

Appendix: Archaeology

Annex 1: Legislation and Policy

Annex 2: Archaeological Desk-Based Assessment

Annex 3: Geoarchaeological Desk-Based Assessment

Appendix: Archaeology

Annex 1: Legislation and Policy

Annex 2: Archaeological Desk-Based Assessment

Annex 3: Geoarchaeological Desk-Based Assessment



Northfleet Harbourside Northfleet Kent

Relevant Policy Guidance and Legislation



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Northfleet Central Northfleet Kent

Relevant Policy, Guidance and Legislation

1 INTRODUCTION

1.1 Project Background and Scope of Document

- 1.1.1 Wessex Archaeology was commissioned by Trium Environmental Consulting LLP on behalf of Northfleet Central 1 Ltd (the Client) to provide an Annex to the Environmental Statement Chapter (Chapter 13: Archaeology) to outline the planning policy, guidance and legislation relevant to the assessment of buried archaeological remains for the development of land at Northfleet Central (hereafter 'the Site'). The Site is located in the northwest part of Northfleet, Kent, centred on NGR 561447, 174969.
- 1.1.2 This Annex will set out the planning policy, guidance and legislation and should be read alongside Chapter 13 of the ES.

2 PLANNING BACKGROUND

2.1 Introduction

- 2.1.1 There is national legislation and guidance relating to the protection of, and proposed development on or near, important archaeological sites or historical buildings within planning regulations as defined under the provisions of the Town and Country Planning Act 1990. In addition, local authorities are responsible for the protection of the historic environment within the planning system.
- 2.1.2 It is necessary to consider the national and local planning policy context in order to set an appropriate scope for the EIA and to be able to understand the acceptability of the scheme in policy terms. The importance of the historic environment is recognised in legislation and heritage assets that are deemed to be of particular importance are given legal protection.
- 2.1.3 The following section summarises the main components of the national and local planning and legislative framework governing the treatment of the historic environment within the planning process.

2.2 Legislation

- 2.2.1 There is a significant body of statute law dealing with the historic environment. Heritage assets that are deemed to be of particular importance are given legal protection through the following national legislation;
- Ancient Monuments and Archaeological Areas Act 1979;
 - Infrastructure Planning (Decision) Regulations 2010;
 - The Planning (Listed Buildings and Conservation Areas) Act 1990;
 - National Heritage Act 1983



- Protection of Wrecks Act 1973;
- Protection of Military Remains Act 1986;
- Burial Act 1997
- Treasure Act 1996
- The Hedgerow Regulations 1997 (as amended 2002)

2.3 National Planning Policy

- 2.3.1 The National Planning Policy Framework was published in July 2021 and sets out the governments planning policies for England and how these are expected to be applied.
- 2.3.2 Section 16 of the NPPF, entitled Conserving and enhancing the historic environment, sets out the principal national guidance on the importance, management and safeguarding of heritage assets within the planning process.
- 2.3.3 The aim of NPPF Section 16 is to ensure that Local Planning Authorities, developers and owners of heritage assets adopt a consistent and holistic approach to their conservation and to reduce complexity in planning policy relating to proposals that affect them.
- 2.3.4 To summarise, government guidance provides a framework which:
- recognises that heritage assets are an irreplaceable resource;
 - requires applicants to provide proportionate information on the significance of heritage assets affected by the proposals and an impact assessment of the proposed development on that significance;
 - takes into account the desirability of sustaining and enhancing the significance of heritage assets and their setting;
 - places weight on the conservation of designated heritage assets, in line with their significance; and
 - requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible.
- 2.3.5 A selection of excerpts from NPPF Section 16: Conserving and enhancing the historic environment is presented in **Appendix 1**.

2.4 National Planning Policy Guidance

- 2.4.1 On 6th March 2014 the Department for Communities and Local Government (DCLG) launched the Planning Practice Guidance (PPG) web-based resource. The Planning Practice Guidance was updated on 23 July 2019 to reflect the changes to NPPF since the guidance was first published in 2014. The resource provides additional guidance intended to accompany NPPF. It includes a section entitled 'Conserving and enhancing the historic environment' (ID.18a), which expands upon the corresponding sections of the NPPF.



2.5 Local Planning Policy

- 2.5.1 The Site is situated within the administrative boundaries of Gravesham Borough Council. Gravesham Borough Council adopted the Gravesham Local Plan in September 2014.
- 2.5.2 The Local Plan Core Strategy is the main document in the Gravesham Local Plan and forms the basis of the development plan for the district and sets targets for the provision of new housing and employment for a period up to 2028, as well as setting out general policies in relation to the provision of facilities, transport and protection of natural and historical features.
- 2.5.3 As part of the emerging Gravesham Local Plan partial review, site allocations and development management policies consultation, a background paper was prepared the Gravesham Heritage and Character background paper (October 2020). This was prepared to inform the ongoing working to update the Local Plan (Gravesham 2020).

3 RELEVANT GUIDANCE

3.1 Introduction

- 3.1.1 A number of guidance documents have been used for the purposes of the assessment of buried archaeological remains, as follows.

- Chartered Institute for Archaeologists (CIfA) 'Standard and Guidance for Historic Environment Desk-Based Assessment' (CIfA 2014a)
- Historic England's 'Managing Significance in Decision-Taking in the Historic Environment. Historic Environment Good Practice Advice in Planning: 2' (Historic England 2015a)
- Management of Research Projects in the Historic Environment. The MoRPHE Project Managers Guide (Historic England 2015b)
- Chartered Institute for Archaeologists' Code of Conduct (CIfA 2014b)
- Principles of Cultural Heritage Impact Assessment in the UK (IEMA, IHBC & CIfA 2021)
- Historic England's Statements of Heritage Significance: Analysing Significance in Heritage Assets, Advice Note 12 (Historic England 2019)
- Historic England's Geoarchaeology, Using Earth Sciences to Understand the Archaeological Record (Historic England 2015c)
- Historic England's, Deposit Modelling and Archaeology, Guidance for Mapping Buried Deposits (Historic England 2020)
- Historic England's, Preserving Archaeological Remains, Decision-taking for Sites under Development (Historic England 2016)
- Historic England's, The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3 Second edition (Historic England 2017)
- Planarch: Evaluation of Archaeological Decision-making processes and Sampling Strategies (Hey et al 2001)
- Planarch 2: Review of Cultural Heritage Covering in Environmental Impact Assessments
- Kent Farmsteads Guidance (English Heritage et al 2012)



- South East Regional Research Framework (Kent County Council 2019)
- Specification for Standard Desk-Based Assessment and Walkover Survey (Kent County Council (undated))
- Specification for Standard Desk-Based Assessment and Walkover Survey for Areas with Known Palaeolithic Potential (Kent County Council (undated))



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APPENDICES

Appendix 1: Legislative and Planning Framework

Designated Heritage Assets

Designation	Associated Legislation	Overview
World Heritage Sites	-	The United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Committee inscribes World Heritage Sites for their Outstanding Universal Value (OUV) – <i>cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity</i> . England protects its World Heritage Sites and their settings, including any buffer zones or equivalent, through the statutory designation process and through the planning system. The National Planning Policy Framework sets out detailed policies for the conservation and enhancement of the historic environment, including World Heritage Sites, through both plan-making and decision-taking.
Scheduled Monuments and Areas of Archaeological Importance	<i>Ancient Monuments and Archaeological Areas Act 1979</i>	Under the <i>Ancient Monuments and Archaeological Areas Act 1979</i> , the Secretary of State (DCMS) can schedule any site which appears to be of national importance because of its historic, architectural, traditional, artistic or archaeological interest. The historic town centres of Canterbury, Chester, Exeter, Hereford and York have been designated as Archaeological Areas of Importance under Part II of the <i>Ancient Monuments and Archaeological Areas Act 1979</i> . Additional controls are placed upon works affecting Scheduled Monuments and Areas of Archaeological Importance under the Act. The consent of the Secretary of State (DCMS), as advised by Historic England, is required for certain works affecting Scheduled Monuments.
Listed Buildings	<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	In England, under Section 1 of the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> , the Secretary of State is required to compile lists of buildings of special architectural or historic interest, on advice from English Heritage/Historic England. Works affecting Listed Buildings are subject to additional planning controls administered by Local Planning Authorities. Historic England is a statutory consultee in certain works affecting Listed Buildings. Under certain circumstances, Listed Building Consent is required for works affecting Listed Buildings.
Conservation Areas	<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	A Conservation Area is an area which has been designated because of its special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. In most cases, Conservation Areas are designated by Local Planning Authorities. Section 72 (1) of the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> requires authorities to have regard to the fact that there is a Conservation Area when exercising any of their functions under the Planning Acts and to pay special attention to the desirability of preserving or enhancing the character or appearance of Conservation Areas. Although a locally administered designation, Conservation Areas may nevertheless be of national importance and significant developments within a Conservation Area are referred to Historic England.
Registered Parks and Gardens and Registered Battlefields	<i>Historic Buildings and Ancient Monuments Act 1953</i> <i>National Heritage Act 1983</i>	The Register of Parks and Gardens was established under the <i>National Heritage Act 1983</i> . The Battlefields Register was established in 1995. Both Registers are administered by Historic England. These designations are non-statutory but are, nevertheless, material considerations in the planning process. Historic England and The Garden's Trust (formerly known as The Garden History Society) are statutory consultees in works affecting Registered Parks and Gardens
Protected Wreck Sites	<i>Protection of Wrecks Act 1973</i>	The <i>Protection of Wrecks Act 1973</i> allows the Secretary of State to designate a restricted area around a wreck to prevent uncontrolled interference. These statutorily protected areas are likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance.



National Planning Policy Framework (NPPF) 2021

NPPF Section 16: Conserving and enhancing the historic environment	
Para. 194	In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.
Para. 195	Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this into account when considering the impact of a proposal on a heritage asset, to avoid or minimise any conflict between the heritage asset's conservation and any aspect of the proposal.
Para. 197	In determining applications, local planning authorities should take account of: a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation; b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and c) the desirability of new development making a positive contribution to local character and distinctiveness.
Para. 199	When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.
Para. 200	Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of: a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional; b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional ⁶⁸ . ⁶⁸ Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.
Para. 201	Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply: a) the nature of the heritage asset prevents all reasonable uses of the site; and b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and d) the harm or loss is outweighed by the benefit of bringing the site back into use.
Para. 202	Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.
Para. 203	The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.
Para. 205	Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible ⁶⁹ . However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.



NPPF Section 16: Conserving and enhancing the historic environment	
	⁶⁹ Copies of evidence should be deposited with the relevant historic environment record, and any archives with a local museum or other public depository.
Para. 206	Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.
Para. 207	Not all elements of a Conservation Area or World Heritage Site will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 195 or less than substantial harm under paragraph 196, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.
Para. 208	Local planning authorities should assess whether the benefits of a proposal for enabling development, which would otherwise conflict with planning policies but which would secure the future conservation of a heritage asset, outweigh the disbenefits of departing from those policies.



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Appendix: Archaeology

Annex 1: Legislation and Policy

Annex 2: Archaeological Desk-Based Assessment

Annex 3: Geoarchaeological Desk-Based Assessment



Northfleet Harbourside Northfleet, Kent

Archaeological Desk-Based Assessment



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Summary

Wessex Archaeology was commissioned by Trium Environmental Consulting LLP on behalf of Northfleet Central 1 (the client) to prepare an Archaeological Desk-Based Assessment of land at Northfleet Central, Northfleet, Kent, centred on National Grid Reference 561447, 174969. This study is intended to inform a planning application for demolition of existing buildings within the site and construction of a mixed-used development with areas of residential, commercial and greenspace. A new stadium is also proposed for Ebbsfleet United Football Club.

The aims of this study were to assess the known and potential archaeological resource within the site and the surrounding area, and to assess the likely impacts of the Proposed Developments on this resource, as far as possible from available information. The effect of the Proposed Development on the archaeological resource will be a material consideration in the determination of the planning application.

The study makes no comment on the potential effects of the proposed development on designated heritage assets or built heritage, which will be considered separately as part of the application. The geoarchaeological potential and Palaeolithic potential of the site is also considered within a separate geoarchaeological desk-based assessment.

The River Ebbsfleet has shaped the human interaction with the landscape surrounding the Site from the earliest times and has influenced settlement patterns and the use of the area. Potential for archaeology has been identified in particular for the prehistoric periods, post-medieval and 19th century. The site contains a section of a road that historically provided safe passage through the Northfleet Marshes, and the site may also have been the location of a minor battle during the English Civil War. A windmill and a possible watermill from the 18th century are also known to have existed within the site. Use of the site peaked in the mid to late 19th century when the Robins Creek Cement Works relocated into the site. The cement works was active until the mid-20th century and a series of kilns, drying flats, wharves and ancillary buildings were constructed.

The site also holds potential for prehistoric and paleoenvironmental remains relating to its position close to the Swanscombe peninsula and within the Ebbsfleet Valley.

Due to the archaeological sensitivity of the area surrounding the Site a large number of archaeological investigations have been undertaken within the area for both research purposes and in advance of development. A large amount of data was collected during the investigations for High Speed 1 (HS1) and STDR4 which both lie to the south west of the Site.

The excavation of a large quarry pit in the centre of the site is expected to have removed all post-palaeolithic archaeological remains that may have been present within its footprint. Elsewhere, there are expected to be varied conditions for archaeological remains to survive. Depending on the design of the former cement kilns, remains of the structures could survive below the existing modern industrial areas in the northeast corner of the site.

The site has been subject to two instances of archaeological monitoring events for the Northfleet growth scheme pipeline and monitoring of geotechnical works for STDR4, however no comprehensive intrusive archaeological assessment has been carried out across the Site. As such, the presence, location and significance of any buried heritage assets across much of the site cannot currently be confirmed on the basis of the available information. Therefore, it is likely that additional archaeological investigations may be required by the archaeological advisor for Gravesham Borough Council. The need for, scale, scope and nature of any further assessment and/or archaeological works should be agreed through consultation with the statutory authorities.



Any adverse impact to buried archaeological features as a result of the implementation of the Proposed Development would be permanent and irreversible in nature. This potential adverse effect could be reduced through the implementation of an appropriate scheme of archaeological evaluation and mitigation, in accordance with national and local planning policy.



Acknowledgements

This project was commissioned by Northfleet Central 1, and Wessex Archaeology is grateful to them in this regard. Wessex Archaeology would also like to thank Kent County Council for supplying the Historic Environment Record data.



Northfleet Central Northfleet, Kent

Archaeological Desk-Based Assessment

1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology was commissioned by Trium Environmental Consulting LLP on behalf of Northfleet Central 1 Ltd (the Client) to prepare an Archaeological Desk-Based Assessment of land at Northfleet Central (hereafter 'the Site' **Figure 1**). The Site is located in the northwest part of Northfleet, Kent, centred on NGR 561447, 174969.

1.1.2 This study has been prepared to inform a planning application for a proposed mixed-use development of residential and commercial units within the Site, also including the redevelopment of Ebbsfleet United Football Club stadium. The planning application will be submitted to Gravesham Borough Council. This document will form part of the baseline for the Archaeology chapter of the Environmental Statement.

1.1.3 This assessment considers the potential effects of the proposals on the significance of the archaeological resource only. The potential effects of the proposed development on designated heritage assets and built heritage are considered in a separate report.

1.1.4 This assessment also makes no comment on the geoarchaeological and Palaeolithic potential of the Site, nor does it include a discussion of Palaeolithic discoveries within the Study Area. These are considered within a separate Geoarchaeological Desk-Based Assessment (Wessex Archaeology 2022).

1.2 Development proposals

1.2.1 The Proposed Development is to comprise an outline planning application with all matters reserved, except for the primary means of access, for a mixed-use redevelopment involving the demolition of existing buildings and structures including site preparation / remediation works, and the development of residential units (Use Class C3), Use Class E floorspace including floorspace for retail, food and beverage, office floorspace and flexible Class E floorspace, floorspace for a new multi-use stadium with associated business and leisure facilities, floorspace for a hotel (Use Class C1), floorspace for community uses (Use Class F2) and other sui generis uses, delivery of open space and the realignment of the A226 Galley Hill Road / Stonebridge Road with hard / soft landscaping, car and cycle parking, highways works, infrastructure works, ancillary and associated works. The specifics of the development proposals are assessed in the Environmental Statement Chapter.

1.3 Scope of document

1.3.1 This assessment was requested by the Client in order to determine, as far as is possible from existing information, the nature, extent and significance of the archaeological resource within the Site and its environs, and to provide an initial assessment of the potential impact of development on the heritage assets that embody that significance.

1.3.2 Archaeological Interest is defined in the *National Planning Policy Framework* (NPPF 2021): Annex 2, as:



'there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point'

1.3.3 NPPF Annex 2 defines a Heritage Asset 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. Heritage assets include designated heritage assets and assets identified by the local planning authority (including local listing).'

1.4 Aims

1.4.1 The specific aims of this assessment are to:

- outline the known and potential heritage assets within the Site based on a review of existing information within a defined study area;
- assess the significance of known and potential heritage assets through weighted consideration of their valued components;
- assess the potential impact of development or other land changes on the significance of the heritage assets.

2 PLANNING BACKGROUND

2.1 Introduction

2.1.1 There is national legislation and guidance relating to the protection of, and proposed development on or near, important archaeological sites or historical buildings within planning regulations as defined under the provisions of the *Town and Country Planning Act 1990*. In addition, local authorities are responsible for the protection of the historic environment within the planning system.

2.1.2 The following section summarises the main components of the national and local planning and legislative framework governing the treatment of the historic environment within the planning process. Further detail is presented in **Appendix 2**.

2.2 National Planning Policy Framework

2.2.1 The *National Planning Policy Framework* (NPPF) was published in July 2021 and sets out the government's planning policies for England and how these are expected to be applied.

2.2.2 Section 16 of the NPPF, entitled *Conserving and enhancing the historic environment*, sets out the principal national guidance on the importance, management and safeguarding of heritage assets within the planning process.

2.2.3 The aim of NPPF Section 16 is to ensure that Local Planning Authorities, developers and owners of heritage assets adopt a consistent and holistic approach to their conservation and to reduce complexity in planning policy relating to proposals that affect them.

2.2.4 To summarise, government guidance provides a framework which:

- recognises that heritage assets are an irreplaceable resource;

- requires applicants to provide proportionate information on the significance of heritage assets affected by the proposals and an impact assessment of the proposed development on that significance;
- takes into account the desirability of sustaining and enhancing the significance of heritage assets and their setting;
- places weight on the conservation of designated heritage assets, in line with their significance; and
- requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible.

2.2.5 A selection of excerpts from NPPF Section 16: Conserving and enhancing the historic environment is presented in **Appendix 2**.

2.2.6 Further additional guidance intended to accompany the NPPF is provided in the Planning Practice Guidance (PPG) web-based resource¹.

2.3 Local planning policy and guidance

2.3.1 The Site is situated within the administrative boundaries of Gravesham Borough Council. Gravesham Borough Council adopted the *Gravesham Local Plan* in September 2014.

2.3.2 The Local Plan Core Strategy is the main document in the Gravesham Local Plan and forms the basis of the development plan for the district and sets targets for the provision of new housing and employment for a period up to 2028, as well as setting out general policies in relation to the provision of facilities, transport, and protection of natural and historical features.

2.3.3 As part of the emerging Gravesham Local Plan partial review, site allocations and development management policies consultation, a background paper was prepared, the *Gravesham Heritage and Character background paper* (October 2020). This was prepared to inform the ongoing work to update the Local Plan (Gravesham 2020).

3 METHODOLOGY

3.1 Introduction

3.1.1 The methodology employed during this assessment was based upon relevant professional guidance, including the Chartered Institute for Archaeologists' *Standard and guidance for historic environment desk-based assessment* (CIfA 2014, revised 2020) and the *Specification for Standard Desk-Based Assessment and Walkover Survey*, prepared by Kent County Council.

3.2 Study Area

3.2.1 A Study Area was established within a 1 km radius of the Site boundary. The use of a 1 km Study Area was based on professional judgement and has been agreed with the Kent

¹ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>

County Council's County Archaeologist and Historic England through the scoping process for the ES.

3.2.2 The recorded historic environment resource within the Study Area was considered in order to provide a context for the discussion and interpretation of the known and potential resources within the Site.

3.3 Sources

3.3.1 Several publicly accessible sources of primary and synthesised information were consulted. These comprised:

- the National Heritage List for England (NHLE), which is the only official and up to date database of all nationally designated heritage assets;
- the Kent Historic Environment Record (KHER), comprising a database of recorded archaeological sites, find spots, and archaeological events within the county;
- South East Research Framework (SERF);
- national heritage datasets including the Archaeological Data Service (ADS), Heritage Gateway, OASIS, PastScape and the National Record of the Historic Environment (NRHE) Excavation Index;
- historic manuscripts, surveyed maps, aerial photographs and Ordnance Survey maps; and
- relevant primary and secondary sources including published and unpublished archaeological reports relating to excavations and observations in the vicinity of the Site.

3.3.2 Sources consulted during the preparation of this assessment are listed in the references section of the report.

3.4 Site visit

3.4.1 The Site was visited on 13th July 2022. Weather conditions were dry and clear. A fieldwork record comprising digital photography is held in the project archive.

3.4.2 The aim of the Site visit was to assess the general aspect, character, condition and setting of the Site and to identify any prior impacts not evident from secondary sources. The Site visit also sought to ascertain if the Site contained any previously unidentified features of archaeological, architectural or historic interest.

3.5 Significance

3.5.1 Significance (for heritage policy) is defined in NPPF Annex 2 as:

'The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting. For World Heritage Sites, the cultural value described within each site's Statement of Outstanding Universal Value forms part of its significance.'



3.5.2 The interests as listed in the NPPF are further defined in Historic England's (2019) *Statements of Heritage Significance: analysing significance in heritage assets*. These are:

- Archaeological Interest: there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point;
- Architectural and Artistic Interest: these are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skill, like sculpture; and
- Historic Interest: An interest in past lives and events (including prehistoric). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation's history but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity.

3.5.3 This assessment was also informed by the advice published by Historic England in the document entitled *Managing Significance in Decision-Taking in the Historic Environment: historic environment good practice advice in planning note 2* (2015).

3.6 Assumptions and limitations

3.6.1 Data used to compile this report consists of secondary information derived from a variety of sources, only some of which have been directly examined for the purposes of this Study. The assumption is made that this data, as well as that derived from other secondary sources, is reasonably accurate.

3.6.2 The records held by the KHER are not a record of all surviving heritage assets, but a record of the discovery of a wide range of archaeological and historical components of the historic environment. The information held within it is not complete and does not preclude the subsequent discovery of further elements of the historic environment that are, at present, unknown.

3.7 Copyright

3.7.1 This report may contain material that is non-Wessex Archaeology copyright (e.g. Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act 1988* with regard to multiple copying and electronic dissemination of the report.

4 ARCHAEOLOGICAL AND HISTORICAL BASELINE RESOURCE

4.1 The Site

4.1.1 The Site comprises an irregular parcel of land of approximately 18 hectares located in the northwest section of Northfleet, located approximately 1.3 km northwest of Northfleet's historic core. It is bordered to the north by the River Thames, to the west and south by areas of industrial and residential development and to the east by Robins Creek.



4.1.2 The Ebbsfleet United football club stadium is the main structure located within the Site (**Plates 1 and 2**). The main entrance to the stadium is located on Stonebridge Road (**Plate 1**). Several single-storey buildings border the pitch.

4.1.3 The Site is bisected by Stonebridge Road (**Plate 3**). Stonebridge Road historically formed part of London Road, to which it connects. London Road historically provided access from London to Dover and through the Northfleet Marshes. The road is first illustrated on post-medieval mapping, but its exact age is not known. The section of the road within the Site gets its name from a former stone bridge that was present over the river Ebbsfleet when it was still a tidal river. The stone bridge was removed sometime after the Ebbsfleet had begun to dry up.

4.1.4 The rest of the Site is occupied by a range of industrial and commercial buildings, including two aggregate suppliers in the northeast corner yards and areas of hardstanding (**Plates 4 to 16**), and three 19th-century terraced houses (**Plate 17**).



Plate 18) View of the Ebbsfleet United Football Club stadium main building, facing northwest



Plate 19) view of the rear entrance to the Ebbsfleet United Football Club stadium, facing southwest



Plate 20) View from the Stonebridge Road and Lower Road junction, facing southwest



Plate 21) View along Grove Road, facing northeast



Plate 22) View from Grove Road facing northwest down the side road with the Grove House Orthodontics building on the west side.



Plate 23) View of the light industrial unit adjacent to Grove House Orthodontics building, facing southwest



Plate 24) View towards the Keyline supplier building, facing northwest



Plate 25) View of the Industrial units located between the aggregate suppliers, facing north



Plate 26) View down the side road that leads to the rear entrance of the Ebbsfleet United Football Club stadium, facing north



Plate 27) View of the yard area located west of the rear entrance to the Ebbsfleet United Football Club stadium, facing north



Plate 28) View along Lower Road (south end), facing northwest



Plate 29) View from Lower Road facing north down the side road that leads to Seacon Terminals Limited



Plate 30) View of the London Bus Company building located on Lower Road, facing northwest



Plate 31) View towards the Discount Builders Merchants building, facing northeast



Plate 32) View of the SMC Ford Gravesend building located in the southern section of the Site, facing west



Plate 33) View of the Shell garage located in the southern section of the Site, facing east



Plate 34) View of the three, 19th century terraced houses located on Lower Road, facing east

4.2 Topography, Hydrology and Geology

- 4.2.1 The Site has a varied topography, owed much to the past extraction activities that took place during the 19th century. The area of the Site located around Stonebridge begins at approximately 7 m above Ordnance Datum (aOD) before dropping to 6 m and then rising again to 10 m as it makes its way over the High Speed 1 railway line. The northern section of the Site lies at an elevation that varies between 7 m aOD and 5 m aOD, with the lowest points closest to the River Thames. The southern section lies at approximately 6 m aOD.
- 4.2.2 The Site is located on the banks of the River Thames and west of Robin's Creek. Robin's Creek is a small water inlet and the mouth of the river Ebbsfleet (also known as river Fleet), a former tidal river. Historically, the Creek was used as part of Northfleet Harbour and allowed passage along the river Ebbsfleet until a watermill and weir were constructed in the 18th century. It played an important role during the 19th century as a harbour for unloading and loading materials for the adjacent cement industries. The earliest recorded use of the Creek dates back to the medieval period, however recent discoveries along the Ebbsfleet have found it was also used during the Romano-British and Anglo-Saxon periods. It took its current form today as a small water inlet after a flood defence wall was built in the 1980s.
- 4.2.3 The Site lies within an area of former salt marsh known as the Northfleet Marshes. Rising sea levels following the last glacial maximum 'drowned' the lower reaches of river valleys. This led to the creation of large swathes of tidal marshland over north Kent (SERF 2019). Over time, these areas became inhabited by species of grass, plants and later trees. Parts of the Marsh were reclaimed for use as farmland during the post-medieval period but most areas remained as marshland until the 19th century.
- 4.2.4 The underlying geology across the Site is recorded by the British Geological Survey (BGS) as being bedrock geology of the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation, together with superficial alluvial deposits. A small section of the east part of the Site that lies adjacent to the Robins Creek may also contain superficial tidal river or creek deposits.
- 4.2.5 Further information on the topography, hydrology and geology of the Site is provided within the Geoarchaeological Desk-Based Assessment (Wessex Archaeology 2022).

4.3 Archaeological and historical context

- 4.3.1 The following section summarises the archaeological and historical development of the Site and the Study Area, compiled from the sources listed above. The likelihood of as yet unrecorded archaeological remains within the Site is informed by the consideration of the known heritage assets within the Study Area, in conjunction with the geology and topography of the area.
- 4.3.2 Records obtained from the NHLE, KHER and other sources are listed in **Appendix 3** and illustrated in **Figures 1–6**. Due to the quantity of non-intrusive surveys completed within the Study Area, only intrusive archaeological events are presented in the figures. The KHER and NHLE records have been assigned a unique identification number which is used to identify the entries on the figures and in the text below.

Previous Studies within the Site

- 4.3.3 Previous investigations within the Site have comprised archaeological monitoring on three separate occasions. In 2007 test pits, boreholes and proving pits were monitored under watching brief conditions ahead of the construction of a new sewer pipeline for the Northfleet Growth Scheme. 7 interventions were monitored as part of this and no archaeological finds

or features were recorded. In 2008 the cutting of the trench for the sewer was also monitored, 13 observations were made within the Site, which predominantly comprised modern former road surfaces and possible peat or waterlain layers. No archaeological finds or features were identified. Two of the geotechnical boreholes undertaken for the STDR route were monitored within the Site which did not reveal any archaeological finds or features. Results of the interventions described above have been incorporated into the geoarchaeological deposit model within the geoarchaeological desk-based assessment (Wessex Archaeology 2022).

- 4.3.4 The remaining previous events undertaken within the Site are non-intrusive and comprise a series of large-scale desk-based assessments. They include an assessment along the North Kent Coast (EKE10278), a desk-based assessment for the Northfleet Growth Scheme (EKE10378) and the creation of a deposit model (EKE20720).

Study Area

- 4.3.5 Wessex Archaeology have recently undertaken intrusive archaeological investigations of the former Bevan Portland Cement Works adjacent to the east of the Site. The Works, one of the earliest examples of a cement works in Britain, was active from the 19th century to the late 20th century. Previous assessments had identified a low potential for archaeological remains as past demolition works were believed to have removed most of the remains. However, extensive remains of the 19th-century works have been found across the site, including several kilns, buildings, tramlines and tunnel networks. The discovery of the remains has enhanced the understanding of the cement industry and shown that well-preserved remains could survive in areas that were previously thought to have been completely removed by demolition.
- 4.3.6 There are a further 748 unique entries on the KHER for past archaeological events within the Study Area, both intrusive and non-intrusive surveys.² Where relevant, the results of these investigations are discussed in further detail below.

- 4.3.7 Previous intrusive archaeological events within the Study Area are illustrated in **Figure 1A-E**.

Mesolithic (8500–4000 BC) to Iron Age (700 BC – AD43)

- 4.3.8 During the Mesolithic period the Ebbsfleet was a meandering freshwater channel and the vegetation comprised of open scrubby deciduous woodland with birch and hazel and an undergrowth of grasses, and ferns growing on the banks of the river. There is very little evidence of human impact on the landscape at this time (Bates and Stafford 2013). Over the course of the Mesolithic period, in the Lower Valley, the floodplain environment became increasingly unstable with wetland environments beginning to expand at the expense of drier areas. Salt marshes and reed swamps dominated the area by the end of the Late Mesolithic/ Early Neolithic period.
- 4.3.9 Recent work on the Swanscombe peninsula identified a series of channels and potential sand and gravels eyots along the northern extent, close to the present day foreshore (WA 2017). Bates and Stafford (2013) had previously suggested that a large area of the marsh

² Many of the KHER events entries are related to similar schemes of work but each intervention has been assigned their own unique identification number. An example are the 25 unique entries that are assigned to an archaeological evaluation of Ebbsfleet Sports Ground.

would have been formed by eyots, similar to the landscape known to have existed in London.

- 4.3.10 The KHER holds four entries for the Mesolithic period, comprising findspots of flints (TQ 67 SW 68, TQ 67 NW 109, TQ 67 SW 1459 and TQ 67 SW 1460). Except for entry TQ 67 NW 109, which relates to finds recovered from the River Thames, the remaining finds were to the south of the Site around Ebbsfleet Station.
- 4.3.11 In the upper Ebbsfleet Valley a peaty land surface was discovered which contained well preserved pollen suggesting a predominantly wooded landscape during the early Neolithic dominated by lime, oak and hazel on drier ground with wet alder carr woodland on and along the fringes of the floodplain with an understorey of reed swamp. Closer to the mouth of the river Ebbsfleet, evidence of a marsh/fen like landscape would have existed with areas of peat accumulating from the 5th millennium BC (Bates and Stafford 2013:154). During the late Neolithic and early Bronze Age, the environmental evidence also suggests increased woodland clearance on the higher drier areas and arable cultivation (Bates and Stafford 2013).
- 4.3.12 The current evidence for Neolithic activity shows a concentrated presence in the upper Ebbsfleet Valley approximately 500 m to the south of the Site around Ebbsfleet Station, with stray, residual artefacts recovered in the western part of the Study Area (TQ 67 SW 41, TQ 67 SW 69, TQ 67 SW 244, TQ 67 SW 290, TQ 67 SW 538, TQ 67 SW 592, TQ 67 SW 398, TQ 67 SW 400, TQ 67 SW 402, TQ 67 SW 284, TQ 67 SW 591, TQ 67 SW 1805, TQ 67 SW 1806 and TQ 67 SW 1494). The Site would still have been marshland during the Neolithic period and those that inhabited the Ebbsfleet Valley would have had limited use for the marsh.
- 4.3.13 The Bronze Age brought about substantial changes to the landscape of the upper Ebbsfleet Valley. As communities became well settled, large-scale deforestation took place. Over time, this level of deforestation began to impact upon the slopes of the valley, eventually leading to the accumulation of colluvial deposits at its base. The Bronze Age is also marked by an expansion of the Thames Estuary resulting in an increase in size of the mudflats and fringing saltmarsh, fen and reed swamp environments (Bates and Stafford 2013).
- 4.3.14 The focus of human activity during the Bronze Age remained in the upper valley with evidence of settlement, trackways and a number of findspots recorded within proximity to Ebbsfleet Station (TQ 67 SW 174, TQ 67 SW 40, TQ 67 SW 46, TQ 67 SW 95, TQ 67 SW 539, TQ 67 SW 287, TQ 67 SW 1802, TQ 67 SW 289, TQ 67 SW 1804, TQ 67 SW 288, TQ 67 SW 1803 TQ 67 SW 295 and TQ 67 SW 310). There are early signs of encroachment into the marsh landscape north of the Ebbsfleet Station, but they do not reach as far as the Site.
- 4.3.15 Environmental evidence recovered as part of HS1 investigations have shown that clay silts began to accumulate over the marsh during the late prehistoric with middle and upper saltmarsh well established by the late Iron Age (Bates and Stafford 2013:158). The deposition of the silts would have been a result of a shift in climate, with Britain experiencing a far wetter and colder climate than previous prehistoric periods. This would have led to consistent flooding episodes and aided in the expansion of the marshland/wetlands. Away from the valley bottom, the landscape was still predominantly grassland pasture with some areas of arable cultivation.
- 4.3.16 The current evidence for the Iron Age suggests a reduction in inhabited areas within the Ebbsfleet Valley. All of the evidence to date is concentrated close to the Ebbsfleet Station

whereas in other periods we see some use of the areas further downstream or on marsh fringes (TQ 67 SW 28, TQ 67 SW 31, MKE58667, MKE58780, MKE58807, MKE58811, MKE104463, TQ 67 SW 1511, TQ 67 SW 1512, TQ 67 SW 296 and TQ 67 SW 38). The settlement (TQ 67 SW 1427 and TQ 67 SW 38) found on the later site of the Romano-British villa (discussed below) may reflect the limits of the marshland and the area that was habitable.

Romano-British (AD 43–410)

- 4.3.17 Environmental evidence was recovered during CTRL works that shows during the Romano-British period the salt marsh present up stream, close to the present-day location of Ebbsfleet Station, had begun to change to fresh water reed swamp (Bates and Stafford 2013:158). Further downstream the landscape likely remained as salt marsh though tidal regression, in addition to changes in climate (a shift to a wetter climate by 400AD) may have begun to alter the conditions of the marsh.
- 4.3.18 During the Romano-British period, the Ebbsfleet Valley developed into a site of religious importance. In the 1st century AD a sanctuary complex was established at Springhead, approximately 1.8km south of the Site, that remained in use until the 4th century. The complex was supported by a Roman town, *Vagniacis*, that was located to the south of the religious complex on the opposite side of the Roman road known as Watling Street.
- 4.3.19 During excavation of the Channel Tunnel Rail Line (CTRL), the remains of a large Romano-British villa were found 560m to the south of the Site. The villa was preceded in the 1st century by a timber-framed structure. A series of gullies and pits were associated with the structure which were suggested to have been used for malting and brewing, supported by a further series of ditches used to control water supply. A separate complex was located to its west that was used for agricultural purposes with a number of enclosure ditches found close to the complex, located 430m from the Site. The complex was linked to the timber-framed building by an early Roman metaled surface (Andrews et al 2011).
- 4.3.20 The timber-framed building was abandoned by AD120 and a new structure (Phase 2) with stone foundations and wattle and daub walls was constructed on a slightly different alignment. A number of wells and cisterns were excavated around the building for use in the brewing process, which continued at the site. A limekiln and quarry have also been found close to the villa which are likely to have been used during the construction of the stone building.
- 4.3.21 In the second half of the 2nd century, a new entrance and range of rooms were added to the north and western sides of the existing building (Phase 3). To the north a bath house was also built with a gravel surface laid around the structure to create a courtyard (Andrews et al 2011). The bath house would have been located close to the water edges suggesting its position may have marked the bank of the river Ebbsfleet.
- 4.3.22 The villa was further extended on two separate occasions during the mid to late Romano-British period. This included refurbishment of the main aisled building, construction of a new range, addition of three buildings to the bath house and the development of a quay. The development of the quay is of particular interest as it shows that riverine boats could pass along the river Ebbsfleet by at least the mid Romano-British period. Though, these early boats are thought to have been flat-bottomed barges rather than larger vessel or merchantmen (Bates and Stafford 2013:169).
- 4.3.23 The remaining KHER entries for the Romano-British period pertain to further areas of settlement located to the southwest and southeast of Northfleet Villa, the recovery of stray

finds and a small industrial site located at the southern edge of Swanscombe Peninsula that was used for the production of pottery.

- 4.3.24 The Northfleet Roman villa is largely believed to have marked the northern extent of roman settlement within the Ebbsfleet valley. The land further to the north is still considered to have been marsh and though there were some environmental change happening along the course of the Ebbsfleet with a shift from salt to fresh water marsh, these are unlikely to have affected the Site.

Anglo-Saxon (AD 410–1066) and Medieval (AD 1066–1500)

- 4.3.25 The environmental evidence recorded during CTRL works shows peat accumulation during the mid to late Anglo-Saxon period within the upper Ebbsfleet Valley along the course of the river (Bates and Stafford 2013:158). The marsh along the course of the river, except for those closest to the mouth, were now completely fresh water marsh with sedge fen environments (ibid). Some woodland survived but the landscape was largely cleared with pasture and arable fields established across the valley.
- 4.3.26 The first evidence of Anglo-Saxon activity within the Study Area dates to the 5th century (TQ 67 SW 1451, TQ 67 SW 1523, TQ 67 SW 1525, TQ 67 SW 1450, TQ 67 SW 1522, TQ 67 SW 1526, TQ 67 SW 1452, TQ 67 SW 1527, TQ 67 SW 1528, TQ 67 SW 1529, TQ 67 SW 299, TQ 67 SW 1686 and TQ 67 SW 482). A number of sunken feature buildings were excavated in the vicinity of the Northfleet Roman Villa buildings showing a continued use of the area into this period. Each building had a suspended wooden floor set over a square pit that acted as a storage area and for ventilation. The settlement was interspersed along the higher and drier ground to the south of the Ebbsfleet, marking the northern extent of settlement within the region. A series of burials were also discovered. The burials together with the material culture indicate that the settlement was abandoned by the late Anglo-Saxon period.
- 4.3.27 A Saxon tidal mill was found in 2001 adjacent to the Roman quay (TQ 67 SW 1458, TQ 67 SW 1530, TQ 67 SW 1531, TQ 67 SW 1532 and TQ 67 SW 1533). Timber remains of the mill and associated features such as a spillway, revetments, and sluice gates were uncovered thought to date to the late 7th century. The dual chuted construction of the mill and the size of the wheel-pit suggests that it was a horizontal wheeled mill (Andrews et al 2011). The Ebbsfleet mill is one of the best-preserved pre-medieval structures ever found in Kent and as such is thought to be of national and regional importance. The presence of the water mill would suggest that the Ebbsfleet was still large enough to power the water mill. It also may have restricted access further upstream.
- 4.3.28 The closest settlement to the Site, recorded in the Domesday Book was the settlement of Northfleet. Northfleet was a large settlement with 43 households, a church and a fishery. Considering its size, Northfleet was likely established during the late Anglo-Saxon period.
- 4.3.29 The only recorded evidence of medieval date within the Study Area relates to a possible pre-16th century mill pond at Robin's Creek, 15 m to the east of the Site, identified during a characterisation study by Historic England (TQ 67 SW 1471). The report offers no reasons as to why the pond, which has links to an 18th century water mill, was considered to be medieval in origin. While there is mention of an inlet that was used in the marsh for safe harbourage, the mill pond has never been confirmed to be at this site. The area for the suspected mill pond has not been intrusively surveyed to confirm its age.
- 4.3.30 Similar to all preceding periods, there is no record for land reclamation and the Site would have remained as marshland during both the Anglo-Saxon and medieval period. If the mill

pond is medieval and was used by the local people as a rudimentary harbour then a pathway may have been cut through the marsh to it. This path could have been located within the Site, possibly the same path shown on later historic maps that lead to the possible 18th century water mill that was located on the later mill ponds northern bank (discussed below).

Post-medieval (AD 1500–1900)

- 4.3.31 Little is known of the Northfleet area during the 16th and 17th centuries. Documentary evidence provides a preamble regarding the changing of ownership of the manor of Northfleet but not on the settlement itself or the surrounding landscape (Halsted 1797). There is, however, an account of a battle between Royalist and Parliamentary soldiers at 'Stone Bridge' on the 1st June 1648. The stone bridge is shown on later historic mapping as being at the eastern end of the present-day Stonebridge Road and provided access across the river Ebbsfleet. The battle is said to have included 400 Parliamentarians and 600 Royalist with the Parliamentarians taking the day.³ The account tells us that Stonebridge Road was in use by the mid-17th century and was probably the main route through the marshes.
- 4.3.32 In the 1790s, a cement works was built by James Parker 130 m to the east of the Site (TQ 67 SW 77). James Parker, a pioneer of the cement industry, had created a new method for creating cement involving burning bricks, tiles and chalk, which he called *Roman Cement*. The works were said to be relatively small with Parker only employing 12 men, with most of the process completed by hand. The patent and site were sold to Charles Wyatt in 1798 with the works becoming Parker & Wyatt Co (Kent County Council 1999).
- 4.3.33 Sometime during the 18th century, a water mill was built within the Site on the north bank of Robin's Creek adjacent to the mill pond (TQ 67 SW 1471). Two buildings are shown adjacent to the mill pond on the 1840s tithe map and it is possible that one of these buildings contained the watermill (although no description of the use of the buildings is provided in the apportionment (35)). The mill pond is represented by apportionment 37. The river Ebbsfleet flowed into the mill pond which in turned flowed into the Creek that formed the mouth of the Ebbsfleet as it converged with the River Thames. A small drainage inlet also ran from the western extent of the mill pond through the areas that were still salt marshes (apportionments 25, 26, 32, 33 and 34).
- 4.3.34 The 1840 Tithe map of Northfleet provides us with a good understanding of activity within the Site (**Figure 7A**). Part of the marsh had been reclaimed by this point with apportionments 49, 38, 50 and 39 in use as pastoral land. A windmill was constructed in apportionment 30 alongside a large L-shaped structure in 28 and 29 that was the residence of Thomas Sands. Outside the Site, Robin's Creek Cement Works are illustrated to the east while most of the surrounding area was still either marsh or used as agricultural land.
- 4.3.35 In 1846, William Aspdin secured a deal to take over Parker and Wyatt Co and used their existing premises located to the east of the Site to produce Portland cement. Portland Cement was a new form of cement that was developed by William's father, Joseph Aspdin. Following the purchase, William extended the works constructing new buildings along Grove Road and three new bottle kilns within the main site (TQ 67 SW 603).⁴ The company

³ <http://riverebbsfleet.co.uk/history-of-the-river/>

⁴ https://www.cementkilns.co.uk/cement_kiln_robins.html

was rebranded initially by William to *Maude, Jones and Aspdin Works* (Maud and Jones were partners within the company) before becoming *Robins, Aspdin and Co* in 1848.

- 4.3.36 In 1851, William Aspdin was ousted from company due to financial irregularities and eventually sold his patent for Portland Cement to Thomas Sturge. Having acquired the patent, Sturge established his own cement works to east of Robin's Creek together with his partners John Messer Knight and Thomas Bevan, establishing Knight, Bevan and Sturge Co and The Bevans Cement Works. By the 1870s Bevan had sole control of the company (TQ 67 SW 1031).
- 4.3.37 Following William Aspdin's departure, the management of the Robin's Creek Works was given to R.A. Gibbons who oversaw the expansion of the works on the north side of Robin's Creek, within the Site, in 1867-69 with the construction of four 'Gibbons' chamber kilns. These were abandoned by 1880 due to low yield and were replaced by seven standard Johnson chamber kilns.⁵ The rest of the cement works was later moved north of the creek (into the Site) and a new wharf was built (TQ 67 SW 1797).
- 4.3.38 The 1872 Ordnance Survey (OS) shows the early development orchestrated by Gibbons of the cement works into the Site (**Figure 7B**). Several areas of either slurry banks or drying flats are illustrated along with a single kiln and a large quarry pit. The windmill in the western part was still in use while the former L-shaped building appears to have been demolished. The location of the 'stone bridge' is shown at the eastern extent of Stonebridge Road. The North Kent railway line had also been constructed by 1872 directly to the south of the Site with a footpath cutting through the Site's southern field, which continued under the railway embankment.
- 4.3.39 The 1898 OS map shows the layout of the Robin's Cement Works following the expansion of the works during the 1880s (**Figure 7C**). The works comprised of three main buildings supported by a number of smaller structures scattered in close proximity. The three main structures likely housed the seven Johnson chamber kilns built in 1880, the six Michelle kilns built in 1887, wash mills and covered drying flats. A series of wharves were built on the Thames foreshore which were connected to recently built tram and railway lines. The map also shows that the windmill to the west was now disused, the quarry pit had been infilled and that the three 19th century terraces still located in the Site had been built. The buildings associated with the 18th century mill pond appear to have been removed by 1898.

Modern (AD 1900–present day)

- 4.3.40 In 1900, the Associated Portland Cement Manufacturers (APCM) Ltd was created. An amalgamation of the largest cement manufacturing companies in Britain, the company was designed to unify the entire industry with over 60% of all the manufacturing capacity of cement was through APCM by the end of 1900.⁶ The former Robin's Creek Cement works were purchased by the company and in 1910 Robins & Co Ltd, its parent company, was shut. The works were now coordinated with Bevans Works and with the rest of the works purchased by APCM renamed to *Portland Cement Works*. Eventually the kilns within the Site were phased out though the finish mills and wharfs remained in use (**Figure 7D**).⁷

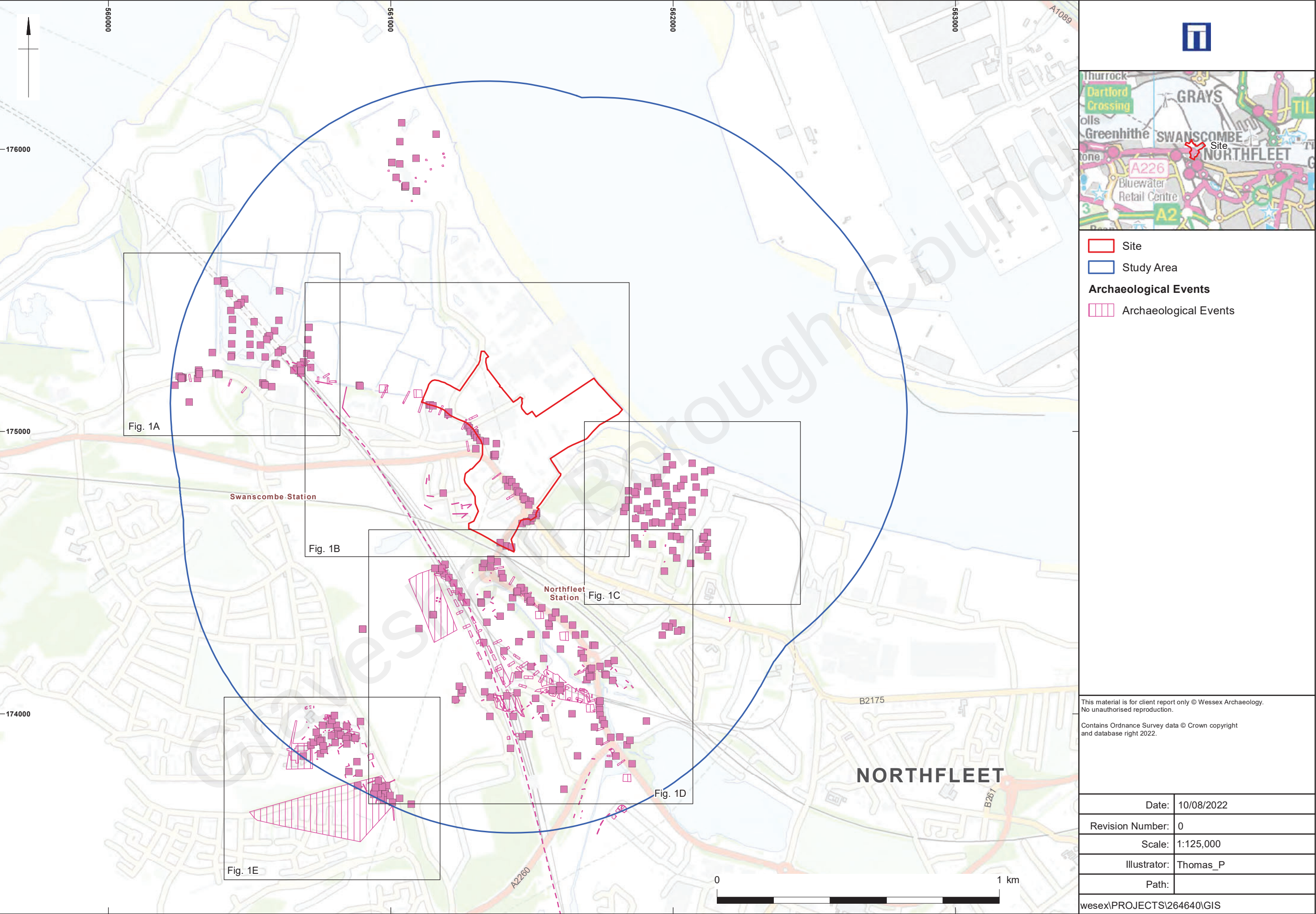
⁵ https://www.cementkilns.co.uk/early_kilns.html#johnson

⁶ https://www.cementkilns.co.uk/cc_apcm.html

⁷ Although the 1898 map labels the area as 'Portland Cement Works' this must have been an error as the Robin's Creek Cement Works did not become part of the APCM group until the 1900s.

- 4.3.41 Three changes are shown on the 1909 OS map within the wider area (**Figure 7D**). The first is reduction in the size of the river Ebbsfleet. Illustrated as a much thicker body of water on the 1898 OS map, by 1909 it paled in comparison. Part of the reason behind this change was the use of the rivers water in local industry and the recently established water company. The demand for water outstripped its water supply eventually leading to several parts of the river taking on the qualities of a small stream instead. The second change was the construction of the Northfleet United football ground. The ground was built in 1905 and comprised little more than a small wooden hut and a grass pitch. The final change was the demolition of the structures associated with the mill in the western section of the Site.
- 4.3.42 Aerial photographs taken in 1932 of the Site show a number of changes (EPW040728, EPW040729 and EPW040730).⁸ The northernmost building shown on earlier maps was the only structure still in use as part of the Portland Cement Works. The building was set on the bank of Robin's Creek with barges moored along the wall suggesting it was used for storing cargo prior to transport. Access to the building from the Bevans site was via a bridge that went over the creek. All except for one of the railway/tramlines had been removed and the wharf facilities located on the foreshore were greatly reduced. Aerial photograph EPW040728 shows that the Northfleet United football ground had been remodelled with two stands constructed. The 1937 OS map corroborates what is shown on the aerial photographs (**Figure 7E**). An aerial photograph dated to 1953 shows no changes within the Site (EAW050795). The historic map of 1955 seems to suggest that the cement works within the Site were disused and the surrounding area overgrown scrubland. The tramlines leading to the wharves appear to still be in place at this time.
- 4.3.43 By 1960 what remained of the former cement works had been demolished and the northern part of the Site, north of the stadium had been cleared (Google Earth satellite imagery). Several circular features are shown on the aerial image that could be some form of open top tanks. On the historic map from the 1970s these circular features are shown and the Site is labelled as depot. The tramways are still evident within the Site at this time.
- 4.3.44 By the early 1980s, the Site was completely redeveloped as part of Northfleet Industrial Park with many of the existing industrial buildings located within the Site built during this period. This involved the removal or coverage of the tramlines within the Site as these are no longer visible within the Site. The Northfleet United football ground (now known as the Ebbsfleet United following a rebranding and merger with Gravesend United in the 1940s) was also redeveloped with two stands erected alongside the existing main building. No further changes are shown to the Site on satellite imagery.

⁸ The aerial photographs were viewed on Historic England's Aerial Photo Explorer.
<https://historicengland.org.uk/images-books/archive/collections/aerial-photos/>



Site, Study and Past Archaeological Events

Figure 1

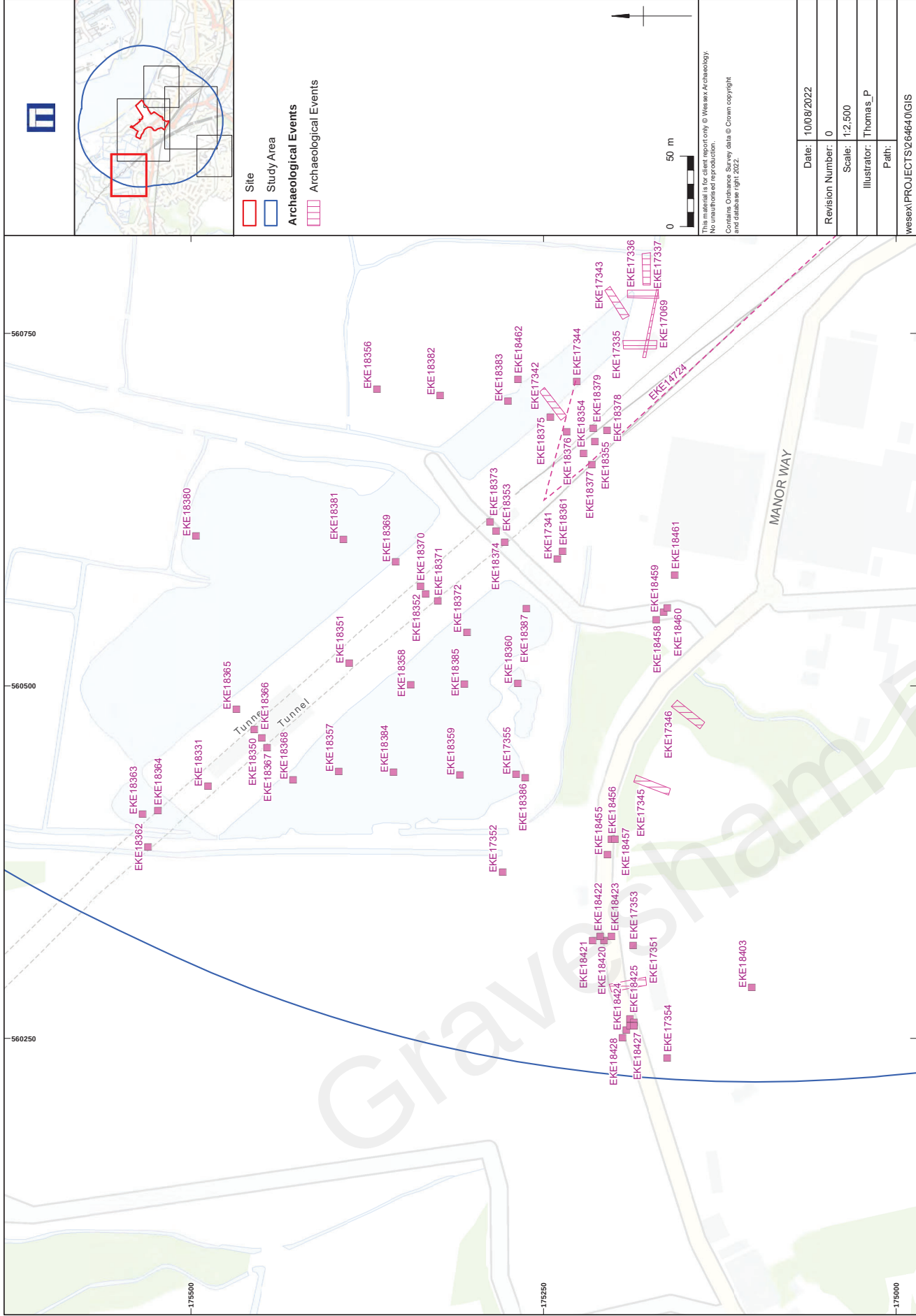


Figure 1A

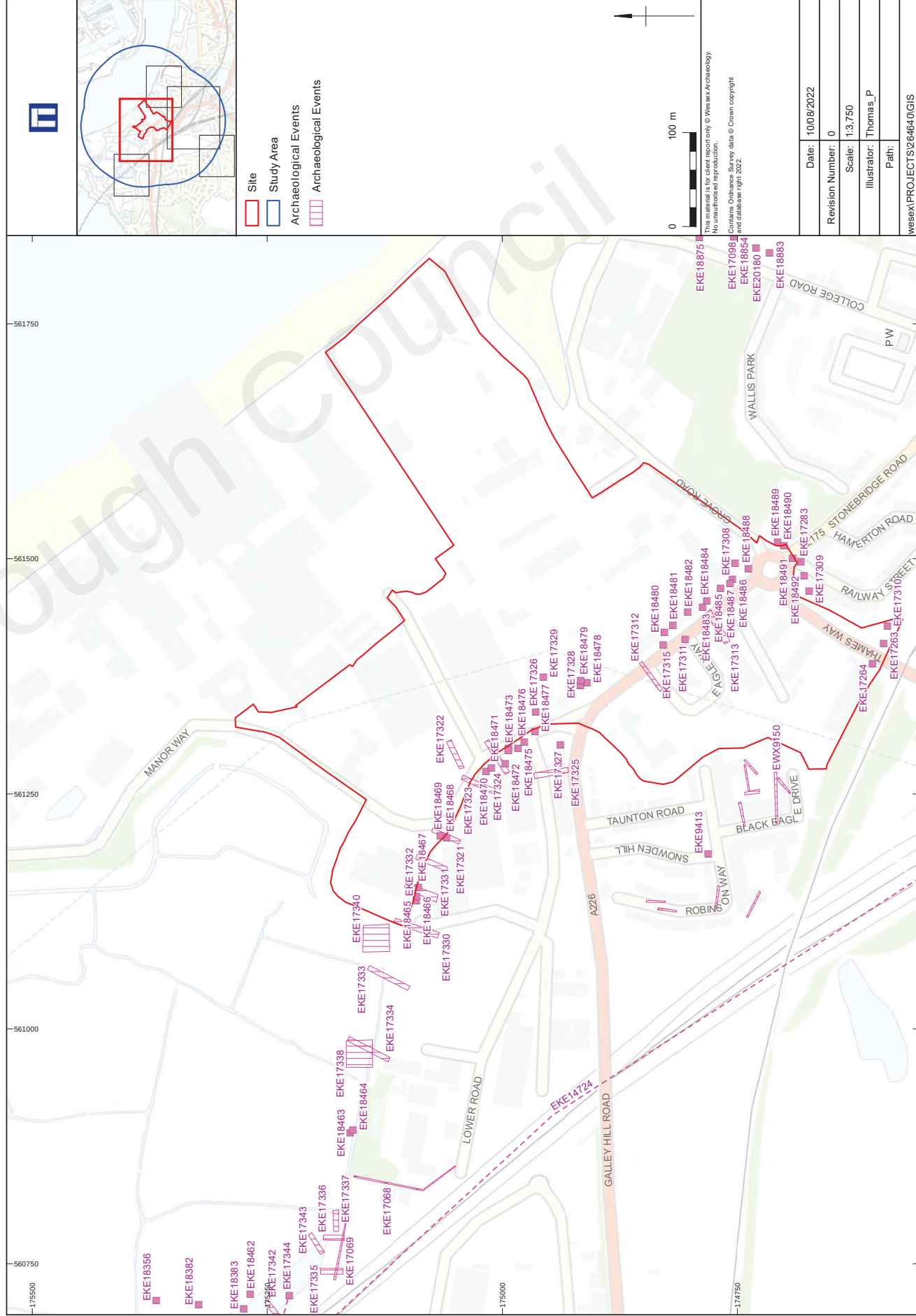
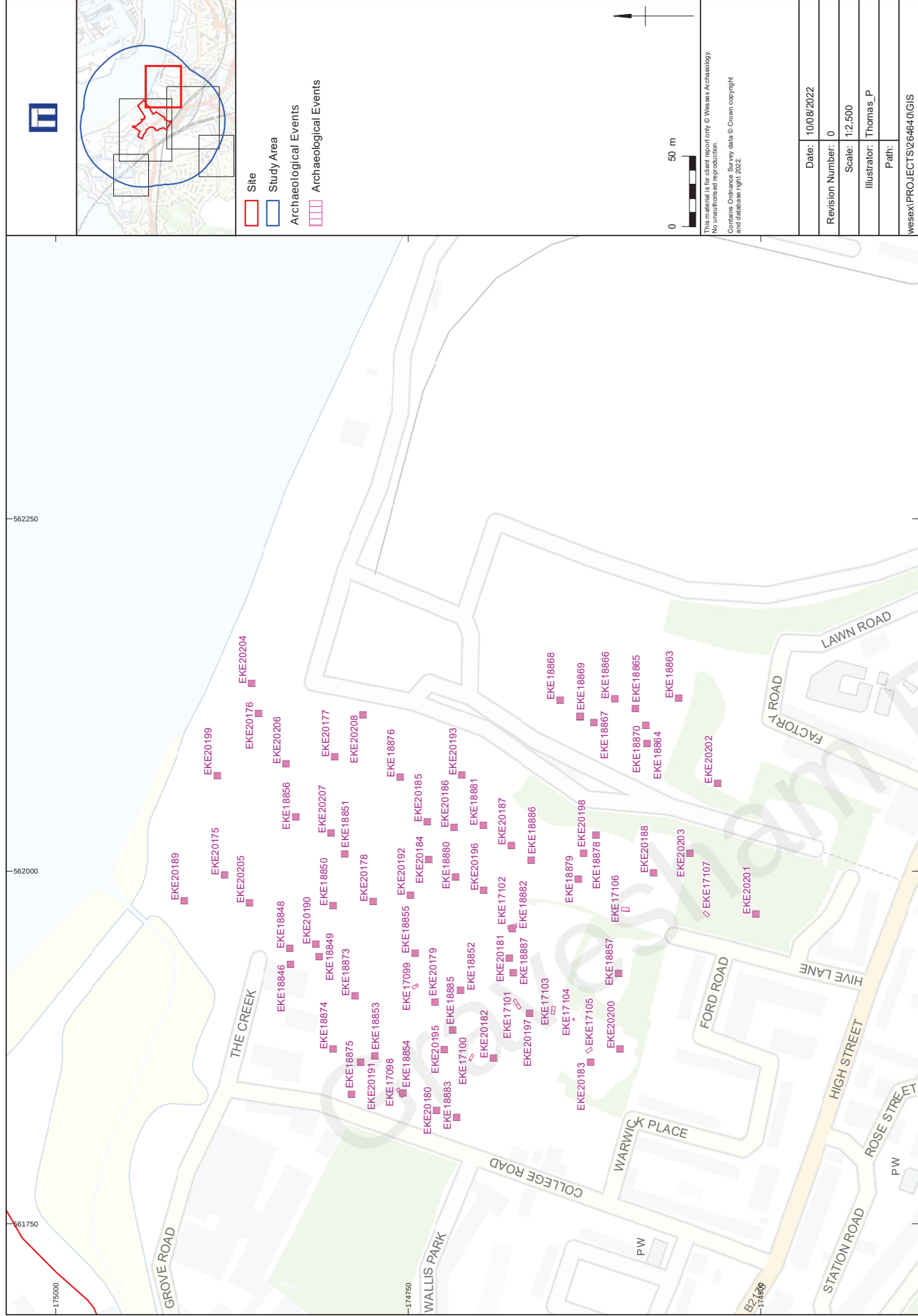
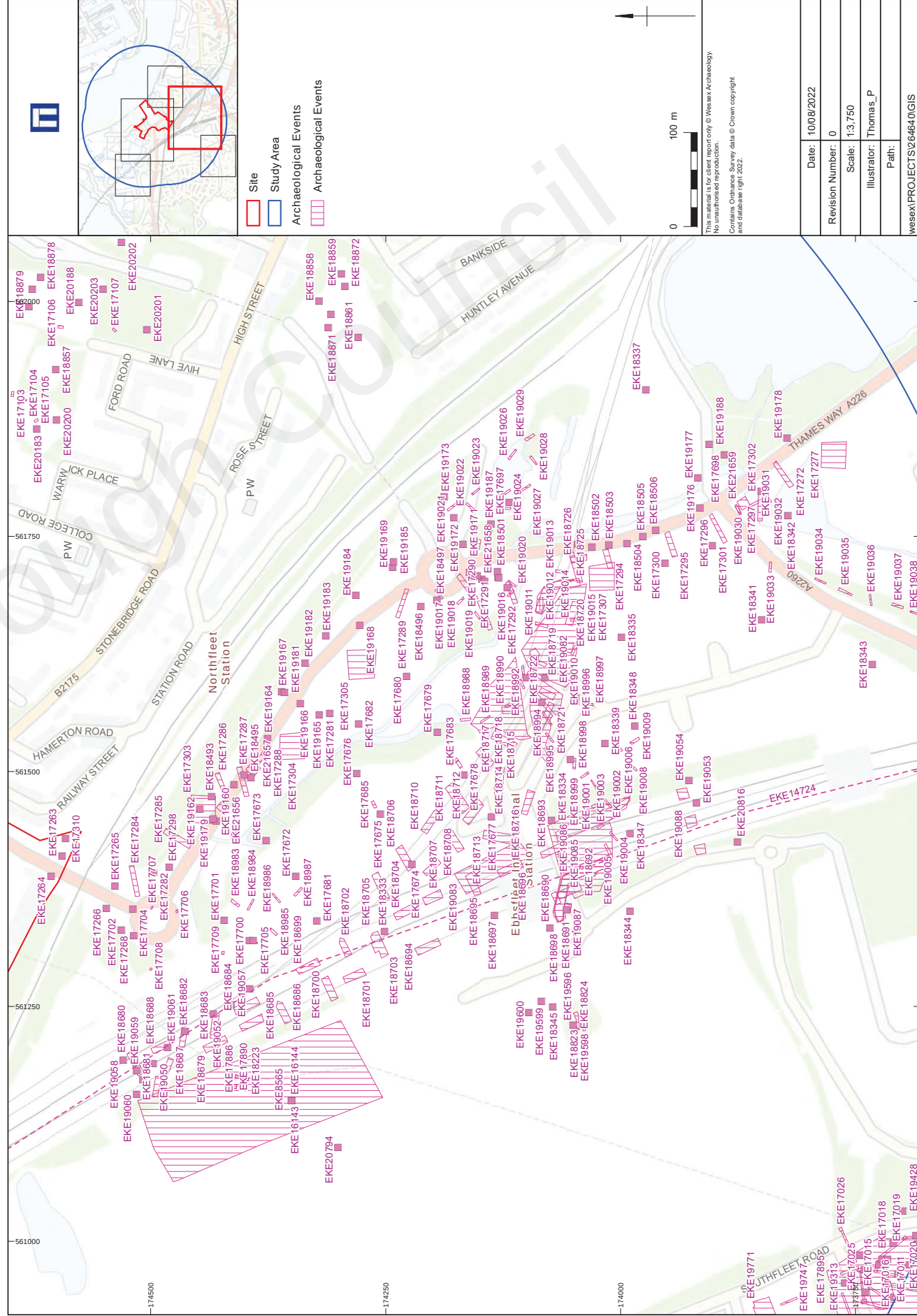


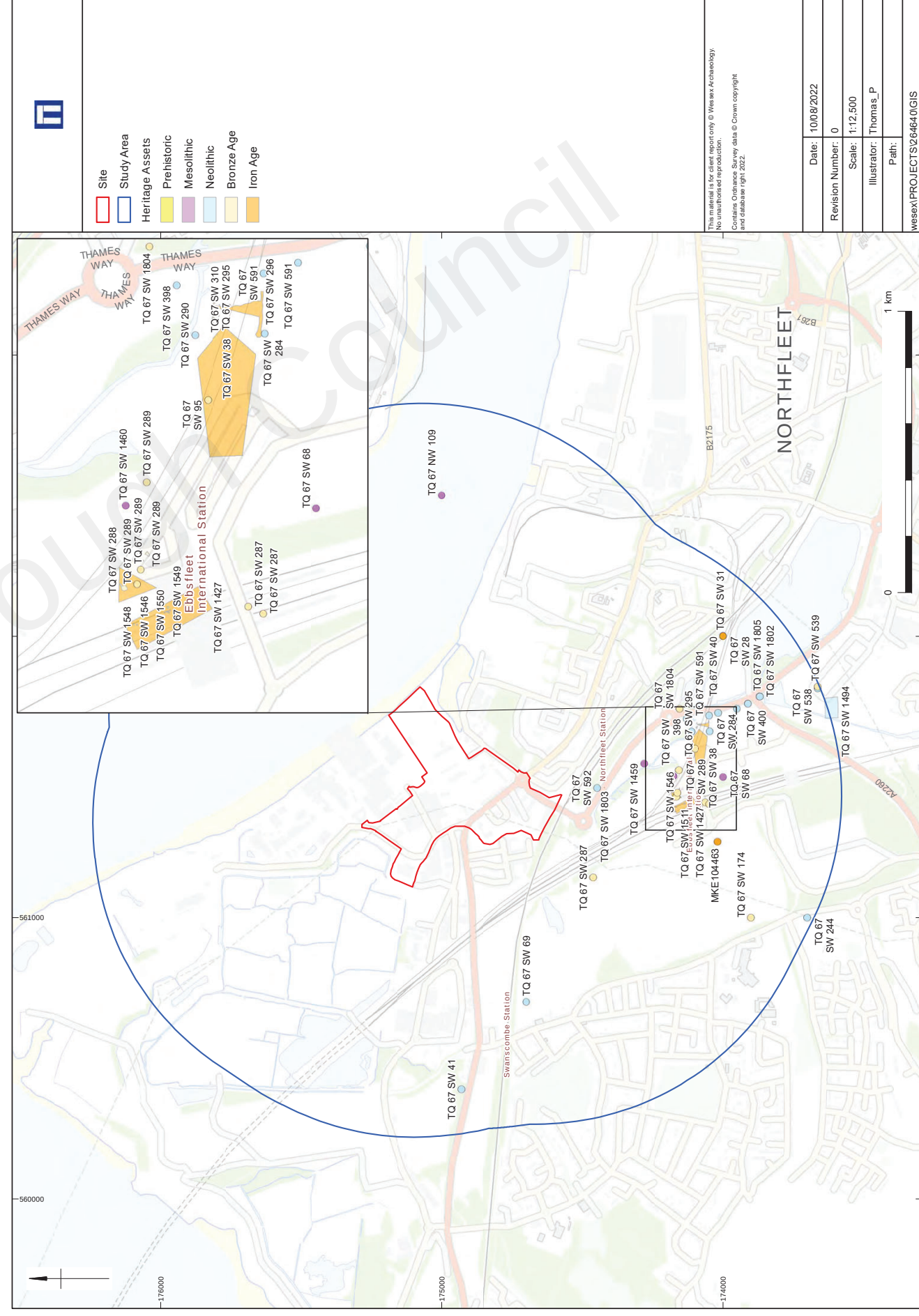
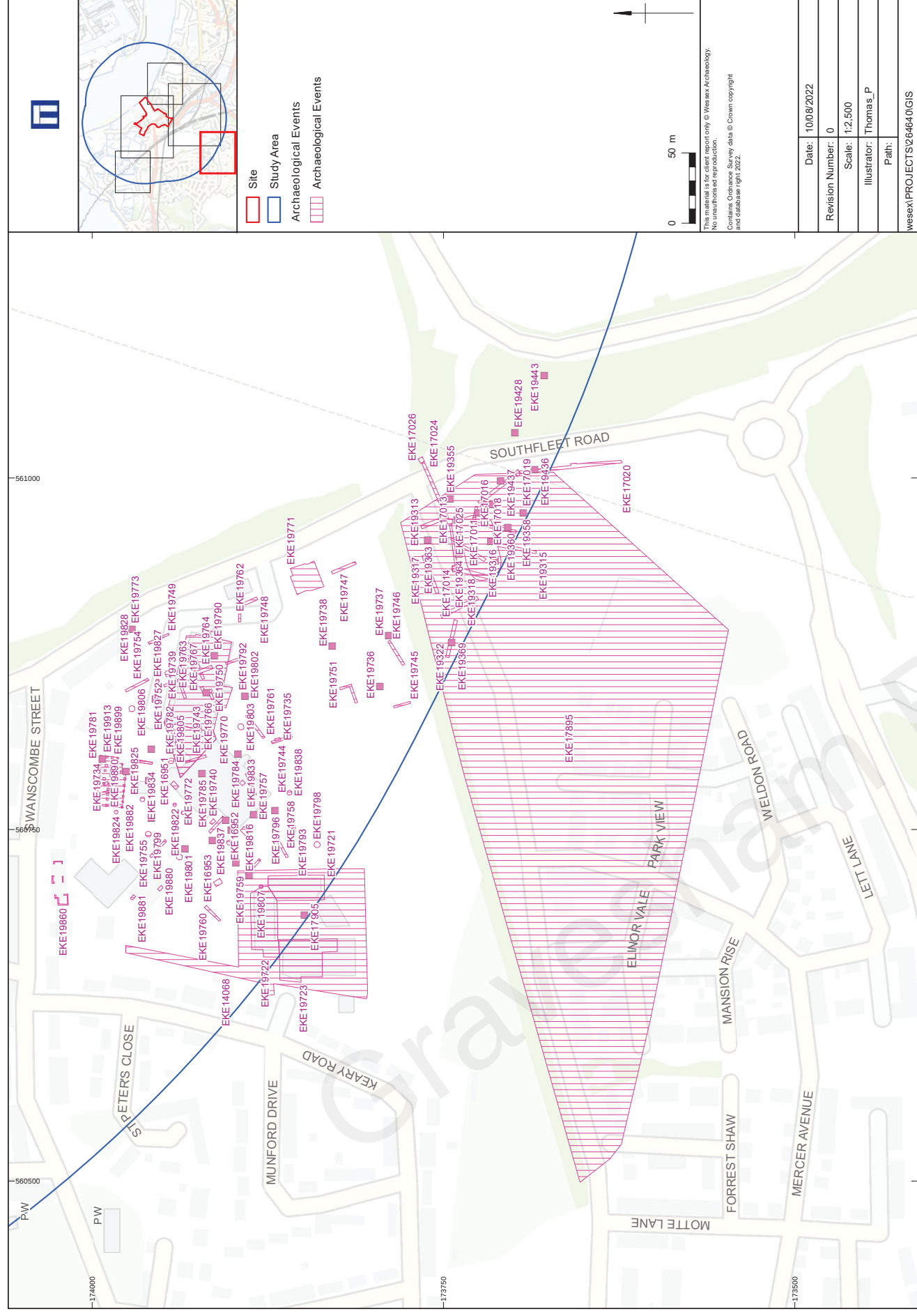
Figure 1B

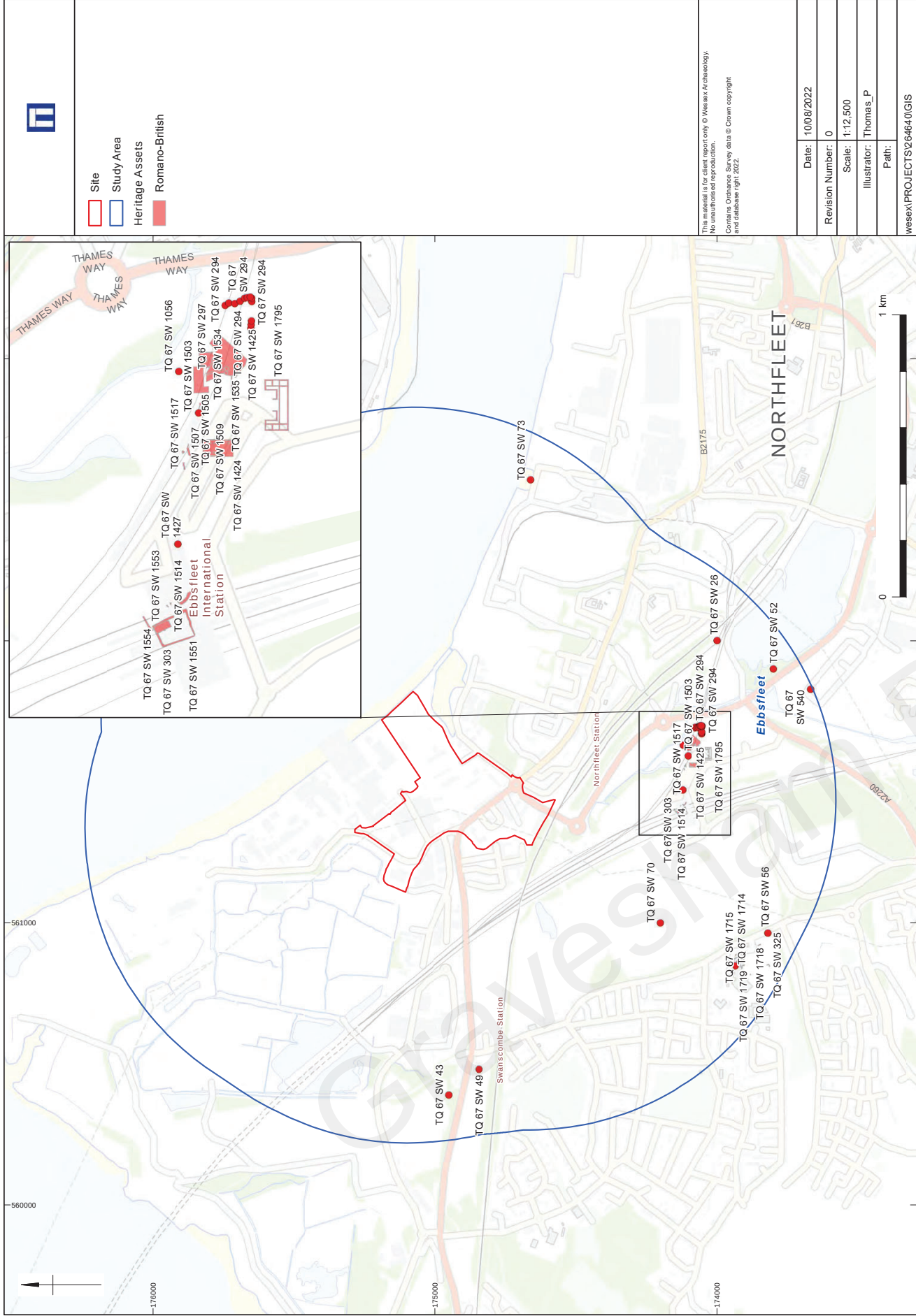


Site, Study and Past Archaeological Events



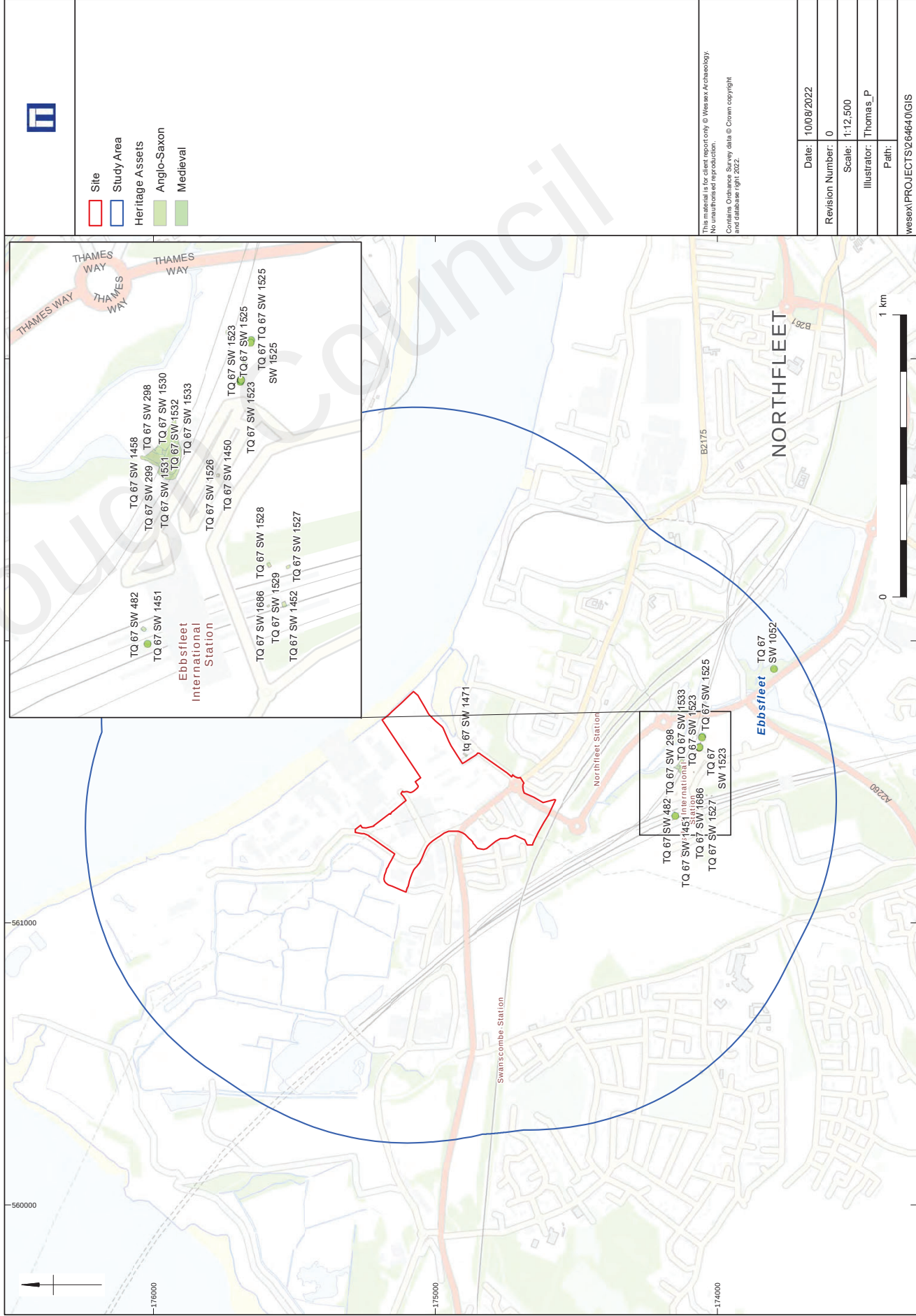
Site, Study and Past Archaeological Events





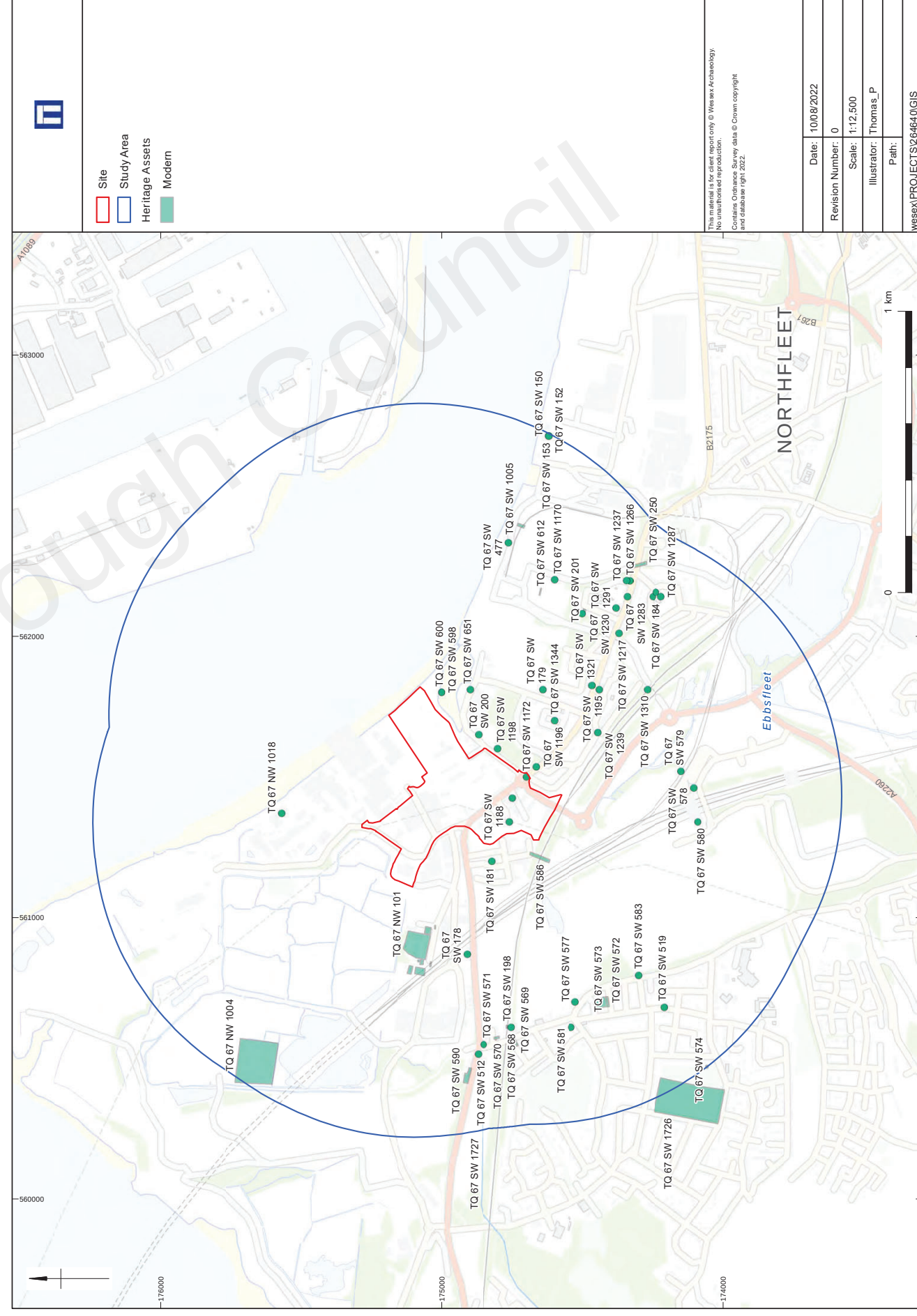
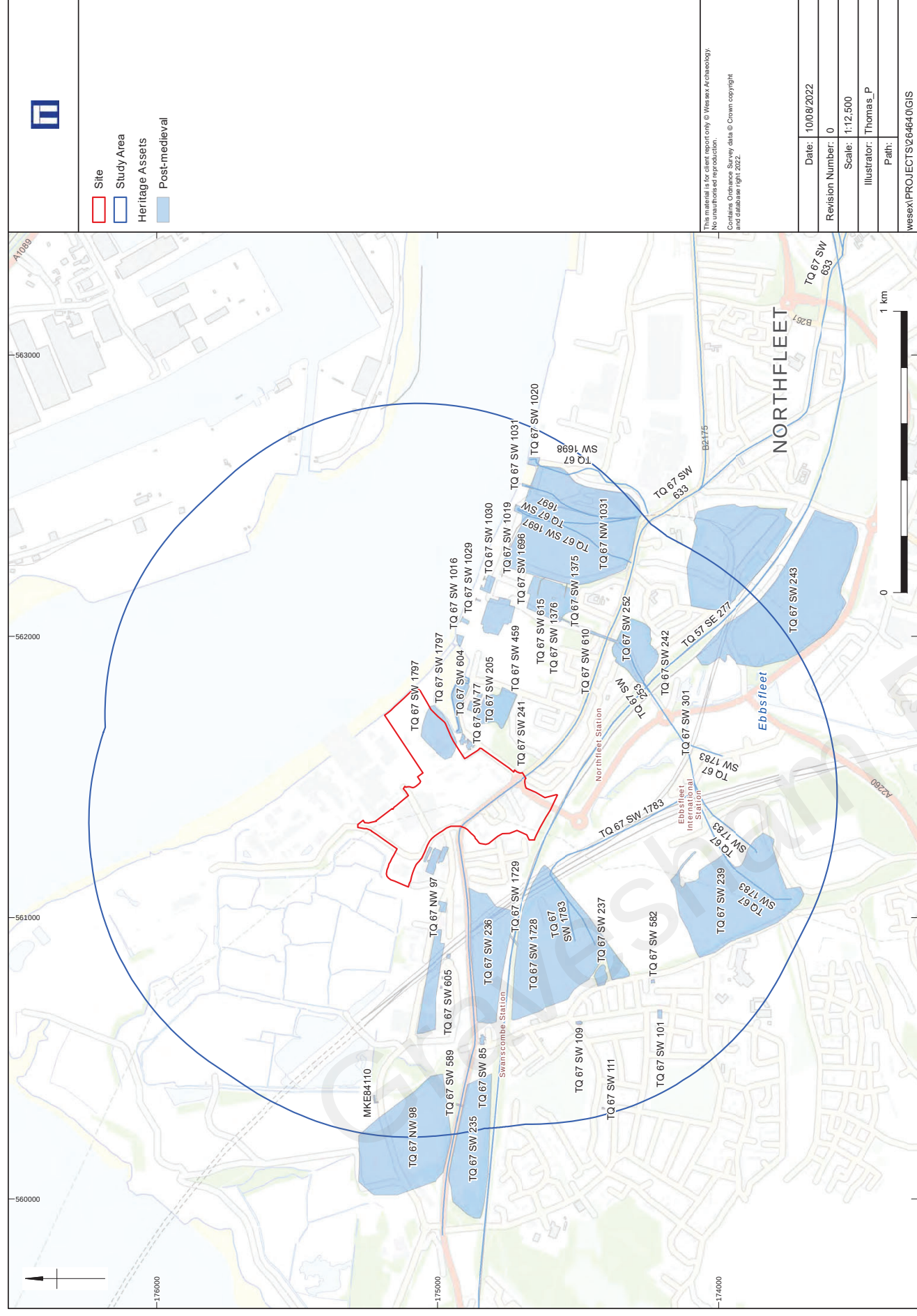
Site, Study Area and Heritage Assets dating to the Romano-British period

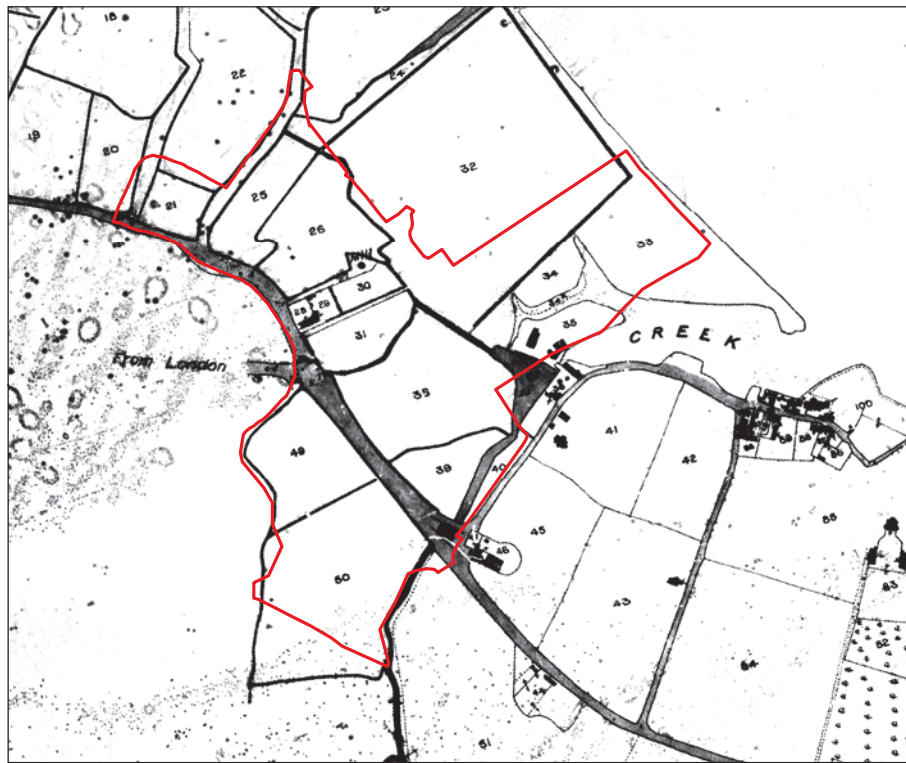
Figure 3



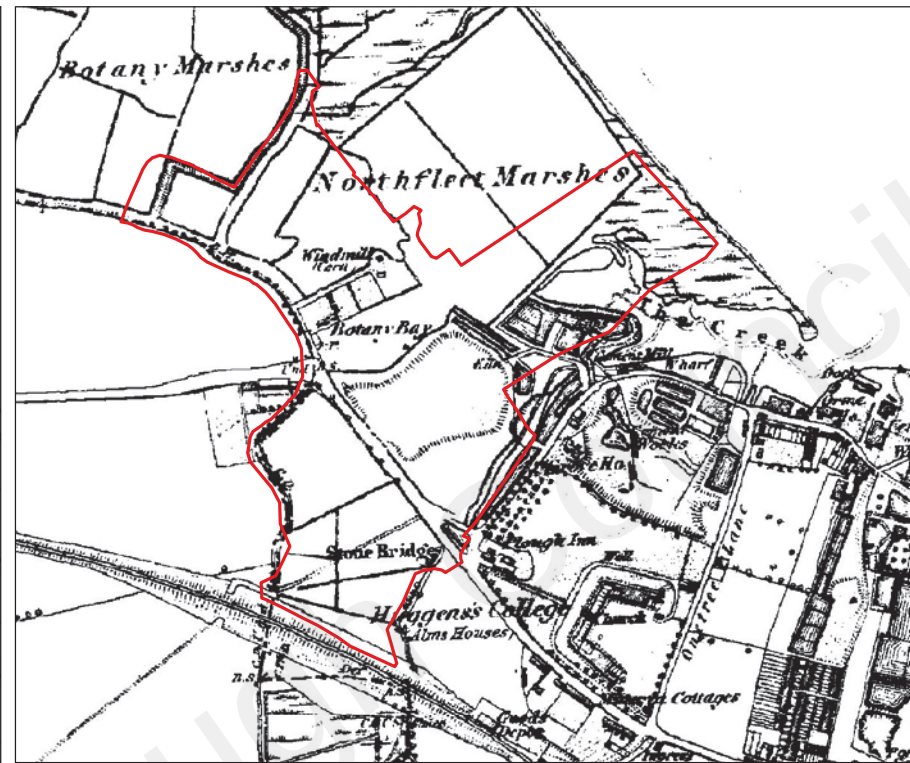
Site, Study Area and Heritage Assets dating to the Anglo-Saxon and Medieval periods

Figure 4

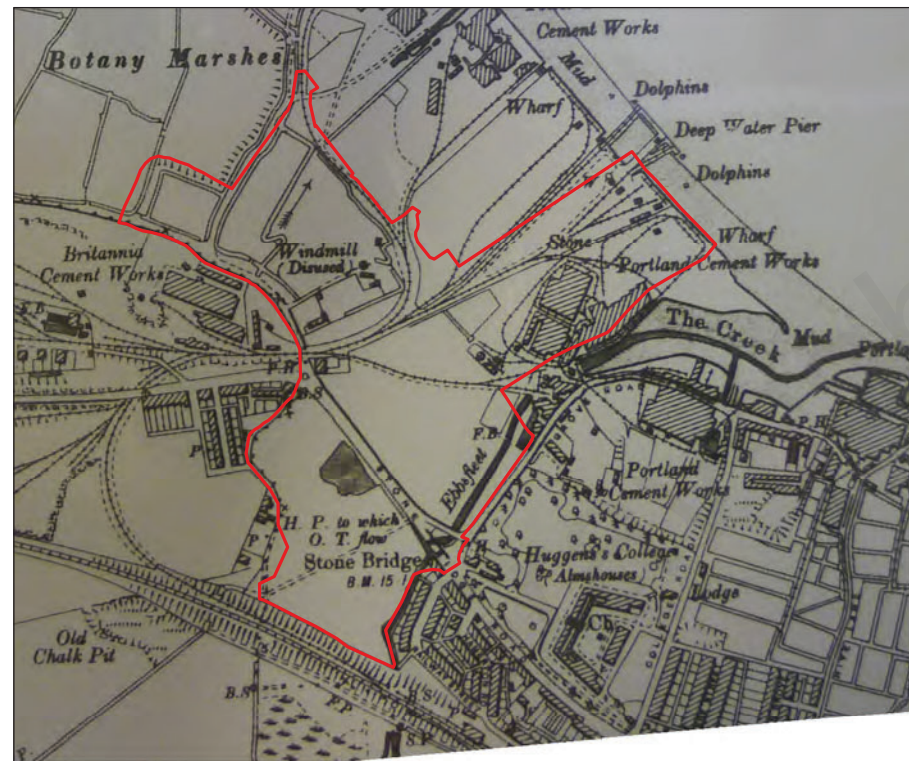




A) 1840 Northfleet Tithe Parish map



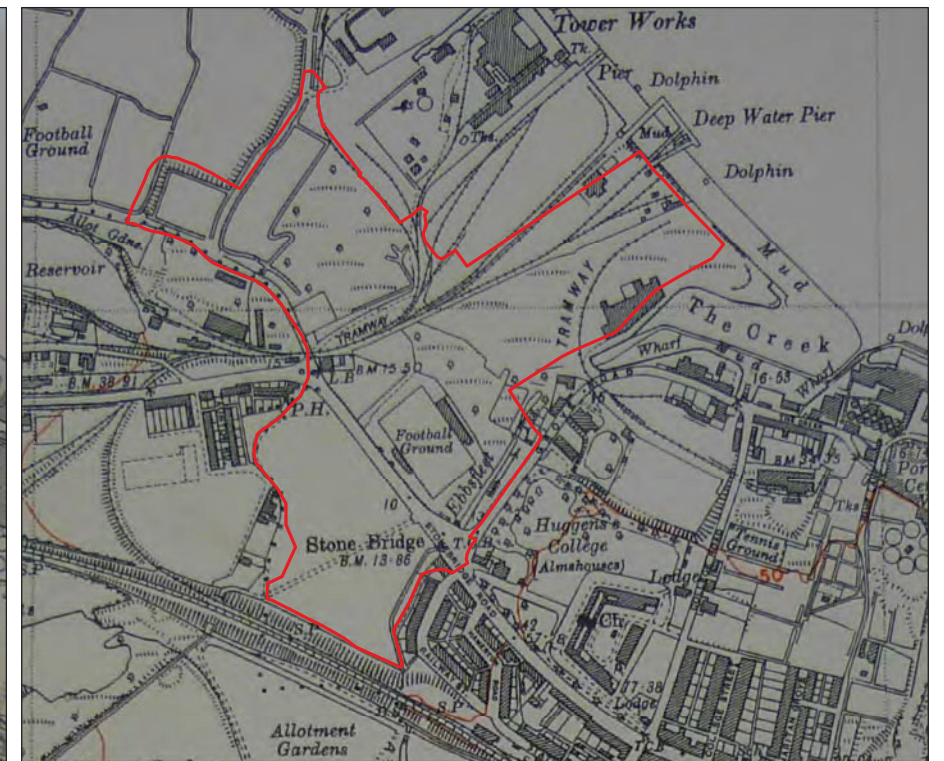
B) 1872 Ordnance Survey map



C) 1898 Ordnance Survey map



D) 1909 Ordnance Survey map



E) 1937 Ordnance Survey map



Site



Reproduced from the 1872, 1898, 1909 and 1937 Ordnance Survey maps
This material is for client report only © Wessex Archaeology. No unauthorised reproduction.

Date: 10/08/2022

Revision Number: 0

Scale: not to scale

Illustrator: Thomas_P

Path: wessex/Projects/264640/GIS



5 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL AND SIGNIFICANCE

5.1 Introduction

5.1.1 This section provides an initial assessment of the significance of potential archaeological remains which may lie within the Site, that may be subject to physical impacts. The significance of the archaeological resource is predominantly derived from its archaeological interest as outlined in **sections 6.4 and 6.5**.

5.2 Assessment of archaeological survival and previous impacts

5.2.1 The area of the Site used for chalk quarrying will have removed any archaeological remains within its footprint that predate it. The construction of cement works in the 19th century, especially the kilns, are also likely to have removed any archaeology within their footprint that predate their construction. The construction of the modern industrial buildings may also have impact upon pre-20th century archaeology.

5.2.2 The Michelle and Jackson Kilns may have contained elements of their design that extended below ground level, such as the kilns themselves.⁹ Similar kilns have been found during works to the east of the Site. However, as the design of the kilns located within the Site is not known whether remains of the buildings survive is also not known.

5.2.3 No geotechnical data was available at the time of writing illustrate the depth of made ground deposits within the Site and to assist with the prediction of the survival of archaeological remains.

⁹ The design of the kilns present within the Site either included a structure built entirely above ground or saw the kiln chambers constructed below ground. https://www.cementkilns.co.uk/early_kilns.html

5.3 Known heritage Assets with Archaeological Interest

- 5.3.1 Two mills are known or thought to have existed within the Site, one in the western section and the second, a possible watermill, located on the north bank of Robin's Creek. The watermill is believed to have been demolished to make way for Robin's Creek Cement Works (however the location of this is unclear) while the windmill was removed between 1898 and 1909. Remains of the features could survive below the modern development and are considered to be of low significance. There may also be remains of the mill pond associated with the watermill within the Site. The 1840 Tithe map shows that the western part of the pond was located within the Site.
- 5.3.2 The Robin's Creek Cement Works was relocated into the Site from the 1850s under the management of R.A Gibbons. A range of buildings were constructed including three types of kilns; Gibbons, Johnson and Michelle kilns. There is potential that remains of the buildings may exist below ground. The degree to which they survive would be dependent on the kilns, as there were two variations used, one with kilns above ground and one with them below ground. The variant employed in the Site are not known. The remains are considered to be of low to moderate significance depending on their level of preservation.
- 5.3.3 Stonebridge Road is the historic route through Northfleet Marshes and has existed since at least the post-medieval period. At its eastern end was a stone bridge over the river Ebbsfleet, which was demolished as the river began to dry up. The stone bridge is also said to have been the site of a battle between Royalist and Parliamentarian forces during the English Civil War. Earlier examples of the road, the foundations of the stone bridge and stray finds associated with the battle may survive within the Site. Any remains are considered to be of low significance.
- 5.3.4 Geoarchaeological and Palaeolithic deposits with archaeological interest are considered separately within the Geoarchaeological Desk-Based Assessment.

5.4 Potential Heritage Assets with Archaeological Interest

- 5.4.1 There is considered to limited potential for archaeology dating from the Roman to the post-medieval period. It is thought that the area of the Northfleet villa, 500m to the south of the Site is thought to have been the northerly extent of the settlement in the Romano-British and Anglo-Saxon periods and as such there is considered to be a low potential for archaeological remains within the Site to the north of this dating to these periods. In the medieval period it is likely that the Site continued to be part of the marshland at the edge of the Thames, with the activity within the area focussed on the established settlements at Northfleet and Swanscombe. It is possible that the area may have been utilised for sporadic fishing or mooring but this may not be evidenced within the archaeological record. Land reclamation of the marshland did not occur until either the 18th or 19th centuries and it is following this process that the Site began to be used heavily. Evidence of the past uses of the Site following this are evidence through documentary records and historic maps as described above.
- 5.4.2 The potential for evidence for the prehistoric period is less certain. It is likely that the area was utilised at this time and there is evidence for prehistoric communities within the area, as such there is considered to be a low to moderate potential for archaeological remains dating to the prehistoric periods.
- 5.4.3 Potential geoarchaeological and paleoenvironmental deposits are considered separately.

6 IMPACT ASSESSMENT

6.1 Introduction

- 6.1.1 This section provides an initial assessment of the potential effects of the proposed development in relation to elements of the archaeological resource that may be subject to physical impacts.

6.2 Statement of potential impact

- 6.2.1 The construction of the proposed development is anticipated to entail the following sources of ground disturbance and excavations:
- preliminary site investigation works;
 - setting up a secure construction compound within the Site;
 - plant movement;
 - piling and/or excavation of new foundation trenches;
 - installation of services, drainage and other infrastructure;
 - establishment of new car parking areas, roads and access points;
 - hard landscaping works (levelling, remodelling); and
 - soft landscaping and environmental enhancement works, including planting.
- 6.2.2 The aforementioned works have the potential to result in the damage to or loss of any buried archaeological features which may be present within their footprint. This could in turn result in a total or partial loss of significance of these heritage assets.
- 6.2.3 The Proposed Development design is currently at an early stage and as such specific depths of the development have not been finalised, although piling depth is expected to extend to 30m bgl. The proposed development does, however, have the potential to affect below ground archaeological remains within the footprint of the development with preservation of archaeological deposits expected to vary across the Site. There are expected to be no post-palaeolithic archaeological remains within the footprint of the quarry pit.
- 6.2.4 Any adverse impact to buried archaeological features would be permanent and irreversible in nature. This potential adverse effect could be reduced through the implementation of an appropriate scheme of archaeological mitigation.
- 6.2.5 The specific effects of the Proposed Development will be assessed within the Environmental Statement Chapter.

7 CONCLUSIONS

7.1 General

- 7.1.1 The effect of the Proposed Development on the known and potential archaeological resource will be a material consideration in determination of the planning application.



- 7.1.2 This assessment has established that there is an archaeological interest within the Site defined as the presence for:
- Remains of a post-medieval mill pond and associated structures (one of which may have been a watermill), and second windmill with a residence.
 - Remains of the Robin's Creek Cement Work buildings; and
 - Earlier phases of Stonebridge Road, remains of the stone bridge and potential for finds associated with a battle that took place at the stone bridge during the English Civil War.
- 7.1.3 In addition to the above assets recorded through documentary sources and historic maps, there also remains a low to moderate potential for archaeological remains dating to the prehistoric period. Due to a lack of systematic archaeological investigation within the Site, the potential for and significance of any such remains could not be accurately assessed on the basis of the available evidence.
- 7.1.4 Any adverse impact to buried archaeological features as a result of the implementation of the Proposed Development would be permanent and irreversible in nature. This potential adverse effect could be reduced through the implementation of an appropriate scheme of archaeological mitigation, in accordance with national and local planning policy.



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Historic Environment Records

Kent Historic Environment Record (KHER)

Cartographic and documentary sources

1840 Tithe map of Northfleet

1872 Ordnance Survey map

1898 Ordnance Survey map

1909 Ordnance Survey map

1937 Ordnance Survey map

Selection of Aerial Photographs available online from the Historic England Archive.

Online resources

<http://mapapps.bgs.ac.uk/geologyofbritain/home.html> - British Geological Survey online viewer

<https://opendomesday.org/> – Domesday survey information

<http://www.british-history.ac.uk> - documentary resources

<https://www.cementkilns.co.uk/> - Resource on cement kilns in Britain and Ireland

<https://historicengland.org.uk/images-books/archive/collections/aerial-photos/> - publicly accessible aerial photographs from the Historic England Archive.



APPENDICES

Appendix 1: Terminology

Glossary

The terminology used in this assessment follows definitions contained within Annex 2 of NPPF:

Archaeological interest	There will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point.
Conservation (for heritage policy)	The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance.
Designated heritage asset	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.
Heritage asset	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).
Historic environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.
Historic environment record	Information services that seek to provide access to comprehensive and dynamic resources relating to the historic environment of a defined geographic area for public benefit and use.
Setting of a heritage asset	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.
Significance (for heritage policy)	The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting. For World Heritage Sites, the cultural value described within each site's Statement of Outstanding Universal Value forms part of its significance.

Chronology

Where referred to in the text, the main archaeological periods are broadly defined by the following date ranges:

Prehistoric		Historic	
Palaeolithic	970,000–9500 BC	Romano-British	AD 43–410
Early Post-glacial	9500–8500 BC	Saxon	AD 410–1066
Mesolithic	8500–4000 BC	Medieval	AD 1066–1500
Neolithic	4000–2400 BC	Post-medieval	AD 1500–1800
Bronze Age	2400–700 BC	19th century	AD 1800–1899
Iron Age	700 BC–AD 43	Modern	1900–present day



Appendix 2: Legislative and planning framework

Designated Heritage Assets

Designation	Associated Legislation	Overview
World Heritage Sites	-	The United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Committee inscribes World Heritage Sites for their Outstanding Universal Value (OUV) – <i>cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity</i> . England protects its World Heritage Sites and their settings, including any buffer zones or equivalent, through the statutory designation process and through the planning system. The National Planning Policy Framework sets out detailed policies for the conservation and enhancement of the historic environment, including World Heritage Sites, through both plan-making and decision-taking.
Scheduled Monuments and Areas of Archaeological Importance	<i>Ancient Monuments and Archaeological Areas Act 1979</i>	Under the <i>Ancient Monuments and Archaeological Areas Act 1979</i> , the Secretary of State (DCMS) can schedule any site which appears to be of national importance because of its historic, architectural, traditional, artistic or archaeological interest. The historic town centres of Canterbury, Chester, Exeter, Hereford and York have been designated as Archaeological Areas of Importance under Part II of the <i>Ancient Monuments and Archaeological Areas Act 1979</i> . Additional controls are placed upon works affecting Scheduled Monuments and Areas of Archaeological Importance under the Act. The consent of the Secretary of State (DCMS), as advised by Historic England, is required for certain works affecting Scheduled Monuments.
Listed Buildings	<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	In England, under Section 1 of the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> , the Secretary of State is required to compile lists of buildings of special architectural or historic interest, on advice from English Heritage/Historic England. Works affecting Listed Buildings are subject to additional planning controls administered by Local Planning Authorities. Historic England is a statutory consultee in certain works affecting Listed Buildings. Under certain circumstances, Listed Building Consent is required for works affecting Listed Buildings.
Conservation Areas	<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	A Conservation Area is an area which has been designated because of its special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. In most cases, Conservation Areas are designated by Local Planning Authorities. Section 72 (1) of the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> requires authorities to have regard to the fact that there is a Conservation Area when exercising any of their functions under the Planning Acts and to pay special attention to the desirability of preserving or enhancing the character or appearance of Conservation Areas. Although a locally administered designation, Conservation Areas may nevertheless be of national importance and significant developments within a Conservation Area are referred to Historic England.
Registered Parks and Gardens and Registered Battlefields	<i>Historic Buildings and Ancient Monuments Act 1953</i> <i>National Heritage Act 1983</i>	The Register of Parks and Gardens was established under the <i>National Heritage Act 1983</i> . The Battlefields Register was established in 1995. Both Registers are administered by Historic England. These designations are non-statutory but are, nevertheless, material considerations in the planning process. Historic England and The Garden's Trust (formerly known as The Garden History Society) are statutory consultees in works affecting Registered Parks and Gardens
Protected Wreck Sites	<i>Protection of Wrecks Act 1973</i>	The <i>Protection of Wrecks Act 1973</i> allows the Secretary of State to designate a restricted area around a wreck to prevent uncontrolled interference. These statutorily protected areas are likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance.



National Planning Policy Framework (NPPF)

NPPF Section 16: Conserving and enhancing the historic environment	
Para. 194	In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.
Para. 195	Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this into account when considering the impact of a proposal on a heritage asset, to avoid or minimise any conflict between the heritage asset's conservation and any aspect of the proposal.
Para. 197	In determining applications, local planning authorities should take account of: a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation; b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and c) the desirability of new development making a positive contribution to local character and distinctiveness.
Para. 199	When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.
Para. 200	Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of: a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional; b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional ⁶⁸ . ⁶⁸ Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.
Para. 201	Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply: a) the nature of the heritage asset prevents all reasonable uses of the site; and b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and d) the harm or loss is outweighed by the benefit of bringing the site back into use.
Para. 202	Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.
Para. 203	The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.
Para. 205	Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible ⁶⁹ . However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.



NPPF Section 16: Conserving and enhancing the historic environment	
	⁶⁹ Copies of evidence should be deposited with the relevant historic environment record, and any archives with a local museum or other public depository.
Para. 206	Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.
Para. 207	Not all elements of a Conservation Area or World Heritage Site will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 195 or less than substantial harm under paragraph 196, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.
Para. 208	Local planning authorities should assess whether the benefits of a proposal for enabling development, which would otherwise conflict with planning policies but which would secure the future conservation of a heritage asset, outweigh the disbenefits of departing from those policies.

Appendix 3: Gazetteer

HER ID	Name	Period	Easting	Northing
TQ 67 SW 302	Early Bronze age Site, Ebbsfleet Valley Sports Ground	Prehistoric	561385	174172
TQ 67 SW 1546	Early Prehistoric Site, Ebbsfleet Valley Sports Ground - Pit 20682	Prehistoric	561392	174165
TQ 67 SW 1547	Early Prehistoric Site, Ebbsfleet Valley Sports Ground - Pit 20685	Prehistoric	561385	174172
TQ 67 SW 1548	Early Prehistoric Site, Ebbsfleet Valley Sports Ground - Pit 20695	Prehistoric	561393	174168
TQ 67 SW 1549	Early Prehistoric Site, Ebbsfleet Valley Sports Ground - Pit 20726	Prehistoric	561411	174122
TQ 67 SW 1550	Bronze Age cremation, Ebbsfleet Valley Sports Ground	Prehistoric	561408	174137
TQ 67 SW 68	Later Prehistoric human skull found at Baker's Hole quarry complex	Mesolithic	561500	174000
TQ 67 NW 109	Mesolithic implements, dredged up from the Thames	Mesolithic	562500	175000
TQ 67 SW 1459	Worked flints discovered during a 1997 archaeological evaluation.	Mesolithic	561547	174281
TQ 67 SW 1460	6 worked flints discovered during a 1997 archaeological evaluation.	Mesolithic	561502	174176
TQ 67 SW 41	Later Prehistoric skeleton "Galley Hill Man", interred in Pleistocene gravels at Galley Hill, Swanscombe	Neolithic	560390	174930
TQ 67 SW 69	A polished axe from Galley Hill	Neolithic	560700	174700
TQ 67 SW 244	Surface Flint Lithics, Eastern Quarry, Swanscombe	Neolithic	561000	173700
TQ 67 SW 290	Neolithic/Early Bronze Age Artefacts, Ebbsfleet Valley	Neolithic	561660	174112
TQ 67 SW 538	Neolithic and Early Bronze Age worked flints, Northfleet Water Treatment Works	Neolithic	561814	173664
TQ 67 SW 592	Worked and burnt flints, Ebbsfleet	Neolithic	561460	174448
TQ 67 SW 398	Neolithic findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Neolithic	561706	174129
TQ 67 SW 400	Ebbsfleet Ware bowl at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Neolithic	561760	173910
TQ 67 SW 402	Worked wood findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Neolithic	561760	173910
TQ 67 SW 284	Neolithic Finds, Ebbsfleet	Neolithic	561661	174047



TQ 67 SW 591	Worked and burnt flints, Ebbsfleet	Neolithic	561742	173951
TQ 67 SW 1805	In situ early Neolithic Flint scatter	Neolithic	561785	173869
TQ 67 SW 1806	Late Neolithic trackway	Neolithic	561785	173869
TQ 67 SW 1494	Neolithic Site, Ebbsfleet	Neolithic	561745	173613
TQ 67 SW 174	Bronze Age socketed axes and a palstave	Bronze Age	561000	173900
TQ 67 SW 40	A fragment of a Bronze Age rapier from Northfleet	Bronze Age	562000	174000
TQ 67 SW 46	Bronze Age winged and looped axe	Bronze Age	562000	174000
TQ 67 SW 95	Early Bronze Age arrowhead	Bronze Age	561600	174100
TQ 67 SW 539	Late Bronze Age activity, Northfleet Water Treatment Works	Bronze Age	561821	173663
TQ 67 SW 287	Bronze Age Finds, Ebbsfleet Valley	Bronze Age	561409	174062
TQ 67 SW 1802	Bronze Age Flint scatter	Bronze Age	561785	173869
TQ 67 SW 289	Possible Bronze Age Fence, Fish Trap or trackway Ebbsfleet Valley	Bronze Age	561430	174165
TQ 67 SW 1804	Middle Bronze Age flint scatter	Bronze Age	561742	174154
TQ 67 SW 288	Possible Bronze Age Surface, Ebbsfleet Valley	Bronze Age	561427	174178
TQ 67 SW 1803	Late Bronze age timber fence or revetment structure	Bronze Age	561462	174423
TQ 67 SW 295	Bronze Age ring ditches, cremations and linear features Ebbsfleet Valley	Bronze Age	561678	174095
TQ 67 SW 310	Group of Bronze Age Pits, Springhead	Bronze Age	561688	174089
TQ 67 SW 28	Iron Age 'C' cremation	Iron Age	562000	174000
TQ 67 SW 31	Iron Age uninscribed gold stater, found at Northfleet	Iron Age	562000	174000
MKE58667	Iron Age gold coin	Iron Age	562000	174000
MKE58780	Iron Age gold coin	Iron Age	562000	174000
MKE58807	Iron Age gold coin	Iron Age	562000	174000
MKE58811	Iron Age copper alloy coin	Iron Age	562000	174000
MKE104463	Late Iron Age cremation burials, Northfleet	Iron Age	561269	174019
TQ 67 SW 1511	Late iron age to early/middle Roman activity west of Northfleet Roman villa, Northfleet - Iron Age gully	Iron Age	561405	174137
TQ 67 SW 1512	Late iron age to early/middle Roman activity west of Northfleet Roman villa, Northfleet - Iron Age pits	Iron Age	561404	174138
TQ 67 SW 296	Linear Prehistoric Features, Ebbsfleet Valley	Iron Age	561682	174061
TQ 67 SW 38	Northfleet Roman Villa Site, Ebbsfleet Valley	Iron Age	561607	174083
TQ 67 SW 26	Roman artifacts washed out from saltings near Hope Point, North Fleet	Romano-British	562000	174000
TQ 67 SW 43	Romano-British pottery kiln found AD 1904	Romano-British	560390	174950
TQ 67 SW 52	Romano-British and Roman finds; possible buildings	Romano-British	561900	173800
TQ 67 SW 56	Roman tile cist inhumation	Romano-British	560964	173819
TQ 67 SW 70	Site of possible Romano-British ritual pit	Romano-British	561000	174200
TQ 67 SW 73	Three Roman bronze coins, Northfleet	Romano-British	562570	174660
TQ 67 SW 540	Late Iron Age activity and a Roman water tank, Northfleet Water Treatment Works	Romano-British	561827	173669
TQ 67 SW 1427	Early Roman metalled road west of Northfleet Roman villa, Northfleet	Romano-British	561471	174121
TQ 67 SW 1056	Roman Pottery found in possible denehole	Romano-British	561630	174120
TQ 67 SW 294	Possible Prehistoric Pits, Ebbsfleet Valley	Romano-British	561670	174053
TQ 67 SW 1717	Cremation burial within Roman enclosure, Swanscombe	Romano-British	560847	173933
TQ 67 SW 49	Unprovenanced Roman amphora	Romano-British	560481	174843
TQ 67 SW 1800	Malting oven discovered at Northfleet Roman Villa	Romano-British	561592	174102
TQ 67 SW 1424	Northfleet Roman villa western range aisled barn	Romano-British	561559	174084
TQ 67 SW 1426	East range at Northfleet Roman villa	Romano-British	561638	174063
TQ 67 SW 1496	Flint wall and remains of furnace and flue of Ebbsfleet Roman Villa Bath-House	Romano-British	561633	174098
TQ 67 SW 1497	Hot room (caldarium) of Ebbsfleet Roman Villa Bath-House	Romano-British	561625	174103



TQ 67 SW 1498	Warm room (tepidarium) of Ebbsfleet Roman Villa Bath-House	Romano-British	561622	174102
TQ 67 SW 1499	Cold room (frigidarium) of Ebbsfleet Roman Villa Bath-House	Romano-British	561618	174098
TQ 67 SW 1500	Bath of Ebbsfleet Roman Villa Bath-House	Romano-British	561628	174101
TQ 67 SW 1501	Gullies to north of Ebbsfleet Roman Villa Bath-House	Romano-British	561633	174104
TQ 67 SW 1502	Room 10509 in the Ebbsfleet Roman Villa Bath-House	Romano-British	561613	174102
TQ 67 SW 1503	Room 10508 and flue in the Ebbsfleet Roman Villa Bath-House	Romano-British	561617	174103
TQ 67 SW 1505	Room 10697 in the Ebbsfleet Roman Villa Bath-House	Romano-British	561613	174096
TQ 67 SW 1504	Room 10624 in the Ebbsfleet Roman Villa Bath-House	Romano-British	561611	174099
TQ 67 SW 1506	Room 10563 in the Ebbsfleet Roman Villa Bath-House	Romano-British	561613	174093
TQ 67 SW 1507	Northfleet Roman villa western range aisled barn - external walls	Romano-British	561555	174097
TQ 67 SW 1509	Northfleet Roman villa western range aisled barn - post holes	Romano-British	561555	174094
TQ 67 SW 1425	Earliest Roman building at Northfleet Roman villa site	Romano-British	561642	174074
TQ 67 SW 1514	Late iron age to early/middle Roman activity west of Northfleet Roman villa, Northfleet - Early Roman pits	Romano-British	561414	174131
TQ 67 SW 1428	Early / middle Roman activity west of Northfleet Roman villa, Northfleet	Romano-British	561543	174115
TQ 67 SW 1515	Early / middle Roman activity west of Northfleet Roman villa, Northfleet - Well	Romano-British	561641	174097
TQ 67 SW 1516	Early / middle Roman activity west of Northfleet Roman villa, Northfleet - Wood-lined pit	Romano-British	561556	174116
TQ 67 SW 1517	Early / middle Roman activity west of Northfleet Roman villa, Northfleet - Post-hole	Romano-British	561555	174116
TQ 67 SW 297	Early Roman Occupation Site, Ebbsfleet Valley	Romano-British	561641	174077
TQ 67 SW 1534	Early Roman Occupation Site, Ebbsfleet Valley -Pits	Romano-British	561628	174076
TQ 67 SW 1535	Early Roman Occupation Site, Ebbsfleet Valley - Cisterns	Romano-British	561635	174087
TQ 67 SW 1536	Early Roman Occupation Site, Ebbsfleet Valley - Ditch	Romano-British	561630	174085
TQ 67 SW 1423	Northfleet Roman villa bath-house site	Romano-British	561621	174101
TQ 67 SW 303	Western Roman Complex, Ebbsfleet Valley Sports Ground	Romano-British	561397	174148
TQ 67 SW 1551	Western Roman Complex, Ebbsfleet Valley Sports Ground - Rectangular enclosure	Romano-British	561402	174111
TQ 67 SW 1552	Western Roman Complex, Ebbsfleet Valley Sports Ground - L-shaped ditch	Romano-British	561421	174115
TQ 67 SW 1553	Western Roman Complex, Ebbsfleet Valley Sports Ground - Oven	Romano-British	561395	174142
TQ 67 SW 1554	Western Roman Complex, Ebbsfleet Valley Sports Ground - Small rectangular enclosure	Romano-British	561395	174135
TQ 67 SW 1555	Western Roman Complex, Ebbsfleet Valley Sports Ground - Large pit	Romano-British	561418	174119
TQ 67 SW 1713	Roman building within enclosure, Swanscombe	Romano-British	560863	173926
TQ 67 SW 1714	Possible site of timber structures within Roman enclosure, Swanscombe	Romano-British	560847	173912
TQ 67 SW 1715	Possible corn dryer within Roman enclosure, Swanscombe	Romano-British	560851	173933
TQ 67 SW 1716	Features including rubbish pits within Roman enclosure, Swanscombe	Romano-British	560839	173931
TQ 67 SW 1718	Two ditches located close to Roman enclosure, Swanscombe	Romano-British	560878	173905
TQ 67 SW 1719	Semi-circular feature located close to Roman enclosure, Swanscombe	Romano-British	560842	173909
TQ 67 SW 1795	Southern range to Northfleet Roman Villa complex	Romano-British	561599	174019



TQ 67 SW 222	Roman Ritual Enclosure, Swanscombe Thameside Community School	Romano-British	560877	173913
TQ 67 SW 325	Roman Road, Swanscombe Thameside Community School	Romano-British	560873	173782
TQ 67 SW 1451	Early medieval sunken-feature building, Springhead - SFB20186	Anglo-Saxon	561379	174149
TQ 67 SW 1052	Saxon pottery finds	Anglo-Saxon	561900	173800
TQ 67 SW 1523	Early Anglo-Saxon sunken-feature buildings, Northfleet villa site - SFB 16636	Anglo-Saxon	561620	174063
TQ 67 SW 1525	Early Anglo-Saxon sunken-feature buildings, Northfleet villa site - SFB 16638	Anglo-Saxon	561659	174053
TQ 67 SW 298	Early Medieval Tidal Watermill, Ebbsfleet Valley	Anglo-Saxon	561556	174136
TQ 67 SW 1450	Early Anglo-Saxon sunken-feature buildings, Northfleet villa site	Anglo-Saxon	561534	174084
TQ 67 SW 1522	Early Anglo-Saxon sunken-feature buildings, Northfleet villa site - SFB 16635	Anglo-Saxon	561638	174059
TQ 67 SW 1526	Early Anglo-Saxon sunken-feature buildings, Northfleet villa site - SFB 16699	Anglo-Saxon	561534	174084
TQ 67 SW 1452	Three early medieval sunken-feature buildings, Northfleet	Anglo-Saxon	561452	174037
TQ 67 SW 1527	Three early medieval sunken-feature buildings, Northfleet - SFB30057	Anglo-Saxon	561450	174019
TQ 67 SW 1528	Three early medieval sunken-feature buildings, Northfleet - SFB30107	Anglo-Saxon	561452	174037
TQ 67 SW 1529	Three early medieval sunken-feature buildings, Northfleet - SFB30119	Anglo-Saxon	561415	174023
TQ 67 SW 299	Early Medieval Settlement, Ebbsfleet Valley	Anglo-Saxon	561554	174131
TQ 67 SW 1458	Early Medieval tidal watermill pond spillway	Anglo-Saxon	561546	174143
TQ 67 SW 1530	Early Medieval Tidal Watermill, Ebbsfleet Valley - Undercroft	Anglo-Saxon	561556	174136
TQ 67 SW 1531	Early Medieval Tidal Watermill, Ebbsfleet Valley - Dam and Pentrough	Anglo-Saxon	561556	174134
TQ 67 SW 1532	Early Medieval Tidal Watermill, Ebbsfleet Valley - Debris screen and Y shaped pile	Anglo-Saxon	561555	174131
TQ 67 SW 1533	Early Medieval Tidal Watermill, Ebbsfleet Valley - Mill Pond	Anglo-Saxon	561549	174127
TQ 67 SW 1686	Late Anglo-Saxon pit, Springhead, Gravesend	Anglo-Saxon	561414	174038
TQ 67 SW 482	Early Medieval Building, Ebbsfleet Valley Sports Ground	Anglo-Saxon	561392	174153
TQ 67 SW 1471	Mill pond and culvert connected to Robins Creek	Medieval	561596	174895
TQ 67 SW 141	Glory	Post-medieval	562710	174620
TQ 67 SW 142	Duchess of Kent	Post-medieval	562710	174620
TQ 67 SW 143	Resolution	Post-medieval	562710	174620
TQ 67 SW 144	Florence Miriam	Post-medieval	562710	174620
TQ 67 SW 145	William	Post-medieval	562710	174620
TQ 67 SW 146	Unidentified	Post-medieval	562710	174620
TQ 67 SW 147	Spring	Post-medieval	562710	174620
TQ 67 SW 148	Robert	Post-medieval	562710	174620
TQ 67 SW 149	Ness	Post-medieval	562710	174620
TQ 67 SW 151	Malaga	Post-medieval	562710	174620
TQ 67 SW 156	Blanche	Post-medieval	562710	174620
TQ 67 SW 157	Eight brothers	Post-medieval	562710	174620
TQ 67 SW 158	Ernest	Post-medieval	562710	174620
TQ 67 SW 159	Gundulph	Post-medieval	562710	174620
TQ 67 SW 160	Falcon	Post-medieval	562710	174620
TQ 67 SW 161	Garland	Post-medieval	562710	174620
TQ 67 SW 162	Honduras	Post-medieval	562710	174620
TQ 67 SW 163	Nellie Maud	Post-medieval	562710	174620



TQ 67 SW 164	Vavasour	Post-medieval	562710	174620
TQ 67 SW 165	Whitehall	Post-medieval	562710	174620
TQ 67 SW 166	Why not?	Post-medieval	562710	174620
TQ 67 SW 167	Esterel	Post-medieval	562710	174620
TQ 67 SW 168	Garfield	Post-medieval	562710	174620
TQ 67 SW 169	Dunstable	Post-medieval	562710	174620
TQ 67 SW 170	Alice and Ella	Post-medieval	562710	174620
TQ 67 SW 171	Stratford	Post-medieval	562710	174620
TQ 67 SW 83	Howard House, Northfleet, Gravesend	Post-medieval	562355	174438
TQ 67 NW 95	Tower cement works, Northfleet	Post-medieval	561550	175300
TQ 67 NW 96	Onward cement works, Northfleet	Post-medieval	561370	175570
TQ 67 SW 247	Possible Gatehouse or Factory Building, (Kent Kraft Estate)	Post-medieval	561071	174941
TQ 67 SW 254	Subway, South of High St Northfleet	Post-medieval	561817	174260
TQ 67 SW 1073	THE FACTORY CLUB	Post-medieval	562044	174390
TQ 67 SW 1086	1 AND 2 GRANBY PLACE	Post-medieval	562392	174243
TQ 67 SW 1075	GAS LAMP STANDARD IN GROUNDS OF NOS 1 AND 2	Post-medieval	562401	174247
TQ 67 SW 476	NORTHFLEET LOWER LIGHTHOUSE	Post-medieval	562541	174721
TQ 67 SW 1352	Milestone on London Road, Dartford	Post-medieval	560501	174888
TQ 67 SW 197	Northfleet station	Post-medieval	561622	174436
MKE84110	Outfarm north east of Craylands	Post-medieval	560354	175218
TQ 67 SW 582	Stanhope House, Stanhope Road, Swanscombe	Post-medieval	560775	174235
TQ 67 SW 589	Tunnel at Swanscombe Cement Works, later used as Second World War air raid shelter under London Road, Swanscombe	Post-medieval	560330	174920
TQ 67 SW 614	Tunnel at Northfleet Cement Works, later used as Second World War air raid shelter	Post-medieval	562090	174730
TQ 67 SW 1376	Washmill building remains, former Northfleet Cement Works	Post-medieval	562135	174589
TQ 67 NW 1028	Hard at Seacon Terminal	Post-medieval	561632	175332
TQ 67 NW 1000	Tower Wharf, Northfleet	Post-medieval	561681	175242
TQ 67 NW 1003	Disused slipway, Broadness	Post-medieval	561243	175965
TQ 67 NW 1002	Windmill near Northfleet	Post-medieval	561465	175039
TQ 67 NW 1005	Rectangular feature shown on 1st ed OS 6 inch, Northfleet	Post-medieval	561410	175506
TQ 67 SW 1017	Wharf on Hope Terrace, Northfleet	Post-medieval	562237	174813
TQ 67 NW 1013	Portland Cement Works Docks/Wharves	Post-medieval	561483	175388
TQ 67 NW 1014	Portland Cement Works Pier, Northfleet	Post-medieval	561594	175380
TQ 67 NW 1015	Pier Tower Portland cement works	Post-medieval	561658	175287
TQ 67 NW 1016	Deep Water Pier and four Dolphins, Northfleet	Post-medieval	561744	175202
TQ 67 SW 414	Pits features at the former Korsanas site, Galley Hill Road, Swanscombe	Post-medieval	561261	174695
TQ 67 SW 109	Methodist Church, Milton Road, Swanscombe	Post-medieval	560626	174499
TQ 67 SW 118	Chapel for Huggens's College. Stonebridge Road, Gravesend	Post-medieval	561652	174629
TQ 67 NW 1030	Mill Near Stonebridge	Post-medieval	561398	175051
TQ 67 SW 230	Church (Methodist), Wood Street, Northfleet, Gravesham	Post-medieval	561783	174393
TQ 67 SW 1563	Site of Huggens's College, College Road, Northfleet, Gravesend, Gravesham	Post-medieval	561645	174596
TQ 67 SW 1472	Buildings to east of mill pond (north and south)	Post-medieval	561630	174909
TQ 67 SW 301	Post-Medieval Timber Revetment, Ebbsfleet Valley	Post-medieval	561584	174118
TQ 67 SW 205	Weston & Co cement works, Grove Road, Northfleet	Post-medieval	561761	174868
TQ 67 SW 241	Site of Chalk Pit, Grove Road, Gravesend	Post-medieval	561743	174792
TQ 67 SW 1475	Slipway, Grove Road	Post-medieval	561842	174899
TQ 67 SW 603	Grove House Cement Mill Wharf	Post-medieval	561774	174922
TQ 67 SW 604	Orm House Dock, Northfleet, Gravesend	Post-medieval	561987	174921



TQ 67 SW 1016	Orm House Dock (2), Northfleet, Gravesend	Post-medieval	562054	174904
TQ 67 SW 1019	Tramway jetty, Northfleet	Post-medieval	562449	174712
TQ 67 SW 1020	Wharf at Northfleet	Post-medieval	562620	174656
TQ 67 SW 77	Aspdin's kiln	Post-medieval	561753	174889
TQ 67 NW 97	Britannia Cement Works (Site of)	Post-medieval	561225	175037
TQ 67 SW 236	Chalk Pit (South of Galley Hill Road)	Post-medieval	560877	174821
TQ 67 NW 98	J. B. White Portland Cement Works, Swanscombe	Post-medieval	560201	175107
TQ 67 SW 235	Craylands Lane Pit, Swanscombe	Post-medieval	560176	174876
TQ 67 SW 605	Northfleet Paper Mills, (Kent Kraft Mills) Site of	Post-medieval	560754	175022
TQ 67 SW 237	Gravel Pit, East of Stanhope Road, Swanscombe	Post-medieval	560793	174419
TQ 67 SW 239	Large Gravel Pit, East of Southfleet Road, Swanscombe	Post-medieval	561069	173942
TQ 67 SW 242	Chalk Quarry, South of High St Northfleet	Post-medieval	561949	174295
TQ 67 SW 243	Chalk Pit (or Pits), South of The Hill, Northfleet	Post-medieval	562300	173954
TQ 67 SW 459	Northfleet Cement Works	Post-medieval	562073	174789
TQ 67 SW 101	Former Site of Methodist Chapel, Church Road, Swanscombe	Post-medieval	560658	174208
TQ 67 SW 111	Former site of Baptist Chapel, Milton Road, Swanscombe	Post-medieval	560323	174411
TQ 67 SW 1696	Former site of Lawn Road quarry/cement factory, Northfleet	Post-medieval	562132	174596
TQ 67 NW 1031	Site of chalk Quarry, brick works and cement works, Northfleet	Post-medieval	562375	174518
TQ 67 SW 1728	Chalk Pits on Galley Hill, Swanscombe	Post-medieval	560890	174580
TQ 67 SW 1729	Tunnel linking chalk pits beneath North Kent Line railway, Swanscombe	Post-medieval	560919	174730
TQ 67 SW 1797	Site of Portland Cement Works, Grove Road, Northfleet, Gravesend, Gravesham	Post-medieval	561654	174997
TQ 67 SW 85	Church of All Saints, GII* Listed building	Post-medieval	560565	174841
TQ 67 SW 252	Tramway Tunnel Chalk Quarry, South of High St Northfleet	Post-medieval	561996	174407
TQ 67 SW 610	Tunnel at Northfleet Cement Works No. 3, later used as a Second World War air raid shelter, Northfleet, Kent	Post-medieval	562050	174534
TQ 67 SW 615	Tunnel at Northfleet Cement Works. Later used as Second World War air raid shelter.	Post-medieval	562176	174638
TQ 67 SW 1375	Service Tunnel, Lawn Road Playing Field, Northfleet	Post-medieval	562161	174545
TQ 67 SW 1029	former site of Jetty, Northfleet	Post-medieval	562128	174857
TQ 67 SW 1030	Wharf and two Jetties, Northfleet	Post-medieval	562184	174819
TQ 67 SW 1031	Wharf at Northfleet	Post-medieval	562532	174680
TQ 67 SW 1727	Tramlines linking quarry pits, Swanscombe	Modern	559487	174451
TQ 67 SW 150	Britannia	Modern	562710	174620
TQ 67 SW 152	Widgeon	Modern	562710	174620
TQ 67 SW 153	Snail	Modern	562710	174620
TQ 67 SW 155	Afternoon	Modern	562710	174620
TQ 67 SW 598	Unknown barge at Robin's Wharf	Modern	561800	175000
TQ 67 SW 599	Unknown barge in Robin's Wharf	Modern	561800	175000
TQ 67 SW 600	Unknown barge in Robin's Creek	Modern	561800	175000
TQ 67 SW 178	Air raid shelter (industrial), London Rd, Swanscombe	Modern	560870	174910
TQ 67 SW 179	Air raid shelter, college rd., Northfleet	Modern	561810	174640
TQ 67 SW 181	Air raid shelter under factory, Taunton Road, Dartford	Modern	561200	174820
TQ 67 SW 184	Civil defence control centre, Council Ave, Northfleet	Modern	562140	174250
TQ 67 SW 1239	Station Road Second World War air raid wardens post, Northfleet	Modern	561657	174446
TQ 67 SW 1266	Lawn Road Second World War Emergency Water Tank, Northfleet	Modern	562196	174331
TQ 67 SW 1291	Lawn Road School Second World War air raid siren, High Street, Northfleet	Modern	562100	174380



TQ 67 SW 1237	Lawn Road Second World War air raid wardens post, Northfleet	Modern	562197	174343
TQ 67 SW 1230	1905 Volunteer Training Battery at the north end of Factory Road, Northfleet	Modern	562080	174500
TQ 67 SW 1159	Town Hall Second World War air raid shelter, Council Avenue, Northfleet	Modern	562156	174239
TQ 67 SW 1188	Stonebridge Road Second World War balloon barrage site, Northfleet	Modern	561340	174760
TQ 67 SW 1172	Grove Road Second World War Defended Locality Northfleet	Modern	561500	174700
TQ 67 SW 1170	Northfleet Cement Factory Second World War Defended Locality, Northfleet	Modern	562200	174600
TQ 67 SW 1198	Grove House Second World War Battle Headquarters, Grove Road, Northfleet	Modern	561600	174800
TQ 67 SW 1217	Wardona Cinema Second World War air raid shelter, High Street, Northfleet	Modern	562010	174370
TQ 67 SW 1197	Stonebridge Road Second World War public air raid shelter, Northfleet	Modern	561424	174750
TQ 67 SW 1196	Huggens College Second World War public air raid shelter, Northfleet	Modern	561536	174664
TQ 67 SW 1195	Wood Street Second World War public air raid shelter, Northfleet	Modern	561810	174440
TQ 67 SW 1321	Northfleet High Street Second World War British Restaurant	Modern	561824	174466
TQ 67 SW 1310	Rose Street Second World War public air raid shelter tunnel, Northfleet	Modern	561810	174270
TQ 67 SW 1344	Huggens College Second World War emergency water tank at Huggens College, College Road, Northfleet, Kent	Modern	561700	174600
TQ 67 SW 200	Grove Road interwar Territorial Army Centre, Northfleet, Kent	Modern	561650	174870
TQ 67 SW 1283	Second World War High Street tunnel air raid shelter, Northfleet, Kent	Modern	562140	174340
TQ 67 SW 1287	Civil Defence Control Centre, the Old Town Hall, Council Avenue, Northfleet, Gravesend, Kent	Modern	562140	174220
TQ 67 SW 477	BEVAN'S WAR MEMORIAL IN NORTHFLEET CEMENT WORKS	Modern	562332	174763
TQ 67 SW 519	George V pillar box, 125 Church Road, Swanscombe	Modern	560682	174207
TQ 67 SW 512	George V pillar box, George and Dragon PH, London Road, Swanscombe	Modern	560516	174871
TQ 67 SW 568	Swanscombe Station Second World War air raid shelter	Modern	560610	174754
TQ 67 SW 571	All Saints Church Second World War air raid shelter, Swanscombe.	Modern	560549	174851
TQ 67 SW 577	Green's Yard Second World War air raid shelter, Swanscombe, Dartford.	Modern	560700	174525
TQ 67 SW 578	Ebbsfleet International Station post Cold War anti-vehicle bomb obstacles, Ebbsfleet, Dartford, Kent	Modern	561460	174105
TQ 67 SW 579	Ebbsfleet International Station Post Cold War anti-vehicle bomb obstacles, Dartford, Kent	Modern	561520	174150
TQ 67 SW 580	Ebbsfleet International Station post Cold War anti-vehicle bomb obstacles, Dartford, Kent	Modern	561340	174090
TQ 67 SW 581	Mitchell's Yard trench air raid shelters off Milton Road, Swanscombe, Dartford, Kent	Modern	560610	174540
TQ 67 SW 583	Stanhope Road Second World War trench air raid shelter, Swanscombe, Dartford, Kent	Modern	560795	174302
TQ 67 NW 1018	Britannia Lead works, Northfleet	Modern	561370	175569



TQ 67 SW 651	Probable Second World War defended build uncovered by the Northfleet Harbour Restoration trust.	Modern	561810	174900
TQ 67 SW 198	Swanscombe halt rail station, Swanscombe	Modern	560610	174754
TQ 67 SW 201	Drill hall (c1905)	Modern	562086	174494
TQ 67 NW 101	Thames Tar Distillery, (Kent Kraft Estate) Site of	Modern	560814	175112
TQ 67 SW 1726	Park Road Recreation Ground, Swanscombe	Modern	560348	174120
TQ 67 SW 250	Tramway Tunnel Chalk Pit (or Pits), South of The Hill, Northfleet	Modern	562252	174303
TQ 67 SW 569	The Alma Public House Second World War air raid wardens post, Swanscombe, Kent	Modern	560556	174739
TQ 67 SW 570	Parish Room Second World War First Aid Post, High Street, Swanscombe.	Modern	560573	174804
TQ 67 SW 572	Hope Road Second World War air raid shelters, Swanscombe.	Modern	560697	174431
TQ 67 SW 573	Harmer Road School fire services lecture room, Swanscombe.	Modern	560703	174413
TQ 67 SW 574	Swanscombe cemetery Mortuary Chapel	Modern	560470	174057
TQ 67 SW 586	Road tunnel Second World War air raid shelter, south of Taunton Road, Swanscombe, Dartford, Kent	Modern	561214	174651
TQ 67 SW 590	B Company 17th Battalion Kent Home Guard Second World War headquarters, London Road, Swanscombe, Dartford, Kent	Modern	560436	174911
TQ 67 SW 612	Northfleet Cement Works tunnel used as Second World War air raid shelter, Northfleet, Kent	Modern	562157	174650
TQ 67 SW 1005	Wharf associated Blue Circle Cement Works, Northfleet	Modern	562392	174719
TQ 67 NW 1004	Derelict sewage works, Swanscombe Marshes	Modern	560487	175659
TQ 67 SW 37	Possible denehole	Undated	561630	174120
TQ 67 SW 393	Animal Bone findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561449	174433
TQ 67 SW 394	Bronze Age sherd of pottery findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561441	174433
TQ 67 SW 395	Worked stake findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561449	174433
TQ 67 SW 396	Possible Spilt Timber findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561449	174433
TQ 67 SW 397	Undated Ditch at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561496	174400
TQ 67 SW 401	Animal bone at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561760	173910
TQ 67 SW 1519	Early / middle Roman activity west of Northfleet Roman villa, Northfleet - Pits	Undated	561558	174108
TQ 67 SW 399	Flint findspot at South Thames-Side Development Route 4 Ebbsfleet, Northfleet	Undated	561706	174129
TQ 67 SW 1799	Roman Quay associated with Northfleet Villa	Undated	561585	174118
TQ 67 SW 1510	East range at Northfleet Roman villa - post holes	Undated	561637	174097
TQ 67 SW 1518	Early / middle Roman activity west of Northfleet Roman villa, Northfleet - Ditches	Undated	561557	174111
TQ 67 SW 1028	Flooded pit in 1942/1944 AP	Undated	562140	173717
TQ 67 NW 1010	Possible rectilinear enclosures visible as cropmarks	Undated	560800	175461
TQ 67 SW 1474	Wharf walls, Grove Road	Post Medieval	561753	174943
TQ 67 SW 1697	Former site of Tramways, associated with quarry and cement works, Northfleet.	Post Medieval	562370	174506
TQ 67 SW 253	Tramway Tunnel Chalk Quarry, South of High St Northfleet	Post Medieval	561817	174259
TQ 57 SE 277	NORTH KENT RAILWAY	Post Medieval	555220	174426



TQ 67 SW 633	Gravesend, Rosherville and Northfleet Tramways	Post Medieval	562954	174061
TQ 67 SW 1698	Former site of Tramways, associated with quarries, brickworks and cement works, Northfleet.	Post Medieval	562566	174414
TQ 67 SW 1783	Narrow gauge industrial railway, Bevan's Pit, Swanscombe	Post Medieval	561336	174286
EKE10410	Watching brief on Footpath NU14, Gravesham	Event	561745	173612
EKE10672	Desk-based assessment of the impact of the CTRL	Event	586937	152179
EKE14056	Watching brief carried out along Southern Water pipeline in 2008	Event	561378	174495
EKE14724	A Geoarchaeological Evaluation of the Thames/Medway Alluvial Corridor of the Channel Tunnel Rail Link	Event	586937	152179
EWX8094	North Kent Coast Rapid Coastal Zone Assessment Survey Phase II: Field Assessment (Pilot)	Event	594766	163153
EWX8626	Survey, North Kent Coastal Zone: Phase II, Year Two	Event	594766	163153
EKE11613	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork	Event	561349	173996
EKE16139	Baker's Hole, F Wenban-Smith PhD investigations, Site B	Event	561230	174050
EKE16143	Baker's Hole, F Wenban-Smith PhD investigations, Site A	Event	561150	174350
EKE16144	Baker's Hole, F Wenban-Smith PhD investigations, Site A	Event	561150	174350
EKE16153	Eastern Quarry, Area B, excavation of trenches in advance of enlargement of drainage basin and subsequent Watching Brief	Event	560975	173725
EKE3929	Investigations at Rickson's Pit, Swanscombe, 1930s	Event	560900	174300
EKE3930	Excavations at Rickson's Pit, 1952	Event	560900	174300
EKE3932	Excavation of Northfleet Roman villa 2009-11	Event	561600	174080
EKE4709	Excavations at Northfleet Chalkpit, 1938	Event	561900	173800
EKE9413	Impact assessment of the former Korsnas site, Galley Hill Road, Swanscombe	Event	561186	174781
EWX6570	Excavation at Northfleet, Dartford	Event	561600	174100
EWX9151	Archaeological Desk Based Assessment of The Ebbsfleet Industrial Estate, Galley Hill Road, Swanscombe, Kent	Event	561250	174750
EKE16962	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B4	Event	561004	175952
EKE16963	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B5	Event	561032	175947
EKE16964	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B6	Event	561019	175899
EKE16965	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B7	Event	561050	175866
EKE16966	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B7A	Event	561051	175866
EKE16967	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B7B	Event	561052	175866
EKE16969	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B8	Event	561091	175851
EKE16970	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B8A	Event	561091	175851
EKE16971	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B9	Event	561033	176026
EKE16972	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B10	Event	561039	176093
EKE16973	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B11	Event	561161	176052
EKE16982	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole R10	Event	561090	175967



EKE16968	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Borehole B7C	Event	561053	175871
EKE17263	Geotechnical report for South Thames-Side development route stage 4, Swanscombe and Gravesend - ST3	Event	561410	174594
EKE17264	Geotechnical report for South Thames-Side development route stage 4, Swanscombe and Gravesend - ST4	Event	561388	174606
EKE17265	Geotechnical report for South Thames-Side development route stage 4, Swanscombe and Gravesend - ST5	Event	561378	174538
EKE17266	Geotechnical report for South Thames-Side development route stage 4, Swanscombe and Gravesend - ST6	Event	561354	174547
EKE17268	Geotechnical report for South Thames-Side development route stage 4, Swanscombe and Gravesend - ST9	Event	561325	174518
EKE17280	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH1	Event	561704	174147
EKE17281	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH2	Event	561562	174309
EKE17282	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH3	Event	561392	174497
EKE17283	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH4	Event	561497	174682
EKE17298	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH112	Event	561398	174480
EKE17299	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH113	Event	561706	174130
EKE17300	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH114	Event	561721	173952
EKE17301	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH115	Event	561740	173902
EKE17302	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH116	Event	561798	173850
EKE17308	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH109	Event	561495	174752
EKE17309	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH110	Event	561466	174674
EKE17310	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH111	Event	561428	174590
EKE17311	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH108	Event	561415	174805
EKE17315	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH5	Event	561408	174829



EKE17326	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH106	Event	561337	174964
EKE17327	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH106A	Event	561302	174938
EKE17328	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH107	Event	561365	174917
EKE17329	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH6	Event	561375	174956
EKE17341	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP14	Event	560590	175240
EKE17344	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH103	Event	560716	175226
EKE17352	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH101	Event	560368	175279
EKE17353	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH101A	Event	560316	175186
EKE17354	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme BH101B	Event	560236	175162
EKE17355	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme ABH7	Event	560437	175269
EKE17672	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 1	Event	561388	174345
EKE17673	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 2	Event	561426	174377
EKE17674	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 3	Event	561401	174222
EKE17675	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 4	Event	561454	174255
EKE17676	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 5	Event	561498	174280
EKE17677	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 6	Event	561452	174137
EKE17678	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 7	Event	561496	174167
EKE17679	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 8	Event	561542	174195
EKE17680	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 9	Event	561601	174227
EKE17681	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 10	Event	561341	174323
EKE17682	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 - Borehole 11	Event	561551	174279
EKE17696	STDR4 geotechnical test pits - TPL1	Event	561759	174140
EKE17697	STDR4 geotechnical test pits - TPL2	Event	561786	174118
EKE17698	STDR4 geotechnical test pits - TPL3	Event	561837	173889



EKE17700	South Thames-side Development Route Stage 4: Railway bridge evaluation - Auger 1	Event	561320	174395
EKE17701	South Thames-side Development Route Stage 4: Railway bridge evaluation - Auger 2	Event	561342	174421
EKE17702	South Thames-side Development Route Stage 4: Railway bridge evaluation - Auger 4	Event	561331	174531
EKE17703	South Thames-side Development Route Stage 4: Railway bridge evaluation - Borehole 5	Event	561320	174391
EKE17704	South Thames-side Development Route Stage 4: Railway bridge evaluation - Borehole 6	Event	561354	174519
EKE14941	Historic building record report, Washmill building remains, former Northfleet Cement Works	Event	562135	174589
EKE17905	Sweyne County Primary School watching brief, 1997	Event	560689	173849
EKE18303	Investigations at Rickson's Pit, Swanscombe, 1930s	Event	560889	174301
EKE18304	Excavations at Rickson's Pit, 1952	Event	560900	174300
EKE18333	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - OP1249	Event	561330	174251
EKE18331	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3748	Event	560429	175488
EKE18334	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - OP1254	Event	561448	174073
EKE18350	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3751	Event	560463	175450
EKE18335	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - OP1255/1255A	Event	561643	173999
EKE18351	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3754	Event	560516	175387
EKE18352	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3852	Event	560565	175333
EKE18353	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3855	Event	560610	175283
EKE18354	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3860	Event	560665	175221
EKE18355	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3864	Event	560673	175213
EKE18356	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3866	Event	560711	175368
EKE18337	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - OP1258	Event	561906	173973
EKE18357	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3871	Event	560439	175395
EKE18358	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3872	Event	560501	175344
EKE18359	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3875	Event	560437	175309
EKE18360	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3877	Event	560502	175268
EKE18361	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3879	Event	560595	175236
EKE18339	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1680	Event	561530	174016
EKE18340	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1681	Event	561574	174084



EKE18341	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1887	Event	561661	173849
EKE18362	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3745	Event	560386	175530
EKE18363	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3746	Event	560409	175534
EKE18342	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1888	Event	561772	173822
EKE18364	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3747	Event	560411	175523
EKE18365	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3749	Event	560483	175468
EKE18366	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3750	Event	560469	175455
EKE18343	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1890	Event	561613	173732
EKE18367	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3752	Event	560456	175446
EKE18368	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3753	Event	560434	175427
EKE18344	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1900	Event	561351	173990
EKE18369	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3755	Event	560588	175355
EKE18370	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3756	Event	560570	175337
EKE18345	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1904	Event	561250	174072
EKE18346	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1907	Event	561353	174057
EKE18371	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3853	Event	560560	175325
EKE18372	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3854	Event	560538	175304
EKE18373	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3856	Event	560617	175288
EKE18374	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3857	Event	560602	175277
EKE18347	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1909	Event	561434	173990
EKE18348	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1911	Event	561549	173984
EKE18375	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3858	Event	560691	175245
EKE18376	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3859	Event	560680	175233
EKE18377	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3861	Event	560657	175215
EKE18349	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork - TP1912	Event	561513	174053
EKE18378	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3862	Event	560681	175205
EKE18379	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3863	Event	560683	175214



EKE18380	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3865	Event	560607	175496
EKE18381	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3867	Event	560604	175392
EKE18382	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3869	Event	560706	175323
EKE18383	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3870	Event	560702	175275
EKE18384	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3873	Event	560439	175356
EKE18385	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3874	Event	560501	175306
EKE18387	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3878	Event	560555	175262
EKE18386	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320): BH 3876	Event	560435	175263
EKE18403	Watching brief on geotechnical test pitting at West Swanscombe Peninsula - Test Pit 123	Event	560286	175102
EKE18420	Watching brief carried out along Southern Water pipeline in 2008 - OB1	Event	560320	175207
EKE18421	Watching brief carried out along Southern Water pipeline in 2008 - OB2	Event	560320	175215
EKE18422	Watching brief carried out along Southern Water pipeline in 2008 - OB3	Event	560322	175209
EKE18423	Watching brief carried out along Southern Water pipeline in 2008 - OB4	Event	560322	175201
EKE18424	Watching brief carried out along Southern Water pipeline in 2008 - OB5	Event	560256	175191
EKE18425	Watching brief carried out along Southern Water pipeline in 2008 - OB6	Event	560264	175188
EKE18426	Watching brief carried out along Southern Water pipeline in 2008 - OB7	Event	560261	175186
EKE18427	Watching brief carried out along Southern Water pipeline in 2008 - OB8	Event	560259	175186
EKE18428	Watching brief carried out along Southern Water pipeline in 2008 - OB9	Event	560251	175194
EKE18429	Watching brief carried out along Southern Water pipeline in 2008 - OB10	Event	560259	175188
EKE18430	Watching brief carried out along Southern Water pipeline in 2008 - OB11	Event	560259	175186
EKE18455	Watching brief carried out along Southern Water pipeline in 2008 - OB35	Event	560380	175204
EKE18456	Watching brief carried out along Southern Water pipeline in 2008 - OB36	Event	560391	175201
EKE18457	Watching brief carried out along Southern Water pipeline in 2008 - OB37	Event	560391	175199
EKE18458	Watching brief carried out along Southern Water pipeline in 2008 - OB38	Event	560547	175170
EKE18459	Watching brief carried out along Southern Water pipeline in 2008 - OB39	Event	560552	175164
EKE18460	Watching brief carried out along Southern Water pipeline in 2008 - OB40	Event	560555	175162
EKE18461	Watching brief carried out along Southern Water pipeline in 2008 - OB41	Event	560579	175156



EKE18462	Watching brief carried out along Southern Water pipeline in 2008 - OB42	Event	560717	175268
EKE18463	Watching brief carried out along Southern Water pipeline in 2008 - OB43	Event	560889	175162
EKE18464	Watching brief carried out along Southern Water pipeline in 2008 - OB44	Event	560892	175159
EKE18465	Watching brief carried out along Southern Water pipeline in 2008 - OB45	Event	561136	175091
EKE18466	Watching brief carried out along Southern Water pipeline in 2008 - OB46	Event	561141	175091
EKE18467	Watching brief carried out along Southern Water pipeline in 2008 - OB47	Event	561151	175089
EKE18468	Watching brief carried out along Southern Water pipeline in 2008 - OB48	Event	561203	175059
EKE18469	Watching brief carried out along Southern Water pipeline in 2008 - OB49	Event	561206	175066
EKE18470	Watching brief carried out along Southern Water pipeline in 2008 - OB50	Event	561273	175017
EKE18471	Watching brief carried out along Southern Water pipeline in 2008 - OB51	Event	561278	175011
EKE18472	Watching brief carried out along Southern Water pipeline in 2008 - OB52	Event	561282	174997
EKE18473	Watching brief carried out along Southern Water pipeline in 2008 - OB53	Event	561298	174993
EKE18474	Watching brief carried out along Southern Water pipeline in 2008 - OB54	Event	561296	174993
EKE18475	Watching brief carried out along Southern Water pipeline in 2008 - OB55	Event	561298	174983
EKE18476	Watching brief carried out along Southern Water pipeline in 2008 - OB56	Event	561305	174976
EKE18477	Watching brief carried out along Southern Water pipeline in 2008 - OB57	Event	561316	174965
EKE18478	Watching brief carried out along Southern Water pipeline in 2008 - OB58	Event	561368	174910
EKE18479	Watching brief carried out along Southern Water pipeline in 2008 - OB59	Event	561371	174916
EKE18480	Watching brief carried out along Southern Water pipeline in 2008 - OB60	Event	561421	174827
EKE18481	Watching brief carried out along Southern Water pipeline in 2008 - OB61	Event	561429	174818
EKE18482	Watching brief carried out along Southern Water pipeline in 2008 - OB62	Event	561443	174802
EKE18483	Watching brief carried out along Southern Water pipeline in 2008 - OB63	Event	561449	174787
EKE18484	Watching brief carried out along Southern Water pipeline in 2008 - OB64	Event	561455	174782
EKE18485	Watching brief carried out along Southern Water pipeline in 2008 - OB65	Event	561469	174767
EKE18486	Watching brief carried out along Southern Water pipeline in 2008 - OB66	Event	561478	174755
EKE18487	Watching brief carried out along Southern Water pipeline in 2008 - OB67	Event	561473	174757
EKE18488	Watching brief carried out along Southern Water pipeline in 2008 - OB68	Event	561489	174738



EKE18489	Watching brief carried out along Southern Water pipeline in 2008 - OB69	Event	561517	174707
EKE18490	Watching brief carried out along Southern Water pipeline in 2008 - OB70	Event	561514	174700
EKE18491	Watching brief carried out along Southern Water pipeline in 2008 - OB71	Event	561501	174691
EKE18492	Watching brief carried out along Southern Water pipeline in 2008 - OB72	Event	561482	174678
EKE18493	Watching brief carried out along Southern Water pipeline in 2008 - OB73	Event	561473	174435
EKE18494	Watching brief carried out along Southern Water pipeline in 2008 - OB74	Event	561486	174411
EKE18495	Watching brief carried out along Southern Water pipeline in 2008 - OB75	Event	561493	174393
EKE18496	Watching brief carried out along Southern Water pipeline in 2008 - OB76	Event	561675	174212
EKE18497	Watching brief carried out along Southern Water pipeline in 2008 - OB77	Event	561682	174195
EKE18498	Watching brief carried out along Southern Water pipeline in 2008 - OB78	Event	561707	174157
EKE18499	Watching brief carried out along Southern Water pipeline in 2008 - OB79	Event	561708	174152
EKE18500	Watching brief carried out along Southern Water pipeline in 2008 - OB80	Event	561703	174144
EKE18501	Watching brief carried out along Southern Water pipeline in 2008 - OB81	Event	561713	174131
EKE18502	Watching brief carried out along Southern Water pipeline in 2008 - OB82	Event	561739	174030
EKE18503	Watching brief carried out along Southern Water pipeline in 2008 - OB83	Event	561741	174012
EKE18504	Watching brief carried out along Southern Water pipeline in 2008 - OB84	Event	561742	173993
EKE18505	Watching brief carried out along Southern Water pipeline in 2008 - OB85	Event	561750	173976
EKE18506	Watching brief carried out along Southern Water pipeline in 2008 - OB86	Event	561757	173962
EKE18672	Excavation of Northfleet Roman villa 2009-11	Event	561600	174080
EKE18675	Excavations at Northfleet Chalkpit, 1938	Event	561900	173800
EKE18697	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3802TT	Event	561347	174134
EKE18698	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3803TT	Event	561334	174075
EKE18822	Excavation at Northfleet, Dartford	Event	561600	174100
EKE18846	A geotechnical and trial pit survey of Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS01	Event	561934	174833
EKE18848	Geotechnical and trial pit survey at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS02	Event	561945	174834
EKE18849	A geotechnical and test pit survey of Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS03	Event	561939	174813
EKE18850	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS04	Event	561976	174803
EKE18851	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS05	Event	562012	174795



EKE18852	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS07	Event	561916	174713
EKE18853	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS09	Event	561869	174773
EKE18854	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS10	Event	561843	174754
EKE18855	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS11	Event	561942	174745
EKE18856	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS13	Event	562038	174830
EKE18857	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MWS19	Event	561928	174601
EKE18858	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP201	Event	562001	174320
EKE18859	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP202	Event	562029	174297
EKE18861	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP204	Event	561962	174279
EKE18862	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP205	Event	561986	174308
EKE18863	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP206	Event	562123	174558
EKE18864	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP207	Event	562091	174581
EKE18865	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP208	Event	562116	174589
EKE18866	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP209	Event	562122	174603
EKE18867	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP210	Event	562105	174618
EKE18868	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP211	Event	562122	174642
EKE18869	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MBH201	Event	562110	174628
EKE18870	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MBH202	Event	562104	174581
EKE18871	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MBH203	Event	561972	174310
EKE18872	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MBH204	Event	562016	174293



EKE18873	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP01	Event	561911	174788
EKE18874	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP02	Event	561874	174803
EKE18875	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP03	Event	561842	174790
EKE18876	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP04	Event	562067	174755
EKE18878	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP08	Event	562026	174617
EKE18879	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP09	Event	561995	174629
EKE18880	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP10	Event	561996	174716
EKE18881	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP12	Event	562033	174697
EKE18882	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP13	Event	561959	174676
EKE18883	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP14	Event	561826	174715
EKE18885	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MTP16	Event	561887	174718
EKE18886	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MBH1	Event	562008	174663
EKE18887	Geotechnical survey and test pitting at Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent - MBH2	Event	561928	174675
EKE19050	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 2005TP	Event	561189	174497
EKE19051	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 2006TP	Event	561172	174508
EKE19052	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 2018TP	Event	561242	174433
EKE19053	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 2019TP	Event	561466	173919
EKE19054	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 2020TP	Event	561490	173927
EKE19057	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 2064TP	Event	561251	174414
EKE19058	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0016 SA	Event	561192	174529
EKE19059	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0017 SA	Event	561181	174514
EKE19060	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0018 SA	Event	561157	174514
EKE19061	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0019 SA	Event	561207	174481
EKE19062	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0020 SA	Event	561223	174463
EKE19063	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0021 SA	Event	561268	174394
EKE19064	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - BH 0021 SA	Event	561696	174120
EKE19160	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH2	Event	561432	174410



EKE19161	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH3	Event	561447	174430
EKE19162	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH4	Event	561460	174447
EKE19164	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH6	Event	561535	174375
EKE19165	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH7	Event	561560	174320
EKE19166	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH8	Event	561572	174340
EKE19167	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH9	Event	561585	174360
EKE19168	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH10	Event	561655	174277
EKE19169	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH11	Event	561717	174242
EKE19170	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH12	Event	561712	174160
EKE19171	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH13	Event	561742	174167
EKE19172	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH14	Event	561770	174177
EKE19173	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH15	Event	561792	174187
EKE19174	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH16	Event	561742	174045
EKE19176	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH18	Event	561780	173915
EKE19177	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH19	Event	561812	173917
EKE19178	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - BH20	Event	561855	173822
EKE19179	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 1	Event	561449	174433
EKE19180	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 2	Event	561496	174400
EKE19181	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 3	Event	561584	174357
EKE19182	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 4	Event	561615	174335
EKE19183	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 5	Event	561644	174313
EKE19184	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 6	Event	561687	174281
EKE19185	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 7	Event	561723	174241
EKE19186	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 8	Event	561706	174129
EKE19187	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 9	Event	561763	174137
EKE19188	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent - Tr 11	Event	561848	173905
EKE18998	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1019TT	Event	561411	174062
EKE19355	Eastern Quarry, Area B, first main evaluation - Pal TP 1.2	Event	560985	173745



EKE19356	Eastern Quarry, Area B, first main evaluation - Pal TP 2.1a	Event	560981	173721
EKE19357	Eastern Quarry, Area B, first main evaluation - Pal TP 2.1b	Event	560981	173715
EKE19358	Eastern Quarry, Area B, first main evaluation - Pal TP 2.2	Event	560975	173693
EKE19360	Eastern Quarry, Area B, first main evaluation - Pal TP 3.2	Event	560965	173704
EKE19361	Eastern Quarry, Area B, first main evaluation - Pal TP 4.1	Event	560955	173716
EKE19362	Eastern Quarry, Area B, first main evaluation - Pal TP 4.2	Event	560970	173740
EKE19363	Eastern Quarry, Area B, first main evaluation - Pal TP 5.1	Event	560956	173761
EKE19364	Eastern Quarry, Area B, first main evaluation - Pal TP 6.1	Event	560946	173739
EKE19365	Eastern Quarry, Area B, first main evaluation - Pal TP 6.2	Event	560941	173713
EKE19369	Eastern Quarry, Area B, first main evaluation - Pal TP 10.2	Event	560883	173744
EKE19428	Eastern Quarry, Area B, first main evaluation - Pal TP 57	Event	561032	173699
EKE19436	Eastern Quarry Area 'B': monitoring of two extra test pits -TP 31	Event	561006	173685
EKE19437	Eastern Quarry Area 'B': monitoring of two extra test pits -TP 32	Event	560998	173709
EKE19443	Monitoring of geotechnical investigations, Station Quarter South - WS9	Event	561073	173678
EKE19599	Baker's Hole, Areas B and F. Area F - Section 1	Event	561255	174083
EKE19600	Baker's Hole, Areas B and F. Area F - Section 2	Event	561244	174097
EKE19736	Excavation at Swan Valley Community School, Swanscombe, Test Pit E	Event	560852	173795
EKE19737	Excavation at Swan Valley Community School, Swanscombe, Test Pit F	Event	560888	173789
EKE19738	Excavation at Swan Valley Community School, Swanscombe, Test Pit K	Event	560880	173829
EKE19773	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 1	Event	560893	173971
EKE19774	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 2	Event	560717	173888
EKE19775	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 3	Event	560843	173955
EKE19776	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 4	Event	560807	173958
EKE19777	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 5	Event	560785	173960
EKE19778	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 6	Event	560791	173975
EKE19779	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 7	Event	560726	173898
EKE19780	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 8	Event	560742	173914
EKE19781	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 9	Event	560800	173993
EKE19782	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 10	Event	560812	173938
EKE19783	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 11	Event	560814	173926
EKE19784	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 12	Event	560804	173896
EKE19785	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 13	Event	560790	173922
EKE19786	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 15	Event	560736	173934



EKE19787	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 16	Event	560758	173958
EKE19788	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 18	Event	560822	173924
EKE19789	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 19	Event	560847	173919
EKE19790	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 20	Event	560874	173913
EKE19791	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 21	Event	560841	173910
EKE19792	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 22	Event	560845	173891
EKE19793	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 23	Event	560751	173857
EKE19794	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 24	Event	560756	173905
EKE19795	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 25	Event	560750	173901
EKE19796	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 26	Event	560763	173870
EKE19797	Swanscombe Community School Palaeolithic Mitigating Fieldwork, Sieve location 27	Event	560761	173885
EKE20176	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 202	Event	562112	174856
EKE20175	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 201	Event	561998	174880
EKE20177	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 203	Event	562081	174802
EKE20178	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 204	Event	561979	174775
EKE20179	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 205	Event	561907	174731
EKE20180	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 206	Event	561830	174730
EKE20181	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 207	Event	561938	174678
EKE20182	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 208	Event	561868	174689
EKE20183	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 209	Event	561864	174620
EKE20184	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 210	Event	562008	174735
EKE20185	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 211	Event	562035	174736
EKE20186	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 212	Event	562031	174717
EKE20187	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 213	Event	562019	174677
EKE20188	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MTP 214	Event	561999	174576
EKE20189	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH1	Event	561979	174908
EKE20190	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH10	Event	561949	174815



EKE20191	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH11	Event	561865	174783
EKE20192	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH12	Event	561983	174748
EKE20193	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH13	Event	562068	174712
EKE20195	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH14	Event	561874	174724
EKE20196	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH16	Event	561987	174696
EKE20197	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH17	Event	561900	174664
EKE20198	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH18	Event	562013	174625
EKE20199	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH2	Event	562068	174885
EKE20200	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH20	Event	561874	174599
EKE20201	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH21	Event	561970	174503
EKE20202	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH23	Event	562063	174530
EKE20203	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH24	Event	562013	174550
EKE20204	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH3	Event	562134	174861
EKE20205	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH4	Event	561977	174862
EKE20206	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH5	Event	562076	174836
EKE20207	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH6	Event	562027	174804
EKE20208	Palaeolithic Archaeological Monitoring of GI Works, Land at Northfleet Embankment West MBH8	Event	562111	174782
EKE20701	The London Resort Development Consent Order, Environmental Statement, Volume 2, Appendix 14.1 Archaeological Desk-based Assessment	Event	561048	174197
EKE20702	The London Resort Development Consent Order, Environmental Statement, Volume 2, Appendix 14.2 Built Heritage Statement	Event	561027	174193
EKE20794	Excavation, Baker's Hole, 1970-71	Event	561100	174300
EKE20816	Excavation, Baker's Hole, 1901	Event	561425	173875
EKE10278	Historic Environment of the North Kent Coast: Rapid Coastal Zone Assessment Survey Phase 1	Event	601097	175306
EKE11210	Watching brief at Manor Community School, Keary Road, Swanscombe	Event	560680	173877
EKE12204	Excavation at Northfleet Water Treatment Works	Event	561822	173665
EKE13348	Archaeological desk-based assessment of Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent	Event	562173	174596
EKE14068	Sweyne County Primary School, Swanscombe. Field evaluation (Palaeolithic) (now Manor Community Primary School)	Event	560677	173855
EKE14069	Sweyne County Junior School, Swanscombe, Kent (now Manor Community Primary School)	Event	560677	173867



EKE14682	Palaeolithic Integrated Deposit Model and Research Framework	Event	560924	173534
EKE14689	Southfleet Road Improvements. Palaeolithic Desk-Based Assessment	Event	561168	173332
EKE14940	Heritage statement, Lawn Road Playing Field, Northfleet	Event	562132	174596
EKE14967	Desk Based Assessment on the Northfleet Harbour Restoration Scheme, Northfleet	Event	561854	174944
EKE16305	Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560952	173743
EKE16313	Desk-based Assessment of land on the site of Northfleet Mill, Kent	Event	562768	174547
EKE16358	Ebbsfleet Valley Detailed Mitigation: Channel Tunnel Rail Link works 2001-2003: ArcEBB01	Event	561552	174089
EKE8261	Geophysical Surveys at Eastern Quarry, Swanscombe	Event	560840	173702
EKE8537	Evaluation of Boreholes at Thames Crossing (ARC TMS 00 Project Area 320)	Event	560612	175301
EKE8565	Excavation on Site of Proposed Pylon, NGC Tower ZR4, Ebbsfleet Valley	Event	561150	174387
EKE9623	Desk Based Assessment on Land at Sweyne Junior School, Swanscombe, Kent	Event	560665	173836
EWX9107	Evaluation on South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent	Event	561691	174216
EWX9124	Swanscombe Peninsula West, Phase 1 Contamination Interpretive Report	Event	560021	175319
EWX9150	Evaluation at the former Korsnas Site, Galley Hill Road, Swanscombe	Event	561140	174771
EKE16732	Ebbsfleet Archaeological Framework, Management Plan for Proposed Development	Event	561468	173630
EKE10413	Evaluation of test pits dug at the site of the Swanscombe Community School	Event	560748	173915
EKE16951	Evaluation of test pits dug at the site of the Swanscombe Community School - Trial pit SL 28	Event	560781	173941
EKE16952	Evaluation of test pits dug at the site of the Swanscombe Community School - Trial pit SL 29	Event	560749	173891
EKE16953	Evaluation of test pits dug at the site of the Swanscombe Community School - Trial pit SL 30	Event	560712	173910
EKE16986	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB11	Event	561123	175885
EKE16987	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB12	Event	561126	175962
EKE16988	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB13	Event	561186	175984
EKE16990	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB14	Event	561074	175817
EKE16992	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB16	Event	561184	175941
EKE16983	Geotechnical borehole for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB9	Event	560992	175924
EKE16984	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB9A	Event	561032	175886
EKE16985	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB10	Event	561088	175898
EKE16989	Geotechnical trial pit for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet - Trial Pit TPB13A	Event	561190	175971



EKE11802	Geotechnical boreholes and trial pits for the RMC Aggregates site at Northfleet Wharf, Manor Way, Northfleet	Event	561085	175970
EKE17011	Trench No. 1 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560951	173724
EKE17013	Trench No. 2 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560953	173743
EKE17014	Manhole No. 6 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560936	173741
EKE17016	Trench No. 4 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560976	173727
EKE17015	Trench No. 3 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560969	173728
EKE17018	Trench No. 5 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560992	173712
EKE17019	Manhole No. 4 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	561004	173697
EKE17020	Trench No. 6 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	561008	173659
EKE17024	Trench No. 9 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560994	173757
EKE17025	Manhole No. 7 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	560969	173745
EKE17026	Manhole No. 9 - Weldon, East Quarry, Swanscombe, Kent, Archaeological watching brief report	Event	561013	173766
EKE12189	Watching brief at B&T Plant Yard, Northfleet Industrial Estate	Event	560803	175130
EKE17068	Watching brief at B&T Plant Yard, Northfleet Industrial Estate - Eastern Trench	Event	560834	175076
EKE17069	Watching brief at B&T Plant Yard, Northfleet Industrial Estate - Northern Trench	Event	560760	175173
EKE12203	Evaluation at Northfleet Water Treatment Works	Event	561888	173545
EKE17070	Evaluation at Northfleet Water Treatment Works - Palaeoenvironmental Trench 1	Event	561790	173636
EKE17073	Evaluation at Northfleet Water Treatment Works - Palaeoenvironmental Trench 4	Event	561804	173657
EKE17074	Evaluation at Northfleet Water Treatment Works - Palaeoenvironmental Trench 5	Event	561822	173669
EKE17077	Evaluation at Northfleet Water Treatment Works - FST Excavation area around Palaeoenvironmental Trench 5	Event	561821	173665
EKE12914	Evaluation of land at Northfleet Cement Works	Event	561969	174691
EKE17098	Evaluation of land at Northfleet Cement Works - Test Pit 1	Event	561843	174756
EKE17099	Evaluation of land at Northfleet Cement Works - Test Pit 2	Event	561918	174745
EKE17100	Evaluation of land at Northfleet Cement Works - Test Pit 3	Event	561868	174705
EKE17101	Evaluation of land at Northfleet Cement Works - Test Pit 4	Event	561906	174673
EKE17102	Evaluation of land at Northfleet Cement Works - Test Pit 5	Event	561961	174676
EKE17103	Evaluation of land at Northfleet Cement Works - Test Pit 6	Event	561902	174647
EKE17104	Evaluation of land at Northfleet Cement Works - Test Pit 7	Event	561895	174633
EKE17105	Evaluation of land at Northfleet Cement Works - Test Pit 8	Event	561873	174622
EKE17106	Evaluation of land at Northfleet Cement Works - Test Pit 9	Event	561973	174596
EKE17107	Evaluation of land at Northfleet Cement Works - Test Pit 10	Event	561970	174539
EKE10993	Geotechnical report for South Thames-Side development route stage 4, Swanscombe and Gravesend	Event	561372	174560



EKE17272	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme - PP42	Event	561815	173827
EKE17277	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP115	Event	561837	173773
EKE17284	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP28	Event	561384	174517
EKE17285	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP29	Event	561429	174472
EKE17286	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP30	Event	561484	174424
EKE17287	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP31	Event	561489	174402
EKE17288	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP32	Event	561515	174382
EKE17289	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP33	Event	561679	174233
EKE17290	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP34	Event	561666	174144
EKE17291	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP35	Event	561696	174163
EKE17292	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP36	Event	561690	174116
EKE17293	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP37	Event	561717	174048
EKE17294	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP38	Event	561726	174014
EKE17295	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP39	Event	561741	173946
EKE17296	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP40	Event	561758	173896
EKE17297	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP41	Event	561781	173851
EKE17303	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP109	Event	561460	174444
EKE17304	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP110	Event	561527	174350



EKE17305	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP111	Event	561614	174276
EKE17307	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP113	Event	561707	174020
EKE17312	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP04	Event	561375	174842
EKE17313	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP05	Event	561427	174771
EKE17321	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP22	Event	561205	175060
EKE17322	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP23	Event	561292	175050
EKE17323	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP24	Event	561260	175025
EKE17324	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP25	Event	561289	175006
EKE17325	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP27	Event	561272	174948
EKE17330	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP01C	Event	561107	175091
EKE17331	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP02	Event	561145	175085
EKE17332	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP03C (poss A)	Event	561177	175076
EKE17333	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP03C (poss A)	Event	561054	175121
EKE17334	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP03B	Event	560978	175142
EKE17335	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP16	Event	560742	175182
EKE17336	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP18	Event	560778	175179
EKE17337	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP19	Event	560796	175177
EKE17338	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP107	Event	560973	175152



EKE17340	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme TP108	Event	561096	175134
EKE17342	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP15	Event	560700	175243
EKE17343	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP17	Event	560771	175198
EKE17345	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP12	Event	560430	175173
EKE17346	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP13	Event	560480	175147
EKE17351	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme PP11	Event	560288	175190
EKE12938	Watching brief of test pits and boreholes along the sewerage pipeline route for the Northfleet Growth Scheme	Event	560422	175231
EKE8262	Palaeolithic/Pleistocene Field Evaluation: Eastern Quarry Swanscombe	Event	560800	173659
EKE17683	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 -Test pit 1	Event	561508	174172
EKE17684	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 -Test pit 2	Event	561510	174177
EKE17685	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997 -Test pit 3	Event	561465	174262
EKE16203	Boreholes and test-pitting at proposed Ebbsfleet development (Northfleet Rise Area) 1997	Event	561461	174259
EKE4850	STDR4 geotechnical test pits	Event	561794	174048
EKE17705	South Thames-side Development Route Stage 4: Railway bridge evaluation - Test pit 1	Event	561318	174387
EKE17706	South Thames-side Development Route Stage 4: Railway bridge evaluation - Test pit 2	Event	561351	174472
EKE17707	South Thames-side Development Route Stage 4: Railway bridge evaluation - Test pit 3	Event	561355	174499
EKE17708	South Thames-side Development Route Stage 4: Railway bridge evaluation - Test pit 4	Event	561290	174500
EKE17709	South Thames-side Development Route Stage 4: Railway bridge evaluation - Test pit 5	Event	561307	174423
EKE5365	South Thames-side Development Route Stage 4: Railway bridge evaluation	Event	561323	174468
EKE13193	Desk based assessment of Northfleet Mill, Crete Hall Road, Northfleet	Event	562786	174531
EKE14307	Building Recording Report. The Lafarge Cement Works, Northfleet, Kent	Event	561788	174904
EKE8258	Aggregates Levy Survey: Industrial Sites	Event	560814	174387
EKE14685	Proposed Archaeological Mitigation Strategy. Northfleet Rise, Ebbsfleet, Kent	Event	561308	174104
EKE14686	Proposed Archaeological Mitigation Strategy. Station Quarter North, Ebbsfleet, Kent	Event	561308	174104
EKE16150	Evaluation trial pits for new ZR4 pylon in Baker's Hole Scheduled Monument, Site A	Event	561169	174404



EKE8561	Recording, Sampling and Cleaning of the Early Medieval Ebbsfleet Mill and Roman Timbers, Swanscombe, Dartford	Event	561591	174087
EKE13339	Historic Building Record Report: Lawn Road Spine, Northfleet Cement Works, Kent	Event	562219	174743
EKE10378	Desk-Based Assessment of pipeline route, Northfleet Growth Scheme	Event	561344	174498
EWX9162	Desk-based historic buildings assessment of Craylands Lane Pit, Swanscombe	Event	560158	174881
EKE18047	Excavation in advance of new ZR4 pylon in Baker's Hole Scheduled Monument, Site A - Tr 3776	Event	561162	174400
EKE18048	Excavation in advance of new ZR4 pylon in Baker's Hole Scheduled Monument, Site A - Tr 3777	Event	561165	174411
EKE17886	Evaluation trial pits for new ZR4 pylon in Baker's Hole Scheduled Monument, Site A - Test Pit 3421	Event	561175	174408
EKE17888	Evaluation trial pits for new ZR4 pylon in Baker's Hole Scheduled Monument, Site A - Test Pit 3422	Event	561173	174398
EKE17889	Evaluation trial pits for new ZR4 pylon in Baker's Hole Scheduled Monument, Site A - Test Pit 3423	Event	561161	174400
EKE17890	Evaluation trial pits for new ZR4 pylon in Baker's Hole Scheduled Monument, Site A - Test Pit 3424	Event	561164	174411
EKE16151	Excavation in advance of new ZR4 pylon in Baker's Hole Scheduled Monument, Site A	Event	561169	174404
EKE18157	Evaluation at the former Korsnas Site, Galley Hill Road, Swanscombe	Event	561199	174773
EKE8566	Watching brief on Site of Proposed Pylon, NGC Tower ZR4, Ebbsfleet Valley	Event	561169	174404
EKE18223	Watching brief on Site of Proposed Pylon, NGC Tower ZR4, Ebbsfleet Valley	Event	561162	174400
EKE18332	Boreholing for the Channel Tunnel Rail Link: Supplementary Fieldwork	Event	561551	173856
EWX9122	Watching brief on geotechnical test pitting at West Swanscombe Peninsula	Event	559948	175176
EKE8538	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley	Event	561378	174244
EKE18679	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3782TT	Event	561210	174431
EKE18680	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3783TT	Event	561190	174516
EKE18681	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3784TT	Event	561165	174494
EKE18682	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3785TT	Event	561217	174465
EKE18683	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3787TT	Event	561229	174432
EKE18684	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3789TT	Event	561250	174398
EKE18685	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3790TT	Event	561233	174392
EKE18686	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3791TT	Event	561244	174359
EKE18687	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3801TT	Event	561187	174481
EKE18688	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3804TT	Event	561207	174489
EKE18690	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3829ATT	Event	561365	174069



EKE18691	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3829BTT	Event	561326	174049
EKE18692	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3805TT	Event	561373	174054
EKE18693	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3808TT	Event	561416	174072
EKE18694	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3798TT	Event	561313	174205
EKE18695	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3806TT	Event	561380	174157
EKE18696	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3807TT	Event	561396	174117
EKE18699	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3793TT	Event	561292	174332
EKE18700	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3794TT	Event	561269	174310
EKE18701	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3795TT	Event	561283	174283
EKE18702	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3796TT	Event	561312	174293
EKE18703	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3797TT	Event	561316	174257
EKE18704	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3799TT	Event	561351	174228
EKE18705	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3809TT	Event	561378	174255
EKE18706	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3811TT	Event	561408	174229
EKE18707	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3800TT	Event	561366	174200
EKE18708	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3810TT	Event	561398	174201
EKE18709	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3812TT	Event	561427	174177
EKE18710	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3813TT	Event	561446	174202
EKE18711	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3814TT	Event	561472	174174
EKE18712	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3815TT	Event	561457	174157
EKE18713	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3837TT	Event	561430	174129
EKE18714	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3817TT	Event	561515	174144
EKE18715	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3816TT	Event	561488	174129
EKE18716	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3828TT	Event	561467	174099
EKE18717	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3818TT	Event	561533	174124
EKE18718	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3819TT	Event	561565	174117
EKE18719	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3831TT	Event	561621	174090



EKE18720	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3832TT	Event	561632	174054
EKE18721	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3820TT	Event	561560	174079
EKE18722	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3830TT	Event	561583	174078
EKE18723	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3834TT	Event	561682	174083
EKE18724	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3833TT	Event	561668	174052
EKE18725	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3835TT	Event	561700	174057
EKE18726	Evaluation at Ebbsfleet Sports Ground, Ebbsfleet Valley - 3836TT	Event	561726	174044
EKE16142	Baker's Hole, Area B, phase 2 trial pits under Heritage-at-Risk programme to further assess presence/survival of palaeo-environmental remains	Event	561229	174041
EKE18823	Baker's Hole, Area B, phase 2 trial pits under Heritage-at-Risk programme - Trench 5	Event	561229	174050
EKE18824	Baker's Hole, Area B, phase 2 trial pits under Heritage-at-Risk programme - Trench 2	Event	561230	174039
EKE18825	A geotechnical and trial pit survey Northfleet Cement Works, Northfleet Embankment, Gravesham, Kent	Event	561982	174592
EKE18907	Desk-Based Assessment and Statement of Archaeological Significance Palaeolithic for people mover bridge/tunnel and tram/cycle route options	Event	561263	174232
EKE8531	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97	Event	561532	174020
EKE18983	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1004TT	Event	561360	174410
EKE18984	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1005TT	Event	561358	174394
EKE18985	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1006TT	Event	561329	174369
EKE18986	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1007TT	Event	561365	174366
EKE18987	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1008TT	Event	561372	174343
EKE18988	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1009TT	Event	561555	174165
EKE18989	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1010TT	Event	561556	174144
EKE18990	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1011TT	Event	561571	174118
EKE18991	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1012TT	Event	561593	174105
EKE18992	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1013TT	Event	561606	174104
EKE18993	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1014TT	Event	561607	174073
EKE18994	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1015TT	Event	561556	174078
EKE18995	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1016TT	Event	561536	174076



EKE18996	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1017TT	Event	561576	174045
EKE18997	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1018TT	Event	561572	174033
EKE18999	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1020TT	Event	561496	174038
EKE19000	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1021TT	Event	561486	174028
EKE19001	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1022TT	Event	561464	174027
EKE19002	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1023TT	Event	561467	174014
EKE19003	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1024TT	Event	561441	174021
EKE19004	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1025TT	Event	561431	174008
EKE19005	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1026TT	Event	561417	174014
EKE19006	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1230TT	Event	561525	174002
EKE19008	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1232TT	Event	561504	173986
EKE19009	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1233TT	Event	561532	173985
EKE19010	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1234TT	Event	561629	174050
EKE19011	Evaluation along Channel Tunnel Rail Link Site ARC EFT 97 - 1235TT	Event	561656	174084
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Appendix: Archaeology

Annex 1: Legislation and Policy

Annex 2: Archaeological Desk-Based Assessment

Annex 3: Geoarchaeological Desk-Based Assessment



Northfleet Harbourside, Northfleet, Kent

Geoarchaeological Desk-Based Assessment
and Landscape Characterisation



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Summary

Wessex Archaeology was commissioned by Trium Environmental Consulting LLP on behalf of Northfleet Central 1 Ltd (the Client) to produce a geoarchaeological desk-based assessment (GDBA) and Geoarchaeological Landscape Characterisation (GLC) to inform the proposed development of c. 18 hectares (ha) of land at, Northfleet, Kent. This site is centred on National Grid Reference 561447, 174969 (TQ 61447 74969)

The outline development proposals comprise the demolition of all existing buildings and construction of a mixed-used development comprising of offices, apartment blocks and a new stadium for Ebbsfleet United Football Club. The development will entail the construction of a new link road around the stadium, replacing Stonebridge Road. Several community parks will also be built.

The GBA and GLC identified Pleistocene and Holocene deposits of the Ebbsfleet in the site. The Pleistocene sediments have not previously been investigated in detail. Two chronological distinct groups of Pleistocene deposits were identified, an earlier group with basal heights c. 1 m above ordnance datum OD, located above the Ebbsfleet floodplain, and a later group with bases below OD and beneath Holocene deposits within the Ebbsfleet floodplain. The former has not previously been identified, whilst the later were recorded within the south of (QUEST 2016) and beyond the southern boundary of the site (Stafford et al. 2020a), but have not been investigated in detail. Pleistocene/Holocene slopewash deposits overlying bedrock have been identified in the western-most part of the site.

Holocene alluvial sequences up to c. 11 m thick were identified in the south of the site (CAT 2007; Quest 2016), and are also shown likely to be present in the north of the site. Those in the south are the continuation of deposits investigated immediately south of the site in advance of the South Thameside Development Route (STDR) 4 and High Speed (HS) 1 work (Stafford et al. 2020a). The STDR 4 and HS1 investigation demonstrated that these deposits date from the Mesolithic through to the Anglo Saxon period. Details of the Holocene stratigraphy in the north of the site are less certain. These may include deposits equivalent to those in the south.

The available data allows the site to be divided into five Geoarchaeological Character Zones (GCZs) containing deposits of varying archaeological and geoarchaeological potential.

GCZ 1 contains colluvial slope deposits of Pleistocene and/or Holocene date. They reflect the mobilisation of sediments downslopes due to landscape instability. These could contain reworked archaeology of multiple periods, as well as buried stable horizons and land surfaces preserving in situ archaeology, particularly lithic scatters. The deposits have low potential to preserve palaeoenvironmental evidence but could contain units suitable for luminescence dating.

GCZ 2 and 3 are located on the western and eastern sides of the Ebbsfleet Valley and contain poorly characterised and dated Pleistocene fluvial and solifluction deposits. A broad age range of Marine Isotope Stage MIS 6 to MIS 3 (190–29 Ka 'Thousands of Years Ago') is suggested for these. Deposits which may be broadly equivalent have been investigated south of the site and have produced Middle Palaeolithic artefacts (Wenban-Smith 2020a). Additionally, the GDBA identified two Palaeolithic handaxes and the flake recovered in the later 19th century that are likely to originate from these deposits. The three artefacts are from Botany Bay Pit, which was in and adjacent to GCZ 3. The geoarchaeological potential of these deposits is not known. The possibly equivalent deposits located south of the site included units preserving palaeoenvironmental (vertebrates, molluscs and ostracods) and dating evidence (luminescence and Amino Acid Racemisation) (Wenban-Smith 2020c).

GCZ 4 contains Holocene deposits that are well characterised, having previously been investigated both within the site (QUEST 2016) and beyond the southern boundary (Stafford et al. 2020a). These



overlie Pleistocene fluvial deposits, that have not undergone detailed investigation. The Pleistocene sediments are currently undated, but their wider stratigraphic context demonstrates that they post-date those in GCZs 2 and 3; they may date within the period from MIS 6 to MIS 2 (191-11.7 Ka). Their archaeological and geoarchaeological potential is currently unknown. The Holocene sediments are known to contain significant archaeology dating from the Mesolithic to Bronze Age (QUEST 2016, Stafford et al. 2020b) and well-preserved paleoenvironmental remains (plant macro remains, pollen ostracods, foraminifera and diatoms), as well as dating (radiocarbon) evidence (Stafford et al. 2020a).

GCZ 5 is in the north of the site, at the confluence between the Ebbsfleet and Thames. No data is available to directly assess the deposits present in this zone, and the specific archaeological and geoarchaeological potential of any deposits present is unknown. Review of records from north and south of GCZ 5 indicates that Holocene alluvial sequences up to c. 11m likely occur, overlying Pleistocene deposits. The Pleistocene sediments may include two chronologically separate groups that potentially equate with the East Tilbury Marshes (MIS 6-2; 160–25 Ka) and Shepperton Gravel (MIS 2; 17-12 Ka) of the Thames terraces. The specific stratigraphies in the Holocene alluvial sequences is uncertain. There are indications that similar sequences to those present in GCZ 4 may occur.

Based on the results of this assessment, archaeological and geoarchaeological evaluation of the Quaternary deposits in the site is likely to be required to characterise potential development impacts on the archaeological and geoarchaeological resources.

Given the variety and complexity of the Quaternary deposits likely present, and uncertainties regarding their lateral and horizontal extent, it is recommended that prior to evaluation any ground investigation works (boreholes or trial pits) are subject to geoarchaeological monitoring, with the data used to update the current geoarchaeological deposit model. This would enable requirements for and the scope of archaeological and geoarchaeological evaluation to be refined.

Based on the currently available evidence, likely requirements for, and appropriate methods of evaluation, have been considered for each of the five GCZs. These comprise Palaeolithic archaeological and geoarchaeological test pits in GCZs 1–3 and a borehole survey in GCZ 4–5.

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Northfleet Harbourside, Northfleet, Kent

Geoarchaeological Desk-Based Assessment and Landscape Characterisation

1 INTRODUCTION

1.1 Project Background

1.1.1 Wessex Archaeology was commissioned by Trium Environmental Consulting LLP on behalf of Northfleet Central 1 Ltd (the Client) to produce a geoarchaeological desk-based assessment (GDBA) and Geoarchaeological Landscape Characterisation (GLC) to inform the proposed development of c. 18 hectares (ha) of land at, Northfleet, Kent (hereafter 'the site', **Figure 1**). This Site is centred on National Grid Reference 561447, 174969 (TQ 61447 74969)

1.1.2 The outline development proposals comprise the demolition of all existing buildings and construction of a mixed-used development comprising of offices, apartment blocks and a new stadium for Ebbsfleet United Football Club. The development will entail the construction of a new link road around the stadium, replacing Stonebridge Road. Several community parks will also be built.

1.1.3 This study has been prepared to inform a planning application. The planning application will be submitted to Gravesham Borough Council.

1.2 Scope of Document

1.2.1 This deposit model and GDBA outlines the sub-surface superficial deposits underlying the site and provides an initial assessment of their archaeological and geoarchaeological potential. It provides a suitable baseline within which to inform the need for and scope of any subsequent intrusive archaeological and geoarchaeological works.

1.2.2 This assessment considers the potential effects of the development proposals on the archaeological (including Palaeolithic) and geoarchaeological resources associated with superficial deposits. A separate archaeological desk-based assessment (ADBA) considers the potential impacts on the wider archaeological resource (Wessex Archaeology [WA] 2022a).

1.2.3 In format and content, this deposit model and GDBA conforms to current best practice, as well as to the guidance in *Deposit modelling and archaeology: guidance for mapping buried deposits* (HE 2020) and Kent County Councils *Manual of Specifications Part B Specification KCC generic specification requirements for desk-based assessment of geoarchaeological potential (including baseline deposit modelling)*.

1.3 Location, topography and geology

1.3.1 The site is in the lower Ebbsfleet Valley and extends to the modern confluence between the Rivers Ebbsfleet and Thames (Robin's Creek), in an area of former salt marsh known as the Northfleet Marshes. The site comprises an irregular parcel of land located in the north-west section of Northfleet, approximately 1.3 km north-west of Northfleet's historic core. It is bordered to the north by the River Thames, to the west and south by areas of industrial and residential development and to the east by Robin's Creek.

- 1.3.2 The site is bisected by Stonebridge Road and contains Ebbsfleet United Football Club stadium. The remainder of the site is occupied by a range of industrial and commercial buildings, including two aggregate suppliers in the northeast corner yards and areas of hardstanding, and three 19th-century terraced houses.
- 1.3.3 The modern topography reflects the sites position within the lower Ebbsfleet Valley. The northern section of the site lies at an elevation that varies between c.7 m above Ordinance Datum (OD) and c.5 m OD, with the lowest points closest to confluence between the Rivers Ebbsfleet and Thames. The south of the site lies at approximately c. 6 m OD.
- 1.3.4 The underlying bedrock geology across the site (**Figure 2**; British Geological Survey, Geology of Viewer) is mapped as Cretaceous chalk of the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated) (72–94 Ma 'Millions of Years Ago').
- 1.3.5 Superficial deposits are recorded across the site (**Figure 3**; British Geological Survey, Geology of Viewer), including Pleistocene Head and Holocene alluvial sediments of the Ebbsfleet, and Thames. Previous investigation in the area have demonstrated that the BGS mapping in this area does not fully capture the superficial deposits present (see **section 3.4**).

2 AIMS AND OBJECTIVES

2.1.1 The aims of the GDBA and deposit modelling and were to:

- characterise the principal superficial geological deposits present underlying the site through a review of available Ground Investigation (GI) data from the site, British Geological Survey borehole data (BGS GeoIndex) and the results of previous archaeological and geoarchaeological investigations;
- assess the Palaeolithic archaeological and geoarchaeological potential of the superficial deposits underlying the site;
- identify the extent of superficial deposits with Palaeolithic archaeological and/or geoarchaeological potential, and
- make suitable recommendations for further work at the site, if appropriate.

2.1.2 These aims were addressed by achieving the following objectives:

- collation and review of all GI, BGS and previous published and unpublished ("grey literature") archaeological/geoarchaeological information relevant to assessing the archaeological and geoarchaeological resource;
- production of a Geoarchaeological Desk-Based Assessment GDBA reviewing the archaeological and geoarchaeological context of the site;
- production of a deposit model comprising a series of outputs to model the vertical and lateral extent of deposits across the site;
- interpretation of the sediments in their local and regional geoarchaeological context;

- production of a Geological Landscape Characterisation (GLC) for the site, dividing the site into Geoarchaeological Character Zones (GCZs);
- assessment of the likely archaeological and geoarchaeological potential of the deposits present in each GCZ, and
- the provision of archaeological and geoarchaeological field evaluation, where appropriate.

3 GEOARCHAEOLOGICAL DESK-BASED ASSESSMENT

3.1 Introduction

3.1.1 The section provides a Geoarchaeological Desk-Based Assessment (GDBA) to inform on the archaeological and geoarchaeological potential of superficial deposit in the site. Geoarchaeological potential is defined as potential for paleoenvironmental and dating evidence. Information relevant to assessing the wider archaeological potential of the site is provided in a separate archaeological DBA (WA 2022a).

3.1.2 Where age estimates are available these are expressed in millions of years (Ma), thousands of years (Ka) and within the Holocene epoch as either years Before Present (BP), Before Christ (BC) and Anno Domini (AD).

3.1.3 Previous investigations have demonstrated that extensive Pleistocene and Holocene sequences occur within the lower Ebbsfleet Valley. Together the Pleistocene and Holocene epochs form the most recent parts of the Quaternary, a period covering the last 2.6 Ma, and defined by repeated fluctuations between cold (glacial) and warm (interglacial) climate stages (**Table 1**).

Table 1 British Quaternary chronostratigraphy

Geological Period	Chronostratigraphy		Age (ka)	MIS
Holocene	Holocene interglacial		11.7 – present	1
Late Pleistocene	Devensian Glaciation	Loch Lomond Stadial	11.7 – 12.9	2 – 5d
		Windermere Interstadial	12.9 – 15	
		Dimlington Stadial	15 – 26	
		Upton Warren Interstadial	40 – 43	
		Early Devensian	60 – 110	
	Ipswichian interglacial		115 – 130	5e
Middle Pleistocene		Unnamed cold stage	130-374	6
		Avery interglacial		7
		Unnamed cold stage		8
		Purfleet interglacial		9
		Unnamed cold stage		10

Geological Period	Chronostratigraphy	Age (ka)	MIS
	Hoxnian interglacial	374 – 424	11
	Anglian glaciation	424 – 478	12
	Cromerian Complex	478 - 780	13 – 19

3.2 Previous investigations

3.2.1 The Quaternary deposits in the lower Ebbsfleet Valley has been a focus for archaeological investigations since the late nineteenth century (Spurrell 1883, Abbott 1911, Smith 1911), with phases of investigation linked to periods of mineral extraction (sands and gravels, and chalk) and, latterly, major infrastructure projects (Wenban-Smith et al. 2020).

3.2.2 The key investigations pertinent for establishing the archaeological and geoarchaeological potential of the site are summarised below, with historic locations shown on **Figure 4**.

F C J Spurrell (Spurrell 1883)

3.2.3 Archaeological investigations were carried out in the lower Ebbsfleet valley in the 1870s-1880s by F C J Spurrell, who reported on the discovery of Middle Palaeolithic artefacts and faunal remains from a tramway cutting (Spurrell 1883). This tramway cutting was located c. 600 m to the south of the site boundary (Wenban-Smith 1995; see **Figure 4**).

3.2.4 Spurrell (1883) also recovered a Lower Palaeolithic handaxe and several flakes in fresh condition, along with a range of Pleistocene animal remains, including straight-tusked elephant, rhinoceros and deer, from fluvial deposits within a gravel located c. 500m south-east of the current site, “a quarter of a mile west of Northfleet Church” (**Figure 4**)

H. Stopes – Botany Bay Pit, Galley Hill Road (Wenban-Smith 2004)

3.2.5 Material in Henry Stopes collection of prehistoric artefacts includes artefacts from Botany Bay Pit. Stopes amassed his collection in in the later 19th century. The location referred is likely to be a quarry pit recorded on the 1872 OS map (see **section 3.5**) in the centre of the current site, in an area labelled as Botany Bay.

3.2.6 Some confusion exists over the location of this pit as it is erroneously described in the Kent County Council HER as one of several located at Galley Hill (located west of the Ebbsfleet Valley). The HER also includes incorrect location for two Palaeolithic handaxes and a flake from this pit, which places these spatially amongst those on Galley Hill.

3.2.7 The artefacts from Botany Bay Pit comprise two Palaeolithic handaxes and one flake, as well as seven “mixed later prehistoric” pieces. The latter include a large blade tentatively identified as a Terminal Upper Palaeolithic Long Blade (Wenban-Smith 2004).

Burchell’s “Ebbsfleet Channel” Sites and the British Museum Sites A and B

3.2.8 Excavations carried out by Burchell from 1933 to the 1950s investigated Pleistocene deposits in the lower Ebbsfleet (Burchell 1933; 1935; 1936a; 1936b; 1936c; 1938; 1954; 1957) in areas located c. 400 m south-west of the site boundary (**Figure 4**).

3.2.9 Although the specific location of sections recorded by Burchell cannot now be located, the general area of the main investigations (Channel A and B), have been established (Wenban-Smith 1995). Further investigations in the area of Burchell’s “Ebbsfleet Channel” sites were carried by Carreck (1972), while related deposits were identified 300m to the

north-west beneath Northfleet allotments by Marston (Wenban-Smith 1995, 15). Excavations were subsequently carried out in these two areas between 1965 and 1969 by the British Museum (Kerney and Sieveking 1977), with these areas being designated as British Museum sites A (allotment site) and B (within area investigated by Burchell). The location of BM sites A and B are shown on **Figure 4**.

Wenban-Smith (1995), High Speed 1 and South Thameside Development Route 4 (Wenban-Smith et al. 2020)

3.2.10 Detailed investigation of Quaternary deposits in the lower Ebbsfleet Valley was initiated through PhD research carried out by Wenban-Smith (1995) and developed as part of investigations carried out between 1997 and 2003 as part of the High Speed 1 (HS1) and South Thameside Development Route 4 (STDR) infrastructure programs (Wenban-Smith et al. eds. 2020).

3.2.11 In order to frame these investigations, the development areas were divided into 11 Valley Zones. One zone, Zone 8, covered the area of the lower Ebbsfleet Valley immediately south of the site.

3.2.12 Extensive and well-preserved sequences of Holocene alluvial deposits over Pleistocene fluvial and soliflucted sediments were recorded in Zone 8 (Stafford et al. 2020a). Only the Holocene deposits were investigated in detail.

3.2.13 Up to c. 10 m of Holocene alluvial sediments were recorded, which are within a deep ‘outer’ basin that follows the central axis of the Ebbsfleet Valley. These deposits shallowed to the west and east, towards the valley margins. The Holocene sequences overlay Pleistocene sediments considered to date to the late Pleistocene. The Holocene deposits contain significant archaeology and palaeoenvironmental evidence dating principally from the Mesolithic through to the Bronze Age (see **section 3.5**)

Northfleet Growth Scheme (Canterbury Archaeological Trust 2007; 2009)

3.2.14 The Northfleet Growth Scheme required the construction of a gravity sewer, the course of which ran through the site. Ground investigation (GI) and ground works during construction were subject to archaeological watching briefs. These watching briefs identified more than 7 m of Holocene alluvial deposits, include peat, in the current site. These overlay Pleistocene fluvial sediments. Pleistocene fluvial and solifluction deposits were also recorded immediately beneath made ground and at higher elevations along the western margins of the valley, also within the site.

Stonebridge Road Stand, Stonebridge Road Stadium (QUEST 2016, WA 2016)

3.2.15 Geoarchaeological boreholes and deposit modelling of data from these boreholes and GI works, and geophysical survey, were carried out within the site in advance of the redevelopment of the Stonebridge Road Stand, of Ebbsfleet United Football Club’s Stonebridge Road Stadium.

3.2.16 Pleistocene fluvial deposits overlying chalk bedrock were identified beneath approximate 12 m of Holocene alluvial sediments and made ground. The Holocene sequences recorded were approximately 10 m thick.

3.2.17 The sequences are broadly equivalent with that recorded in the lower Ebbsfleet Valley in Valley Zone 8 of the HS1 and STDR 4 investigations (see above), located immediately to the south.

- 3.2.18 Two flint artefacts interpreted as Mesolithic in date were recovered in a borehole from the Lower Alluvium. Artefacts associated with a similar context and a late Mesolithic radio-carbon date were also obtained in a borehole in Valley Zone 8 of the HS1 and STDR 4 investigations (see above).
- 3.2.19 The report on the Stonebridge Road Stand investigations notes that the Holocene sequences had high geoarchaeological potential for reconstructing Holocene paleoenvironments. This is supported by the results HS1 and STDR 4 investigations of analogues, nearby deposits.
- Northfleet Cement Works Palaeolithic Evaluation and Mitigation (WA 2009; 2020; 2021)*
- 3.2.20 Initial evaluation in 2009, followed by monitoring of GI in 2020 and mitigative excavations in 2021 investigated Quaternary deposits located c. 350m south-east of the site in the former Northfleet Cement Works.
- 3.2.21 These investigations recorded Pleistocene deposits, beneath variable depths of made ground. The Pleistocene deposits principally consisted of fluvial sediments belonging to the River Thames, that are located outside of the Ebbsfleet Valley. Although mapped by the BGS as part of the Boyn Hill/Orsett Heath terrace (430–350 Ka), the investigations demonstrated that they largely belonged to the later Lynch Hill/Corbets Tey terrace (350–280 Ka), although earlier the Boyn Hill/Orsett Heath terrace (430–350 Ka) were present in a restricted area located south-east of the Northfleet Cement works site. These Boyn Hill/Orsett Heath were demonstrated to be the source of historic Lower Palaeolithic artefact and faunal finds made by Spurrell (1883) c. 500 m south-west of the current site near Northfleet church (see above)
- 3.2.22 Palaeolithic lithic artefacts were recovered in low densities from the Lynch Hill/Corbets Tey deposits. The artefacts were all undiagnostic flakes. Unabraded but edge damaged lithic artefacts were recovered from a basal chalky solifluction and fluvial sandy gravels. Their condition demonstrated that they were contemporary with the deposits and, although not in situ, were not significantly reworked, reflecting contemporary human activity during cool conditions, likely late in a glacial or early in an interglacial. They may reflect evidence for human activity late in MIS 10 or during MIS 9 (365–300 Ka). The lithic artefacts from other units exhibited varying degrees of fluvial abrasion, reflecting reworking of material within the Lynch Hill/Corbets Tey terrace, and/or material reworked from earlier terrace deposits. The paleoenvironmental potential of the deposits was generally low, although the lower chalky units sporadically preserved molluscs and fragments of unidentifiable mammal bones.
- 3.2.23 Beneath made ground, and in a restricted area in the north of the Northfleet Cement Works site, Holocene alluvial deposits occurred overlying younger Pleistocene fluvial sands and gravels of the River Thames. These were not investigated, and their age is unknown; however, their basal heights indicated that they predate the Shepperton Gravel of the Thames (17–11.7 Ka), which could imply correlation with the earlier East Tilbury Marshes terrace (123–25 Ka).
- Grove Road, Ebbsfleet, Geoarchaeological Deposit Model and Desk-Based Assessment (WA 2022b)*
- 3.2.24 A geoarchaeological deposits model and desk-based assessment has been carried out for Quaternary deposits located at Grove Road, immediately south-east of the current site.
- 3.2.25 This assessment demonstrated that in the south of this site the Quaternary stratigraphy had been heavily impacted on by previous development, including a former chalk quarry. However, the sporadic survival of truncated Pleistocene fluvial deposits was noted. This

included the continuation of sediments of the Lynch Hill/Corbets Tey terrace of the Thames identified further east in the Northfleet Cement Works site (see above), and a separate, younger group of Pleistocene fluvial deposits likely belonging to either the Taplow/Mucking terrace of the Thames (late MIS 8 to MIS 6; 280–160 Ka), or a terrace of the Ebbsfleet.

- 3.2.26 The centre and west of the Grove Road site, adjacent to the eastern boundary of the current site, is situated along the eastern edge of the lower Ebbsfleet Valley at the Thames confluence (Robin's Creek). Truncated Holocene alluvial deposits and possible Holocene/Pleistocene colluvial deposits were identified in this area, beneath made ground (up to 6 m). The Holocene alluvial deposits were located at the wetland-dryland margin of the Thames and Ebbsfleet, which could indicate potential for Holocene archaeology.
- 3.2.27 The north of the Grove Road site runs along the southern bank of the River Thames where deep Quaternary sequences (up to c. 18 m) occur. These comprised Holocene alluvial sediments overlying Pleistocene terrace deposits of the Thames. Although data coverage for this area was limited, the available data indicated that two Pleistocene terraces of the Thames were present beneath the Holocene alluvium, most likely belonging to the East Tilbury Marshes terrace (MIS 6 to MIS 2; 160–25 Ka) and the Shepperton Gravel (late MIS 2; 17–12 Ka).
- ### 3.3 Historic mapping
- 3.3.1 Historic maps of the site have been reviewed (**Figure 5**). The 1840 tithe map of Northfleet records that parts of the Northfleet Marshes, which dominated the site, had been reclaimed as pastoral land but that the site was largely undeveloped. Robin's Creek Cement Works are recorded to the east of the site, south of the creek.
- 3.3.2 By 1872 the Robin's Creek Works had expanded on the north side of the creek, into the north of the site. The 1872 map records a quarry pit, Botany Bay Pit, excavated in the centre of the site. This is the likely source of Palaeolithic artefacts collected by Stopes (see **section 3.2**). By 1872 the North Kent railway line had been constructed directly to the south of the site.
- 3.3.3 Botany Bay Pit is no longer evident on the 1898 OS map, potentially having been infilled. By this date a tram/railway line ran through the area of the former pit, linking the expanded Robin's Creek Cement Works, now renamed the Portland Cement Works, with the newly develop Britannia Cement works, located west of the site boundary. By 1898 wharves had been built on the Thames foreshore connected to recently built tram and railway lines that ran through the site.
- 3.3.4 The 1909 OS map indicates a reduction in flow of the River Ebbsfleet. This has been linked to the use of the rivers water in local industry and the recently established water company (WA 2022a). Additionally, the 1909 mapping records Northfleet United football ground, which was constructed in 1905, in part of the area formerly occupied by Botany Bay Pit.
- 3.3.5 OS mapping demonstrates that by 1937 the Portland Cement Works had been considerably reduced in size, with all but one building demolished and many of the railway/tramlines that previously ran across the site removed. The wharf facilities located on the foreshore had also been greatly reduced. By 1937 Northfleet United football ground had been remodelled with two stands constructed.
- 3.3.6 Post-1937 OS mapping (not figured) suggests that by 1955 the Portland Cement Works were disused. By the 1970s the works had had been demolished and north part of the site

cleared. In the early 1980s the site was redeveloped as part of Northfleet Industrial Park with many of the existing industrial buildings located within the site built during this period.

- 3.3.7 The Northfleet United football ground (now known as the Ebbsfleet United following a rebranding and merger with Gravesend United) has also been redeveloped with two stands erected alongside the existing main building.

3.4 Geoarchaeological assessment

- 3.4.1 Previous investigations indicate that Pleistocene deposits of the Ebbsfleet are present in the south of the site, and Pleistocene deposits at the Ebbsfleet-Thames confluence likely occur to the north. These Pleistocene deposits flank and underlie Holocene alluvial sediments within the lower Ebbsfleet and at the confluence between the Ebbsfleet and the Thames (Robin's Creek).

- 3.4.2 A geoarchaeological assessment of these deposits is provided below.

Lower Thames terraces

- 3.4.3 Previous investigations east of the site identified the presence of at least three Pleistocene terraces of the Lower Thames (WA 2021). The Lower Thames terraces (**Table 5**) constitute one of the most complete geological records of the last 500,000 years, within which internationally significant Palaeolithic archaeological records are preserved, along with associated geoarchaeological evidence of palaeoenvironmental and landscape change.

Table 2 Chronostratigraphic framework for Lower Thames terraces (based on Bridgland 2006)

Terrace	Units	Climate	Ages	MIS
Shepperton	Tilbury Alluvial Deposits	Temperate	Holocene	1
	Shepperton Gravel	Cold	Devensian	2
East Tilbury Marshes	East Tilbury Marshes Upper Gravel	Cold	Devensian	5d-2
	Trafalgar Square deposits	Temperate	Ipswichian	5e
	East Tilbury Marshes Upper Gravel	Cold		6
Taplow/Mucking	Mucking Upper Gravel	Cold		6
	Aveley Silts and Sands	Temperate		7
	Mucking Lower Gravel	Cold		8
Lynch Hill/Corbets Tey	Corbets Tey Upper Gravel	Cold		8
	Purfleet Silts and Sands	Temperate		9
	Corbets Tey Lower Gravel	Cold		10
Boyn Hill/Orsett Heath	Orsett Heath Upper Gravel	Cold		10
	Swanscombe interglacial deposits	Temperate	Hoxnian	11
	Orsett Heath Lower Gravel	Cold	Late Anglian	12
Plateau gravels		?	?pre-Anglian	

- 3.4.4 Mapped Pleistocene terrace deposits (BGS online viewer) are attributed to the Boyn Hill/Orsett Heath terrace. However, previous investigations (WA 2009; 2021) established that this mapped area includes units of the younger Lynch Hill/Corbets Tey terrace to north, with the Boyn Hill/Orsett Heath to the south and that younger, unmapped, terrace deposits occur in areas further north, beneath Holocene sediments of the Thames.

- 3.4.5 The younger Thames terrace deposits are poorly understood but likely include units of the East Tilbury Marshes terrace and/or the Shepperton Gravel (see **Table 2**). Additionally, although not identified in the area, units of the intervening Taplow/Mucking terrace (see **Table 2**) may also occur.

- 3.4.6 The Boyn Hill/Orsett Heath terrace is present intermittently along the south side of the Lower Thames from Dartford Heath through Dartford, Stone, Greenhithe and Swanscombe to Northfleet. The Boyn Hill/Orsett Heath terrace incorporates sands and gravels generally reflecting deposition under cold climatic conditions and interglacial sediments, which are generally finer grained. It is currently thought to have aggraded between MIS 12 and MIS 10 (430–350 Ka). These has providence extensive paleoenvironmental datasets (vertebrates, molluscs, ostracods and pollen), as well as Lower Palaeolithic archaeology (see **section 3.4**)

- 3.4.7 The Lynch Hill/Corbets Tey terrace (MIS 10–MIS 8; 350–280 Ka) is poorly represented within BGS mapping on the south bank of the Lower Thames in area of the site (BGS online viewer). However, recent work (WA 2021) has established that this lack is reflective of inaccuracies in the mapping, rather than an absence of this terrace. The palaeoenvironment potential of these deposits is not well established.

- 3.4.8 Although not identified in the area, there is potential for unrecorded units of the Taplow/Mucking terrace to be present. The Taplow/Mucking terrace is dated to late MIS 8 to MIS 6 (280–160 Ka). Deposits of this age belonging to the Ebbsfleet ("Ebbsfleet Channel" sites) have been identified in the lower Ebbsfleet Valley south of the site (see above).

- 3.4.9 The East Tilbury Marshes terrace is also poorly mapped in the area but is known to be present further to the west on the margins of the Swanscombe Peninsula (MoLAS 2003). The East Tilbury Marshes terrace is thought to have aggraded between late MIS 6 and early MIS 2 (160–25 Ka).

- 3.4.10 The youngest Pleistocene unit, the Shepperton Gravel, is known to extend beneath the modern Thames floodplain, under thick Holocene alluvial sequences. The Shepperton Gravel is thought to represent the final phase of Pleistocene fluvial deposition by the River Thames in late MIS 2 (17–12 Ka).

Pleistocene deposits in the Ebbsfleet Valley

- 3.4.11 The lower Ebbsfleet Valley, which runs through the site, has incised through earlier Pleistocene deposits of the Thames terrace, depositing its own Pleistocene sediments.

- 3.4.12 Previous investigations have provided a stratigraphic framework for Quaternary sediments in the lower Ebbsfleet (Scott 2011, Wenban-Smith et al. eds. 2020). This is outlined in **Table 3**. The Pleistocene deposits in the lower Ebbsfleet span MIS 8 to MIS 2 (300–11.7 Ka), time periods covering the Middle and Upper Palaeolithic.

Table 3 Quaternary stratigraphy and chronology for the lower Ebbsfleet Valley

Deposits	Location	Epoch	Age	Archaeological Period
Solifluction, fluvial/alluvial and colluvial slope wash	Valley side	Late Middle Pleistocene	Late MIS 8-MIS 7	Early Middle Palaeolithic
Fluvial	Valley side/beneath Holocene valley fill	Late Middle Pleistocene	?MIS 6	Early Middle Palaeolithic

Deposits	Location	Epoch	Age	Archaeological Period
Solifluction and colluvial slopewash	Valley side	Late Middle Pleistocene	MIS 6	Early Middle Palaeolithic
Fluvial/alluvial	Valley side	Upper Pleistocene	MIS 5e	Late Middle Palaeolithic
Colluvial slopewash and fluvial	Valley side/beneath Holocene valley fill	Upper Pleistocene	MIS 5d-a	Late Middle Palaeolithic
Colluvial slopewash and fluvial	Valley side/beneath Holocene valley fill	Upper Pleistocene	MIS 4-3	Late Middle Palaeolithic
Fluvial/alluvial	Beneath Holocene valley fill	Late Middle-Upper Pleistocene	<MIS 7	Uncertain
Colluvial slopewash	Valley side	Upper Pleistocene	MIS 2	Upper Palaeolithic
Alluvium (Lower Clay Silts)	Holocene valley fill	Holocene	MIS 1	Mesolithic
Alluvium (Main Peat)	Holocene valley fill	Holocene	MIS 1	Late Mesolithic-early Bronze Age
Alluvium (Upper Clay Silts)	Holocene valley fill	Holocene	MIS 1	Late Bronze Age-Roman
Alluvium (Upper Peat)	Holocene valley fill	Holocene	MIS 1	Anglo-Saxon
Colluvial slopewash	Valley side	Holocene	MIS 1	Principally Mesolithic-Bronze Age

3.4.13 The earlier deposits located along the western margins of the Ebbsfleet Valley have been the focus of previous works, with those located beneath later Holocene valley fill sediments largely being identified from borehole records.

3.4.14 Late Middle Pleistocene Ebbsfleet deposits located along the western edge of the lower Ebbsfleet valley were first identified and studied by Burchell from 1933 to the 1950s (Burchell 1933; 1935; 1936a; 1936b; 1936c; 1938; 1954; 1957), who attributed them to the "Ebbsfleet Channel". Excavations were subsequently carried out in these two areas between 1965 and 1969 by the British Museum (Kerney and Sieveking 1977), with these areas being designated as British Museum sites A (allotment site) and B (within area investigated by Burchell); see **Figure 4**.

3.4.15 The BM sites A and B sediments were subsequently studied by Wenban-Smith as part of PhD research (Wenban-Smith 1995) and in advance of HS1 (Wenban-Smith et al. 2020a; 2020b). The "Ebbsfleet Channel" deposits contained units preserving palaeoenvironmental evidence (vertebrates, molluscs, ostracod and pollen) and contemporary early Middle Palaeolithic archaeology, as well as likely reworked earlier handaxes (see **section 3.4**)

3.4.16 The stratigraphic successions associated with these investigations have been reassessed by Scott et al. (2010) and by Wenban-Smith et al. (2020a; 2020b). The stratigraphic and

chronological successions identified are summarised in **Tables 4–5**. The sequences are complex and reflect deposition through solifluction, slopewash, coarse grained fluvial and finer grained alluvial processes, associated with changing landscapes and environments.

3.4.17 Combined Amino Acid Racemization (AAR) dates, Optically Stimulated Luminescence (OSL) dates and biostratigraphy evidence (Scott et al. 2010, Wenban-Smith et al. 2020) demonstrated that the deposits date to MIS 7 (240–190 Ka), whilst detailed investigations carried out by Wenban-Smith et al. (2020a; 2020b) demonstrated that the sequences include units dating to early and late in the MIS 7 interglacial.

Table 4 Summary of British Museum Site B stratigraphy

Wenban-Smith et al. 2020	Kerney and Sieveking (1977)	Burchell (based on Scott et al. 2010 and Wenban-Smith et al. 2020)	Mode of deposition	Depositional environment
BMB-F		Coombe Rock	Colluvial slopewash	Cool, open and dry
		Uppermost Loam		
		Coombe Rock		
		Calcareous Loam		
BMB-E	Freshwater Silt	Upper Loam/Temperate Bed	Alluvial	Temperate, transition from woodland to open grassland
BMB-D	Weathering Horizon	Weathered Surface of Middle Loam	Colluvial slopewash	Cool, open and dry
		Upper Middle Loam		
	Aeolian/solifluction Silt	Coombe Rock and Trail		
		Lower Middle Loam		
		Lower Loam		
BMB-C	Solifluction Gravel (Upper)			
BMB-B	Solifluction Gravel (Lower)	Fluviatile Gravel/Lower Gravel/Meltwater Gravel	Fluvial	Temperate, open
BMB-A	Coombe Rock	Main Coombe Rock	Solifluction	Cool/cold

Table 5 Summary of British Museum Site A stratigraphy

Wenban-Smith et al. 2020	Kerney and Sieveking (1977)	Carreck (1972)	Mode of deposition	Depositional environment
BMA-G	Sandy deposits	Trail	Colluvial slopewash	
BMA-F		Light-brown sands	Colluvial slopewash	
BMA-C	Freshwater silts	Greenish silty loam	Alluvial/Fluvial	Temperate
		Greenish/ochreous mottled silty loam		
		Greenish/ochreous sandy loam		
BMA-B	Freshwater gravel	Black speckled loam	Alluvial/Fluvial	Temperate
		Coarse grey gravel		
		Sandy gravel		
BMA-A	Main Coombe Rock	Main Coombe Rock	Solifluction	Cool/cold

3.4.18 Later Pleistocene deposits in valley side locations in the lower Ebbsfleet were identified and investigated in advance of HS1 (Bates and Wenban-Smith 2020, Bates et al. 2020a; 2020b; 2020c, Wenban-Smith et al. 2020c). This work recorded a range of high energy fluvial, lower energy alluvial, solifluction and slope wash deposits post-dating those of the “Ebbsfleet Channel” sites. These date between MIS 6 and MIS 3 (190–29 Ka). They were shown to preserve paleoenvironmental evidence (vertebrates, molluscs, ostracod and pollen) and to reflect a range of environmental conditions from fully temperate and periglacial. Palaeolithic artefacts were recovered from some deposits, the conditions of which were reported to indicate that most have been reworked to some degree (Wenban-Smith 2020).

3.4.19 Test pits and boreholes carried out as part of the STDR4 and HS1 investigations demonstrated that these Pleistocene deposits continue beneath the Holocene stratigraphy in lower Ebbsfleet Valley (Stafford et al. 2020a).

Late Pleistocene and Holocene deposits

3.4.20 Investigations for HS1 and STDR 4 have provided a chronostratigraphic record for the latest Pleistocene and Holocene (<15 ka) landscape evolution in the lower Ebbsfleet/Thames confluence (Bates and Stafford 2013, Stafford et al. 2020a), summarised in **Table 6**.

Table 6 Chronostratigraphic framework for Late Pleistocene and Holocene deposits at the Ebbsfleet/Thames confluence (based on Bates and Stafford 2013)

Landscape stage	Age	Deposits	Environment
1a	Late Pleistocene	Fluvial sands and gravels/solifluction deposits	Cold climate periglacial riverine
1b	Early Holocene	Fluvial sands and organic sandy silts	Temperate riverine
2	Ealy to mid Holocene	Estuarine clay silts	Temperate brackish water salt marsh and reed swamp
3	Mid Holocene	Peats and minerogenic alluvial sediments	Temperate wetland dominated landscape of fen carr
4	Mid to late Holocene	Estuarine clay silts	Temperate brackish water salt marsh and reed swamp
5	Late Holocene	Fresh water peats	Temperate wetland dominated landscape of fen carr

3.4.21 Investigations immediately south of the current site (Stafford et al. 2020a) and within the current site boundary (QUEST 2016) have identified Holocene sequences that can be summarised as follows:

- Sands and Gravels (late Pleistocene)
- Lower Clay Silt (late Pleistocene to mid Holocene)
- Main Peat (mid Holocene)
- Upper Clay Silt (mid to late Holocene)
- Upper Peat (late Holocene)

3.4.22 The sands and gravels are likely to principally be late Pleistocene fluvial and solifluction deposits but have not been investigated in detail.

3.4.23 The overlying Holocene deposits comprised minerogenic sands, silts and clays interstratified with more organic sediments. They contained a major peat bed divided into lower wood peat and upper reed peat (Main Peat). A second upper peat was identified in top of some of the extant Holocene sequence which was directly below made ground.

3.4.24 The Holocene sequences contained a wide range of well-preserved palaeoenvironmental indicators, which included pollen, diatoms, ostracods and plant macro remains. These reflected changing environments during the Holocene.

3.4.25 Radiocarbon dating has established chronology for the Holocene deposits, with dated units spanning the early Mesolithic (c. 8.5 Ka cal BP) to the early medieval periods (c. 900 cal AD). The Main Peat accumulation was established to have begun accumulating in the late Mesolithic period, and to have continued forming into the Bronze Age. The Upper Peat was dated to middle to late Anglo-Saxon period (1196±20 BP; 710-940 cal AD)

3.4.26 Evidence of human activity dating from the Mesolithic to Bronze Age was associated with these sediments, in particular the Main Peat (see **section 3.5**)

3.4.27 Late Pleistocene and Holocene colluvial slopewash deposits occur along the valley edges of the Ebbsfleet Valley (Wenban-Smith et al. eds. 2020). These are included with deposits mapped as Head by the BGS.

3.4.28 Late Pleistocene colluvial units likely reflect periods of landscape instability reflecting reduced vegetation cover under cold conditions, which resulted in the down-slope mobilisation of sediments. Similar processes will have initiated colluvial sedimentation in the Holocene; however, rather than being driven by climatic conditions, the principal causal factors are likely to have been anthropogenic, including vegetation clearance and cultivation.

3.4.29 These colluvial deposits have low palaeoenvironmental potential but contain archaeology of multiple periods reworked and incorporated into the sediments. In the Ebbsfleet Valley have also been shown to bury stable horizons with Terminal Upper Palaeolithic (Long Blade), Neolithic and Bronze Age lithic scatters (MoLA 2017, Anderson-Wymark et al. 2020).

3.5 Archaeological assessment

3.5.1 The following section reviews the known archaeological resources associated with Quaternary deposits in the area of the site. **Figure 6** illustrates Palaeolithic and Mesolithic findspots recorded in the Kent County Council Historic Environment Record (HER) within a 1 km study area. This has been augmented by Palaeolithic findspots recorded by The English Rivers Palaeolithic Survey (TERPS) database within a 2 km study area (Wessex Archaeology and Wymer 2009; **Figure 7**) and consideration of Upper Palaeolithic and Mesolithic findspots recorded in the Palaeolithic and Mesolithic Lithic Artefact (PaMELA) database (Wessex Archaeology and Jacobi 2014)

Lower Palaeolithic – Thames Terraces (424–320 Ka)

3.5.2 Boyn Hill/Orsett Heath terrace deposits are located west of the site in the Swanscombe area and dated to MIS 11–10 (424–320 Ka). These have produced large numbers of Lower Palaeolithic artefacts and palaeoenvironmental datasets, as well as one of the few Pleistocene human fossils from Britain (Barnfield Pit; Conway *et al.*, 1996). Key locations

within 2 km of the site include Barnfield Pit (TERPS 27143), Dierden's Pit (TERPS 8727-32; 27148), Craylands Lane New Pit (TERPS 28733-35, 27146), Rickson's Pit (TERPS 28742, HER MKE1661) Ebbsfleet Academy/Swan Valley Community School (see **Figure 6** inset). To the west, the site is separated from these deposits and findspots by the Ebbsfleet Valley, however, an outcrop of Boyn Hill/Orsett Heath deposits located 260m south-west of the site was the source of a Lower Palaeolithic handaxe and several flakes in fresh condition were found in the late 19th century by Spurrell (1883) (TERPS 274164; HER MKE 1686).

3.5.3 Recent investigations east of the site at the former Northfleet Cement Works (HER MKE90491) recovered Palaeolithic artefacts from the younger Lynch Hill/Corbet Tey terrace (WA 2009; 2021). All artefacts were undiagnostic but fitted within Lower Palaeolithic assemblages.

3.5.4 West of the site Palaeolithic artefacts have been recovered from Pleistocene Thames deposits around Galley Hill (TERPS 27147; 28736-41, HER MKE99887; MWX20875; MWX20865). These are poorly provenanced, and the stratigraphy and chronology of the deposits is not well understood. The deposits in this area could all relate to the Boyn Hill/Orsett Heath terrace, although their locations indicates that they could include also unidentified Lynch Hill/Corbets Tey deposits.

Middle Palaeolithic – Ebbsfleet deposits (260–40 Ka)

3.5.5 Deposits associated with “Ebbsfleet Channel” have produced contemporary early Middle Palaeolithic archaeology, as well as reworked Palaeolithic handaxes (TERPS 28743-5, 27157-60, HER MWX20964), likely derived from the Boyn Hill/Orsett Heath terrace of the Thames (Scott 2011).

3.5.6 Most archaeology recovered from the “Ebbsfleet Channel” was obtained by Burchell (Burchell 1933; 1935; 1936a; 1936b; 1936c; 1938; 1954; 1957). Reassessment of the artefacts from Burchell's investigations which retain markings allowing attribution to context, demonstrate that the collection contains Middle Palaeolithic Levallois material that came from basal fluvial deposits (Scott 2011). Other artefacts, including the handaxes, are from overlying units. Differences in condition between the Levallois material from the lower units, and other pieces from above, suggest that the former have undergone comparatively less reworking and are contemporary with the deposits. This is emphasized by several refits that have also been identified from these lower units (Wenban-Smith 2020b). The Middle Palaeolithic material is considered to reflect human activity exploiting the fluvial gravels as a raw material source.

3.5.7 Middle Palaeolithic artefacts were recovered from deposits post-dating the “Ebbsfleet Channel” sites in investigations carried out in advance of HS1 (Wenban-Smith 2020). This includes material from sediments dated to MIS 4-3 (71–29 Ka), a period which covers the late Middle Palaeolithic. Assessment of these artefacts by Wenban-Smith (2020a) indicates that they have all been reworked to some degree. The HER record for these Middle Palaeolithic artefacts (MKE20251) suggests that these artefacts have not been extensively reworked and that there is potential for undisturbed material.

3.5.8 The Stopes prehistoric lithic collection (Wenban-Smith 2004) includes two Palaeolithic handaxes and flake from Botany Bay Pit, which likely refers to a gravel pit located in the centre of the current site recorded on the 1872 OS map, in an area labelled as Botany Bay (see **section 3.2**). It should be noted that the location provided for these artefacts on the HER (MWX20864) is incorrect.

3.5.9 The Palaeolithic artefacts from Botany Bay Pit have been attributed to either Boyn Hill/Orsett Heath terrace of the Thames or derived from the Boyn/Orsett Heath terrace (Wenban-Smith 2004). Given its location, any Pleistocene deposits that were present within Botany Bay Pit are more likely to have belonged to the Ebbsfleet. However, it is possible that the artefacts could have been reworked from Thames terrace deposits located east of the former Botany Bay Pit; these have been shown to belong principally to the Lynch Hill/Corbets Tey Terrace of the Thames (WA 2021).

Terminal Upper Palaeolithic (c. 10,000 BP)

3.5.10 A single potential Upper Palaeolithic artefact is recorded in the HER from the study area (MKE99889). This is a large blade collected from Botany Bay Pit in the late 19th century, which has been suggested to be a Terminal Upper Palaeolithic Long Blade (Wenban-Smith 2004). As noted above, this location is likely to refer to a former gravel pit that was in the centre of the current site.

Mesolithic (8500-4000BC)

3.5.11 Significant amounts of Mesolithic material, including finds of tranchet axes/adzes, with broad provenances to the Swanscombe and Northfleet areas are present in museum collections (Wessex Archaeology and Jacobi 2014).

3.5.12 Additionally, a borehole within the site (QUEST 2016) and a borehole south of the site boundary (Borehole 11 – EBBS97; HER MKE9970) recovered Mesolithic lithics from the lower part of the Ebbsfleet Holocene alluvial sequences. A radiocarbon date of 6420±5 BP (5478-5318 cal BC) was obtained on associated organic material in Borehole 11, which indicates a late Mesolithic date (Anderson-Whymark et al. 2020)

Post-Mesolithic (<4000 BC)

3.5.13 Significant post-Mesolithic archaeology has been recovered from Holocene alluvial deposits located south of the site (Stafford et al 2020b). This was principally associated with the Holocene Main Peat (see **section 3.4**). The archaeology included small assemblages of worked flint of likely Neolithic date from the base of the Main Peat (Trench 1 (EBBS97), Trench 2 (EBBS 97) and Trench 1240TT (ARC EFT97)), and several late Bronze Age and Iron Age wooden trackway, revetment and stake built structures and associated material culture (ARC ESG000 and ARC 342W02). Several locations around the margins of Zones 8/7 and 8/9 produced concentrations of worked flint broadly dated on techno-typology to the Neolithic and Bronze Age (Oxford Archaeology [OA] 1997a; 1997b; 2000; 2001).

3.6 Summary of archaeological and geoarchaeological desk-based review

3.6.1 The archaeological and geoarchaeological background to site can be divided between the Pleistocene and the latest Pleistocene to Holocene and summarised as follows.

Pleistocene (424–15 Ka)

3.6.2 Available evidence indicates that Pleistocene deposits likely occur with the site. These are likely to be fluvial and/or slopewash sediments. These likely include sediments deposited in the lower Ebbsfleet Valley from MIS 8 (<300 Ka) onwards but could include earlier deposits of the Thames (MIS 11-8; 424–300 Ka), which the Ebbsfleet has incised through.

3.6.3 Similar deposits in the lower Ebbsfleet Valley have produced significant Middle Palaeolithic archaeology, whilst earlier Thames deposits in area have produced significant Lower Palaeolithic archaeology.



- 3.6.4 Two Palaeolithic handaxes and one flake were recovered from Botany Bay Pit in the later 19th century by Stopes (Wenban-Smith 2004). This location can be correlated with a quarry pit recorded on the 1872 OS mapping within the centre of the site. The specific context and significance of this archaeology is currently poorly understood but indicates potential for Palaeolithic archaeology associated with Pleistocene deposits in the site.
- 3.6.5 Ebbsfleet and Thames deposits in the area of the site have both produced significant geoarchaeological evidence relating to local and regional environments and landscapes.
- Late Pleistocene to Holocene (<11 Ka)*
- 3.6.6 Previous investigations in the site and immediately adjacent areas have demonstrated that late Pleistocene and Holocene deposits of the Ebbsfleet occur within the site. The Holocene deposits include a major peat unit dated from the Mesolithic to the Bronze Age (Main Peat), and a later Upper Peat dated to the middle to late Anglo-Saxon period.
- 3.6.7 The lower part of the late Pleistocene and Holocene stratigraphies, both in and adjacent to the site, have produced Mesolithic lithics. A possible Long Blade collected by Stopes from Botany Bay Pit has been identified (Wenban-Smith 2004), which suggests that these sequences may include late Pleistocene deposits containing Terminal Upper Palaeolithic archaeology. Significant Neolithic to Iron Age archaeology has been recovered from the Main Peat south of the site. This includes wooden structures (Stafford et al. 2020b).
- 3.6.8 Previous investigations have demonstrated the late Pleistocene and Holocene sequences in the site preserve a range of paleoenvironmental datasets illustrative of local and regional environments and landscapes.

4 GEOARCHAEOLOGICAL LANDSCAPE CHARACTERISATION

4.1 Introduction

- 4.1.1 Deposit modelling has been used to create a Geoarchaeological Landscape Characterisation (GLC) for the site. This provides a framework for more precisely determining the archaeological and geoarchaeological potential of the site at a scale which can most effectively inform future decision making, management, evaluation and mitigation of proposed impacts on the buried archaeological and geoarchaeological resource.

4.2 Methodology

- 4.2.1 Deposit modelling maps the lateral extent and depth of superficial deposits across the site, providing data for the GLC. The deposit modelling has been carried out in accordance with *Deposit modeling and archaeology: guidance for mapping buried deposits* (HE 2020) and Kent County Councils *Manual of Specifications Part B Specification KCC generic specification requirements for desk-based assessment of geoarchaeological potential (including baseline deposit modelling)* (Appendix 1).
- 4.2.2 To create the deposit model for the site, 622 deposit records (**Figure 8**) were reviewed from the following sources:

High Speed 1 and South Thameside Development Route 4

- Kent County Council [KCC] (1995) South Thames-Side Development route stage 4 Geotechnical Investigations Factual Report
- Bates M (1996) STDR 4 – Additional Monitoring of Geotechnical Investigations



- Oxford Archaeology [OA] (1997a) Proposed Ebbsfleet Development (Northfleet Rise Area) Archaeological Evaluation Report
- OA (1997b) The Ebbsfleet Valley, Northfleet, Kent (ARC EFT 1997) Archaeological Evaluation Report (Volumes 1-3)
- OA (1998) NGC Tower ZR4, Ebbsfleet Valley, Northfleet, Kent (ARC ZR4 98) Archaeological Evaluation Interim Report
- OA (2000a) South Thames-Side Development Route 4 (STDR 4), Ebbsfleet Valley, Northfleet, Kent Archaeological and Geological Evaluation Report
- OA (2000b) Project Area 330 New NGC ZR4 Pylon Location, Ebbsfleet Kent (ARC ZR400) Detailed Excavation Assessment Report
- OA (2001) Ebbsfleet Sports Ground, Northfleet, Kent (ARC ESG00) Phase II Evaluation Archaeological Works Fieldwork Report
- OA (2006) South Thames-Side Development Route 4 (STDR4 01) . Ebbsfleet Valley, Northfleet, Kent Post Excavation Assessment Report and Updated Project Design
- Bates M and Stafford M (eds) (2013) Thames Holocene A Geoarchaeological approach to the investigation of the river floodplain for High Speed I, 1994 –2003
- Wenban-Smith F F et al. (eds) (2020) Prehistoric Ebbsfleet Excavations and Research in Advance of High speed I and South Thameside Development Route 4, 1989-2003
- Wessex Archaeology [WA] (2022a) Ebbsfleet Central, Ebbsfleet, Kent Geoarchaeological Deposit Model and Palaeolithic Desk-Based Assessment

Northfleet Embankment West

- WA (2009) Archaeological (Palaeolithic Test Pit) Evaluation Report Land at Northfleet Cement Works.
- WA (2020) Land at Northfleet Embankment West, Gravesham, Kent. Palaeolithic Archaeological Monitoring of GI Works
- WA (2021) Land at Northfleet Embankment West, Gravesham, Kent. Palaeolithic Archaeological and Geoarchaeological Excavation

Northfleet Growth Scheme

- Canterbury Archaeological Trust [CAT] (2007) Archaeological watching brief on test pits and proving pits along pipeline route, Northfleet Growth Scheme, Kent

Stonebridge Road Stand, Stonebridge Road Stadium, Northfleet

- QUEST (2016) Phase 1a: Stonebridge Road Stand, Stonebridge Road Stadium, Northfleet, Kent Geoarchaeological Fieldwork and Deposit Modelling Report

Grove Road, Northfleet

- WA (2022b) Grove Road, Northfleet Geoarchaeological Deposit Model and Desk-Based Assessment.

- 4.2.3 The different lithologies recorded in the deposit records were collated in an Excel spreadsheet and entered into industry standard software (Rockworks™ 17) and assigned to a stratigraphic unit.
- 4.2.4 The Rockworks data was utilised to map the lateral extent of key stratigraphic units and to produce representative stratigraphic profiles (transects) of the subsurface deposits beneath the Site (**Figures 9–15**).
- 4.2.5 The results of the deposits modelling have been used to provide a GLC for the site. The GLC works on the same principles as a Historic Landscape Characterisation (English Heritage 2004) and Landscape Character Assessment (Natural England 2014), but in this case largely considers the shallow buried and outcropping superficial geological elements of the landscape.
- 4.2.6 The GLC considers variations in the Quaternary geology across the site, sub-dividing the site into different Geoarchaeological Characterisation Zones (GCZs).
- 4.2.7 The GLC has been combined with the results of the GDBA to provide an assessment of the archaeological and geoarchaeological potential of Quaternary deposit in each GCZ, providing a suitable baseline within which to inform the need for and scope of any subsequent targeted intrusive archaeological and geoarchaeological works.

4.3 Deposit modelling

Introduction

- 4.3.1 There are insufficient data points to map in the Quaternary deposits present across the site. However, the data available from the site and immediate surrounding area enables the range of deposits likely present to be assessed, and their broad location within the site to be established.

Deposit modelling outputs

- 4.3.2 The deposit modelling consists of a series of modelled outputs, comprising seven lateral transects (**Figures 9–15**).
- 4.3.3 The transects are composed of two-dimensional vertical visualisations of the stratigraphic records, along lines drawn through interventions with and surrounding the site. These transects model the possible make-up of the deposits between these individual deposit records, drawn as horizontal lines between the upper and lower surfaces of the stratigraphic units.

Transect 1 (Figure 9)

- 4.3.4 Transect 1 is a south-west to north-east orientated transect through deposits in the south-east of the site. It illustrates that this part of the site crosses the lower Ebbsfleet Valley, which has Pleistocene deposit preserved along the upper slopes and beneath Holocene deposits located within the valley floor. These deposits occur beneath variable depths of made ground, with maximum depths of c. 2 m of made ground recorded.
- 4.3.5 The transect demonstrates that the site is located north of the late Middle and early Upper Pleistocene deposits investigated along the western edge of Ebbsfleet Valley, including those of the “Ebbsfleet Channel” (see **section 3**). The transect shows that Pleistocene fluvial deposits in and adjacent to the site (e.g. WSW7) are at lower elevations than those associated with the “Ebbsfleet Channel” and therefore likely post-date them.

- 4.3.6 The fluvial deposits east of the site have similar heights (c. 1 m OD) to late Middle and early Upper Pleistocene deposits (MIS 6-3; 191-29 Ka) west of the Ebbsfleet (Bates and Wenban-Smith 2020, Wenban-Smith et al. 2020c), and which they may therefore be broadly contemporary with. These deposits east of the Ebbsfleet have not been previously identified or investigated. These eastern deposits are recorded c. 75 m east of the site boundary; they likely extend into the east of the site but data coverage in this area is not insufficient to confirm this.
- 4.3.7 The Pleistocene deposits recorded beneath the Holocene alluvium comprise fluvial sands and gravels, potentially interstratified with solifluction deposits. These are at a lower basal elevation, and therefore younger, than those of the valley edges. They have only previously been identified in boreholes and have not been investigated in detail. Their specific age, or ages, is uncertain but dates within the period from MIS 6 through to MIS 2 (191-11.7 Ka) are likely.
- 4.3.8 The Holocene alluvial sequences present in the south of the site are up to c. 10 m thick and are continuations of those identified in previous investigations within (QUEST 2016) and south of the site (Stafford et al. 2020a; **see section 3**). The full Holocene stratigraphy identified in these previous investigations is present, comprising:

- Sands and Gravels (Late Pleistocene)
- Lower Clay Silt (late Pleistocene to mid Holocene)
- Main Peat (mid Holocene)
- Upper Clay Silt (mid to late Holocene)
- Upper Peat (late Holocene)

Transects 2 and 3 (Figures 10–11)

- 4.3.9 Transect 2 and 3 provide west to east orientated cross-sections through deposits along the axis of Stonebridge. They demonstrate that Holocene sediments overlying Pleistocene deposits equivalent to those in the south of the site extend at least this far north in the site. These deposits occur beneath variable depths of made ground, up to c. 2 m thick.

Transect 4 (Figure 12)

- 4.3.10 Transect 4 is a west-north-west to north-east transect through deposits in the west and centre and of the site. It demonstrates that in the west of the site Head occurs beneath 0.50–0.85 m of made ground. Up to c. 2 m of Head is recorded. This Head likely comprises slope deposits of Pleistocene and/or Holocene date.
- 4.3.11 The transect records Pleistocene fluvial deposits of the Ebbsfleet overlying solifluction gravels further east towards the centre of the site. These are located along the western edge of the lower Ebbsfleet, at the point the valley shifts orientation from south-east to north west to south-east to north west to join the Thames Valley. The fluvial deposits likely belong to the Ebbsfleet. The data indicates the base of the fluvial deposits is at c. 1 m OD. This indicates they may be contemporary with those recorded east of the site boundary in Transect 1 and 2.
- 4.3.12 The same Holocene alluvial deposits over Pleistocene fluvial deposits as those recorded along Stonebridge Road (Transects 2–3) are recorded further east along Transect 4.



Transect 5 (Figure 13)

- 4.3.13 Transect 5 runs west to east across the centre of the site, between deposits recorded along the eastern and western boundaries. It shows that Holocene alluvium over possible Pleistocene fluvial deposits (west) and bedrock (east) occur. There is no data coverage across the site itself in this area and the deposits present are unknown.

Transects 6 and 7 (Figures 14–15)

- 4.3.14 Transects 6 and 7 provide north-north-east to south-south-west and north-west cross sections between deposits recorded east and west of the site boundary in the north of the site. This area is the confluence between the Ebbsfleet and the Thames.
- 4.3.15 Although no data coverage is available for this area in the site, these transect provide good indication of the range of deposits likely to be present. The basal heights of the Pleistocene fluvial deposits indicate that two terraces are present in this area, one with a bedrock height of c. -2 m OD, and one at -11 to -17 m OD. Their stratigraphic position may suggest correlation with the East Tilbury Marshes (160–25 Ka) and Shepperton Gravel (17-12 Ka) of the Thames terraces.
- 4.3.16 Up to 11 m of Holocene sediments are likely to be present in the north of the site. The basal profiles of the overlying Holocene alluvial sequences suggests that several channels cut into the Pleistocene deposits and bedrock may be present in the east of the area (Transect 7). They also suggest that they include at least one major peat (Transect 6). The age of this peat is unknown but may correlate with the Main Peat in the lower Ebbsfleet Valley (Mesolithic to Bronze Age; see **section 3**)

Site stratigraphy

- 4.3.17 The data provided by the deposit modelling allows the production of an initial Quaternary site stratigraphy, which provides an archaeological and geoarchaeological framework for the site. This divides the Quaternary deposits into nine units. These are outlined in **Table 7** and discussed below.

Table 7 Site stratigraphy

Phase	Deposits	Transects	Age	Geological Period	Archaeological Period	Comment
1	Fluvial/alluvial/slopewash/solifluction in centre of valley	4 and 5	?MIS 6-3	Late Middle to Upper Pleistocene	Middle Palaeolithic	West of site, may occur in east
2	Fluvial and solifluction deposits beneath Holocene alluvium	All	?MIS 6-2	Late Middle to Upper Pleistocene	?Middle and/or Upper Palaeolithic	
3	Slopewash along valley margins (Head)	4 and 5	Unknown	Pleistocene	?Middle and/or Upper Palaeolithic	West of site. Sediments could be Pleistocene and/or Holocene
4	Alluvium (Lower Clay Silts)	1, 2, 3, 4, ?6 and ?7	MIS 1	Early to mid Holocene	Mesolithic	South of site. Equivalent may occur in north
5	Alluvium (Main Peat)	1, 2, 3, 4 and ?6	MIS 1	Mid Holocene	Late Mesolithic-early Bronze Age	South of site. Equivalent may occur in north



Phase	Deposits	Transects	Age	Geological Period	Archaeological Period	Comment
6	Alluvium (Upper Clay Silts)	1, 2, 3, 4, ?6 and ?7	MIS 1	Mid to late Holocene	Late Bronze Age-Roman	South of site. Equivalent may occur in north
7	Alluvium (Upper Peat)	?2, ?3 and ?4	MIS 1	Late Holocene	Anglo-Saxon	Likely present in south of site
8	Colluvium (within deposits recorded as Head)	4 and 5	MIS 1	Mid to late Holocene	Principally Mesolithic-Bronze Age	West of site. Sediments could be Pleistocene and/or Holocene
9	Made Ground	All		Recent	Recent	

Pleistocene

- 4.3.18 Pleistocene terraces of the Ebbsfleet occur in the site. These have not previously been investigated in detail. They are poorly characterised, and their age is uncertain.
- 4.3.19 Phase 1 Pleistocene fluvial deposits with basal elevations of c. 1m OD occur along the valley margins of the Ebbsfleet in the west of the site (CAT 2007) and likely the east (WA 2022b). In the west they are generally recorded beneath up to 2 m of made ground. These may broadly equate to deposits investigated in advance of STDR 4 and HS1 south of the site and dated to between MIS 6 and MIS 3 (Bates and Wenban-Smith 2020, Wenban-Smith et al. 2020c).
- 4.3.20 Younger Pleistocene fluvial and solifluction deposits (Phase 2), occur beneath up to c. 10 m of Holocene alluvium. In the south of the site they have bedrock heights of between c. -3 and -11 m OD, whilst in the north they are likely to occur at c. -2 and -16 m OD. These Pleistocene deposits were identified south of the site in work carried out for STDR 4 and HS1 (Stafford et al. 2020a) but neither these, nor those to the north, have been investigated in detail.
- 4.3.21 The data suggests that two sets of Pleistocene deposits of different ages are present with bedrock heights of between c. -2 to -8 m and c. -11 to -16 m OD. These are undated but may be equivalent with the East Tilbury Marshes (160–25 Ka) and Shepperton Gravel (17-12 Ka) of the Thames terraces.

Holocene

- 4.3.22 Holocene alluvial sequences up to c. 10 m thick have been recorded in the south of the site (CAT 2007; Quest 2016). These are the northward continuation of those investigated as part of the STDR 4 and HS1 work (Stafford et al. 2020a). The STDR 4 and HS1 investigations demonstrated that these Holocene deposits date from the Mesolithic through to the Anglo Saxon period.
- 4.3.23 Details of the Holocene stratigraphy in the north of the site is less certain, but up to 11 m of sediment is likely to occur. These may include deposits equivalent to those in the south of the site, as well as basal channel fills incised into the underlying Pleistocene stratigraphy. The deposits may include equivalent deposits to those recorded in the south. At least one major peat is recorded in the area, which may equate to the Main Peat present in the south of the site (Mesolithic to Bronze Age).



4.4 Geoarchaeological Characterisation Zones

4.4.1 The available data allows the site to be divided into five Geoarchaeological Character Zones (Figure 16). These zones are summarised in Table 8 and discussed below.

Table 8 Geoarchaeological Character Zones

GCZ	Principal Quaternary deposits	Depth of deposits (m bgl)	Depth of made ground overlying Quaternary deposits (m)
1	Phase 3/8 Pleistocene/Holocene slopewash	0.50-0.85	0.50-0.85
	Phase 9 Made ground	0.00	
2	Phase 1 Pleistocene fluvial and solifluction deposits	1.50 – 4.18	1.50-3.70
	?Phase 3/8 Pleistocene/Holocene slopewash	Unknown	
	Phase 9 Made ground	0.00	
3	?Phase 1 Pleistocene fluvial solifluction deposits	Unknown	Unknown
	?Phase 4–7 Holocene alluvial deposits	Unknown	
	?Phase 9 Made ground	Unknown	
4	Phase 2 Pleistocene	11.28-12.00	0.80-2.75
	Phase 4–7 Holocene alluvial deposits	0.80-2.75	
	Phase 9 Made ground	0.00	
5	?Phase 2 Pleistocene fluvial solifluction deposits	Unknown	Unknown
	?Phase 4–7 Holocene alluvial deposits	Unknown	
	?Phase 9 Made ground	Unknown	

GCZ 1

4.4.2 GCZ 1 is in the north-west of the site and is defined by presence of deposits mapped as Head by the GS. These are up to 1.35 m thick, above bedrock, and occur beneath 0.50-0.85 m of made ground (Phase 9). The deposits may include Pleistocene (Phase 3) and/or Holocene (Phase 8) slope deposits.



GCZ 2

4.4.3 GCZ 2 is east of GCZ 1 in the west of the site, along the western edge of the Ebbsfleet Valley. It is defined by the area within which Phase 1 Pleistocene deposits may occur. The age of these is uncertain but could span the period from MIS 6 to MIS 3 (191–29 Ka).

4.4.4 The fluvial deposits could be overlain by the lateral continuation of Phase 3 and/or Phase 8 slope deposits present in GCZ 1.

4.4.5 The distribution and depth below ground level of the Phase 1 deposits in this zone is currently poorly characterised, with data only available from the southern boundary. Here 2.60 m of deposits are recorded beneath c. 1.50 m of made ground, although this thickens to the east (Phase 9)

GCZ 3

4.4.6 This zone is along the eastern boundary of the site. Data on the deposits in this zone is lacking but records from east of the zone boundary, outside of the site, suggest the Phase 1 Pleistocene deposits are likely to be present.

4.4.7 The mapped extent of the former Botany Bay Pit extends into the north-west of the zone. The impact of this excavation on the Quaternary deposits in this area, and the extent of subsequent backfilling, is currently uncertain.

4.4.8 The zone likely includes the eastern margins of the Holocene alluvial sequences present in GCZ 4 (Phase 4–8) but these are likely to be shallow and thin out in this zone, with only the later phases of the Holocene sequences present.

GCZ 4

4.4.9 GCZ 4 is defined by the known extent of deep (up to c. 10 m) Holocene alluvial sequences (Phases 4–8), which likely span from the Mesolithic to the early Medieval period. They have previously been characterised within the site (QUEST 2016) and to the south (Stafford et al. 2020a). They overlie Phase 2 Pleistocene fluvial and solifluction deposits, which have not been investigated in detail. They are undated but could date from MIS 6 through to MIS 2 (191–11.7 Ka).

4.4.10 The northern part of the zone includes the mapped south extent of the Botany Bay Pit. Previous interventions in this area did not record deposits related to the excavation and back filling of this pit (CAT 209, QUEST 2016) but these interventions may have been located just to the south of the former pit. Consequently the impact of the pit on the Quaternary stratigraphy in this area is unknown

GCZ 5

4.4.11 This zone lacks data on the deposits present. Information from interventions to the north and south suggests that Holocene alluvial sequences up to 11 m metres thick likely occur, and these may contain units equivalent to those in GCZ 4 to the south.

4.4.12 The Holocene stratigraphy in this zone likely overlies Pleistocene fluvial deposits of the Ebbsfleet/Thames. Information from north and south of the zone indicates that two phases of Pleistocene deposition may occur, which could correlate to the East Tilbury Marshes (MIS 6-2; 160–25 Ka) and Shepperton Gravel (MIS 2; 17-12 Ka) of the Thames terraces.

4.4.13 Botany Bay Pit was in the south of this zone. This is likely to have impacted on the Quaternary deposits in this part of the zone. No data is currently available to assess the extent of these impacts.

5 ASSESSMENT OF POTENTIAL AND SIGNIFICANCE

5.1 Introduction

5.1.1 The Geoarchaeological Landscape Characterisation (GLC) has revealed the presence, or likely presence, of Quaternary deposits across the site and has enabled division of the site into five Geoarchaeological Characterisation Zones (GCZs). Information provided by the Geoarchaeological Desk-based Assessment (GDBA) has allowed the archaeological and geoarchaeological potential the deposits each deposit in each GCZ to be assessed.

5.1.2 An archaeological and geoarchaeological ‘*potential*’ rating has been assigned to deposits in each GCZ, representing a measure of probability. This has been determined via the application of professional judgement, informed by the evidence from the site itself and equivalent deposits in the surrounding study area. Geoarchaeological potential specifically refers to the potential of deposits to preserve paleoenvironmental remains and material suitable for scientific dating. ‘*Potential*’ is expressed on a four-point scale, assigned in accordance with the following criteria:

- **High** Situations where evidence is known or strongly suspected to be present within deposits and which are likely to be well preserved.
- **Moderate** Includes cases where there are grounds for believing that evidence may be present, but for which conclusive evidence is not currently available. This category is also applied in situations in which material are likely to be present, but also where their state of preservation may have been compromised.
- **Low** Circumstances where the available information indicates that evidence is unlikely to be present, or that their state of preservation is liable to be severely compromised.
- **Unknown** Cases where currently available information does not provide sufficient evidence on which to provide an informed assessment with regard to the potential for material to be present.

5.1.3 The relative ‘*Significance*’ of known and potential archaeological evidence has been determined in accordance with the criteria set out in **Table 9**. These criteria are related to national (e.g. EH 2008) and regional (SERF 2019) research themes and priorities.

Table 9 Generic schema for classifying the significance of archaeological assets (based on HE 2015)

Significance	Categories
Very High	World Heritage Sites (including nominated sites) Assets of recognised international importance Assets that contribute to international research objectives
High	Scheduled Monuments Non-designated assets of national importance Assets that contribute to national research agendas
Moderate	Assets that contribute to regional research objectives

Significance	Categories
Low	Assets compromised by poor preservation and/or poor contextual associations Assets with importance to local interest groups
Negligible	Little or no archaeological or geoarchaeological interest
Unknown	The importance of the asset has not been ascertained from available evidence

5.1.4 The archaeological and geoarchaeological potential of deposits in each GCZ is summarized in **Table 10** and discussed below

Table 10 Archaeological and geoarchaeological potential

GCZ	Principal Quaternary deposits	Archaeological potential of deposits	Archaeological Significance	Geoarchaeological potential of deposits
1	?Phase 3 Pleistocene slopewash	Unknown	Low-Moderate / Moderate-High	Low-Moderate
	?Phase 8 Holocene colluvium	Unknown	Low-Moderate / Moderate-High	Low-Moderate
	Phase 9 Made ground	None	-	None
2	Phase 1 Pleistocene fluvial and solifluction deposits	Moderate	Moderate-High	Moderate
	?Phase 3 Pleistocene slopewash	Unknown	Low-Moderate / Moderate-High	Low-Moderate
	?Phase 8 Holocene colluvium	Unknown	Low-Moderate / Moderate-High	Low-Moderate
	Phase 9 Made ground	None	-	None
3	?Phase 1 Pleistocene fluvial and solifluction deposits	Moderate	Moderate-High	Moderate
	?Phase 3 Pleistocene slopewash	Unknown	Low-Moderate / Moderate-High	Low-Moderate
	?Phase 8 Holocene colluvium	Unknown	Low-Moderate / Moderate-High	Low-Moderate
	?Phase 9 Made ground	None	-	None
4	Phase 2 Pleistocene fluvial and solifluction deposits	Unknown	Unknown	Unknown
	Phase 4 Holocene alluvium (Lower Clay Silts)	High	Moderate-High	Moderate

GCZ	Principal Quaternary deposits	Archaeological potential of deposits	Archaeological Significance	Geoarchaeological potential of deposits
	Phase 5 Holocene alluvium (Main Peat)	High	High	High
	Phase 6 Holocene alluvium (Upper Clay Silts)	Moderate	Moderate	Moderate
	Phase 7 Holocene alluvium (Upper Peat)	Moderate	Moderate	High
	Phase 9 Made ground	None	-	None
5	?Phase 2 Pleistocene fluvial and solifluction deposits	Unknown	Unknown	Unknown
	?Phase 4 Holocene alluvium (Lower Clay Silts)	High	Moderate-High	Moderate
	?Phase 5 Holocene alluvium (Main Peat)	High	High	High
	?Phase 6 Holocene alluvium (Upper Clay Silts)	Moderate	Moderate	Moderate
	?Phase 7 Holocene alluvium (Upper Peat)	Moderate	Moderate	High
	?Phase 9 Made ground	None	-	None

5.2 GCZ 1

- 5.2.1 The Quaternary deposits in GCZ 1 are likely to comprise colluvial slope deposits of Pleistocene and/or Holocene date (Phase 3/8). These deposits reflect the mobilisation of sediments downslopes due to landscape instability.
- 5.2.2 In the case of Pleistocene sediments, this instability is likely to reflect climatic conditions, with sediments reworked downslope through solifluction process (freeze-thaw) in periglacial environments, or through water run off associated with a lack of vegetation cover.
- 5.2.3 Holocene colluvium reflects similar processes, but instability in this case can relate to agricultural landscape use (vegetation clearance and ploughing).
- 5.2.4 Both Pleistocene and Holocene slope deposit can contain archaeology of multiple periods incorporated into and reworked by the deposits. Reworked Palaeolithic archaeology in Pleistocene deposits is of moderate significance, whilst later material in Holocene sediments has low significance

- 5.2.5 Both Pleistocene and Holocene deposits can bury stable horizons and land surfaces preserving in situ archaeology, including lithic scatters. Such material is of moderate to high significance. Examples of lithic scatters from such contexts dating to Terminal upper Palaeolithic, Neolithic and Bronze age are known from the Ebbsfleet Valley (MoLA 2017, Anderson-Wymark et al. 2020).
- 5.2.6 The colluvial deposits generally have low potential to preserve palaeoenvironmental evidence, but they can contain units suitable for luminescence dating. The geoarchaeological potential these deposits are therefore rated as low to moderate.
- ## 5.3 GCZ 2
- 5.3.1 GCZ 2 contains Pleistocene fluvial and solifluction deposits (Phase 1) located on the western slopes of the Ebbsfleet Valley. These are currently poor characterised and dated. They may be broadly contemporary with early Upper Pleistocene deposits identified to the south on the western edge of the Ebbsfleet Valley (Bates and Wenban-Smith 2020, Wenban-Smith et al. 2020c), which may indicate a broad age range of MIS 6 to MIS 3. This age range includes the later Middle Palaeolithic.
- 5.3.2 The deposits to the south have produced Middle Palaeolithic artefacts that have been suggested to be reworked to some degree (Wenban-Smith 2020a). It is also likely that the two handaxes and the flake recovered in the later 19th century in Botany Bay Pit (Wenban-Smith 2004; see **section 3**) deposits equivalent to these (see **GCZ 3** below). The significance of any such archaeology would be dependent on context and taphonomic history; minimally disturbed material would be of high significance, whilst significantly reworked material would be of moderate significance.
- 5.3.3 The geoarchaeological potential of these deposits is not currently known. Deposits located south of the site including units preserving palaeoenvironmental (vertebrates, molluscs and ostracods) and dating evidence (luminescence and Amino Acid Racemisation). Consequently, a geoarchaeological potential rating of moderate has been assigned.
- 5.3.4 The Pleistocene/Holocene slope deposits in GCZ 1 (see above) may also extend into this zone, overlying the Pleistocene fluvial and solifluction deposits.
- ## 5.4 GCZ 3
- 5.4.1 GCZ 3 likely contains Pleistocene fluvial and solifluction that are broadly equivalent to those in GCZ 2 but located on the opposite (eastern) side of the Ebbsfleet Valley (Phase 1). The mapped extent of Botany Bay Pit is in north-west of this zone (**Figure 16**) and the most likely source of the two Palaeolithic handaxes and flake recovered from (see **sections 3**) is Phase 1 Pleistocene fluvial and solifluction deposits in this zone; the younger Pleistocene deposits (Phase 2), such as those in GCZ 4, being deeply buried beneath Holocene alluvium. As with the deposits in GCZ 4, these deposits have been assigned a moderate archaeological and geoarchaeological potential, with the significance of any archaeology being determined by context and taphonomic history (see above).
- 5.4.2 It is likely that at least part of the Holocene alluvial stratigraphies present to west in GCZ 4 extend into this zone. These are likely to be shallow and become thinner over the Phase 1 Pleistocene deposits in GCZ 3, and only the later Holocene sediments may be present. The archaeological and geoarchaeological potential and archaeological significance ratings assigned to these deposits, should they be present, is in accordance with those given for GCZ 4 (see below).

5.5 GCZ 4

- 5.5.1 GCZ 4 contains Holocene deposits that are well characterised (Phases 4–7), having been investigated both in the site (QUEST 2016) and beyond the southern boundary (Stafford et al. 2020a). These overlie Pleistocene fluvial deposits, which have not undergone detailed investigation, and which are poorly understood.
- 5.5.2 The Pleistocene sediments are currently undated, but their wider stratigraphic context demonstrates that they post-date the Phase 1 deposits in GCZs 2 and 3 and may date within the period from MIS 6 and MIS 2 (191–11.7 Ka), which includes the later Middle and upper Palaeolithic. Their archaeological and geoarchaeological is unknown.
- 5.5.3 Holocene sequences (Phases 4–7) up to 10 m deep have been recorded above Pleistocene fluvial deposits in GCZ 4. The Phase 4–6 deposits are known to preserve significant archaeology dating from Mesolithic to Bronze Age (QUEST 2016, Stafford et al. 2020b). This includes Mesolithic lithics recovered in boreholes (Phase 4) and Bronze Age and Iron Age wooden structures associated with a Main Peat (Phase 5). These deposits have been assigned archaeological potential and significance ratings from moderate to high based on known archaeological asset within the site and the immediate area.
- 5.5.4 The Holocene alluvial sequences contain both minerogenic (Phases 4 and 6) and organic sediments (Phases 5 and 7). The organic units preserved a wide range of well-preserved paleoenvironmental (plant macro remains, pollen ostracods, foraminifera and diatoms) and dating (radiocarbon) evidence (Stafford et al. 2020a). The minerogenic deposits contain a more limited range of evidence (ostracods and foraminifera) indicative of changing tidal influence on the deposition. Based on this previous evidence the two sets of deposits have been respectively assigned high and moderate geoarchaeological potential.

5.6 GCZ 5

- 5.6.1 No data is available for the deposits present in this zone, and the archaeological and geoarchaeological potential of any deposits is classed as unknown.
- 5.6.2 The zone is located at confluence of the Ebbsfleet and Thames. Review of records from north and south of the zone indicates that Holocene alluvial sequences up to 11 m thick are likely to be present, overlying Pleistocene deposits. The latter may belong to two sets of deposits, which potentially equate with the East Tilbury Marshes (MIS 6-2; 160–25 Ka) and Shepperton Gravel (MIS 2; 17-12 Ka) of the Thames terraces
- 5.6.3 The archaeological and geoarchaeological potential of any Pleistocene deposits present is uncertain. The archaeological and geoarchaeological potential of the East Tilbury Marshes terrace in the area is not well understood but it has broad potential to contain late Middle and early Upper Palaeolithic archaeological material. It could contain last interglacial (MIS 5e; 123–110,000 Ka) deposits that can contain a wide range of paleoenvironmental datasets, including significant vertebrate and mollusc assemblages (Franks 1960, Preece 1999).
- 5.6.4 The Shepperton Gravel comprises high energy, cold stage gravels with generally low Palaeolithic archaeological potential. However, their surface and deposits immediately overlying them are key contexts for Terminal Upper Palaeolithic (12–11 Ka) archaeology. Such archaeology is known from west of site from the southern edge of Botany Marshes (Bates and Stafford 2013).

- 5.6.5 The specific stratigraphies in any Holocene alluvial sequences present in the zone is uncertain. There are indications that similar sequences to those present in GCZ 4 may occur. This includes at least one major peat, which would have significant geoarchaeological potential.

6 RECOMMENDATIONS

6.1 Introduction

- 6.1.1 Although data coverage within the site is currently limited, the GDBA and GLC has demonstrated the presence, or likely presence, of Quaternary deposits across the site. These include both Pleistocene Holocene sediments, with varying archaeological and geoarchaeological potential.
- 6.1.2 Based on the results of this assessment, archaeological and geoarchaeological evaluation of the Quaternary deposits in the site is likely to be required to characterise potential development impacts on the archaeological and geoarchaeological resources.
- 6.1.3 Given the variety and complexity of the Quaternary deposits and uncertainties regarding their lateral and horizontal extent, it is recommended that any ground investigation work is subject to geoarchaeological monitoring prior to evaluation, and that the data used to update the current geoarchaeological deposit model for the site. This would enable the requirements and scope for archaeological and geoarchaeological monitoring to be refined.
- 6.1.4 Based on the currently available evidence, likely requirements for, and appropriate methods of, evaluation have been considered for each of the five GCZs identified in the GLC. These are summaries in **Table 11** and discussed below

Table 11 Recommendations for archaeological and geoarchaeological evaluation

GCZ	Principal Quaternary deposits	Depth of deposits (m bgl)	Depth of Made Ground overlying Quaternary deposits (m)	Recommended method of evaluation
1	Phase 3/8 Pleistocene/Holocene slopewash	0.50-0.85	0.50-0.85	Machine dug test pits
	Phase 9 Made ground	0.00		
2	Phase 1 Pleistocene fluvial solifluction deposits	1.50 – 4.18	1.50-3.70	Machine dug test pits
	? Phase 3/8 Pleistocene/Holocene slopewash	Unknown		
	Phase 9 Made ground	0.00		
3	?Phase 1 Pleistocene fluvial solifluction deposits	Unknown	Unknown	Machine dug test pits



GCZ	Principal Quaternary deposits	Depth of deposits (m bgl)	Depth of Made Ground overlying Quaternary deposits (m)	Recommended method of evaluation
4	? Phase 3/8 Pleistocene/Holocene slopewash	Unknown	0.80-2.75	Boreholes
	? Phase 9 Made ground	Unknown		
	Phase 2 Pleistocene fluvial solifluction deposits	11.28-12.00		
5	Phase 4-7 Holocene alluvial deposits	0.80-2.75	Unknown	Boreholes
	Phase 9 Made ground	0.00		
	?Phase 2 Pleistocene	Unknown		
5	?Phase 4-7 Holocene alluvial deposits	Unknown	Unknown	Boreholes
	?Phase 9 Made ground	Unknown		

6.2 GCZs 1-3

6.2.1 The GLC demonstrates that Quaternary deposits in these zones comprise, or likely comprise, Pleistocene fluvial and solifluction and Pleistocene/Holocene slope deposits, occurring generally beneath less than c.2m of made ground. The most appropriate and effective method for evaluating these deposits in these zones would be machine dug Palaeolithic archaeological and geoarchaeological test pits, with associated artefact sieving. The results of this test pitting would establish the requirement for, and scope of, any subsequent archaeological and geoarchaeological mitigation.

6.3 GCZs 4-5

6.3.1 The GLC has shown that Quaternary sequences comprising both Pleistocene and Holocene sediments occur to depths of up to between 10 and 15 m bgl (below ground level) occur in these zones. The most appropriate and effective methods of evaluating these deposits is through geoarchaeological boreholes aimed at establishing detailed stratigraphy and chronology for the deposits and recovering palaeoenvironmental samples for assessment. The results of the borehole survey will enable the requirement for, and scope of, any subsequent archaeological and geoarchaeological mitigation to be determined. It is recommended that the results of this survey are combined with detailed development proposals to provide an impact assessment to guide mitigation requirements.



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