a logboat which has been assumed to be dated to the Bronze Age. There has been no subsequent trace of the boat and the find position has been approximated (HER Ref: MLO6833, TQ 5045 7973).
- 4.13 The GLHER records no evidence for human activity dating to the Iron Age in the study area.
- 4.14 Much of the study area would have been located within marshland during the prehistoric periods, associated with the Thames floodplain. Various archaeological works across this area have repeatedly identified evidence for alluvial and peat deposits. These are located at Crabtree Manorway North c.250m to the north of the study site (HER Ref: MLO106545, TQ 50115 80239), at the former Belvedere Football Ground c.800m to the south (HER Ref: MLO75298, TQ 4963 7911), at Imperial Way c.200m to the south west (HER Refs: MLO99174, TQ 49625 79709; MLO71431, TQ 4971 7975; MLO77912, TQ 4986 7970; MLO98214, TQ 49976 79554), at Crabtree Manorway

South c.300m to the south (HER Ref: MLO98214, TQ 49976 79554), at Thamesmead c.800m to the west (HER Ref: MLO99168, TQ 48702 80406), at the Pirelli Works c.400m to the south east (HER Ref: MLO99178, TQ 50492 79438), at Mulberry Way c.650m to the east (HER Refs: MLO103989-90, TQ 50528 79680; MLO104009, TQ 50671 79692), and at Bronze Age Way c.900m to the south east (HER Ref: MLO77509, TQ 5031 7911). These alluvial and peat sequences, as well as environmental evidence for preserved woodland and marshland landscapes, have generally been dated from the late Mesolithic through to the early Iron Age, with apparent concentrations of alluvial and peat accumulation during the Bronze Age. Environmental remains have also been recorded at Belvedere Power Station c.500m to the north of the study site, including antler fragments, mollusc shells, fossils, nuts, and wood fragments, although these finds were made at great depth (HER Ref: MLO10939, TQ 5020 8050).

- 4.15 It is likely that the site's location within an area of marshland associated with the Thames floodplain would have made it an unsuitable location for occupation activity at this time, although seasonal exploitation of marshland resources may have occurred within the area of the site. Such activity is likely to have left only ephemeral traces in the archaeological record. It is possible that similar finds such as at Bronze Age Way to the south east could be present underlying the site, including Mesolithic flintwork and prehistoric marshland trackways, however any such evidence is usually found sporadically throughout marshland areas and was demonstrated to be located at great depth during the work along Bronze Age Way. Overall, the archaeological potential at the study site is likely to be generally low to moderate for Mesolithic flintwork finds at depth below any peat deposits should the sandy lower alluvial layer be present. A generally low potential is considered for the presence of remains associated with human activity dating to the Neolithic, Bronze Age or Iron Age periods, although the possible presence of trackways and ephemeral traces of human activity at depth cannot be entirely discounted.
- 4.16 The study site's historic marshland location, as well as the results of site geotechnical works and nearby archaeological and geoarchaeological works, suggest that the site may retain a high geoarchaeological and palaeoenvironmental potential for evidence of the prehistoric landscape and environment. The site's historic industrial use may have led to the contamination of the below ground sequence and it is possible that the quality of environmental samples could have been impacted by this.

## Roman

- 4.17 The GLHER contains only a single record dated to the Roman period within the 1km study area, comprising a possible dump deposit containing large quantities of Roman potsherds at Church Manorway c.800m to the south east of the study site (HER Ref: MLO77722, TQ 5065 7950). The Roman road between London and Canterbury is located c.4.5km to the south west (Margary 1955).
- 4.18 Overall, it is likely that the site was located within marginal land within the Thames floodplain during the Roman period and therefore a low archaeological potential can reasonably be suggested for this period at the site.

## Anglo-Saxon/Early Medieval & Medieval

- 4.19 No archaeological remains or finds of Anglo-Saxon date have been recorded within the vicinity of the study site.
- 4.20 The Domesday Survey of 1086 records the nearest early Medieval estate to the study site at Lessness, which is thought to have been focused in an area circa 1.4km to the south west of the study site (Open Domesday Online 2021). The estate comprised of 68 households and the associated land comprised arable ploughlands, meadows, woodland, and three fisheries.

- 4.21 A network of river wall defences was observed in the late 19<sup>th</sup> century which included an embankment recorded on the GLHER within the area of Belvedere Station c.800m to the south west of the study site. The GLHER has suggested a Medieval date for this embankment although it seems possible that it could also have been Post Medieval (HER Ref: MLO8431, TQ 4950 7920).
- 4.22 Further records for Medieval activity within the nearby area are limited to a 14<sup>th</sup> century dagger found at Belvedere c.900m to the south of the study site (HER Ref: MLO26434, TQ 5000 7900).
- 4.23 Overall, the study site is likely to have remained within marginal marshland during the Saxon and Medieval periods which would have been unsuitable for occupation or settlement activity. The area may have been utilised for its marshland resources from the early Medieval estate at Lessness to the south, however this is likely to have left only ephemeral traces in the archaeological record. Therefore, a generally low archaeological potential is considered at the study site for the Saxon and Medieval periods.

## Post Medieval & Modern (including map regression exercise)

- 4.24 A number of the HER records within the study area refer to Post Medieval and Modern archaeological remains which are not discussed in detail here unless relevant to the study site.
- 4.25 During the later Post Medieval and Modern periods, our understanding of settlement, land-use and the utilisation of the landscape is enhanced by cartographic and documentary sources, which can give additional detail to data contained within the HER.
- 4.26 The earliest such cartographic source is a 1596 Map of Kent (Fig. 4), which does not show the study site in any detail. The site is likely located within open marginal land to the north west of Erith.
- 4.27 A 1769 Andrews & Dury Map of Kent (Fig. 5) shows the study site in more detail, located within marshland to the north of settlement at Belvedere. The exact positioning of the site is difficult to discern, however there are a number of trackways shown leading from the higher ground to the south, through the marshland to the River Thames to the north. This is further shown on a 1799 Ordnance Survey Drawing (Fig. 6), at which time the study site was shown in marginal land adjacent to one such trackway.
- 4.28 The 1843 Erith Parish Tithe Map (Fig. 7) shows the study site across three parcels of land with the trackway shown to the south west. Those parcels within the study site are described as follows by the associated Tithe Award:

Land Parcel	Landowner	Occupant	Description	Land Use/Cultivation
81	George Martyr	William Austin	Twelve acres	-
82	William Cartwright	William Cartwright	Sixteen Acres	Arable
103	George Martyr	William Austin	Fourteen Acres	-

- 4.29 Only minor internal field boundary changes are shown within the study site on the 1865 Ordnance Survey plan (Fig. 8), and by 1897 (Fig. 9), all internal boundaries had been removed. A farm labelled Crabtree Farm is shown to the east.
- 4.30 No changes are shown within the study site throughout the 20<sup>th</sup> century (Fig. 10) as the site likely remained marginal open land. The National Archives Bomb Census (Bombsight Online 2021) does not show any direct bomb strikes within the study site during World War Two (1939-45). A number of strikes are shown to the east along Anderson Way.
- 4.31 Extensive development of the nearby area was undertaken in the 1980s (Fig. 11) with the construction of Anderson Way to the south and an industrial works building to the east. The existing

building was constructed on the study site in the mid-1980s and is depicted on a 2003 Google Earth Image (Fig. 12). No further change is shown within the study site to the present day (Fig. 13).

- 4.32 Therefore, aside from remains associated with known modern development, a low archaeological potential is considered at the study site for the Post Medieval and Modern periods. Modern building foundations of negligible significance are likely to be present which are not discussed further in this assessment.

### Undated Evidence

- 4.33 Two undated possible ditches or channels were identified at the former Belvedere Football Ground on Lower Road c.800m to the south west of the study site (HER Ref: MLO75296, TQ 4971 7909).

### Assessment of Significance

- 4.34 Existing national policy guidance for archaeology (the NPPF as referenced in section 2) enshrines the concept of the 'significance' of heritage assets. Significance as defined in the NPPF centres on the value of an archaeological or historic asset for its 'heritage interest' to this or future generations.
- 4.35 No relevant nationally significant designated heritage assets as defined in the NPPF are recorded within, or within the vicinity of, the study site. Additionally, there are no non-designated archaeological assets recorded within the study site by the GLHER.
- 4.36 The study site lies within an Archaeological Priority Area for 'Thameside and Erith Marshes' as defined by the London Borough of Bexley. Whilst no description is provided for this APA on the GLHER, it is assumed that this area covers the extended Thames marshland which covers the area between the River Thames to the north and the natural east-west ridge which bisects the Borough to the south.
- 4.37 Based on current evidence, a low to moderate archaeological potential is considered at the study site for evidence of Mesolithic flintwork at great depth underlying the site. A generally low archaeological potential has been identified for all other past periods of human activity at the study site, although traces of ephemeral marshland activity or prehistoric trackways at depth cannot entirely be discounted. In addition, the site has a high palaeoenvironmental potential given its historic marshland location.
- 4.38 The significance of any currently unknown archaeological remains which may be present would be derived from their evidential value and contributions that could be made towards local research agendas. It is possible that extensive quantities of Mesolithic flintwork remains indicative of seasonal campsites could contribute towards regional agendas. Whilst considered unlikely to be present, should prehistoric marshland trackways be present at depth within the site, these would make a regional research contribution.
- 4.39 Whilst it is possible that archaeological remains could be present within the site, on the basis of the above, any remains, should they occur on the study site, would in the context of the Secretary of State's non-statutory criteria for Scheduled Monuments (DCMS 2013) most likely be of local significance. If present, possible Mesolithic flintwork indicative of seasonal campsites, or prehistoric trackways, could be considered of regional significance.
- 4.40 As identified by desk based work, archaeological potential by period and the likely significance of any archaeological remains which may be present within the study site is summarised in table form below:

## ARCHAEOLOGICAL DESK BASED ASSESSMENT

---

<b>Period:</b>	<b>Identified Archaeological Potential and Likely Significance (if present):</b>
Palaeolithic	Low potential, Low (Local) Significance;
Mesolithic	Low to moderate potential for flintwork at great depth underlying the alluvial peat sequence should the sandy lower alluvium be present, Low to Medium (Local to Regional) Significance; High potential for geoarchaeological/palaeoenvironmental evidence, likely to be of Negligible to Low Significance depending on the extent of historic contamination;
Neolithic & Bronze Age	Low potential for evidence related to human activity (although evidence for trackways or ephemeral traces of human activity at depth cannot be entirely discounted), generally Low (Local) Significance (although evidence for marshland trackways could be considered of Medium Significance); High potential for geoarchaeological/palaeoenvironmental evidence, likely to be of Negligible to Low Significance depending on the extent of historic contamination
Iron Age	Low potential for evidence related to human activity, Low (Local) Significance; High potential for geoarchaeological/palaeoenvironmental evidence, likely to be of Negligible to Low Significance depending on the extent of historic contamination
Roman	Low potential, Low (Local) Significance;
Anglo-Saxon & Medieval	Low potential, Low (Local) Significance;
Post Medieval & Modern	Low potential (likely to be entirely invested in evidence of marshland consolidation, drainage schemes, land division, and 20 <sup>th</sup> century structures), likely to be of Negligible to Low (None/Local) Significance.

## 5 SITE CONDITIONS, THE PROPOSED DEVELOPMENT & REVIEW OF POTENTIAL DEVELOPMENT IMPACTS ON ARCHAEOLOGICAL ASSETS

### Site Conditions

- 5.1 The study site comprises of a rectangular shaped plot of land providing existing industrial buildings, an office building, an external yard used for storing materials and Heavy Goods Vehicles (HGVs), and a parking area. At the rear of the site there are also cyclones, storage silos and tanks associated with the operations at the site (Fig. 13).
- 5.2 Modern development associated with the existing buildings on site is likely to have had a negative archaeological impact within the footprint of development. Extensive depths of made ground of circa 1m depth have been recorded during recent geotechnical work (see Section 3).

### Proposed Development

- 5.3 Development proposals comprise the demolition of existing buildings and redevelopment of the site to provide a deck for the storage of operational vehicles, associated parking, access alterations, guard hut, welfare block, landscaping, and associated infrastructure (see Figures 14-15). These proposals will be situated within the footprint of previous development at the study site, which has been shown to be underlain by at least circa 1m of made ground.
- 5.4 Whilst detailed foundation design proposals are not yet available, indicative proposals have been provided to inform this assessment. These are indicative only at this stage and are subject to some change, however, these are considered sufficient to inform upon likely below ground impacts of the proposed development. Figure 16 reproduces an indicative piling density across the site and includes notes from the project engineers with regards possible other impacts.

### Review of Potential Development Impacts on Archaeological Assets

- 5.5 The proposed development will not impact on any designated archaeological assets. The study site lies within an Archaeological Priority Area for 'Thameside and Erith Marshes' as defined by the London Borough of Bexley.
- 5.6 This assessment has considered a low to moderate archaeological potential at the site for Mesolithic flintwork at great depth underlying a peat sequence. A generally low archaeological potential is considered for all other past periods of human activity, although traces of ephemeral marshland activity or prehistoric trackways at depth cannot entirely be discounted. The site's historic location within the Erith Marshes is indicative of a high geoarchaeological and palaeoenvironmental potential for associated alluvial and peat deposits. If present, any archaeological remains would most likely be of a local significance, although it is possible that large quantities of Mesolithic flintwork indicative of seasonal campsites, or prehistoric trackways, could be considered of a regional significance.
- 5.7 Modern development impacts are likely to have been severe across the top of the underlying alluvial sequence, as shown in recent geotechnical work by extensive depths of made ground over at least circa 1m depth. The existing building is anticipated to have utilised piled foundations which, if present, would have impacted to a greater depth into the underlying alluvial sequence.

- 5.8 As development proposals comprise the demolition of existing buildings and the construction of new hardstanding and excavations for a van storage deck and associated services, it is generally considered likely that a majority of excavation impacts for hardstanding van parking to circa 0.8m depth will be contained within existing depths of made ground (see Figure 15).
- 5.9 There will be excavation impacts required beneath the existing made ground which will reach varying depths of the underlying alluvial sequence; however, such impacts will be very localised. These include surface water and foul drainage pipe runs to circa 1.5m – 2m depth, an attenuation tank depth of circa 2m, and a petrol interceptor of circa 4.5m depth. Localised areas of ground improvement works may also be required. In addition, piled foundations will be required to ensure a stable construction platform and it is anticipated that depth of construction for pile caps could be up to 2m. The above impacts are generally likely to be contained within existing made ground and the upper levels of the alluvial sequence. The only impact that would reach a great depth, where the archaeological potential of the site is generally anticipated to reside, would be a piling impact. An indicative piling density is provided on Figure 16 which comprises 564no. total piles at either 450mm, 470mm, or 600mm diameter. Across a circa 21,400sqm total site area, this comprises a piling impact of between 360.96sqm (assuming all piles at 450mm) and 637.32sqm total (assuming all piles at 600mm), which works out as between 1.68% and 2.97% piling impact.
- 5.10 Overall, given that the site retains only a modest archaeological potential and that this is anticipated at depth within the site, the indicative localised piled foundation impact is considered unlikely to be either significant or widespread. Additional proposed excavation impacts are likely to be very localised and generally confined to the existing made ground or upper alluvial levels where the archaeological potential is low. It is considered that further archaeological work could be limited to a programme of borehole survey and palaeoenvironmental assessment, to build upon existing geoarchaeological deposit models for the Erith Marshes.

## 6 SUMMARY AND CONCLUSIONS

- 6.1 Land at Anderson Way, Belvedere, DA17 6BG is under consideration for redevelopment comprising the demolition of existing buildings and redevelopment of the site to provide a deck for the storage of operational vehicles, associated parking, access alterations, guard hut, welfare block, landscaping, and associated infrastructure. Therefore, in accordance with relevant government planning policy and guidance, a desk based assessment has been undertaken to clarify the below ground archaeological potential of the study area.
- 6.2 In terms of relevant designated heritage assets, no designated World Heritage Sites, Scheduled Monuments, Historic Battlefield sites or Historic Wreck sites lie within the vicinity of the study site.
- 6.3 In terms of relevant local designations, the study site lies within an Archaeological Priority Area for 'Thameside and Erith Marshes' as defined by the London Borough of Bexley. Whilst no description is provided for this APA on the GLHER, it is assumed that this area covers the extended Thames marshland which covers the area between the River Thames to the north and the natural east-west ridge which bisects the Borough to the south.
- 6.4 Based on current evidence, a low to moderate archaeological potential is considered at the study site for evidence of Mesolithic flintwork at great depth underlying the site. A generally low archaeological potential has been identified for all other past periods of human activity at the study site, although traces of ephemeral marshland activity or prehistoric trackways at depth cannot entirely be discounted. In addition, the site has a high palaeoenvironmental potential given its historic marshland location. If present, any archaeological remains would most likely be of a local significance, although it is possible that large quantities of Mesolithic flintwork indicative of seasonal campsites, or prehistoric trackways, could be considered of a regional significance.
- 6.5 Modern development impacts are likely to have been severe across the top of the underlying alluvial sequence, as shown in recent geotechnical work by extensive depths of made ground over at least circa 1m depth. The existing building is anticipated to have utilised piled foundations which, if present, would have impacted to a greater depth into the underlying alluvial sequence.
- 6.6 As development proposals comprise the demolition of existing buildings and the construction of new hardstanding and excavations for a van storage deck and associated services, it is generally considered likely that a majority of excavation impacts for hardstanding van parking to circa 0.8m depth will be contained within existing depths of made ground. It is possible that piled foundations and other localised excavations for drainage works, attenuation works, and a petrol interceptor will be required which would reach the upper levels of the underlying alluvial sequence. Piled foundations would be very localised and would reach up to circa 25-30m depth; indicative density plans have suggested a piling impact of between 1.68% and 2.97% across the site.
- 6.7 However, overall, given that the site retains only a modest archaeological potential and that this is anticipated at depth within the site, the indicative localised piled foundation impact is considered unlikely to be either significant or widespread. Additional proposed excavation impacts are likely to be very localised and generally confined to the existing made ground or upper alluvial levels where the archaeological potential is low. It is considered that further archaeological work could be limited to a programme of borehole survey and palaeoenvironmental assessment, to build upon existing geoarchaeological deposit models for the Erith Marshes.
- 6.8 As remains of a high significance which might preclude development are not anticipated, it is suggested that this assessment is sufficient to support a planning application at the site and that, if required, further work could be secured by an appropriate planning condition attached to the granting of planning consent.

## Sources Consulted

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British Library  
Greater London Historic Environment Record  
The National Archive

### Internet

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British Geological Survey – <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>  
British History Online – <http://www.british-history.ac.uk/>  
Domesday Online – <http://www.domesdaybook.co.uk/>  
Historic England: The National Heritage List for England – <http://www.historicengland.org.uk/listing/the-list/>  
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## Cartographic

- 1596 Symonson's Map of Kent
- 1769 Andrews & Dury Map of Kent
- 1797-1801 Hasted Map of the Hundred of Little and Lesnes and the Hundred of Dartford and Wilmington
- 1798 Hasted Plan
- 1799 Ordnance Survey Drawing
- 1801 Faden's Map of Kent
- 1826 Survey Maps of North Kent
- 1843 Erith Parish Tithe Map
- 1865 Ordnance Survey (1:2500)
- 1897 Ordnance Survey (1:2500)
- 1909 Ordnance Survey (1:2500)
- 1920 Ordnance Survey (1:2500)
- 1945 Aerial Photograph
- 1957 Ordnance Survey (1:2500)
- 1957 Ordnance Survey (1:1250)
- 1964 Ordnance Survey (1:1250)

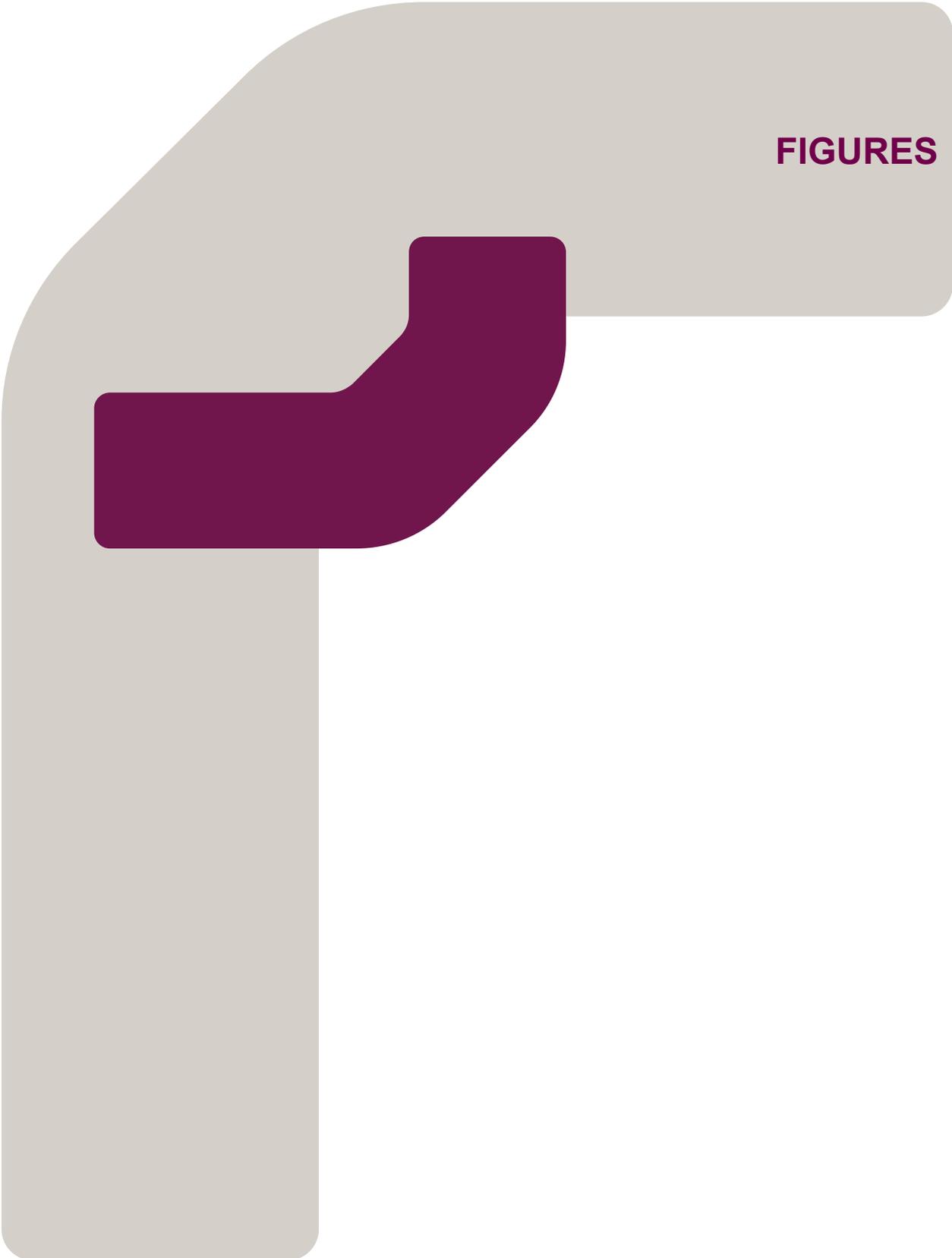
1980 Ordnance Survey (1:1250)

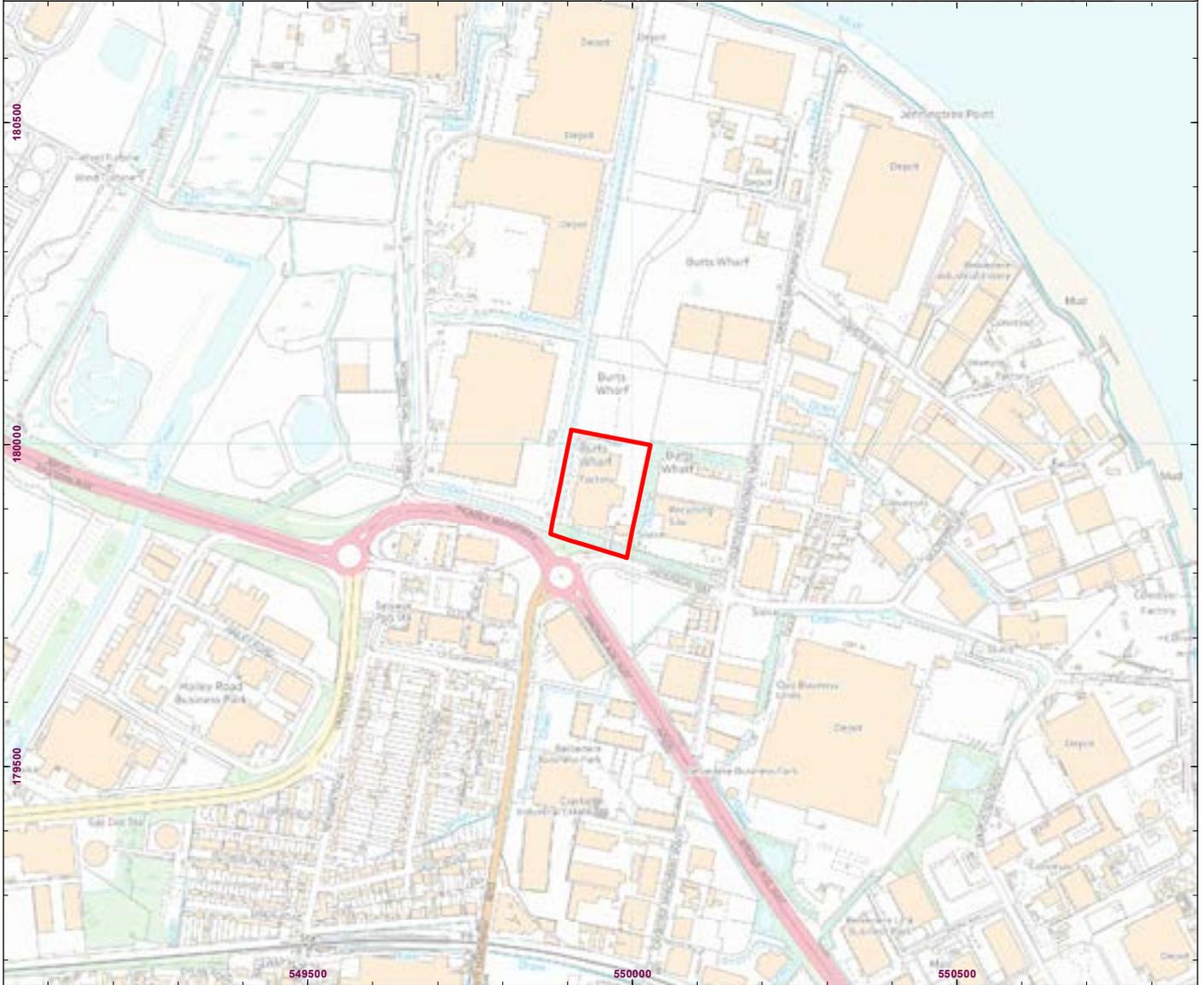
2003 Google Earth Image

2010 Google Earth Image

2020 Google Earth Image

**FIGURES**





 Site Boundary



0 200 400m  
Scale at A4: 1:10,000



Figure 1  
Site Location





 Site Boundary

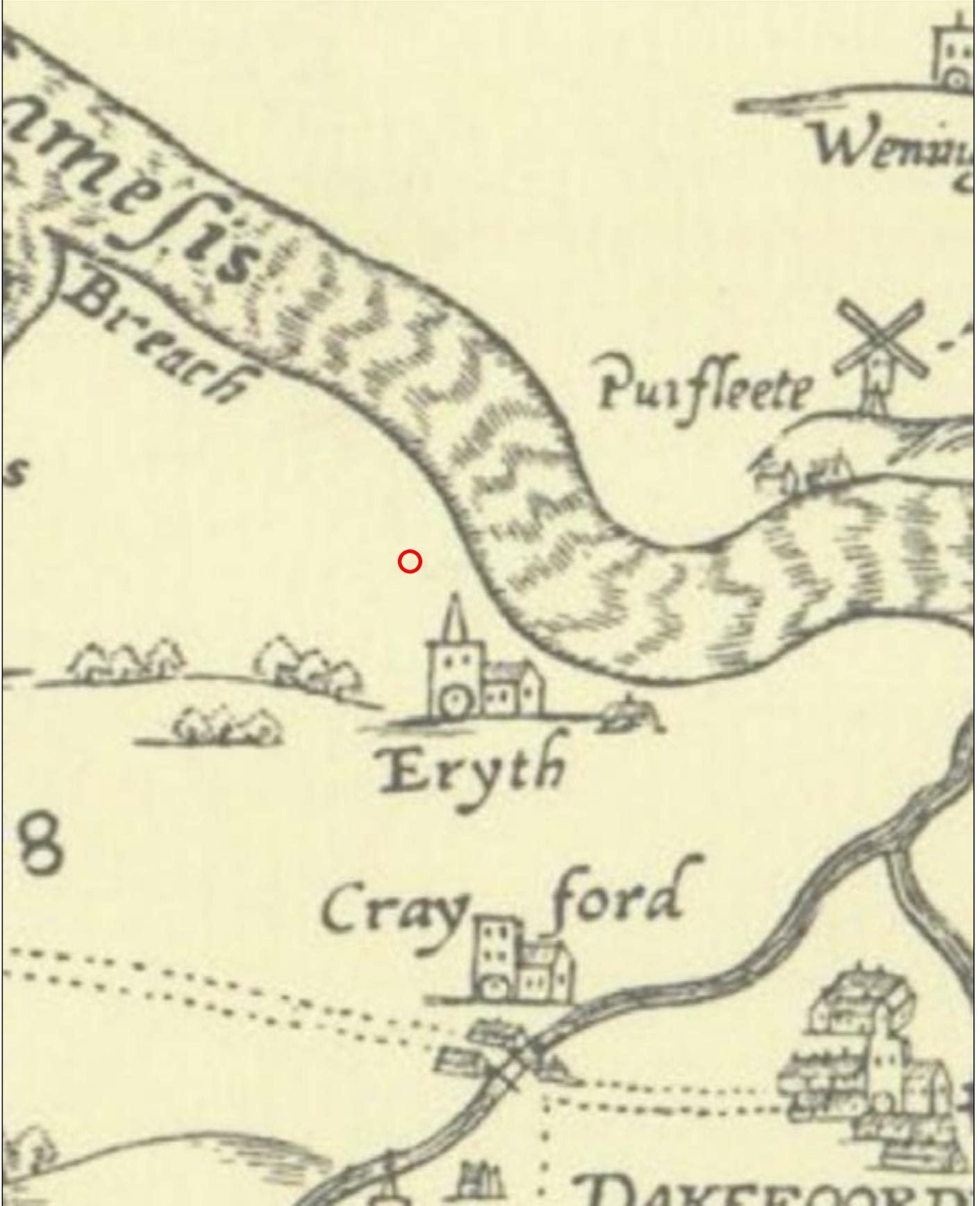


0 100 200m  
Scale at A4: 1:8,000



Figure 3

Surface of the Gravel Terrace  
Across the Wider Area



 Approximate site location



Not to Scale  
Illustrative Only



Figure 4

1596 Symonson's Map of Kent



 Approximate site location



0 50 100m  
Scale at A4: 1:5,000  
(approximate)



Figure 5

1769 Andrews & Dury Map of Kent



 Site Boundary (approximate)



0 50 100m  
Scale at A4: 1:5,000  
(approximate)



Figure 6

1799 Ordnance Survey Drawing



 Site Boundary



0 25 50m  
Scale at A4: 1:2,000



Figure 7

1843 Erith Parish Tithe Map



 Site Boundary

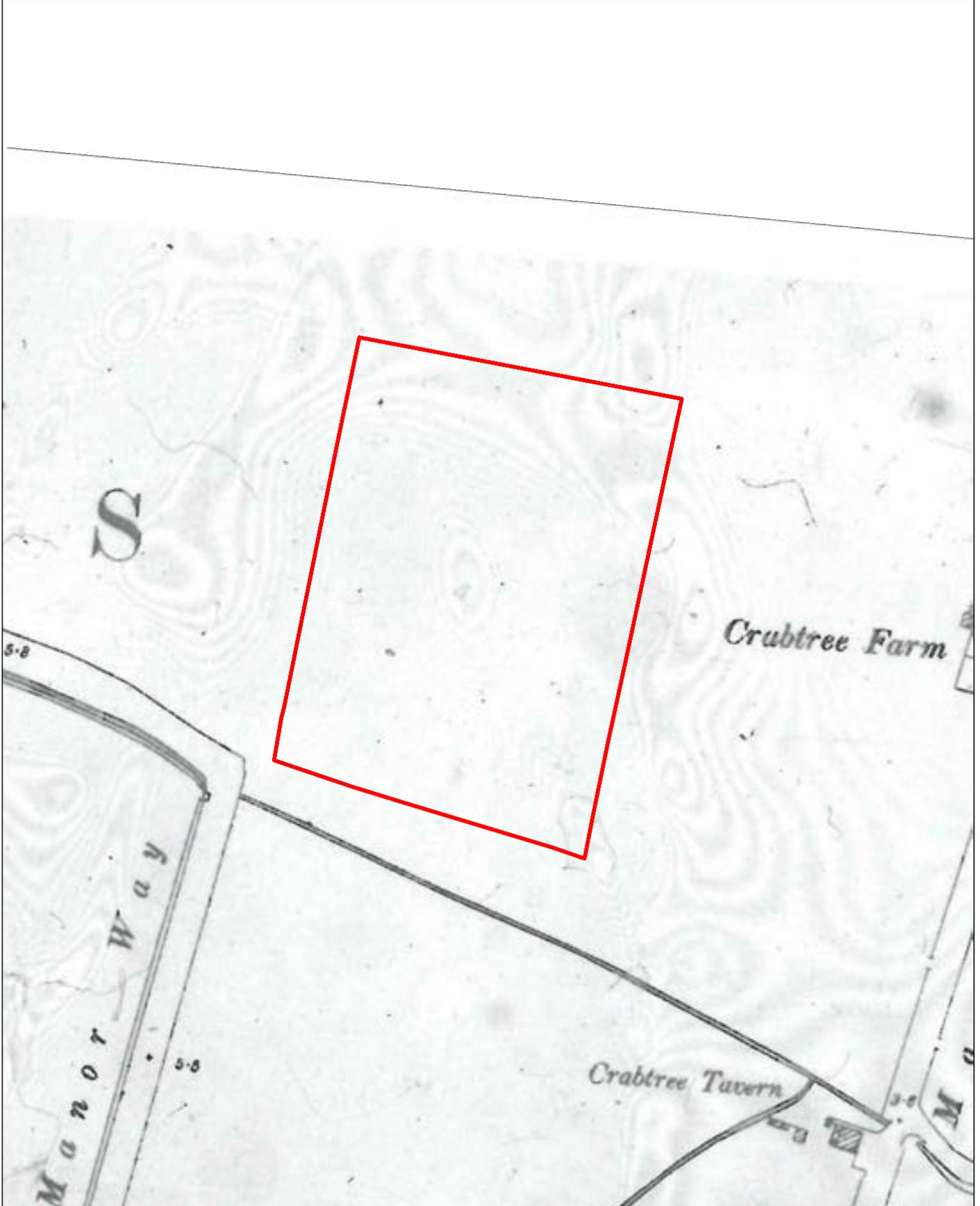


0 25 50m  
Scale at A4: 1:2,000



Figure 8

1865 Ordnance Survey Map



 Site Boundary

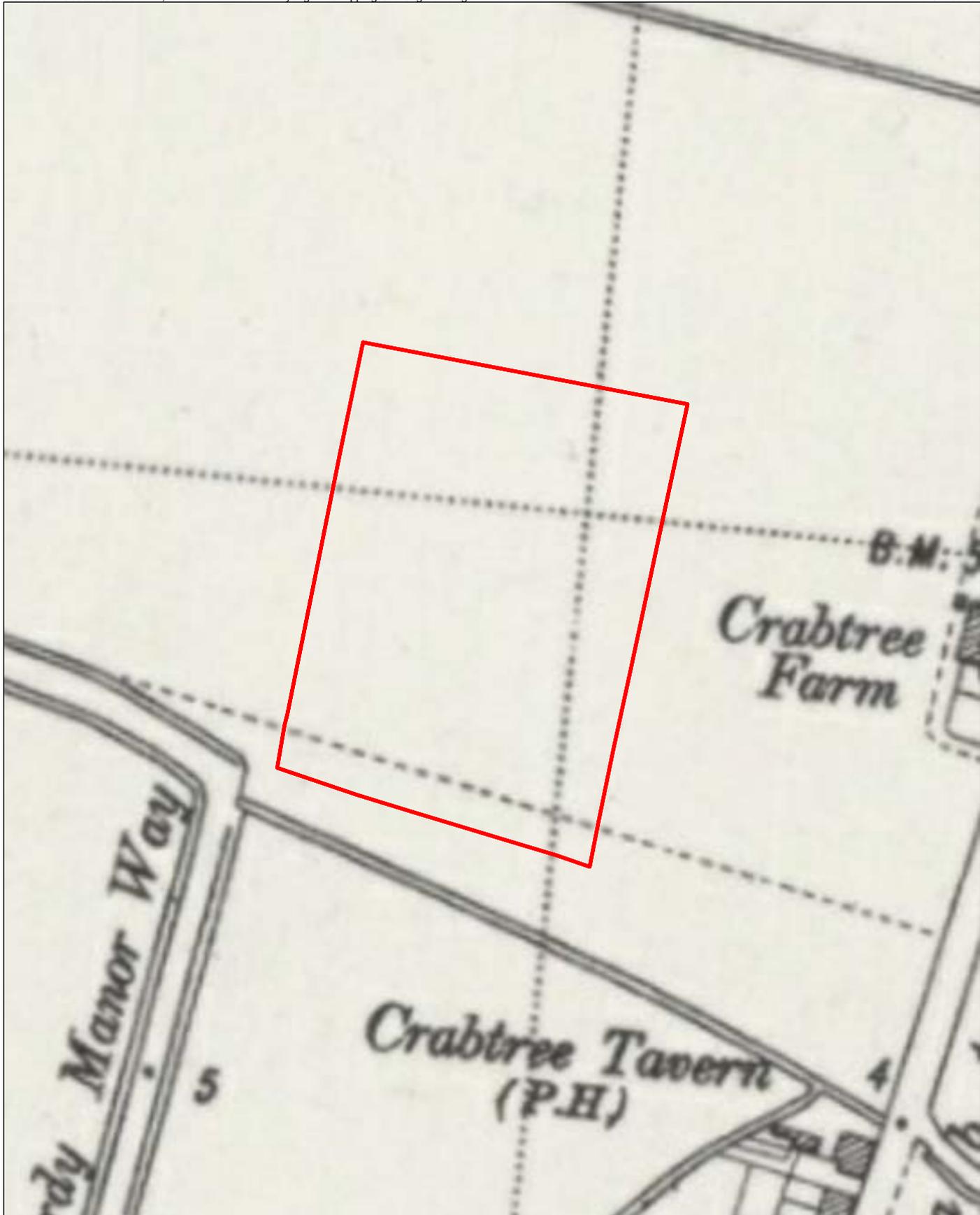


0 25 50m  
Scale at A4: 1:2,000



Figure 9

1897 Ordnance Survey Map



 Site Boundary



0 25 50m  
Scale at A4: 1:2,000



Figure 10

1946 Ordnance Survey Map



 Site Boundary



0 25 50m  
Scale at A4: 1:2,000



Figure 11

1985-1990 Ordnance Survey Map



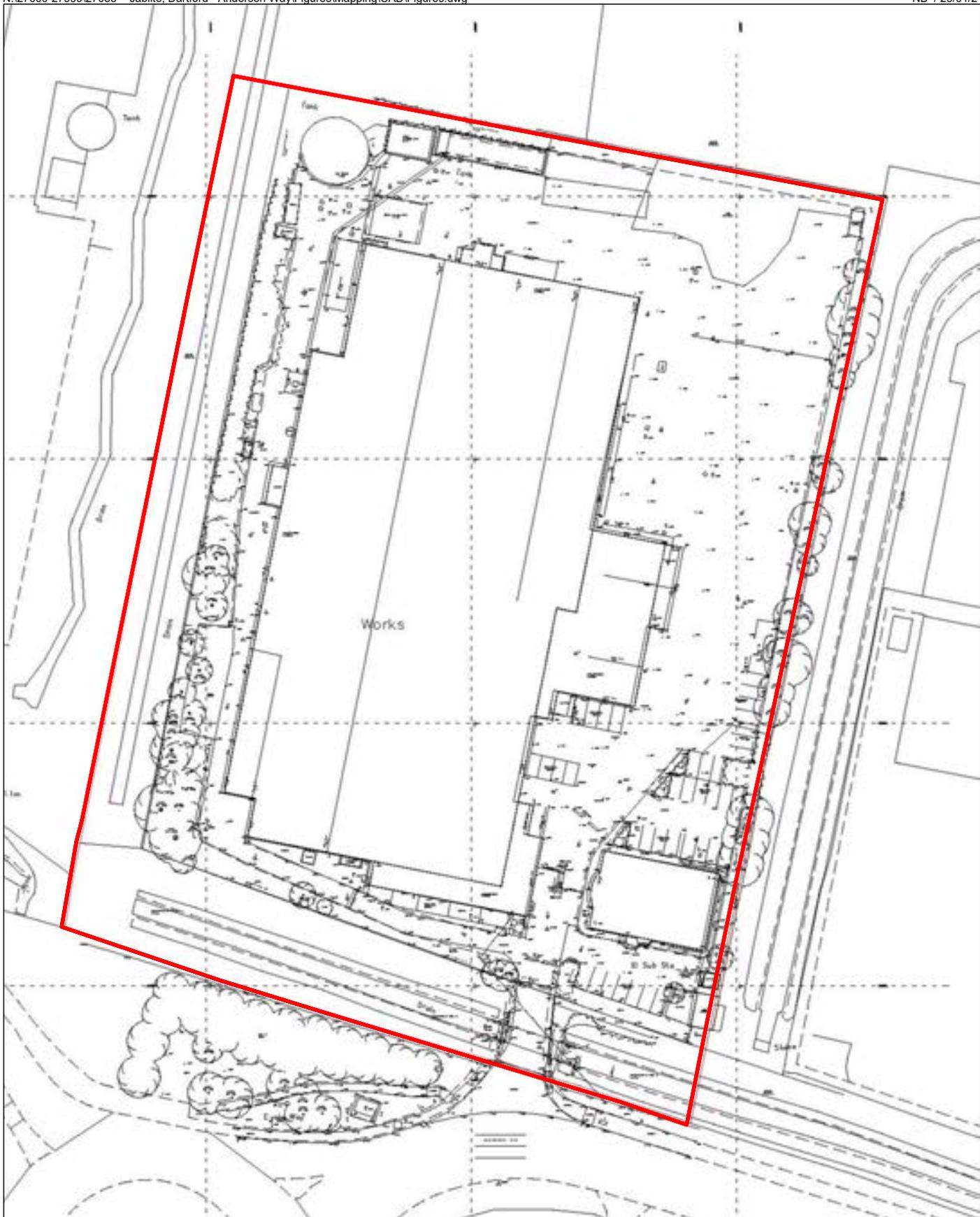
 Site Boundary



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Scale at A4: 1:2,000



Figure 12  
2003 Google Earth Image



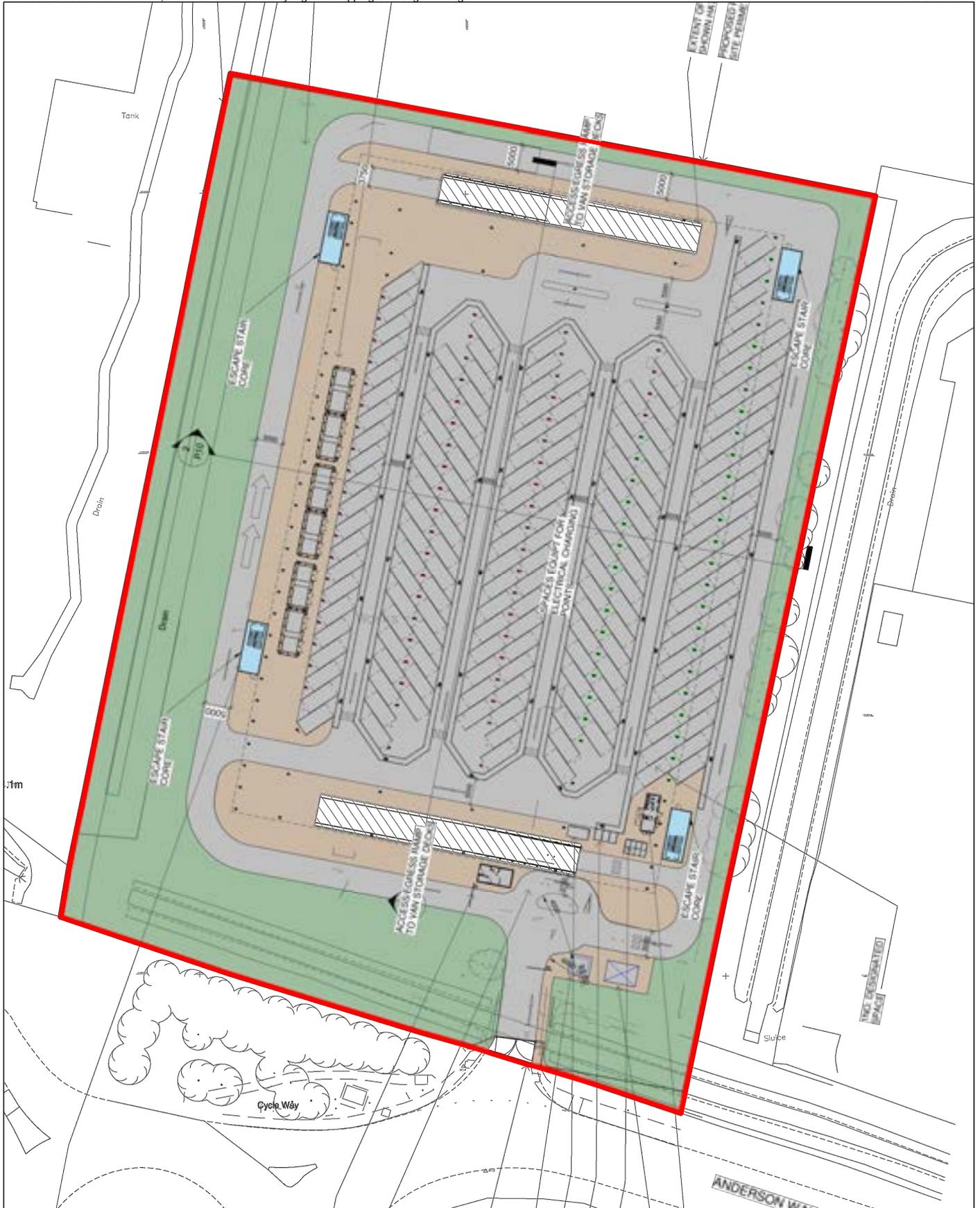
 Site Boundary



0 10 20m  
Scale at A4: 1:1,000



Figure 13  
Site Layout as Existing



Site Boundary



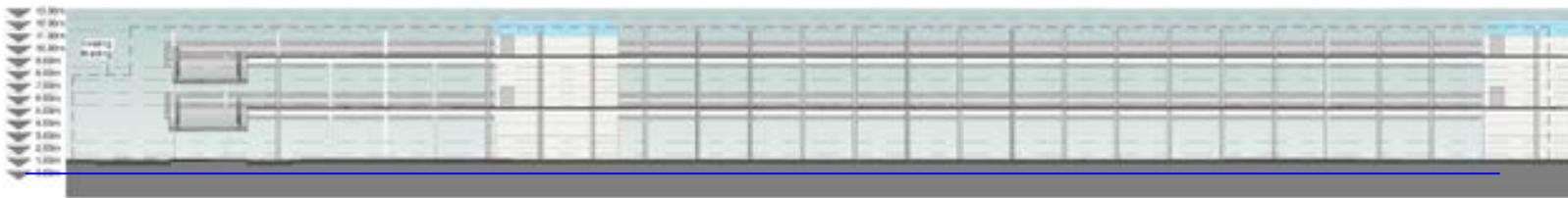
0 10 20m  
Scale at A4: 1:1,000



Figure 14

Proposed Development Layout

1m depth of made ground



1 Section 1  
1:200



2 Section 2  
1:200



0 5 10m  
Scale at A4: 1:600



Figure 15  
Proposed Development Sections

N:\27000-27999\27035 - DBR1 - Jabite, Dartford - Anderson - Way\Figures\Mapping\CAD\Figures.dwg

NOTES:

The piled foundation layout shown here is indicative only and should only be used to inform the initial general assessment of the anticipated piling density required across the site for the proposed development.

Underside of Pilecaps could be up to 2m below finished external levels.

Piles are likely to be 450, 600 or 475mm diameter and could extend up to circa 25-30m into the ground depending on site soil conditions.

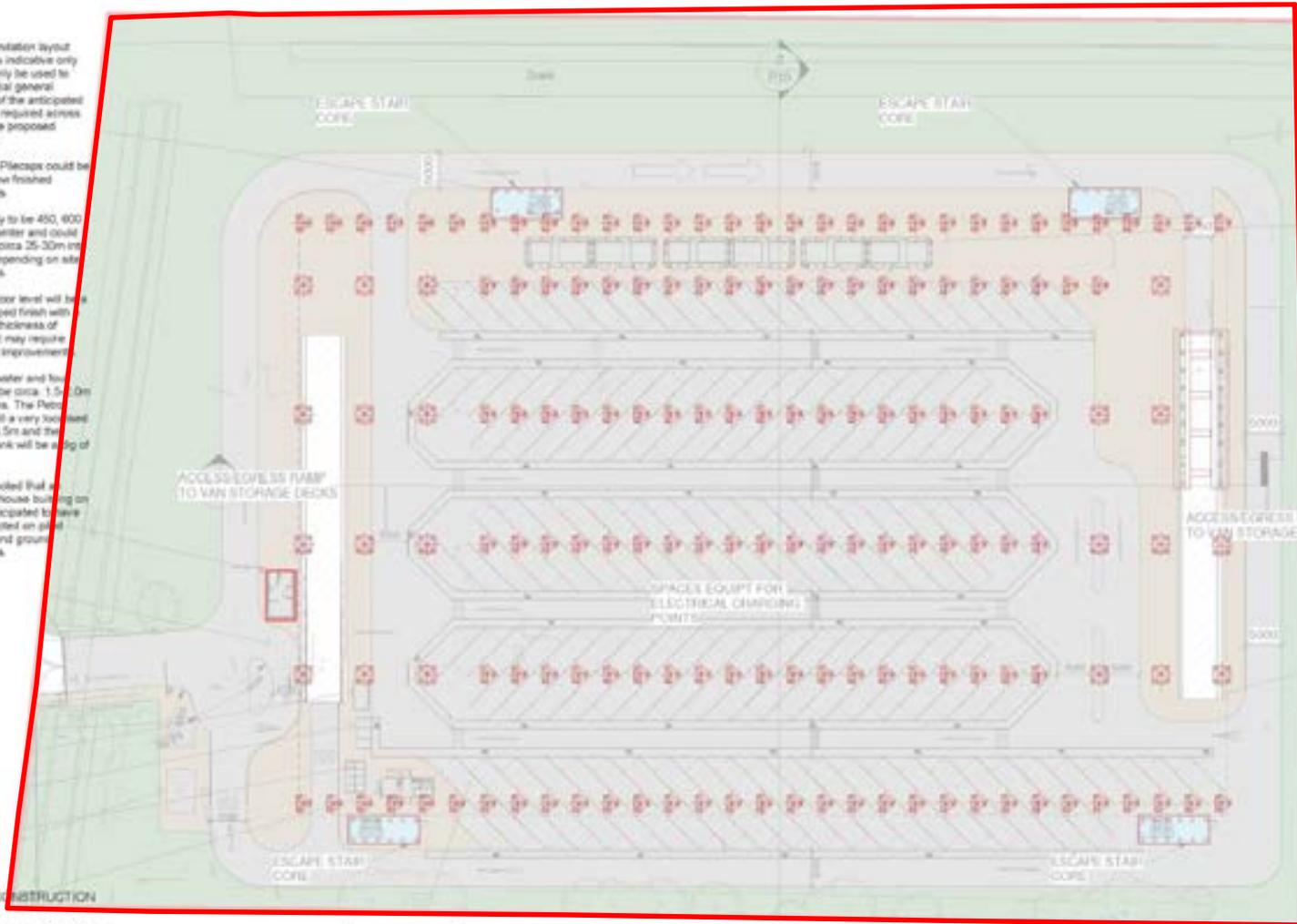
The ground floor level will be a hard landscaped finish with construction thickness of c.800mm, but may require some ground improvement.

The surface water and foul drainage will be circa 1.5-2.0m deep pipe runs. The Petrol Interceptor will be a very compacted dg of circa 4.5m and the attenuation tank will be a dg of circa 2m.

It should be noted that any existing warehouse building on the site is anticipated to have been constructed on piled foundations and ground improvements.

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THIS SKETCH

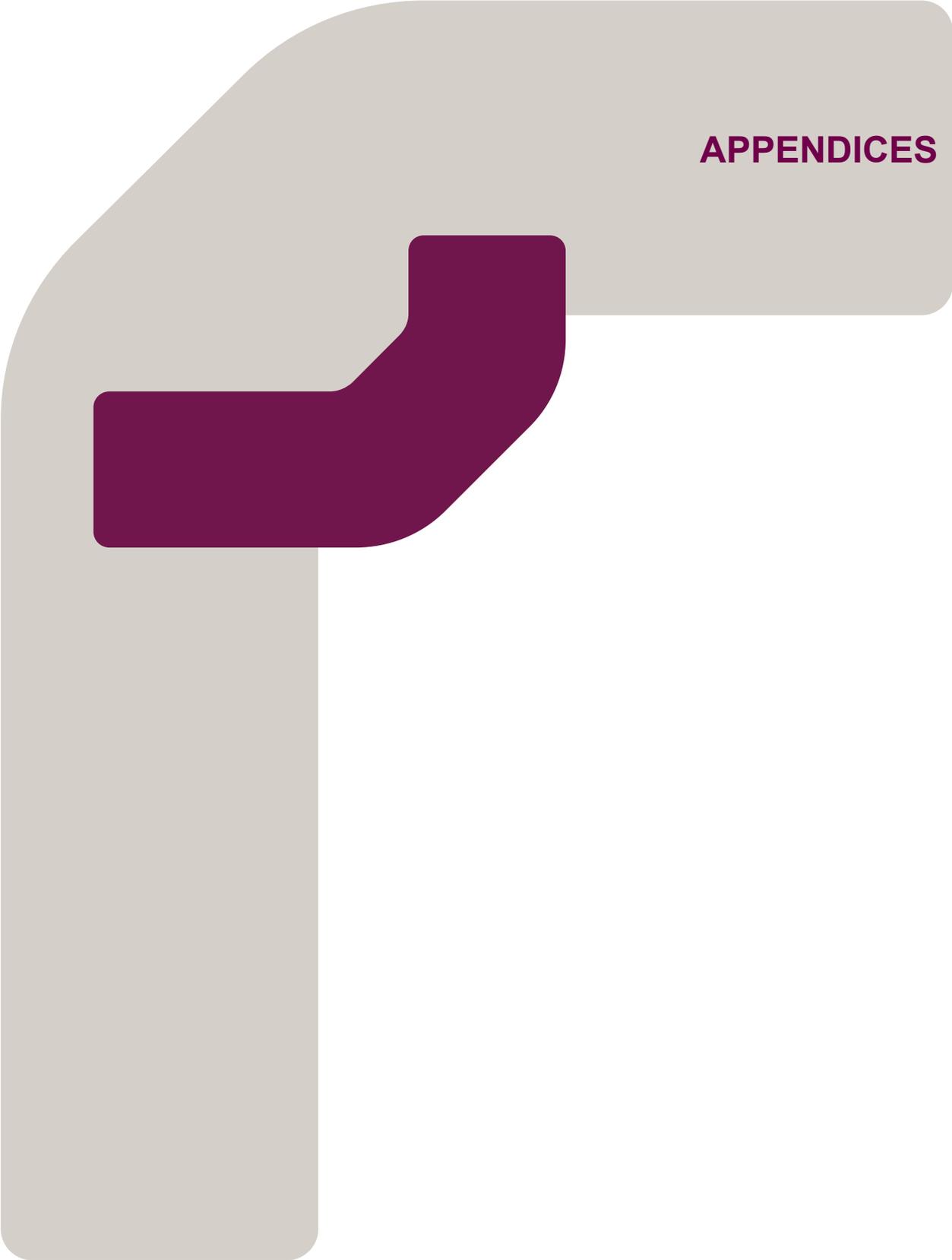


Not to Scale:  
Illustrative Only



Figure 16

Proposed Development  
Indicative Piling Density



**APPENDICES**

## Appendix 1

### Site Geotechnical Data



**LEGEND**

- Site Boundary
- HPx Hand Dug Pit



TYPICAL VAN STORAGE DECK - L2  
1 : 500

Site Plan Provided by Client

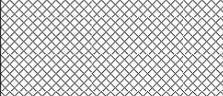
Contains OS data © , Crown Copyright and Database Right (2020)

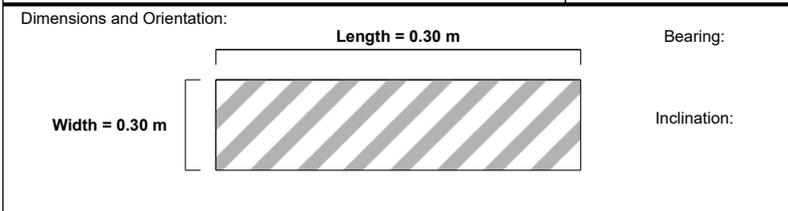


TITLE:  
**Exploratory Hole Location Plan**  
 Infinity House, Anderson Way, Belvedere, London  
 UK

DRAWN BY: TB	SCALE: Not to Scale	PROJECT NO: 20-2295.03
CHECKED BY: MJ	REVISION: 2	FIGURE NO: 2
DATE: 22nd January 2021		

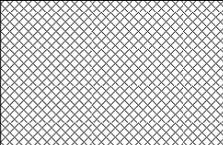
**Hand Dug Trial Pit Log**      Date: **02/12/2020**      Client: **Lysander**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Topsoil over concrete hexagonal grid.		0.10	1.54		0.10	ES		
MADE GROUND: Orange gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of flint.		0.40	1.24					
MADE GROUND: Concrete		0.60	1.04					
MADE GROUND: Brown slightly clayey sandy angular to subrounded fine to coarse GRAVEL of brick, concrete and flint. Frequent pieces of plastic. Sand is fine to coarse.		0.80	0.84					
MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded of brick flint. Frequent wood fragments. Sand is fine to coarse.		1.20	0.44					
Hand pit complete at 1.20 m bgl.								

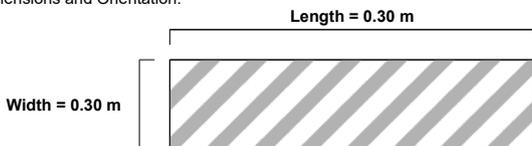


**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey.

**Hand Dug Trial Pit Log**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.10	1.20					
MADE GROUND: Grey sandy angular to subrounded fine to coarse GRAVEL of concrete flint and brick. Sand is fine to coarse.		0.70	0.60		0.50	ES		
MADE GROUND: Brown slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of brick and concrete. Refusal on concrete Hand pit complete at 0.80 m bgl.		0.80	0.50					

Dimensions and Orientation:



Bearing:

Inclination:

**Remarks:**

1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey. 5. Excavtion refused at 0.8 m bgl.

Coordinates: **E549944.13 N179858.02**

Elevation (mAOD): **1.30**

Excavated By: **ESL**

Plant Used: **Hand Tools**

Logged: **MJ**

Checked: **AT**

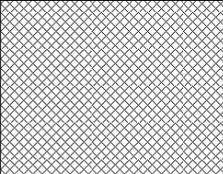
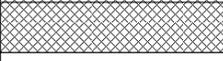
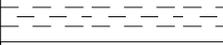
Approved: **DLJ**

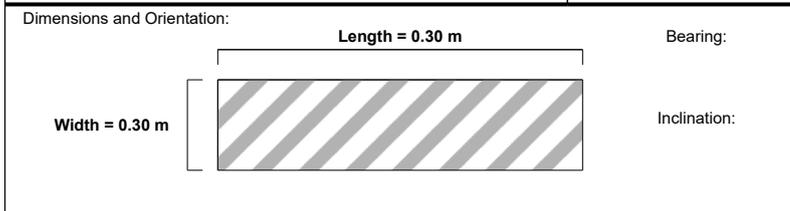
Scale: **1:30**

**Hand Dug Trial Pit Log**

Date: **03/12/2020**

Client: **Lysander**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Topsoil		0.10						
MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to medium brick and flint. Sand is fine to coarse.		0.80			0.80	ES		
MADE GROUND: Soft brown slightly gravelly CLAY with single angular coarse brick cobble. Gravel is angular to subrounded fine to medium flint and brick.		1.00						
Soft brown CLAY. (ALLUVIUM)		1.20						
Hand pit complete at 1.20 m bgl.								



**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data not obtained due to dense vegetation coverage .

Coordinates:

Elevation (mAOD):

Excavated By: **ESL**

Plant Used: **Hand Tools**

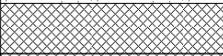
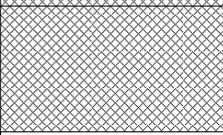
Logged: **MJ**

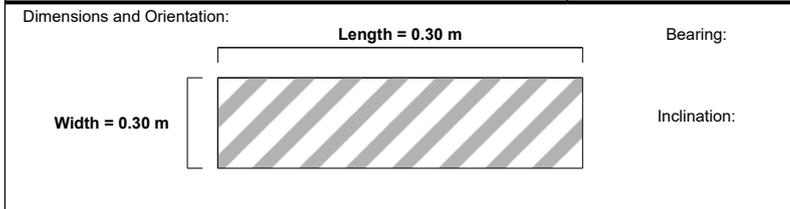
Checked: **AT**

Approved: **DLJ**

Scale: **1:30**

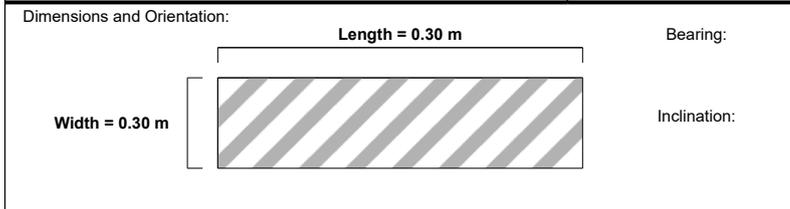
**Hand Dug Trial Pit Log**      Date: **02/12/2020**      Client: **Lysander**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.20	1.32		0.50	ES		
MADE GROUND: Grey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of tarmac and concrete.		0.40	1.12					
MADE GROUND: Brown sandy angular to subrounded fine to coarse GRAVEL of brick, clinker, tarmac, flint and concrete. Sand is fine to coarse.		0.70	0.82					
MADE GROUND: Soft black slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to medium of brick. Sand is fine to coarse.		1.20	0.32					
Hand pit complete at 1.20 m bgl.								



**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey.

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.21	1.30		0.50	ES		
MADE GROUND: Grey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of ballast		0.35	1.16					
MADE GROUND: Brown slightly clayey sandy angular to subrounded fine to coarse GRAVEL of flint and brick with high cobble content of brick and frequent polystyrene balls. Sand is fine to coarse. Refusal on Concrete Hand pit complete at 0.60 m bgl.		0.60	0.91					

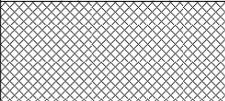


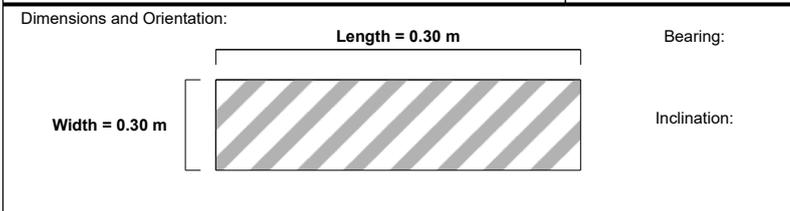
**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey. 5. Excavation refused at 0.6 m bgl.

**Hand Dug Trial Pit Log**

Date: **02/12/2020**

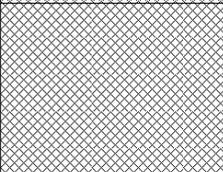
Client: **Lysander**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.20	1.35		0.50	ES		
MADE GROUND: Brown slightly clayey sandy angular to subrounded fine to coarse GRAVEL of brick, concrete and flint with common cobbles and frequent fragments of plastic and metal. Cobbles are angular of concrete. Sand is fine to coarse.		0.60	0.95					
MADE GROUND: Brown clayey slightly sandy angular to subangular fine to medium GRAVEL of brick and concrete with frequent fragments of metal and plastic.		0.90	0.65					
MADE GROUND: soft brown slightly sandy CLAY with frequent wood fragments. Sand is fine to coarse.		1.00	0.55					
Soft brown CLAY. (ALLUVIUM)		1.20	0.35					
Hand pit complete at 1.20 m bgl.								



**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey.

**Hand Dug Trial Pit Log**

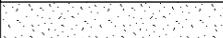
Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.21	1.48		0.70	ES		
MADE GROUND: Brown slightly sandy angular to subrounded fine to coarse GRAVEL of brick, concrete and flint with frequent plastic and clinker. Sand is fine to coarse		0.45	1.24					
MADE GROUND: Grey clayey slightly sandy angular to subrounded fine to coarse GRAVEL of brick flint and clinker. Sand is fine to coarse								
Hand pit complete at 1.20 m bgl.		1.20	0.49					



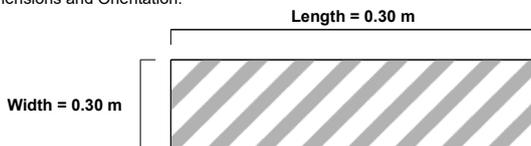
Bearing:  
  
Inclination:

**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey.

**Hand Dug Trial Pit Log**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.16	1.80		0.90	ES		
MADE GROUND: Brown slightly clayey slightly sandy angular to subrounded fine to coarse GRAVEL of brick and flint. Sand is fine to coarse.		0.30	1.66					
MADE GROUND: Brown slightly clayey slightly sandy angular to subrounded fine to coarse GRAVEL of brick flint and clinker with frequent wood fragments. Sand is fine to coarse.		0.50	1.46					
MADE GROUND: Brown sandy angular to subrounded fine to coarse GRAVEL of brick, clinker and flint. Sand is fine to coarse.		0.80	1.16					
MADE GROUND: Brown slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of brick and flint concrete with frequent metal fragments.		1.10	0.86					
Hand pit complete at 1.10 m bgl.								

Dimensions and Orientation:



Bearing:

Inclination:

Remarks:

1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey. 5. Excavation refused at 1.1 m bgl.

Coordinates:  
**E550014.10 N179996.09**

Elevation (mAOD):  
**1.96**

Excavated By:  
**ESL**

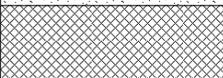
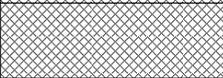
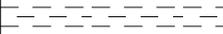
Plant Used:  
**Hand Tools**

Logged:  
**MJ**

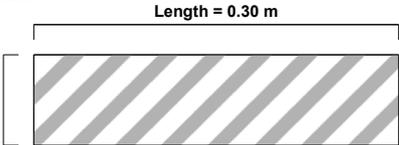
Checked:  
**AT**

Approved:  
**DLJ**

Scale:  
**1:30**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.30	1.20		0.30	ES		
MADE GROUND: Grey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of ballast		0.60	0.90					
MADE GROUND: Brown slightly clayey sandy angular to subrounded fine to coarse GRAVEL of flint and brick with high cobble content of brick and frequent polystyrene balls. Sand is fine to coarse.		0.90	0.60					
Firm grey CLAY.		1.00	0.50					
Soft brown CLAY. (ALLUVIUM)		1.20	0.30					
Hand pit complete at 1.20 m bgl.								

Dimensions and Orientation:



Length = 0.30 m  
Width = 0.30 m

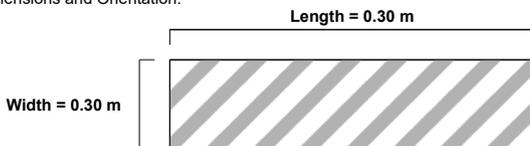
Bearing: \_\_\_\_\_  
Inclination: \_\_\_\_\_

**Remarks:**  
1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey.

**Hand Dug Trial Pit Log**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.21	1.36		0.40	ES		
MADE GROUND: greyish brown slightly sandy angular to subrounded fine to coarse GRAVEL of concrete and tarmac. Sand is fine to coarse.		0.30	1.27					
MADE GROUND: dark brown slightly clayey, slightly sandy angular to subrounded fine to coarse GRAVEL of brick and flint with frequent polystyrene and glass. Sand is fine to coarse.		0.50	1.07					
MADE GROUND: black slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of brick and flint with frequent wood fragments.		0.95	0.62					
Soft grey CLAY. (ALLUVIUM)		1.20	0.37					
Hand pit complete at 1.20 m bgl.								

Dimensions and Orientation:



Bearing:

Inclination:

Remarks:

1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey.

Coordinates:  
**E549987.64 N179937.18**

Elevation (mAOD):  
**1.57**

Excavated By:  
**ESL**

Plant Used:  
**Hand Tools**

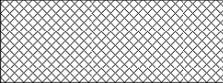
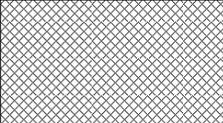
Logged:  
**MJ**

Checked:  
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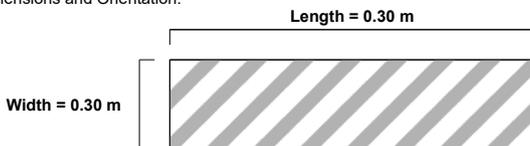
Approved:  
**DLJ**

Scale:  
**1:30**

**Hand Dug Trial Pit Log**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
MADE GROUND: Concrete		0.17	1.66		0.40	ES		
MADE GROUND: Dark brown sandy angular to subrounded fine to coarse brick, flint and concrete GRAVEL with frequent wood and polystyrene. Sand is fine to coarse.		0.50	1.33					
MADE GROUND: Dark brown gravelly fine to coarse SAND with frequent wood and polystyrene. Gravel is angular to subrounded fine to coarse of brick, flint and concrete.		1.00	0.83					
Hand pit complete at 1.00 m bgl.								

Dimensions and Orientation:



Bearing:

Inclination:

**Remarks:**

1. Logged in general accordance with BS 5930:2015 +A1 20202. Area cleared for services prior to excavation. 3. Borehole backfilled with arisings and finished flush to the surface with concrete. 4. GPS and elevation data obtained from GPS survey. 5. Excavation refused at 1.1 m bgl.

Coordinates:  
**E550012.12 N179950.60**

Elevation (mAOD):  
**1.83**

Excavated By:  
**ESL**

Plant Used:  
**Hand Tools**

Logged:  
**MJ**

Checked:  
**AT**

Approved:  
**DLJ**

Scale:  
**1:30**



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