

National Grid Cable Tunnel Replacement Project

Environmental Statement Volume VI

Appendix 9.1: Historic Environment Desk Based Assessment

December 2023

Quality information

Prepared by	Checked by	Verified by	Approved by
JW Archaeological Consultant	IW Associate Director - Archaeology	AJ Technical Director - Archaeology	HT Principal EIA Consultant
DH Senior Archaeological Consultant			

Prepared for:

National Grid

Prepared by:

AECOM Limited
The Colmore Building
Colmore Circus Queensway
Birmingham B4 6AT
United Kingdom

T: +44 (121) 710 1100
aecom.com

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1 Introduction

1.1 Background

- 1.1.1 AECOM Ltd (hereafter referred to as AECOM) was commissioned by National Grid (the Client) to produce a Historic Environment Desk-based Assessment (DBA), to support the Environmental Screening Report. The DBA has since been updated to provide the assessment of historic environment baseline conditions for the Environmental Statement for the Tilbury to Grain and Tilbury to Kingsnorth (TKRE) Cable Tunnel Replacement Project (hereafter referred to as 'the Proposed Development'). The Proposed Development relates to the replacement of the below ground cabled section of the TKRE 400 kV circuits with the construction of new bored tunnel under the River Thames to carry new cross-linked polyethylene cables.
- 1.1.2 The Proposed Development comprises the following above-ground components at both ends of the new tunnel:
- **A new cable sealing end compound:** consisting of:
 - **a new tunnel headhouse** which will cover the shaft into the tunnel measuring approximately 15m in diameter and 40-43m deep;
 - **a new overhead line gantry structure** which will connect the overhead line downlead conductors and transfer them to six sealing end structures; and
 - **Modifications to the existing overhead line (OHL):** The new OHL conductors will be connected to the existing TKRE 400kV OHL conductors via new terminal pylons. The old OHL conductors and existing pylons will be either replaced, refurbished or removed.
- 1.1.3 Each required headhouse and SEC would fall within the jurisdiction of Thurrock Council (north of the River Thames) and Gravesham Borough Council (south of the River Thames).
- 1.1.4 National Grid has a zero waste to landfill target by 2026, which will come into force during the construction phase of the Proposed Development. To meet this target, opportunities are being explored to transport the spoil created by tunnel excavation to habitat enhancement projects in the local vicinity such as the RSPB site at Cliffe Pools. Two options are being explored the existing and working jetty to the south-east of the proposed Tilbury SEC located within the 1km study area and Berth 5 at the Port of Tilbury, which will require a haulage route through Tilbury Docks (Figures 1 and 2), for which a separate study area has been defined (Figures 6 and 7).
- 1.1.5 This Historic Environment DBA has been prepared to determine the heritage baseline (archaeology, historic buildings and historic landscapes) placing each of the two sites within their wider historic environment context to inform the assessment of significance of the heritage resource and the impact of the Proposed Development on identified heritage assets and their settings.

1.2 Scope and Structure

- 1.2.1 This Historic Environment DBA has been prepared to support the Environmental Statement for the Proposed Development by establishing the heritage baseline and archaeological and historical background of the two new SECs and headhouses, and surrounding study areas. It assesses the potential for previously unrecorded buried archaeological remains to exist within the Site and provides an assessment of the significance of the designated and non-designated historic environment resource with the potential to be affected by development. It concludes with an assessment of potential impacts of the Proposed Development on the historic environment resource and any anticipated constraints.

- 1.2.2 The Site is defined as the extent of the Red Line Boundary. To the north at Tilbury, this is comprised of the location of the proposed Sealing End Compound (SEC), headhouse and tunnel shaft, laydown areas, as well as access road and parking area to the north of the existing headhouse. To the south at Gravesend this is comprised of the location of the proposed SEC, headhouse, tunnel shaft, laydown areas and access road to the south of the existing Eastcourt Marshes Electricity Substation. Between the Tilbury and Gravesend, a connecting tunnel is proposed to be bored under the River Thames to connect the two proposed headhouse with 400kV circuits.
- 1.2.3 The desk-based assessment is structured in seven sections, with illustrations and appendices at the end:
- Section 1 (this section) provides an introduction and background to the Proposed Development, scope and structure of the DBA and context to the location of the Proposed Development;
 - Section 2 provides a summary of relevant national legislation and local planning guidance. This section also includes an overview of Historic England policy and guidance;
 - Sections 3 sets out the methodology for the determination of the study area, the baseline and the assessment of the heritage potential and significance (Assessment Methodology);
 - Section 4 provides a description of the historical and archaeological background of the Site and study area and the designated and non-designated assets identified (Heritage Baseline);
 - Section 5 presents the assessment of the known and potential archaeological assets within the Site which have the potential to be impacted by the Proposed Development;
 - Section 6 presents the results of a preliminary assessment of the potential impacts of the Proposed Development on the known and unknown heritage resources; and
 - Section 7 summarises the conclusions and recommendations of the assessment.

1.3 Proposed Development Location

- 1.3.1 The Proposed Development is located to the east of Tilbury and Gravesend which occupy both the north and south banks of the River Thames (Figure 1). On the north side, the Proposed Development is located to the northeast of the now demolished Tilbury Power Station with the construction of the northern headhouse and SEC compound east of Tilbury, Essex (centred NGR 566298 175874).
- 1.3.2 The proposed cable tunnel alignment proceeds on a northwest-southeast orientation south to the Eastcourt Marshes Electricity Substation where the southern headhouse and SEC compound will be constructed, which lies at the eastern extent of Gravesend, Kent (centred NGR 567429 174097).
- 1.3.3 The cable tunnel beneath the River Thames is 2.14km long (headhouse to headhouse) and 5m in diameter and will surface at the two proposed headhouses.
- 1.3.4 The Proposed Development, north of River Thames, is 1km southeast of Tilbury, and is set within an industrial landscape to the north (Plate 7), west and south boundaries, and tidal marsh to the east that has seen intermittent mineral extraction and waste material depositing. The site lies approximately 170m north of the Thames' northern bank.
- 1.3.5 The Proposed Development, south of the River Thames, is 800m east of Gravesend and is set within coastal marshland to the east that has been developed into the Milton Rifle Range (Plates 9 and 10), industrial buildings and Metropolitan Police Specialist Training Facility to the west and enclosed agricultural fields to the south, with the site bounded by the Thames and Medway Canal on its southern extent. The site lies approximately 30m south of the Thames' southern bank.

2 Planning Framework

2.1 National Legislation

- 2.1.1 The Ancient Monuments and Archaeological Areas Act (1979) ('the Act') is the central piece of legislation for the protection of the archaeological resource. The first section of the Act requires the Secretary of State for National Heritage to maintain a schedule of nationally important sites. For the purpose of the Act, a monument is defined as:
- "a) any building, structure or work, whether above or below the surface of the land, and any cave or excavation;*
- b) any site comprising the remains of any such building, structure or work or of any cave or excavation; and*
- c) any site comprising, or comprising the remains of, any vehicle, vessel, aircraft or other moveable structure or part thereof which neither constitutes nor forms part of any work which is a monument as defined within paragraph a) above; d) and any machinery attached to a monument shall be regarded as part of the monument if it could not be detached without being dismantled' (Section 61 (7))."*
- 2.1.2 The Act further defines an ancient monument as: *"any Scheduled Monument; and any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it' (Section 61 (12))."*
- 2.1.3 A set of criteria, defined as survival/condition, period, rarity, fragility/vulnerability, diversity, documentation, group value and potential, assist in the decision-making process as to whether an asset is deemed of national importance and best managed by scheduling.
- 2.1.4 The Act sets out the principal statutory provisions which must be considered in the determination of any application affecting either listed buildings or conservation areas.
- 2.1.5 Section 66 of the Act states that in considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.
- 2.1.6 Section 72 of the Act establishes that special attention be paid to the desirability of preserving or enhancing the character or appearance of a Conservation Area.

2.2 National Planning Policy

- 2.2.1 The National Planning Policy Framework (NPPF; Department of Levelling Up, Housing and Communities. 2023) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development.
- 2.2.2 Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.
- 2.2.3 The NPPF sets out the importance of being able to assess the significance of heritage assets that may be affected by a development. Significance is defined in Annex 2 of the NPPF as being the "value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic". Significance is not only derived from an asset's physical presence, but also from its setting. The setting of a heritage asset is defined in Annex 2 as "the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve".

- 2.2.4 Paragraph 194 of the NPPF states that 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 asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance. Similarly, paragraph 195 includes a requirement on local planning authorities, having assessed the particular significance of any heritage asset that may be affected by a proposal, to take this into account when considering the impact of a proposal on a heritage asset.
- 2.2.5 In determining planning applications, local planning authorities should take account of the following points:
- The desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
 - The positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and
 - The desirability of new development making a positive contribution to local character and distinctiveness.
- 2.2.6 Paragraphs 199 to 203 of the NPPF introduce the concept that heritage assets can be harmed or lost through alteration, destruction or development within their setting. This harm ranges from less than substantial through to substantial. With regard to designated assets, paragraph 199 states that great weight should be placed on its conservation, irrespective of whether any potential harm is considered to be substantial or less than substantial. The paragraph goes further to say that the more important the asset, the greater the weight should be on its conservation. In paragraph 200, a distinction is made in respect of those assets of the highest significance (e.g., scheduled monuments, Grade I and Grade II* listed buildings) where substantial harm to or loss should be wholly exceptional.
- 2.2.7 Paragraph 201 states that in instances where development would cause substantial harm to or total loss of significance of a designated asset, consent should be refused unless it can be demonstrated that it is necessary to achieve substantial public benefits that outweigh that harm or loss. Paragraph 202 says in instances where development would cause less than substantial harm to the significance of a designated asset, the harm should be weighed against the public benefits of the proposal to provide a balanced judgement.
- 2.2.8 With regard to non-designated assets, paragraph 203 states that the effect of the application on the significance of the asset should be considered in determining the application. A balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.
- 2.2.9 The Planning Practice Guidance (PPG) (Ministry of Housing, Communities and Local Government, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).
- 2.2.10 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723). The setting of the heritage asset is also of importance and a thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which the proposed changes enhance or detract from that significance and the ability to appreciate it. The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and

vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

- 2.2.11 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).
- 2.2.12 The PPG discusses how to assess if there is substantial harm. It states that what matters in assessing if a proposal causes substantial harm is the impact on the significance of the asset. It is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed (paragraph 017). Generally, harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development. The PPG states that these benefits should flow from the Proposed Scheme and should be of a nature and scale to be of benefit to the public and not just a private benefit and would include securing the optimum viable use of an asset in support of its long-term conservation (paragraph 020 Reference ID: 18a-020-20190723).
- 2.2.13 The EN-1 policy statement sets out the national policy for energy infrastructure. It details the need for new significantly electricity and gas infrastructure projects, details assessment principles and also the impacts forthcoming proposals will have on the environment. The Historic Environment is detailed within Section 5.8, detailing the description of both designated and non-designated heritage assets (sections 5.8.2-4); describing the need for appropriate Desk Based Assessments in the event of potential heritage asset impact (sections 5.8.9-10); a consideration of impacts of proposed developments on heritage assets (section 5.8.12) with the presumption in favour of conservation (section 5.8.14) of assets as well as their setting (sections 5.8.18-19). Preservation of heritage assets through excavation and written record when impact/change is unavoidable is detailed in sections 5.8.19-22.
- 2.2.14 The EN-5 policy statement taken together with the Overarching National Policy Statement for Energy (EN-1) sets out the national policy for decisions taken by the Infrastructure Planning Commission (IPC) on applications for electricity networks infrastructure (section 1.8). The policy refers to Section 9 of the Electricity Act 1989, where it states that applicants have a duty in formulating proposals for new electricity networks infrastructure. These proposals must take into consideration the historic environment when creating proposals, and to reasonably preserve or mitigate any effect on sites, buildings and objects of architectural, historic or archaeological interest (section 2.2.6).

2.3 Local Planning Policy

- 2.3.1 The Proposed Development lies within the administrative areas of Thurrock Council and Gravesham Borough Council.
- 2.3.2 The Thurrock Local Development Framework (Thurrock Council 2015) was adopted in January 2015 to replace the Thurrock Local Plan 1997. It recognises the significant role the historic environment plays in creating a sense of place and allows links to the historic development of Thurrock, as well as the important cultural and economic roles heritage can provide for the borough. It seeks to prevent loss of the historic environment, protect and achieve broader benefits of the historic environment in the borough (Thurrock Council 2015).
- 2.3.3 Core Strategic Spatial Policies (CSSP) provide a framework to facilitate the spatial distribution, locations, allocations and key strategic schemes through Thurrock and form the overarching framework for policies within them. Core Thematic Policies (CSTP) provide a framework for important themes or topics, and seek to set out how the Council intends to provide protection and advice.
- 2.3.4 CSTP24 outlines the historic environment of Thurrock and the importance of preserving and/or enhancing assets within Thurrock for the benefit of the community and other stakeholders. The key aspects of CSTP24 are as follows:
- Part 1 - Protecting and Enhancing Heritage Assets I: The Council will preserve or enhance the historic environment by:
 - Promoting the importance of the heritage assets, including their fabric and their settings;
 - Encouraging the appropriate use of heritage assets and their settings;
 - Supporting increased public access to historic assets, including military and industrial heritage;
 - Reviewing the designation of local heritage assets, including considering the designation of new Conservation Areas;
 - Retaining non-designated heritage assets which are considered locally important as well as those with statutory protection; and
 - Encouraging proposals that include enhancement of surrounding landscapes and integration between priority heritage assets and the Greengrid.
 - Part 2 - Proposed Development: All development proposals will be required to consider and appraise development options and demonstrate that the final proposal is the most appropriate for the heritage asset and its setting, in accordance with:
 - The objectives in part 1 above;
 - The requirements of PMD 4 Historic Environment;
 - Conservation Area Character Appraisals and Management Proposals as appropriate; and
 - Relevant national and regional guidance.
 - Part 3 - Priorities for Heritage Regeneration and Enhancement: The Council will work collaboratively with owners and partners to encourage the appropriate regeneration and use of priority heritage assets to secure their long-term future. The Council will identify priority heritage assets from:
 - English Heritage's national Heritage at Risk Register;
 - The Thurrock Heritage at Risk Register, which will be reviewed annually;
 - The Conservation Area Management Proposals, which will be reviewed at least every five years;
 - A local list of heritage assets once produced; and

- The Historic Environment Record.
- Part 4 - Of priority heritage assets already identified, the Council will:
 - Ensure that the setting of Tilbury Fort, including views of it from the river, are appropriately protected and enhanced, and that encroachment on the open land around it is not permitted;
 - Ensure that the setting of Coalhouse Fort is appropriately protected from development and that its fabric is conserved;
 - Resist development that undermines an understanding of the role the river Thames has played in the historic development of Thurrock;
 - Promote public access between Tilbury Fort and Coalhouse Fort through riverside links;
 - Ensure that any new development close to, or within, Bata Village or the Bata Factory complex is well designed and contributes positively to their settings; and
 - Ensure that Thurrock's historic landscapes, and the contribution made to them by ancient woodland, hedgerows and trees, are appropriately considered in all development.

2.3.5 The Gravesham Local Plan 2011 to 2028 (Gravesham Borough Council 2014) was adopted in 2014 to replace the Gravesham Local Plan First Review 1994. It recognises the significant role the historic environment plays in providing a sense of community identity and local distinctiveness, and seeks to employ a positive approach to historic environment to ensure the historic character and distinctiveness of the Borough is conserved and enhances (Gravesham Borough Council 2014).

2.3.6 Core Strategy (CS) provide a framework for Spatial and Thematic policies to facilitate the form and pattern of development necessary to ensure the vision is fully realised by 2028. Policy CS20 refers to Heritage and the Historic Environment: *Ensure that the Borough's current needs and aspirations are met whilst enabling future generations to benefit from, interpret and enjoy this irreplaceable legacy. Furthermore, it outlines the heritage assets cultural, architectural and historic importance, these assets have the potential to act as a significant draw for inward investment and heritage led regeneration. This is both through the enhancement of their settings and the creation of a more interesting and attractive place to live, work and visit.*

2.3.7 CS20 states the following for any development within the borough that has the potential to impact on Heritage and the Historic Environment: *"The Council will expect any proposals for development to demonstrate a thorough understanding of the heritage significance of any affected assets, their context and setting. Proposals should have regard to any relevant conservation area appraisals and associated management plans, lists of buildings of national and local architectural or heritage interest and guidance relating to areas of archaeological interest adopted by the Council".*

2.3.8 CS20 also seeks to support proposals and initiatives that seek to preserve and where applicable enhance the significance of heritage assets within the Borough, their setting and significance.

2.4 Other Policy Guidance

2.4.1 Historic England has published a series of Good Practice Advice (GPA) notes of which those of most relevance to this appraisal are:

- GPA2 - Managing Significance in Decision-taking (March 2015);
- GPA3 - The Setting of Heritage Assets (2nd Edition) (December 2017); and
- Advice Note 12, Statements of Heritage Significance (October 2019).

2.4.2 GPA2 (Historic England 2015a) emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the "first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance" (paragraph 4). Early knowledge of

this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

- 2.4.3 GPA3 (Historic England 2017) provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views such as those that were designed or those that were intended, that contribute to understanding the significance of assets.
- 2.4.4 Advice Note 12 (Historic England 2019a) outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The Advice Note also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2: Glossary); namely archaeological, architectural, artistic, and historic.
- 2.4.5 *Principles of Cultural Heritage Impact Assessment* (ClfA, IHBC & IEMA 2021) provides guidance on understanding cultural heritage assets and evaluating the consequences of change.
- 2.4.6 Understanding cultural heritage assets is split into three stages: Description, Significance and Importance. The description arrives at a factual statement that establishes the nature of the asset. The heritage values of the asset are then analysed (the guidance stresses that these include but are not limited to aesthetic, historic, scientific, social or spiritual values) and a statement of cultural significance given. Finally, the importance of the asset is assessed, and a conclusion drawn as to the level of protection that the asset merits in planning policy and cultural heritage legislation. The guidance notes that unlike cultural significance importance is scaled and can be described as high, medium or low.
- 2.4.7 The process of evaluating the consequences of change is split into three stages: Understanding change, assessing impact and weighting the effect. All aspects of a proposal that could change a cultural heritage asset or its setting are first explained. If these changes affect the cultural significance of the asset the resulting impact, which could be positive or negative, and its magnitude is then assessed. The effect is a combination of the magnitude of the impact and the cultural heritage asset's importance, and the scale of the effect will determine by how much the issue should influence the design of the proposal and whether the proposal is acceptable and will be permitted.
- 2.4.8 This baseline assessment has been carried out in accordance with guidance set out by the Chartered Institute for Archaeologists (ClfA) and Historic England, in particular the Standard and Guidance for Historic Environment Desk-Based Assessment (ClfA 2020) and the Code of Conduct (ClfA 2022).

3 Assessment Methodology

3.1 Study Area

- 3.1.1 The study area for the assessment was defined as 1km for designated and non-designated heritage assets from the Proposed Development's EIA Boundary. The study area has been chosen to place the Proposed Development within its wider heritage context and inform the assessment of the significance of the heritage resource.
- 3.1.2 For the Gravesend Site, the 1km study area has been modified to incorporate an additional 500m buffer surrounding the access road extending westwards alongside the Thames Medway Canal. This study area is considered proportionate to the focus of the Proposed Development on East Court marshes, likely effects along the access road and the busy urban environment to the east of the Proposed Development.
- 3.1.3 The study area has been defined to identify all potentially affected designated and non-designated assets, their setting and geographical extent, and to inform the context and potential survival of archaeological remains within each of the headhouse and SEC compound sites and their immediate surrounding areas. These assets will be assessed to determine the archaeological potential of the Site and identify any key constraints.

3.2 Data Sources

- 3.2.1 The following sources of information have been used to inform the baseline conditions and assessment of likely significant effects on the heritage resource:
- Historic England's National Heritage List for England (NHLE) (<http://historicengland.org.uk>);
 - Historic Environment Record (HER) data for Essex maintained by Place Services (<http://placeservices.co.uk>);
 - Historic Environment Record data for Kent maintained by Kent County Council (<https://webapps.kent.gov.uk>);
 - Archaeological Data Service (<http://archaeologydataservice.ac.uk>);
 - National Library of Scotland maps (<http://maps.nls.uk>);
 - British Geological Survey geology viewer (<http://geologyviewer.bgs.ac.uk>);
 - Cranfield Soil and Agrifood Institute Soilscales (<https://landis.org.uk/soilscales>);
 - Essex Record Office and Kent History and Library Centre (visited 16/03/2023 and 17/03/2023 respectively);
 - Defence of Britain Archive (Council for British Archaeology, Archaeology Data Service (<https://archaeologydataservice.ac.uk/archives/view/dob>);
 - Various documentary and internet sources, including Victoria County History, British History Online; and
 - Kent County Council and Thurrock Council's online land, planning and development websites and the planning and advice documents contained within.

3.3 Site Visit

- 3.3.1 A Site Visit was carried out on 24 March 2023 in order to:
- Assess the general historic character of the area incorporating the proposed development, the surrounding study area and the topographic setting;

- assess the condition of known archaeological and historic building assets and their setting;
- identify areas of potential within the proposed development that may contain previously unidentified archaeological remains; and
- identify the location, extent and severity of modern ground disturbance and previous construction impacts within the proposed development.

3.3.2 Photographs taken during the Site Visit are located in Appendix D of this report.

3.4 Significance of Assets and Setting

3.4.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance and good practice issued by Historic England. A methodology for the assessment of significance of heritage assets is outlined in Advice Note 12 (Historic England, 2019) whilst Historic England GPA3 (Historic England 2017) provides the basis of a methodology for the assessment of setting.

3.4.2 Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in Advice Note 12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values: evidential, historic, aesthetic and communal.

3.4.3 The terminology used in this assessment relates to the terminology used in the NPPF, referring to significance in terms of heritage interest and not heritage values. Whilst heritage interest and heritage values are not completely interchangeable, they are broadly similar.

3.5 Archaeological Potential

3.5.1 Assessment of the archaeological resources draws on three factors:

- An assessment of the potential for the survival of archaeological deposits within the site based on an evaluation of previous ground disturbance;
- An assessment for the potential for archaeological deposits to exist within the site based on the results of the baseline study; and
- An assessment of the significance of known and potential archaeological assets within the site, as well as within the defined study area.

3.5.2 The level of disturbance to buried archaeological remains caused by previous development has been assessed based on available data listed above, with particular attention paid to previous archaeological evaluations and excavations in the study area.

3.5.3 The potential for an area to contain archaeological remains is rated 'high', 'medium', 'low', 'negligible', or 'unknown'. This rating is based on an understanding of the archaeological resource as a whole and its national, regional and local context. This includes the number, proximity and significance of known and predicted archaeological/historical sites or find spots within the Site and its surrounding study area.

3.6 Consultation

3.6.1 Consultation has been undertaken Historic England, Essex Council and Kent County Council and a Screening Opinion Request, supported by an initial version of this DBA was submitted to Thurrock Council and Gravesham Borough Council.

- 3.6.2 A Screening Opinion Response was received from Thurrock Council on 07 July 2023, with no comments regarding the Historic Environment. A Screening Opinion Response from Gravesham Borough Council on 03 August 2023 included consultation responses from Historic England and Kent County Council's Heritage and Conservation Team.
- 3.6.3 In their consultation response Historic England, dated 31 July 2023 expressed broad agreement with the key designated assets identified and assessed in the initial version of this DBA submitted with the Screening Report. The response highlighted the potential for the survival of palaeoenvironmental, which Historic England considered to be of 'high value', and archaeological remains within the site associated with the former Thames marshland; noted that setting is not limited to visual factors, and recommended consultation be undertaken with Archaeological and Conservation officers at Kent County Council. Overall Historic England considered the Historic Environment '*represents a potentially significant issue in EIA terms*'.
- 3.6.4 The consultation response from Kent County Council's Heritage Conservation team, dated 21 July 2023, noted that the site lies within an area of multi-period archaeological potential being underlain by alluvial deposits with the potential to contain nationally important waterlogged archaeological remains and lies within the extent of the non-designated former Milton Rifle Range. Kent County Council considered that the Proposed Development has the potential to 'impact on significant, potentially nationally important, below-ground archaeological remains, as well, potentially having a significant negative impact on the non-designated Milton Rifle Range'. In addition to EIA it was recommended that the project should, '*include purposive field evaluation data to investigate the below-ground archaeological potential and a detailed assessment of the full extent of the historic rifle range and the impact of the proposed development*'.
- 3.6.5 In addition to the Screening Opinion Request, consultation meetings were held with Historic England, Essex Council and Kent County Council on 29 August and 09 October 2023, during which the potential impacts of the Proposed Development and a staged approach to geoarchaeological deposit modelling and borehole investigation within both proposed headhouse and SEC compound sites were discussed.

3.7 Limitations and Assumptions

- 3.7.1 The assessment has relied upon data and records provided by third parties, and therefore it has been assumed that this information is accurate and up to date at the time of reporting.
- 3.7.2 The assessment has been undertaken using the available design for the Proposed Development and the maximum likely extents of land required for its construction, operation and maintenance.
- 3.7.3 The site walkover survey on 24 March 2023 was undertaken in good conditions with clear visibility. Access was limited to public areas and rights of way, which afforded views of the land parcels within the Proposed Development boundary (so far as was possible) and the surrounding area.

4 Historic Environment Baseline

4.1 Topography and Geology

- 4.1.1 The Proposed Development is located to the east of Tilbury and east of Gravesend on north and southern sides of the River Thames respectively. The underlying bedrock geology of both sites is Lewes Nodular Chalk Formation, comprising of Seaford Chalk and Newhaven Chalk, formed approximately 72.1 to 93.9 million years ago during the Cretaceous Period. Both sites are located on the Thames floodplain with superficial geology recorded as Alluvium, comprising clay, silt, sand and peat, formed between 11.8 thousand years ago and present during the Quaternary Period. Soils within the Proposed Development area are recorded as being loamy and clayey soils of coastal flats with naturally high groundwater (Soilscapes 2023).
- 4.1.2 The local environment is dominated by the River Thames which bisects the centre of the Proposed Development, with the River Thames Banks to the north and south respectively. The proposed northern tunnel shaft and SEC compound location at Tilbury comprises a level area of hardstanding formerly used for parking, storage and as a compound for the demolition of the Tilbury Power Station. The associated laydown area to the northeast of the tunnel shaft is also a flat area of hardstanding with the access track and hardstanding parking area to the south of the shaft are essentially flat with a gentle slope southwards towards the River Thames. The proposed southern tunnel shaft site and SEC site east of Gravesend is located within an area of relatively flat grassland, former marshland immediately south of the existing tunnel headhouse with a drainage ditch enclosing its southern extent.

4.2 Geoarchaeological Deposit Model

- 4.2.1 A geo-archaeological deposit model was undertaken by Quest in September 2023 (ES Volume VI Appendix 9.2), that included a review of stratigraphic records from the Quaternary Scientific Lower Thames Valley Geoarchaeological Database, and records from various geoarchaeological and geotechnical investigations in the wider area and the British Geological Survey (BGS) borehole archive (<https://www.bgs.ac.uk/geoindex/>). The geoarchaeological stratigraphic data from ongoing investigations on the Lower Thames Crossing (LTC) were also integrated into the assessment. The results of the geo-archaeological deposit model are discussed below.

Chalk Bedrock

- 4.2.2 The underlying bedrock at the Tilbury Site is chalk bedrock identified at a depth of between -17m and -17.5m OD (Ordnance Datum). The underlying bedrock at the Gravesend Site is chalk bedrock, identified at a depth of between -16.5m and -17m OD.

Shepperton Gravels

- 4.2.3 Shepperton gravels are present within both the Tilbury and Gravesend Sites; these date to the Late Glacial period (c. 15,000-10,000 BC), and comprise sands and gravels of a high-energy braided water system such as a fast moving river.
- 4.2.4 At the Tilbury Site, Shepperton gravels have been observed at a depth of between -13m and -14.5m OD, with a thickness of approximately 3-3.5m recorded in boreholes TKRE-BH01 and BH02A.
- 4.2.5 At the Gravesend Site, the Shepperton Gravels have been recorded at a depth of between -11m and -14m OD. The geo-archaeological report highlights that whilst, the Shepperton Gravels have been recorded at a depth of -14m OD, if sand deposits recorded in boreholes TKRE-BH04, BH06, CPT12A, CPT14 and CPT16 are interpreted as the uppermost layer of the Shepperton Gravels, then these are identified more consistently at a level of -11m OD. Borehole data within the Site suggest the gravels are approximately 6m in thickness.

Alluvial Deposits

- 4.2.6 Alluvial deposits have been identified within both Sites on either side of the Thames. The geo-archaeological report recorded two separate alluvial deposits; lower alluvial deposits that have a higher sand component, and upper alluvium which has more silt and clay deposits within it. Both alluvial layers have organic material and plant remains within them.
- 4.2.7 The lower alluvium has been identified as dating to the early to mid-Holocene Period, when the River Thames was a single channel. Horizons and lenses of organic peat have been identified within the lower alluvium. The lower alluvium is present within both Sites, with the top of these alluvial deposit recorded at a depth of between 0 and 1m aOD and extending to a maximum depth of -14.5m OD.

Lower Peat Deposits

- 4.2.8 The lenses and horizons of peat within the lower alluvium have been identified as Lower Peat. Within the Tilbury Site, Lower Peat deposits were identified at between -10.10 and 10.60m OD with a thickness of approximately 0.5m. Lower Peat deposits have not been identified in the Gravesend Site, however, these peat deposits have been identified in close proximity to the Gravesend Site; the report therefore highlights there is a high probability these are present within the Gravesend Site.

Middle Peat Deposits

- 4.2.9 A layer of peat separates the lower and upper alluvial deposits, identified as Middle Peat by Ques. It was recorded in the Tilbury Site at a depth of between -6.13 and -3.44m OD, with a variable thickness of between 1.2 and 2.1m. No Middle Peat deposits were identified in the Gravesend Site.

Upper Peat Deposits

- 4.2.10 A thin deposit of peat recorded, as Upper Peat, has been recorded sealing the Upper Alluvial deposits within the Tilbury Site. The Upper Peat deposit was identified at a level of 0.47m aOD with a general thickness of 0.5m. No Upper Peat deposits were identified in the Gravesend Site.

Palaeoenvironmental Summary

- 4.2.11 Based upon the deposit model data, and the analysis from the Quest report, both sites have a chalk bedrock at a level of between -16.5 and -17.5m OD. The chalk bedrock is overlain on both Sites and sides of the River Thames by two distinct layers of Devensian Shepperton Gravels at a depth of between -11 and 14-5m OD. These alluvial deposits contain three distinct peat horizons within them that represent marsh conditions that may be representative of semi-terrestrial sedge-fen, reed-swamp, saltmarsh and carr woodland type communities (Quest 2023).
- 4.2.12 The Quest geo-archaeological deposit model report highlights that based upon dating at prehistoric sites in the nearby area, the lower peat deposits likely date to the Mesolithic period (c. 8000-7000BC), the middle peat to date to between the Late Mesolithic period to the Bronze Age (c. 6500-3500BC), and the upper peat to date to the Iron Age (c. 3000-2150).
- 4.2.13 Based upon the survival and presence of the lower peat deposits within the Tilbury Site, there is potential for surviving Mesolithic remains within this Site, with further potential to contribute to the continuing and highly important investigations into the sea level rises of Tilbury and more widely the Lower Thames Valley region.

4.3 Baseline Conditions – Tilbury SEC and Tunnel Headhouse

Designated Heritage Assets

- 4.3.1 Designated heritage assets are prefixed with **(NHLE)** for National Heritage List for England, each asset has been cross-referenced to the gazetteer in Appendix A, and their location is shown on Figure 2. Non-designated assets are referenced using the Essex HER unique identifier number. These are prefixed with **(MEX)**. Each non-designated asset has been cross-referenced to the gazetteer in Appendix A, the locations of non-designated assets in relation to the Tilbury site are shown on Figure 2, with events shown on Figure 3. A single non-designated heritage assets has been identified that is not yet recorded on the Essex HER, this asset is prefixed with **(AEC)**.
- 4.3.2 A single scheduled monument, Tilbury Fort **(NHLE 1021092)**, and two listed buildings have been identified within the study area. There are no World Heritage Sites, Conservation Areas, Registered Battlefields or Registered parks and Gardens within the 1km study area.
- 4.3.3 The eastern extent of the scheduled area of Tilbury Fort **(NHLE 1021092)** lies approximately 500m to the west of the proposed Tilbury headhouse and SEC compound, with the star fort itself located 600m west of the EIA Boundary. The fort includes buried remains of an Henrician blockhouse, with the larger fort and battery constructed in the 17th century, which saw alterations in the 19th and 20th centuries. The blockhouse was a two storey D-shaped fortified barracks, with curved elevation and gun ports which would have provided a wide field of fire across the river. In the late 16th century an encircling ditch and counterscarp bank with drawbridge and palisade were constructed.
- 4.3.4 Following the Restoration of Charles II in 1660 and a highly successful Dutch raid up the Thames and Medway in 1667 a complete reorganisation of the national defences was commissioned. This included Tilbury where the construction of a new star fort and battery began in 1670. The design, by Charles II's chief engineer Sir Bernard de Gomme, was based on defensive principles pioneered in the Low Countries and included the optimum siting of cannon at the forward batteries. The defence of the batteries by complicated outerworks and bastions to the rear was principally a Dutch design and extremely rare in England (Plate 1). The fort is pentagonal in plan, with bastions projecting from four of the five angles which allowed gun pieces to be positioned behind the parapets. Surrounding the fort is a brick-built curtain wall which encloses the fort and links the bastions, with parallel earthen banks around the perimeter designed to absorb impact from bombardments (Plate 4). Other earthworks consists of a berm which flanks the curtain wall and bastions which is surrounded by a 50m wide moat which follows the outline of the fort, which is crossed by a causeway and redan to the north of the fort.
- 4.3.5 Three further scheduled monuments are located beyond the study area approximately 1.10km to the north east. While not within the study area, they contribute to the understanding of military and coastal defence of the River Thames, the approach to the Port of London and Royal Dockyards at Woolwich, and Deptford. East Tilbury Battery **(NHLE 101388)** and Coalhouse Fort Battery **(NHLE 1013943)** were both constructed towards the late 19th century as part of the Twydall Profile form of defensive installation and demonstrate the continued defence of the River Thames through the post-medieval period. Bowaters Farm Anti-aircraft Battery **(NHLE 1012185)** was constructed in 1940 and was in use until 1944. These assets combined show an interrelated military landscape from the 16th century through to the mid-20th century, which would have been important for the defence of London, the Port of London, and settlements adjacent to the River Thames leading up to London. Improvements and alterations to Tilbury Fort demonstrate its strategic importance on the Thames and have demonstrated the development in both military engineering and artillery.
- 4.3.6 Tilbury Fort Officers Barracks **(NHLE 1375568)** is a grade II* listed building located within Tilbury Fort 850m to the west of the EIA Boundary. The asset comprised a terrace of 22 two-storey officers' houses within Tilbury Fort; today, the asset comprises seven houses and a museum. The Board of

Ordnance commissioned the construction of the houses in 1772 and is believed to have been constructed on land originally used as the officers' range.

- 4.3.7 The Tilbury Clock Tower War Memorial (**NHLE 1471691**) is a grade II listed building located on the western edge of the study area in Civic Square Tilbury. Constructed in 1934 the memorial comprises a tall white painted, square tower with Ionic corner pilasters set on a low pedestal. The pilasters support a deep entablature, crowned by a block in which round clock faces are set on each side. The tower is surmounted by a ball finial. Originally erected to honour the fallen of the First World War the memorial also bears the names of those lost during Second World War, the Malaysian Emergency and the Falklands Conflict. The memorial is located on the western side of Civic Square in front of the Tilbury Hub municipal buildings.
- 4.3.8 There are 31 non-designated heritage assets located within 1km of the Site, of which two are recorded within the Site itself.
- 4.3.9 A full list of non-designated assets is provided in the gazetteer at Appendix A with an accompanying figure marking the location of the described assets in relation to the Site (see Appendix E Figure 3).

Previous Investigations

- 4.3.10 There have been eighteen previous archaeological and geo-archaeological investigations undertaken within 1km of the northern extent of Site. These have been summarised below.
- 4.3.11 A borehole survey was conducted by Cambridge Archaeological Unit in 2004 (**EEX54327**) at the Tilbury Wastewater Treatment works, 560m south west of the EIA Boundary. No records of this work have been published.
- 4.3.12 A number of archaeological investigations have been undertaken at Tilbury Fort including archaeological salvage excavations conducted in 1973 (**EEX41441**) and in 1980 (**EEX41142**) and (**EEX6048**). The results of these investigations do not appear to have been published and are not included in the HER report.
- 4.3.13 An archaeological watching brief was conducted by Field Archaeology Group – ECC in 1994 (**EEX52855**) at the Stanford Le Hope STW Water Pipeline, 35m south of the proposed site access road at Ford Road. The results of the watching brief on the 7km pipeline were limited only revealing charcoal flecks and smears of degraded pottery/daub.
- 4.3.14 Archaeological recording was conducted by Field Archaeology Group – ECC in 2002 (**EEX53549**) at Tilbury Fort, 840m south west of the EIA Boundary. The works consisted of plan recording of the West Powder Magazine Roof showing the buildings features and photography of the roof to the same effect.
- 4.3.15 An archaeological watching brief was conducted by Oxford Archaeology between 2005-2006 (**EEX55618**), 440m south of the EIA Boundary. The works were conducted ahead of the Biosolids Dyer project and revealed made ground overlying peat and alluvial layers. Archaeological features were also found, likely associated with a post-medieval farm that occupied the works area prior to the construction of the water treatment works.
- 4.3.16 An archaeological evaluation was conducted by Essex County Council in 2008 (**EEX55585**) at Tilbury Power Station, 35m south of the proposed site access road at Ford Road. The works were carried out as part of a planning condition for the construction of a 400KV Gas Insulated Switchgear substation. The evaluation recorded no archaeological features or finds, it did reveal the location of waterlogged marsh deposits.
- 4.3.17 A geoarchaeological watching brief, historic borehole review and walkover survey were conducted by Wessex Archaeology in 2008 (**EEX56725**) at the Tilbury Coal Power Station, 155m west of the EIA Boundary. No archaeological finds or features were revealed during the fieldwork portion of these works.

- 4.3.18 An archaeological watching brief was conducted by Field Archaeology Group – ECC in 2010 (**EEX55947**) and (**EEX55950**), 550m north of the Site boundary. The works involved the monitoring of trial pits and groundworks for a pond and bund associated with Tilbury Wildlife, no archaeological finds or features were found.
- 4.3.19 A series of site surveys were conducted by Essex County Council in 2012 (**EEX56482**), 120m north west of the proposed site access road at Ford Road. The surveys recorded new sites and updating existing site details of a variety of World War II features within the study area.
- 4.3.20 A geotechnical survey and report were conducted by Museum of London Archaeology between 2018-2019 (**EEX59528**), 790m south west of the EIA Boundary along the northern bank of The Thames.
- 4.3.21 An archaeological evaluation was conducted by Wessex Archaeology in 2019 (**EEX59539**), 100m south of the proposed site access road to Loverose Way. The works formed part of the evaluation stage for the Tilbury II Power Station.
- 4.3.22 An archaeological watching brief was conducted by Archaeological Advisory Group in 1993 (**EEX52636**), 710m north of the EIA Boundary. The results of this investigation do not appear to have been published and are not included in the HER report.
- 4.3.23 An archaeological watching brief and excavation was conducted by Leisure Services Department, Newham Museum Service between 1988 and 1995 (**EEX52891**), 960m south west of the EIA Boundary. The works were carried out within the boundary of Tilbury Fort. The results of this investigation do not appear to have been published and are not included in the HER report.
- 4.3.24 Archaeological monitoring was conducted by Suffolk County Council in 2007 (**EEX54884**), 950m south east of the EIA Boundary. The works were carried out to monitor the unblocking of an extant culvert, which revealed the remains of two sperate brick walls believed to be part of a row of Victorian storehouses within Tilbury Fort.
- 4.3.25 Archaeological monitoring was conducted by Suffolk County Council in 2007 (**EEX54885**), 950m south east of the EIA Boundary. The works were carried out to monitor the excavation of a trench for new surface water drains across Tilbury Fort parade ground. The excavation revealed made ground, ceramic building material fragments that overlaid former marshland deposits.

Archaeological and Historic Background

Prehistoric (c. 700,000 BC to AD 43) Evidence of *in situ* Palaeolithic remains are nationally rare, with findspots of isolated findspots of flint artefacts providing most of the limited evidence for an early human activity, The Anglian glaciation icesheet would have covered Essex and up to the outskirts of present-day London, changing the landscape and contributing to the lack of Lower Palaeolithic remains within the study area The Anglian glaciation was responsible for the shifting course of the Thames southwards resulting in its present day location (Natural England 2013).

- 4.3.27 Two findspots of possible Palaeolithic worked flint, one within Tilbury Fort (**MEX6469**) and the second (**MEX6015**) found 600m west of the Site. These two findspots provide evidence for a human presence in the landscape of the Lower Thames during the Palaeolithic period.
- 4.3.28 During the early Mesolithic, Britain would have been connected to Europe via the now drowned land bridge known as 'Doggerland', enabling transient and mobile groups of hunter gatherers to exploit a wider landscape. Cultural evidence of Mesolithic settlement is, like the preceding Palaeolithic, largely limited to isolated findspots or scatters of flint artefacts, although none are recorded within the study area.
- 4.3.29 Numerous geoarchaeological investigations have been undertaken in the Tilbury area, building on the stratigraphic analysis of the southern Tilbury area undertaken by Devoy (1979, 1982) which identified a sequence of alluvial deposits, separated by distinct peat horizons (Tilbury I-V), overlying

sands and gravels of the Shepperton Gravel. These peat horizons represent periods in which lower Relative Sea Level Rise led to a stabilisation of the Thames floodplain between the Mesolithic period and Iron Age and which created semi-terrestrial marsh or alder carr environments. Within the Tilbury Headhouse and SEC compound site three peat horizons were recorded by the Geoarchaeological Deposit Modelling Report the earliest of these, the 'lower peat', corresponds with Devoy's Mesolithic Tilbury II deposit (approximately 6100 – 5340 cal. BC), while the 'middle peat' (Tilbury III) formed over a longer period between the late Mesolithic (approximately 5670 – 4940 cal. BC) and the late Neolithic/early bronze Age (2570 – 2040 cal. BC). The 'upper peat' horizon (Tilbury IV or V) may date the Iron Age.

- 4.3.30 Beyond the study area Mesolithic peat deposits were recorded at depths of approximately 10m below ground level in 1883 during the construction of the East India and West India Docks at Tilbury 2.4km west of the Site. Within the peat, direct evidence of Mesolithic activity was recovered in the form of a partial male human skeleton from a Holocene sand deposit sealed by peat providing evidence for Mesolithic activity in the wider floodplain north of the Thames at this time (Schulting, 2013).
- 4.3.31 The chance find of a Neolithic flint axe (**MEX6567**) found 260m south west of the proposed Site access at Fort Road provides limited evidence for settlement activity within the Study Area during the Neolithic.
- 4.3.32 A reduction in Relative Sea Level Rise towards the end of the Iron Age period, combined with wetland drainage in the Roman period leading to expansion of salt-making industry along the marshes. Evidence of this industry was found within the study area with a potential Saltern or 'Red Hill' (**MEX6632**) found 820m northeast of the EIA boundary, highlighting the changing sea level throughout the periods with the current Thames bank situated 130m south of the Site boundary.
- 4.3.33 No other heritage assets of Bronze Age or Iron Age date have been recorded within the study area.

Roman (AD 43 – 410)

- 4.3.34 Roman activity within the region is well represented, with a variety of sites and chance finds found within the study area and beyond. Following the annexation of Britain by the Rome following the invasion of AD 43, the landscape saw changes. To the north of the Site, Colchester was captured and developed into a veteran colony, as well as the founding of Londinium which is now present day City of London. These towns formed administrative centres for the Roman Empire, with new architectural and social structures created, as well as roads that interconnected between the towns. These roads attracted the local population and roadside settlements were constructed along them, for example Old Ford which was built on the road from London to Colchester. The countryside outside of these administrative centres saw relatively little change, as new farmsteads and agricultural practises developed in the Late Iron Age, with a continuity through into the early Roman period. In the latter Roman period, there was a shift to arable farming with the number of rural settlements declining but the overall amount of farmland remaining the same (Museum of London 2006). Stane Street was a Roman road located to the north of site which ran from Ermine Street to Colchester with associated Mansio which acted as a stopping point along the road.
- 4.3.35 The closest activity outside of the study area is the Grays industrial site, 3.63km to the north west. The site comprises a pottery production area with kilns dating from the 2nd and 3rd centuries, with associated ditches and two cremations. Chance finds of Roman tiles, flint blocks, potsherds, bones and oyster shells were found at Tilbury Central dock 2.5km west of the Site, indicating the potential for settlement activity around that area. A Roman settlement has also been revealed to the north of the Site at Gun Hill, which comprised of enclosure, field systems, structures and kilns. Numerous salterns have been recorded along the northern bank of the Thames Estuary, such as Corringham and a further four at East Tilbury (Biddulph et al 2012).
- 4.3.36 Evidence for Roman activity within the study area includes four records of Roman material, burials and one settlement recorded in the Essex HER. Roman pottery was found at three locations within the study area, a Romano British pottery rim sherd (**MEX6254**) was found towards the south eastern

extent of the Site. Roman Samian ware was found in 1912 (**MEX6255**) 50m east of the Site and is believed to be contemporary with pottery found at a site in East Tilbury and dates to the late 1st century. A collection of Roman pottery (**MEX6630**) was found 30m south of the EIA Boundary along the Thames foreshore. Evidence of a Roman settlement (**MEX6102**) was found 30m east of the Site, now under the present high tide level. Archaeological features found consisted of four curvilinear ditches through to be hut circles with two containing three rings of stake marks each showing evidence of wattlework framing, a trackway east of the huts, another hut contained evidence of an oven and floor-planking. Pottery was found across the site interpreted as native type with marked late Iron Age elements, as well as 1st and 2nd century Samian ware. Roman burials (**MEX6025**) and fragments of a Roman lamp with lion relief (**MEX132122**) are recorded 910m north of the Site boundary. The burials were found in 1910 with iron and bronze bracelets, however the record states they were found at West Tilbury and the location of them is an approximation within the HER. This approximation of location can be extended to the Roman lamp as well, with its exact location unknown. These two assets, while their locations are approximate do show a greater Roman presence within the area surrounding the Site.

- 4.3.37 Further evidence for Romano-British salt production within the floodplain north of the River Thames has been recorded during recent archaeological investigations in advance of the proposed Thurrock Flexible Generation Plant and not yet recorded on the Kent HER (**AEC001**). Located approximately 450-500m north of the Site, the excavations have revealed extensive evidence for salt production in the form of a least six 'red hills', low mounds of burnt salt making debris and briquetage fired clay/pottery, enclosed by large ditches/water channels. Further evidence for salt production has been recorded in the form of clay lined pits, an oven, salt making kilns, and post-holes which may indicate the presence of at least one structure. A large quantity of finds has also been recovered comprising a large amount of pottery, including Samian wares, in addition to Roman glass, lead weights, a whetstone, rotary quern and several coins which, together with the pottery, date activity on the site to the 1st to 3rd centuries AD (R Havis, ECC Place Services and S Parker, RPS, pers. Comm. September 2023).

Early Medieval (410 to 1066)

- 4.3.38 After the withdrawal of the Roman Empire from Britain in the early 5th century, the Roman influence on the region regressed, leading to influences from other parts of Europe. The town of Tilbury can find its origin in the 19th century, however there is evidence from these periods within the study area and within the vicinity.
- 4.3.39 There are no non-designated heritage assets dating from the early medieval period within the study area, but the local region does show activity during this period. Excavations at Gun Hill, approximately 1.7km north of the Site revealed Saxon occupation in the form of a single sunken floor building with contemporary pottery and salt making tools (Drury P J and Rodwell W, 1973). This excavation shows early medieval presence following the Roman withdrawal and the establishment of domestic dwelling within the area. Saint Cedd is noted as founding a Christian minster at Tilbury in the 7th century, as well as minsters around the surrounding area.

Medieval (1066 to 1540)

- 4.3.40 The Domesday Survey of AD 1086 records Tilbury as 'Tilberia/Tilibiam', with mention of a Ranulf from William de Warenne, Osbern and Ralph from Swein of Essex, Hunwald from Theodoric Pointel, with 12 foals, 31 cattle, 260 sheep and a fishery. This survey would have been of East Tilbury and West Tilbury, which are located 2.3km north east and 1.7km north of the Site respectively. To the north of Site, open field systems were commonplace and formed the majority of land use within the study area (Thurrock Council 2007). East and West Tilbury both contain a listed church respectively. The Church of Saint Katherine (NHLE1337129) is located 2.55km north east of the EIA Boundary in East Tilbury and was constructed in the 12th century. The Church of Saint James (NHLE1111541) is located 1.7km north of the EIA Boundary in West Tilbury and was constructed in the late 11th century. Both churches post-date the entries in the Domesday Survey of AD 1086, but show the development of both villages within the medieval period. A medieval sea wall (**MEX6629**) is located towards the eastern extent of the Site and 300m north of the Thames' foreshore. The sea wall does not appear

at present ground level but does appear on the 1777 Andre and Chapman map of Essex. A road and causeway (**MEX6047**) was located on the redan outwork 780m south west of the EIA Boundary on land which the Tilbury Fort now occupies. The road is believed to have been the route from West Tilbury to the north down to the original ferry crossing at the Thames, which was later removed in the 16th century. The West Tilbury marshes (**MEX1042105**) saw improvement in the medieval period for animal grazing, and was the area in which the Tilbury Fort was constructed in the 16th century. The Essex HER notes a separate instance of West and East Tilbury Marshes (**MEX1042099**), with similar usage for grazing as (**MEX1042105**) with the additional of cropmarks that indicate the presence of World War Two anti-glider landing ditches.

Post-medieval (1540 to 1900)

- 4.3.41 Following the Reformation in the 16th century, the surrounding landscape saw extensive development. Drainage of the areas marshes and embankments saw land along the Thames reclaimed (Essex County Council, 2011). This period saw the most substantial development of the area in the form of fortifications along the coastline, specifically the construction of Tilbury Fort (**NHLE 1021092**) in the 16th century, which lies approximately 600m south west of the site boundary. Built in 1540 during the latter part of King Henry VIII's reign due to tensions with France. The original phase of the fort was a two storey D-shaped blockhouse fort, one of a series that Henry VIII constructed to defend the Thames approach to London. It was one of a pair, with the other constructed on the opposite side of the Thames in Gravesend, with Coalhouse constructed to the east in blockhouse similar to Tilbury. The fort was later rebuilt in 1672 in its current pentagonal form with improvements to the rampart walls and a double moat, only the southern gatehouse and chapel survive from the original construction. The armaments within the fort were steadily reduced into the mid-19th century, but then a process of rearmament with more modern armaments began in 1867, with new earthworks constructed at the same time (Essex County Council 2011). A second grade II* designated heritage asset lies within the boundaries of Tilbury Fort, a row of 22 terrace houses (**NHLE 1375568**) approximately 880m south west of the Site boundary. The houses were constructed in the 18th century and were used to house officers stationed at Tilbury Fort.
- 4.3.42 While the area encompassing the study area was used for military defence during this period, study of the landscape and historic mapping shows the reclaimed marshes and agricultural land were the predominant uses for the area at the time of Tilbury Forts construction and redevelopment (Essex County Council 2011).
- 4.3.43 Towards the end of the 19th century shows a rapid development of what is now the town of Tilbury. The construction of the Tilbury Riverside station which formed part of the London, Tilbury & Southend Railway line, and allowed for passengers to travel directly to the ferry crossing located on the Thames foreshore (Thurrock.gov.uk, Accessed 29/03/2023). Although the railway improved travel link along the Thames foreshore and crossing the Thames to places like Gravesend, the construction of Tilbury docks which are located 2.3km to the west of Site facilitated rapid growth of the town.

Modern (1901 to Present)

- 4.3.44 Following the expansion of Tilbury in the later 19th century with the construction of the Tilbury Riverside station and Tilbury docks, the modern period saw developments to the defence and industrial aspects of the area. Tilbury Fort saw further redevelopments of its armaments (**MEX6052**), with the addition of two 6-inch breach loading guns converted from naval use as well as four 12-pounder quick firing guns, these new guns required emplacements to be built over existing emplacements along the forts defensive wall.
- 4.3.45 A landing stage (**MEX1036402**) was constructed in 1928 and opened in 1930 by the then Prime Minister J. Ramsey MacDonald, located 220m east of the EIA Boundary. The landing stage was used to embark/disembark ferry passengers (Thurrock.gov.uk, Accessed 29/03/2023).
- 4.3.46 Several Second World War non-designated heritage assets have been identified within the study area. Two spigot mortar emplacements were built within Tilbury fort approximately 850m south west

of the Site boundary, one was constructed at the north west bastion (**MEX31803**) and the other at the south east bastion (**MEX31804**).

- 4.3.47 At the now removed Fort Road railway level crossing, 110m north west of the proposed Site access at Fort Road, two World War Two defences were recorded. A road barrier (**MEX31805**) consisting of five anti-tank cubes with surrounding ditches excavated to form anti-tank and anti-glider defence, this non-designated asset was recorded in aerial photography in 1944. Immediately north east of the Fort Road level railway crossing was a turret (**MEX31806**), situated on allotments approximately 80m north east of the Site boundary. The turret type is unknown and no records of it remain.
- 4.3.48 A pillbox (**MEX31812**) is located 65m south of the Site. Its design is characteristic of the 'Essex Lozenge', a design unique to Essex (Osborne 2008). It was constructed to provide for its occupants shelter while being able to form a wide field of fire across the Thames foreshore and onto the Thames itself (Plate 5).
- 4.3.49 A series of anti-glider ditches (**MEX39674**) were recorded 730m north of the Site boundary. These were constructed to disrupt potential enemy gliders from landing safely in the drained marshes and farmland that is within and surrounding the study area.
- 4.3.50 A D-Day assembly area (**MEX1041248**) was located 200m west of the proposed Site access at Fort Road. This was formed to allow for the marshalling of troops and equipment prior to embarkation at Tilbury docks in advance of the Normandy landings of June 6th 1944.
- 4.3.51 Following the end of the Second World War the industrial landscape of the area changed in the mid-20th century with the construction immediately west of the Site of Tilbury A coal-fired power station, built in 1958, and Tilbury B oil-fired power station, built in 1969 (**MEX1032967**). The coal heaps associated with Tilbury A extended across the north western part of the Site. Tilbury A power station was mothballed in 1981 and largely demolished in 1999, including the turbine hall. Remaining listed elements were cleared in 2019. The conversion of Tilbury B to burn biomass began in 2011, but this was halted in 2013 and the power station was decommissioned and demolished in 2016-2019.

Undated

- 4.3.52 Two non-designated heritage assets are recorded within the study area as 'Undated'. A potential Saltern or 'Red Hill' (**MEX6632**) is located 820m north east of the Site boundary, and contained briquetage and pottery sherds. Red hill sites are well represented within the county, with over 300 sites recorded that date from the Late Iron Age Through to the Roman period. No dating was provided in the Essex HER but the location is approximately 880m north of the already discussed Roman settlement (**MEX6102**) and may have been contemporary. A series of linear oyster beds (**MNL39665**) was found during aerial photography in the 1950s 980m east of the Site boundary. The date and full extent of these oyster beds is unknown and no other information regarding them is available.
- 4.3.53 Three archaeological investigations are recorded as non-designated heritage assets within the Essex HER. The first is a now revoked watching brief of drainage ditches cut into the Thames Flood Plan (**MEX1032117**). The second (**MEX1032121**) supersedes the initial and may be an administrative choice as it was also conducted as a watching brief 450m north of the proposed Site access at Ford Road, the works involved the excavation of drainage ditches on West Tilbury Common, neither watching brief revealed archaeological remains or deposits. A series of trial trenches and test pits were excavated 700m south west of the proposed Site access at Ford Road, no archaeological remains or features were found.

Historic map regression

- 4.3.54 Earliest available cartographic evidence of the Site is present within the 1777 André and Chapman map of Essex (see Figure 6). This map illustrates the area of East Tilbury Marsh, and the Site appears to be situated west of the marshes' south-western extent. This western area lies adjacent east to the water outlet east of Tilbury Fort and is an area of two enclosed fields which is separated

from the main open marshland area. An embankment feature, likely part of a sea wall, is present on the eastern edge of the Site, and this appears to follow the alignment of the waterway located to the east of the southern leg of the Site. The south-eastern section of the Site is located to the east of the possible sea wall, and is located within the 18th century saltmarshes which bordered the Gravesend Reach. The northern area of the Site crosses over an old field boundary separating the fields adjacent to Tilbury Fort from the wider East Tilbury Marshland.

- 4.3.55 These borders are reflected within the 1778 plan drawing of Tilbury Fort. This plan goes into greater detail of the field boundaries within the areas adjacent west of the Site. The fields appear to be divided by water filled ditches likely used to graze livestock and extend further into the Thames than the present day riverbanks. The Site would likely be contained within the north-eastern and south-eastern fields, with the northern areas of the Site again crossing the probable sea wall.
- 4.3.56 The field boundaries are altered within East Tilbury 1st edition Ordnance Survey (OS) Drawing 1805. The probable sea wall is still within the same alignment, however, the this only appears on the eastern boundary only, with the northern branches of this feature not presented within the map, however, it does appear again on later cartographic examples. Indeed, this is true within the West Tilbury tithe map 1838 (see Figure 7). However, it appears that the field boundaries connect to each other either side of this feature possibly indicating that this northern wall was no longer in use but still visible within the landscape. The tithe apportionments of fields which are likely to be within the footprint of the Site detail the fields to be Six Acre Marsh and Three Acre Field. These names give indication of the size of the fields as well as the environment and land type, which appears to consist of marshland. The apportionment details note that these fields were tenanted out and farmed, with their use being largely cattle grazing.
- 4.3.57 The next available cartographic example is the 1st edition OS map of 1863 and depicts the field systems to be similar to the tithe map layout of 1838. The boundary feature, which has been depicted within the Site since the Andre and Chapman map of 1777, is labelled as the Sea Wall in the south and the Old Counter Wall in the north. This is later reflected within the 2nd edition OS map of 1897; however, the field boundaries have been altered within the Site to create a more open field system (see Figure 8). There is very little change to the Site or surrounding areas within the 1907 revised OS map of Kent, or the revised 1915 OS map of Essex and the revised 1938 edition OS map.

Historic Landscape Character

- 4.3.58 Several sources were consulted to inform the assessment, including the following:
- National Character Area Profile: 81. Greater Thames Estuary;
 - ECC Historic Landscape Characterisation Report;
 - Historic Ordnance Survey maps, and;
 - Information from the heritage walkover to identify elements that contribute to an understanding of the historic landscape.
- 4.3.59 In general, the local area is relatively flat and low-lying, and is characterised by industrial development to the west and post-medieval residential to the north west, open managed coastal wetland to the east which has seen some areas used for quarrying and material storage, with the site itself forming part of the wider industrial landscape.
- 4.3.60 The proposed development lies within the Greater Thames Estuary Character Area of the National Character Area Project 'coastal managed wetland' (Natural England 2013). The key characteristics and features of the character area are:
- Predominantly flat, low-lying coastal landscape where extensive open spaces are dominated by the sky, and the pervasive presence of water and numerous coastal estuaries extend the maritime influence far inland.

- Eastern edge of the London Basin with its underlying geology of the extensive London Clay, containing important sites for geodiversity including fossiliferous deposits, and overlain by productive loamy soils derived from intertidal alluvial muds.
- Geological contrast and variety along the coastline provided by Sheppey, a long, low island rising from a stretch of very flat marsh along the Swale Estuary in Kent with low, steep clay cliffs facing towards Essex, and Mersea Island in the Blackwater Estuary in Essex.
- Coastline of major geomorphological interest for its coastal processes. Accretion of material carried by the sea from the north recharges intertidal coastal habitats, which are subject to coastal squeeze from rising sea levels.
- Open grazing pastures patterned by a network of ancient and modern reed-fringed drainage ditches and dykes, numerous creeks and few hedges or fences, with tree cover a rarity.
- Traditional unimproved wet pasture grazed with sheep and cattle combined with extensive drained and ploughed arable land protected from floods by sea walls, with some areas of more mixed agriculture on higher ground.
- Strong feelings of remoteness and wilderness persist on extensive salt marshes, mudflats and reclaimed farmed marshland, which support internationally important plants, invertebrates and populations of breeding and overwintering birds, notably overwintering Brent geese.
- Open mosaic habitats on brownfield sites support nationally important invertebrate assemblages and key populations of rare invertebrate species.
- Distinctive landmarks of coastal military heritage including Napoleonic military defences, forts and 20th-century pillboxes.
- Some of the least settled parts of the English coast with numerous small villages and hamlets on higher ground and marsh edges reflecting medieval patterns and the coastal economy.
- Highly urbanised areas within London and on marsh edges subject to chaotic activity of various major developments including ports, waste disposal, marine dredging, housing regeneration, mineral extraction and prominent power stations plus numerous other industry-related activities.
- Increasing development pressures around major settlements and especially towards London, with urban, industrial and recreational sites often highly visible within the low-lying marshes.
- Major historical and current transport link to Inner London provided by the River Thames, with an extensive network of road and rail bridges spanning its reaches within the city.

4.3.61 The Historic Landscape Characterisation (HLC) of Thurrock is identified along the northern Thames Estuary, the landscape is described as: *A largely urban or urban-edge landscape, bordered by former marshes along the Thames. There are extensive areas of mineral extraction, both on the river terraces formed by earlier routes of the River Thames, and on the chalk outcrops. The modern urban areas include South Ockendon, Grays, Tilbury and Corringham.*

4.3.62 Historic elements of the landscape can still be seen within the study area. The scheduled monument of Tilbury Fort (**NHLE1021092**) which was built in the 16th century during the latter stages of Henry VIII's reign as a response to fears of French naval attacks. Having been a constant element of defence of the Thames and London for four centuries the area surrounding the Site and study area remained mostly managed coastal wetland and enclosures until the construction of Tilbury Power Station (**MEX1032967**).

4.3.63 The HLC for Thurrock identifies two historic landscape character types for the Site. The first is an area of coastal managed wetland that forms the majority of the Site, and the second a small portion of the land to the west designated as industry (Essex County Council 2011). To the west of the Site, there are existing buildings that fit the industry designation, with part forming aspects National Grids presence that form part of the proposed development. While the Site has remained as mostly 'coastal managed wetland', the industrial landscape to the west has seen growth and redevelopment through the 20th century, with the inclusion and subsequent demolition of Tilbury power station along the western extent of the Site.

4.4 Baseline Conditions – Port of Tilbury Haulage Route

- 4.4.1 This section presents the heritage baseline for the haulage route to Berth 5 within the Port of Tilbury. Heritage assets and previous archaeological investigations within 1km of the haulage route are described below and shown on Figures 6 and 7.

Designated Heritage Assets

- 4.4.2 There are no World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Battlefields or Registered Parks and Gardens within the 1km study area surrounding the Port of Tilbury Haulage Route.

Non-designated Heritage Assets

- 4.4.3 The Essex HER records 24 non-designated heritage assets located within the 1km Study Area.
- 4.4.4 A full list of non-designated assets is produced in the gazetteer at Appendix C with accompanying figure marking the location of the described assets (see Appendix E Figure 6 with non-designated asset locations marked).

Previous Investigations

- 4.4.5 There have been two previous archaeological and geo-archaeological investigations undertaken within 1km of the Port of Tilbury study area. These have been summarised below.
- 4.4.6 A geo-archaeological assessment (**EEX56688**) was undertaken in 2013. Consisting of a borehole survey and environmental intervention at the proposed development at London Distribution Park, 750m north east of the Site. No records of this work have been published.
- 4.4.7 An archaeological watching brief (**EEX54328**) was undertaken in 2005 at Tilbury Fort, 910m south east of the Site. No records of this work have been published.

Archaeological and Historic Background

Prehistoric (c. 700,000 BC to AD 43)

- 4.4.8 Evidence of Palaeolithic and Neolithic activity has been recorded within what is now Tilbury Dock. Two flint hand axes and one unretouched flint flake (**MEX6172**) were found at Tilbury Dock in 1913, 650m south of the Site. Analysis of the finds indicates that they had possibly become detached from a buried surface when the sea level was lower and incorporated in buried channel deposits of the River Thames. Neolithic activity is evidenced a flint pick (**MEX 5939**) and (**MEX6168**), found 500m south east of the Port of Tilbury Haulage Route in 1884 and are likely the same find recorded twice within the Historic Environment Record. Further findspots of a flint axe head (**MEX5916**) found 660m east and flint flake (**MEX5935**) found 500m south east of the Site in 1883 were recovered from Tilbury Dock during its development.

Roman (AD 43 to 410)

- 4.4.9 Findspots dated to the Roman period were also revealed at Tilbury Dock. These are attributed to Roman remains (**MEX6221**) found 570m south east of the Site, however a description of these remains is not available. Roman period tiles, flint blocks, pottery sherds, animal bones and oyster shells (**MEX6234**) were found during the excavations of Tilbury Central Dock in 1883, 190m east of the proposed haulage route and were located in a wide scatter and possibly indicating a small scale occupation of the area prior to it becoming the Central Dock.

Early Medieval (AD 410 to 1066)

- 4.4.10 Evidence for the early medieval period is limited within the study area. A single chance find of a Saxon bronze bowl (**MEX5940**) was revealed in 1925 at Tilbury Marshes, 760m north east of the Site with little information available.

Medieval (AD 1066 to 1540)

- 4.4.11 The Site is likely to have comprised low lying marsh or seasonally grazed pasture during the medieval period. No heritage assets dating to this period are recorded within the Study Area.

Post-medieval (AD 1540 to 1900)

- 4.4.12 The development of Tilbury and the importance of the River Thames as a busy commercial and trade route is represented by the recorded locations of several historic buildings which are no longer extant. Daniel Defoe's Brickworks (**MEX1033045**) was located 95m east of the Site. The brickworks consisted of claypits, drying floors, foundations of kilns and supporting buildings. Tilbury Cottage Hospital (**MEX1033094**), located 850m south east of the proposed haulage routes, was completed in 1897. The hospital was situated at the lower entrance to Tilbury Docks and was extended in 1925. A series of buildings (**MEX34893**) were previously located 1km east of the Site, which were attributed to a farmstead and tileworks.

Modern (AD 1900 to Present)

- 4.4.13 The majority of heritage assets of the modern period within the study area relate to Second World War activity. Several D-Day embarkation Hards. Namely NZ1 (**MEX 1041241**), NZ2 (**MEX1041242**), NZ3 (**MEX1041243**), NZ4 (**MEX1041243**) and NZ5 (**MEX1041245**) were located adjacent to the southern and eastern boundaries of the proposed haulage routes. The hards were constructed to provide stable ground for landing craft, which were used to transport men and tanks across the English Channel to the shores of Normandy. Other Second World War activity includes a spigot mortar position (**MEX31790**) 190m north of the Tilbury Dock Vehicle Routes, eight air raid shelters (**MEX1041246**) 340m north east of the Site, anti-aircraft ditches (**MEX1032172**) 1km north, a D-Day assembly area 1km east, Caissons (**MEX31777**) 900m to the west and a fuel pipeline factory (**MEX31779**) 40m west of the Site.

Unknown

- 4.4.14 Two undated heritage assets have been recorded within the study area. A bronze buckle was found (**MEX5957**) 760m north east of the Site, this is recorded as undated but is recorded at the same location of the Saxon bronze bowl, and may be contemporary. A Portable Antiquities Scheme record (**MEX1043326**) is located 630m east of the Site, with no information provided.

4.5 Baseline Conditions – Gravesend Tunnel Headhouse and SEC

Designated Heritage Assets

- 4.5.1 Designated heritage assets are pre-fixed with (NHLE) for National Heritage List for England, and also have corresponding unique ID numbers as non-designated assets, these assets will only be included in the designated assets section of the gazetteer. Each asset has been cross-referenced to the gazetteer in Appendix B, and their location is shown on Figure 4. Non-designated assets have been given unique reference numbers. These are pre-fixed with (TQ). Each non-designated asset has been cross-referenced to the gazetteer in Appendix B, the location of non-designated assets is shown on Figure 4, with previous archaeological investigations shown on Figure 5.

- 4.5.2 There are no World Heritage Sites, Scheduled Monuments, Conservation Areas, Registered Battlefields or Registered parks and Gardens within the 1km study area surrounding the southern tunnel headhouse and SEC compound. There are seven listed buildings located within the 1km study area.
- 4.5.3 The Readers (**NHLE 1089019**) is a grade II listed building located on the corner of Orlick Road and Lower Higham Road approximately 750m south of the Site boundary. The asset comprises of a T-shaped timber-framed house with roughcast brick infilling and curved braces on the first floor. The house was likely built in the 15th or 16th century and still retains a casement window and Tudor arched stone doorcase, with a modern extension on the right side of the house.
- 4.5.4 54-58 Vicarage Lane (**NHLE 1089005**) located at the corner of Vicarage Lane and Lower Higham Road approximately 950m to the south of the Site boundary. The grade II listed building consists of three cottages. The buildings date to the 18th century, the two cottages to the south are located where the original farmhouse stood, with the northernmost cottage a later addition. The building comprises two storeys of brown and red brick with a tiled, hipped roof with three 3 hipped dormers. Modern brick extensions are found to the rear of No 56 Vicarage lane.
- 4.5.5 44 Chalk Road (**NHLE 1341493**) is a grade II listed building located approximately 1km to the south of the Site boundary. The asset comprises an 18th century farmhouse two storeys in height with red brick stringcourse which was once painted, hipped tiled roof and moulded wooden eaves cornice. This asset claims to be the Charles Dickens' honeymoon cottage.
- 4.5.6 1 Chalk road (**NHLE 1089043**) is grade II listed and located approximately 1km to the south of the Site boundary. The asset comprises a two storey cottage faced with weatherboarding and a tiled roof, two 2 sash windows with glazing bars intact, and a doorcase with small flat hood over supported on brackets. Above the door a small engraved tablet states that this was where Charles Dickens and Kate Hogarth spent their honeymoon in 1836. Some early chapters of "Pickwick" may also have been written here. No. 44 Chalk Road also makes a claim to being the honeymoon house.
- 4.5.7 Granary at Little Filborough Farm (**NHLE1089062**) is a grade II 18th century granary listed building located approximately 840mm south-east of the Proposed Development. The asset is one-storey high and covered in weatherboarding, with a hipped tiled roof; the structure is supported on saddle stones.
- 4.5.8 Barn to North West of Filborough Farm (**NHLE1341481**) is a grade II listed building located approximately 860m south east of the Site boundary. The asset is one storey high and clad in weatherboarding with a hipped slate roof.
- 4.5.9 Filborough Farm (**NHLE1089020**) is an 18th century, grade II listed building, located approximately 880m south-east of the Proposed Development. The farmhouse is a restored timber framed building, built with roughcast infilling with the ground floor partially rebuilt in red brick. The farmhouse also displays a tile hipped roof.

Non-designated Heritage Assets

- 4.5.10 The Kent HER records 54 non-designated heritage assets located within the 1km Study Area, with the Site itself is located within the western extent of the post-medieval and modern Milton Rifle Range (**TQ 67 SE 1185**).
- 4.5.11 A full list of non-designated assets is produced in the gazetteer at Appendix B with accompanying figure marking the location of the described assets (see Appendix E Figure 4 with non-designated asset locations marked).

Previous Investigations

Previous Archaeological Investigations

- 4.5.12 There have been 48 previous archaeological and geo-archaeological investigations undertaken within 1km of the southern extent of Site. These have been summarised below:
- 4.5.13 There have been four separate excavations at Chalk Roman Villa, 1.1km south of the Site boundary. Three were excavated by the Ministry of Works in 1959-1961 (**EKE3947**), 1961 (**EKE3948**) and 1974-1975 (**EKE3949**). The fourth excavation was conducted in 1978-1979 by Springhead Excavation Group. No site reports are associated with the four HER entries.
- 4.5.14 A geotechnical evaluation and report were conducted by Geotechnics-Materials Limited in 1994 (**EKE9779**) at Westcourt Marshes, 280m south of the study area. Eleven trial pits were excavated down to an organic peat layer, with no archaeological finds were recovered.
- 4.5.15 An archaeological desk-based assessment was conducted by Wessex Archaeology in 1996 (**EKE21323**), 80m south of site. The assessment focused on the Gravesend Waste Water Treatment Works, and subsequent development at the site and found a high potential for Roman and prehistoric remains.
- 4.5.16 A geotechnical ground investigation was conducted by Babbie in 1997 (**EKE9781**) for the Denton Relief Road, 490m south of the Site boundary. The works consisted of six boreholes and six trial pits excavated to an organic peat layer, no archaeological finds were recovered. An archaeological evaluation was conducted by the Institute of Archaeology, University of London in 1999 (**EWX6628**) at the Denton Relief Road, Gravesend, 80m south of the Site boundary. The evaluation revealed worked flint from the Mesolithic/Neolithic period, as well as prehistoric and Roman archaeological features. An archaeological watching brief and borehole survey were conducted by Oxford Archaeology between 2002-2003 (**EKE8724**), 220m south of the Site boundary. The works were located at the Denton Relief Road project and found no archaeological remains in either the watching brief or borehole survey.
- 4.5.17 An archaeological excavation was conducted by Pre-Construct Archaeology in 1997 (**EKE8797**) at Damigos Road, Gravesend, 680m south of the Site boundary. The excavation was conducted prior to housing development works and found archaeological evidence from the medieval period and the post-medieval West Court Manor.
- 4.5.18 An archaeological evaluation was conducted by Wessex Archaeology in 1997 (**EWX6586**), 90m south of the Site boundary. The evaluation was located at the Gravesend Wastewater Treatment Works where Romano-British pottery and other finds from the period were recovered. An archaeological watching brief (**EWX6597**) was conducted during the construction phase at the Gravesend Wastewater treatment Works in 1999. No further Roman deposits were observed but artefacts and known about deposits were located.
- 4.5.19 A geotechnical ground investigation was conducted by Soils Ltd in 1998 (**EKE9780**) at Lower Higham Road, Gravesend, 420m south west of the Site boundary. The works involved soil samples taken at subsequent levels of the ground investigation, no archaeological finds were recovered.
- 4.5.20 An archaeological watching brief was conducted in 1998 (**EKE8432**), 980m south of the Site boundary. The watching brief was on works being conducted at 7 Manor Close, Chalk and found no archaeological remains.
- 4.5.21 Two archaeological desk-based assessments were carried out under the same HER event number (**EWX9136**). The first was in 2000 focusing on the Eastcourt Marshes, and the second by Museum of London Archaeology in 2001 and focuses on the Westcourt Marshes, but this may be an input error as Museum of London Archaeology had conducted an assessment on this area in a separate HER listing (**EWX9176**). Both were conducted to assess the archaeological impact from the redevelopment of the Metropolitan Police Firearms and Public Order Training Centre. No

archaeological features were identified within that site boundary apart from the post-medieval Milton Range. Museum of London Archaeology found archaeological potential in the area and four putative crop marks of potentially Bronze Age date.

- 4.5.22 An archaeological evaluation was conducted by Essex County Council Field Archaeology Unit in 2001 (**EKE8607**), 660m south of the Site boundary. The evaluation was conducted in advance of redevelopment of playing fields and revealed evidence of Late Iron Age, Roman and post-medieval land use.
- 4.5.23 An archaeological trial trench evaluation was conducted by Museum of London Archaeology in 2001 (**EKE10622**), located 510m south of the Site. The evaluation excavated 22 evaluation trenches and found no archaeological remains.
- 4.5.24 An archaeological desk-based assessment was conducted by Museum of London of Archaeology in 2001, focusing on the Westcourt Marshes, Gravesend (**EWX9176**) 420m south of the Site boundary. The assessment identified the potential for the study area to contain archaeological features and four putative crop marks of potential Bronze Age date. An archaeological evaluation was conducted by Museum of London Archaeology in 2001 (**EKE8749**), 550m south of the Site boundary. The works were located within the Westcourt Marshes, Gravesend in advance of redevelopment and found no archaeological remains.
- 4.5.25 An archaeological survey was conducted by Kent County Council in 2004 (**EKE14761**), the survey covered the entirety of the Site and beyond. The survey focused on mineral extraction sites around the Thames Estuary. The survey produced information on the historic environment found within mineral extraction sites, focusing particularly on Pleistocene geology, palaeolithic archaeology and industrial archaeology.
- 4.5.26 An archaeological evaluation was conducted by Oxford archaeology in 2006 (**EKE9270**) at Lion Business Park, Gravesend, 280m south of the Site boundary. The evaluation was conducted in advance of development of the business park and found Late Neolithic/Early Bronze Age activity associated with flint knapping as well as beaker pottery which was recovered.
- 4.5.27 A borehole survey was conducted by Oxford Archaeology in 2006 (**EKE9782**) at Denton Marshes, Gravesend, 290m south of the Site boundary. The works comprised of five boreholes which revealed alluvial and peat deposits possibly dating from the Roman period.
- 4.5.28 An archaeological desk-based assessment was conducted by National Grid between 2006-2007 (**EKE17269**), 520m east of the Site boundary. The works focused on the Grain to Shorne Gas Pipeline, and reviewed existing archaeological and cultural information. A fieldwalking programme (**EKE17316**) was also conducted for the Grain to Shorne Gas Pipeline, and was conducted by Canterbury Archaeological Trust in 2006, 520m east of the Site boundary. A magnetometry survey was conducted along the route of the Grain to Shorne Gas Pipeline by Stratascan in 2006 (**EKE17318**), 520m east of the Site boundary. The results survey found scattered readings interpreted as geological or pedological anomalies, overall, the results of the survey produced little evidence for archaeological activity.
- 4.5.29 A series of test pits were excavated by Archaeology South-East in 2008 (**EKE13337**), 540m east of the Site. The test pits were located on the Isle of Grain and sought to confirm geophysical and geotechnical information as part of a Paleoenvironmental Evaluation. The archaeological investigations recorded a deposit sequence of alluvial silt and clay deposits, overlain by peat deposits that were 0.2-0.3m thick, sealed desiccated clay deposits and then topsoil. The peat deposits were identified at between -0.44m and -1m aOD. The western end of the site extended into the shooting range with a low mound that was identified as a potentially backfilled brick line bullet trap. A potentially earlier bullet-trap structure was identified adjacent to this feature. Several borrow pits and ditches were identified during the works which were used to create the shooting butt and were infilled in the late 20th century.

- 4.5.30 The Hoo Peninsula Historic Landscape Project was conducted by English Heritage between 2009-2012 (**EKE15020**) and (**EKE15021**), the project covered the entirety of the Site and beyond. The project consisted of aerial photographic and Lidar mapping and analysis. The survey revealed a wide date range of archaeological features, including buried remains visible as cropmarks, and surface remains seen as earthworks and structures. The survey also revealed previously unknown archaeological sites and provided views of the landscape, villages, architectural and inter-tidal remains.
- 4.5.31 A review was conducted by English Heritage between 2010-2011 (**EKE15400**), which covered the southern extent of the Site and beyond the Site boundary. The review described the Quaternary paleoenvironmental development and deposits of the Hoo peninsula region. The results of the review aided in the creation of GIS datasets on geological and archaeological sites within the Peninsula.
- 4.5.32 A historic landscape characterisation and historic seascape characterisation was conducted in 2011-2012 (**EKE13239**), the characterisations covered the entirety of the Site and beyond. They were carried out as part of the Hoo Peninsula Historic Landscape Project, which identified the changes in the Hoo Peninsula landscape and seascape, through factors such as historic and archaeology of its constituent buildings, fields, rivers and routeways.
- 4.5.33 An archaeological monitoring and survey was conducted by Archaeology South-East at Shorne Marshes in 2013 (**EKE16356**), 530m north east of the Site boundary. The works comprised monitoring of a 950m long security ditch, excavated to a depth of 2m from the surface level. The excavation revealed geological material consistent with the Thameside marshes, as well as organic peat deposits. Archaeological remains of a post-medieval shooting butt were revealed to the west of the security ditch, with field ditches were found across the excavation.
- 4.5.34 An archaeological evaluation was conducted by CgMs Consulting in 2016 (**EKE15826**), 480m south of the Site boundary. The evaluation comprised forty-four trial trenches to ascertain the presence, extent, date and nature of buried archaeological remains. Five trenches were not excavated due the presence of deep made ground and modern surfaces. A single trench revealed Romano-British archaeological features with residual Late Bronze Age, Iron Age, medieval and modern residual finds.
- 4.5.35 An archaeological evaluation was conducted by Thames Valley Archaeological Services in 2016 (**EKE15872**), 380m south of the Site boundary. The evaluation consisted of 39 trial trenches excavated in advance of construction of industrial units and associated parking, access and landscaping. No archaeological remains were identified during the evaluation.
- 4.5.36 An archaeological watching brief was conducted in 2009 (**EKE11241**), 630m east of the Site boundary. The watching brief was to monitor trenches dug to locate walls of the canal and the canal basin. The results of this watching brief have not been published.
- 4.5.37 An architectural and historic building survey was conducted by Essex County Council Field Archaeology Unit in 2004 (**EKE8817**), 440m west of the Site boundary. The survey was focused on Albion Parade, which consisted of a series of frontages to industrial companies established in the 19th and 20th centuries.
- 4.5.38 An evaluation was conducted by Medway Aircraft Preservation Society in 2007 (**EKE9369**), 320m west of the Site boundary. The evaluation was an attempt to locate and recovered a Hawker Hurricane which crashed in the area in 1940. No evidence of the aircraft was found.
- 4.5.39 An archaeological watching brief was conducted by Essex County Council in 1999 (**EWX6609**), 220m south west of the Site boundary. The watching brief was to monitor groundworks in advance of a house construction at Waterton Avenue, which revealed a layer of 19th century made ground which was used to reclaim former marshland during the Victorian building expansion within the area.

- 4.5.40 A rapid coastal assessment was conducted by Wessex Archaeology in 2002 (**EWX8094**) and covered the Site boundary and afar. The assessment involved field walking and photographic survey and formed the initial part of the pilot study for the North Kent Coast Rapid Coastal Zone Assessment Survey.
- 4.5.41 A survey was conducted by Wessex Archaeology in 2005 (**EWX8626**) and covered the Site boundary and afar. The assessment involved field walking, recorded observation and finds recovery, and formed phase II of the North Kent Coast Rapid Coastal Zone Assessment Survey.
- 4.5.42 A preliminary ground condition statement was conducted by Wardell Armstrong Consulting Group between 1989 and 2002 (**EWX9133**), 570m west of the Site boundary. The statement sought to report of ground conditions in the Gravesend canal basin area with recommendations for additional survey.
- 4.5.43 Evidence of *in situ* Palaeolithic remains are nationally rare, with findspots of isolated findspots of flint artefacts providing most of the limited evidence for an early human activity. Previous surveys of the area of white the study area forms part of highlight the poor provenance of most finds and uncertainties over the extent of earlier derived material in assemblages (Essex County Council and Kent County Council 2011).
- 4.5.44 The Site is situated within the North Kent Marshes which is located within the Dartford and Gravesham Conurbation. Kent has a reasonably populated prehistoric background, with several flint tool deposits found across the north of the county. There is also settlement evidence from the Neolithic, such as megalithic structures found on the North Downs and three earthen long barrows at the Wye valley (Kent County Council 2001). Two non-designated heritage assets were found within the study area from this period. Excavations at the Lion Business Park (**TQ 67 SE 286**) 740m south west of the EIA Boundary found examples of work flint and fragments of bunt unworked flint, as well as pottery sherds from the Neolithic/Bronze Age. Works at the Denton Relief Road (**TQ 67 SE 41**) 850m west of the EIA Boundary found three pieces of worked flint, which included a Tranchet axe.
- 4.5.45 Bronze Age and Iron Age activity has been discovered within the county, with the North Downs and Greensand areas showing a concentration of activity, however settlement evidence has been found across the county showing that during these periods the county was well populated (Kent County Council 2001). One non-designated heritage asset is located within the study area from the Bronze Age, and two non-designated heritage assets are located within the study area from the Iron Age. Four circular cropmarks (**TQ 67 SE 277**) 670m south west of the EIA Boundary have been recorded within the Westcourt Marshes and interpreted as Bronze Age in date and have been interpreted as enclosures. A Late Iron Age pit (**TQ 67 SE 238**) and Late Iron Age ditches (**TQ 67 SE 239**) were found 880m south west of the Site boundary. The large pit contained late Iron Age pottery, daub and animal bones which showed signs of butchery, the ditches were believed to be part of a field system which continued onto into the Roman period with a later ditch found in the vicinity indicting agriculture use across both periods.

Roman (AD 43 to 410)

- 4.5.46 There was interaction between the peoples of the south-east and the Romans as early as the 1st century BC, documentary sources note the existence of the island, its inhabitants and products during this time (Allen, Bird & Croxford, 2019). Given the counties location within the country and vicinity to mainland Europe, the county would have seen occupation from the earliest to latest stages of the Roman occupation (Kent County Council 2001). The county is home to major Roman sites such as Canterbury, Rochester and Dover, as well as the roadside settlement of Springhead and the religious centre of Horton Kirby to the south of the Site. Well established farmsteads were also created to the south west of the study area namely Darenth, Keston and Lullingstone (Allen, Bird & Croxford, 2019). Study of The Rural Settlement of Roman Britain Resource shows the extent of the Roman interaction with the landscape. The landscape outside of the study area contains numerous settlements lining each side of Watling Street down towards Strood. (ADS 2018).

- 4.5.47 Seven non-designated heritage assets dating to the Roman period are located within the study area. Excavations at Chalk 1.02km south of the EIA Boundary account for two of the non-designated heritage assets. A Roman building 'Chalk Villa' (**TQ 67 SE 15**) was excavated 940m south of the Site boundary, the villa is believed to have burnt down during the late 3rd century. The excavations also revealed several pits, three graves contain infant burials and mid-1st century pottery. Subsequent excavations within the vicinity revealed hypocaust, tiles and a complex Roman bath house. A human skull and sherds of 2nd century Roman pottery (**TQ 67 SE 18**) were found during construction work in 1959. 30m to the west a Roman poppy-head beaker and sherds of a second vessel were also discovered.
- 4.5.48 Second century pottery including Samian ware (**TQ 67 SE 36**) was found 570m west of the Site boundary. A Roman ditch (**TQ 67 SE 382**) was found 800m south of the EIA Boundary at Dalefield Way, pottery, fired clay, slag and struck flint were recovered from the ditch indicating that it may have been used between the Iron Age and Roman periods. A dump of Roman material and Roman ditch were found 790m west of the Site boundary, the dump (**TQ 67 SE 1001**) comprised of Samian ware pottery, terra nigra, other early Roman pottery, animal bones, shell and building material, the ditch (**TQ 67 SE 1003**) contained Roman remains.

Early Medieval (410 to 1066)

- 4.5.49 After the withdrawal of the Roman Empire from Britain in the early 5th century, the Roman influence on the region regressed, leading to influences from other parts of Europe. Anglo-Saxon influence on the region is represented mostly by funerary sites such as Darenth Park (NHLE 1003126), but very few settlement sites. There is evidence for the continuing use of both Roman roads and towns within the region, with the county being divided into 'lathes'. As the Saxon period progressed, parishes were formed and some settlements nucleated, however open field systems that were common at the time in other parts of the country were not utilised within the county (Kent County Council 2001). There are non-designated heritage assets from the early-medieval period within the study area.

Medieval (1066 to 1540)

- 4.5.50 Gravesend is recorded in the Domesday survey of 1086AD as being within the hundred of Tollingtrough and owned by Bishop Odo of Bayeux. There was an expansion of settlement within the county, facilitated by the opening of Wealden pastures which Gravesend saw some of this expansion (Kent County Council 2001). Three non-designated heritage assets are found within the study area. A section of medieval ridge and furrow (**TQ 67 SE 1019**) was located 200m west of the EIA Boundary and is now the Metropolitan police training centre, this farming practise shows the extent of the organisation of settlements and surrounding farmland towards the end of the medieval period.
- 4.5.51 Evidence of a medieval manor house (**TQ 67 SE 242**) were revealed 940m south west of the study area, comprising of a double cellared structure of chalk walls against an exposed natural chalk face with flint wall along the western and northern sides.
- 4.5.52 Denton Deserted Medieval Village (**TQ 67 SE 55**) was located 400m south west of the Site boundary, it is referenced in Mauice Beresford and J.G. Hurst's County Gazetteers of Deserted Medieval Villages. The designation of a deserted medieval village appears to stem from a deserted church but does note this is tentative evidence for a deserted medieval village.

Post-medieval (1540 to 1900)

- 4.5.53 The parish of Gravesend was confirmed by Queen Elizabeth I in 1568, as well as the antient privileges granted to Gravesend during the reign of King Henry IV. It is this period where a large expansion of industrial and agricultural practises can be seen within the study area and the surrounding landscape. This development was visible across the county following the Dissolution of the Monasteries, with the redistribution of church land which resulted in the networks of village, towns and cities which were seen through into the post-medieval period (Kent County Council 2001).

- 4.5.54 The industrial landscape of Gravesend developed during this period, which can be seen in industrial buildings, bridges, canals and the expansion of Gravesend docks. Denton Smock Mill (**TQ 67 SE 1251**) was constructed before 1840 940m west of the Site boundary, it was used to grind corn and was demolished prior to 1897 on land that is now part of Gravesend docks. Mapping from 1852 shows a windmill (**TQ 67 SE 1004**) 840m west of the Site boundary, the windmill is no longer extant with modern industrial buildings built over it.
- 4.5.55 Evidence of land reclamation has been found towards the west of the study area. A watching brief (**TQ 67 SE 1002**) at Waterton Avenue 210m south west of the Site boundary The watching brief was adjacent to the west of Westcourt Marshes, with peaty deposits below a layer of 19th century made ground. This non-designated asset highlights the potential that land reclamation occurred on parts of the Westcourt Marshes for industrial and domestic construction.
- 4.5.56 The Thames and Medway Canal (**TQ 67 SE 20**) was established in 1778 to allow military craft to move between Deptford and Woolwich Dockyards to Chatham Dockyard allowing the traffic to not use the Thames estuary (Warren and Thomas, 2006) (Plate 8). Three bridges were constructed across the Thames and Medway Canal within the study area. Bridge No. 3 (**TQ 67 SE 343**) was a swing bridge 870m west of the Site boundary which originally carried Mark Lane over the canal, the bridge is no longer extant. Bridge No. 5 (**TQ 67 SE 345**) was a swing bridge 760m east of the Site boundary, the bridge had a footpath over the Thames Medway Canal to Lower Higham Road, the bridge is no longer extant with a modern wooden bridge now in its place. A third swing bridge (**TQ 67 SE 49**) is located 90m south east of the EIA Boundary and was believed to have been a hand operated bridge which has subsequently been restored.
- 4.5.57 Three non-designated heritage assets are associated with Gravesend docks which saw expansion during this period. Denton Wharf (**TQ 67 SE 1005**) is visible on mapping from 1852 660m west of the Site boundary, and would have acted as a loading and unloading point within Gravesend docks. A quay (**TQ 67 SE 1018**) was visible on the 1st edition Ordnance Survey map of 1869 and is still in use today, likely having been rebuilt. A jetty (**TQ 67 SE 1040**) was also identified on the 1st edition Ordnance Survey map of 1869, constructed of parallel rows of timber posts running into the Thames, a new jetty has been constructed to the right of this jetty and a rubble slipway is visible between the two.
- 4.5.58 As the industrial landscape of Gravesend changed, the agricultural landscape also changed during this time. Three non-designated heritage assets pertaining to agricultural farmsteads are recorded within the study area. West Court Farmstead (**MKE84361**), Great Clane Lane Farmstead (**MKE84362**) and Farmstead north of Readers (**MKE84363**) were farmsteads which contained agricultural buildings and courtyards which are no longer extant, all between 740 and 800m south west of the EIA Boundary.
- 4.5.59 Ship breaking activities (**TQ 67 SE 1024**) were recorded 1.03km west of the EIA Boundary, likely a historical record as the derelict boats that showed signs of ship breaking are no longer extant on the Thames foreshore.
- 4.5.60 The Site is located within the western extent of the Milton Rifle Range (**TQ 67 SE 1185**) which extends for a further 900m east of the southern headhouse and SEC compound. The Milton rifle range was constructed in 1862 by W.J Sawyer on behalf of the War Office with the aim of providing a general enhancement to the musketry training for local Chatham regiments, however, it soon became used by other regiments. The range was located on the remote and uninhabited marshland of Eastcourt Marshes. The original range was laid out to the east of north-south aligned drainage ditch that forms the eastern limit of the Site and comprised a series of low earthen mound firing points at 50 yards (46 m) intervals west to east over a distance of 900 yards (823 m) towards the target mounds and linear butts. The butts were a series of five earthen banks approximately 25 yards (23m) from each other and were designed to contain and stop musket rounds once fired. The earthen banks of the butts were incorporated into a single larger earthen bank prior to 1895; however, there may be surviving traces of these original banks beneath the later bank. A markers gallery with iron mantlets to protect the markers was arranged in front of the target mounds. Two all-weather shelters were provided the first approximately 70m east of the southern headhouse and SEC compound

behind the 900-yard firing point and a second, eastern, shelter and range Policeman's (later range warden's) accommodation alongside the canal towpath just south of the 300-yard firing point and beyond the limits of the Site (Smith and Soder 2000).

- 4.5.61 First Edition OS map (not illustrated) depicts the extent of the 1862 rifle range extending across Eastcourt Marshes between the flood defences of the River Thames to the north and the Thames and Medway Canal to the south. The eastern extent of the range is defined by the single earthwork of the butts, with the western end of the range defined by the western shelter shed. The parallel earthen banks of the firing positions are not shown, although their existence is recorded by the numbered distance marker at 50-yard (46 m) intervals. The range is instead shown as being subdivided into irregular land parcels bounded by drainage ditches. The eastern shelter shed and Policeman's Quarters are depicted parallel to the canal. The field in which the proposed southern headhouse and SEC compound are located is shown, enclosed by the characteristic drainage ditches which survive today. The field appears to lie outside of the range, beyond the 900-yard firing position and western shelter shed.
- 4.5.62 During the mid-1890s, the firing range was re-organised to allow practice with the new Lee-Metford rifles. The reorganisation works were undertaken by Messrs B.Cooke of Battersea in 1895. The original butts, now located in within the RSPB reserve east of the range, were abandoned and new butts constructed as a single 230m long earthen bank which remains in use within the current range. A pit was excavated to the east of this new mount to provide the soil for the new butt and was later infilled. Approximately 18m to the west of the new butt is an iron mantlett (a long gallery formed of steel plates with a roof) that housed iron target frames. The eastern shelter shed was also rebuilt with a repair shed. At this time the firing distance was also reduced from 900 to 800 yards with a new arrangement of parallel linear firing positions at 50-yard (46 m) intervals, still surviving within the range today. The construction of the new butts approximately 215m west of the 1862 butts, extended the western end of the range into the Site. The 700-, 750- and 800-yard firing positions were located within the Site and comprised two lines of parallel earthen banks separated by an open space behind the western shelter shed. (Figure 11).
- 4.5.63 The northern line of the 700-, 750- and 800-yard firing positions was located in the area now occupied by the existing tunnel headhouse and compound. The remaining firing positions extend across the southern end of the site the 800-yard position again appears to be situated beneath the current access track, a low bank marking the southern 750-yard firing point is depicted extending across the drainage ditch to the south of the proposed headhouse and was visible during the site walkover survey (Figure 11; Plate 10). The southern 700-yard firing position appears to have been removed during alterations to the range for the Metropolitan Police Training Centre.
- 4.5.64 The range saw extensive use during the First and Second World Wars and within the Site a Miniature Rifle Range was established behind the western shelter shed. The miniature range is depicted as a sub rectangular fenced enclosure extending across the centre of the Site on the 1923, 1938 (Figure 15), and 1951 OS maps (not illustrated). An aerial photograph dated December 1940, provides a vertical image of the range and provides detail of the firing positions, miniature rifle range and other features within the Site at that time. The earthen banks of the 700-, 750- and 800-yard firing positions are visible to the north and south the miniature range which occupies a central position on the eastern side of the Site enclosed by a sub rectangular fence. The miniature rifle range comprised two curvilinear earthen banks, which narrow towards a small square structure or firing position at the western end of the earthworks. The eastern end of miniature rifle range is comprised of a rectangular target mount and curving butt/screen located behind the shelter shed and beyond the drainage ditch that runs along the eastern edge of the Site. A further square enclosure with a central hut/structure can also be seen on the western limits of the range which now extend to drainage ditch that forms the western boundary of the Site. These features are also recorded by Historic England's National Mapping Programme, which notes that the earthworks comprising the miniature rifle range as being demolished or levelled earthworks (Historic England, Aerial Archaeology Mapping Explorer <https://historicengland.maps.arcgis.com/> accessed October 2023).
- 4.5.65 On a second aerial photograph dated 1960 (Google Earth, 2023) the range features within the Site appear to have gone out of use and the miniature rifle range had been levelled. The western shelter

shed has also been demolished and is no longer visible. The small square enclosure on the western side of the Site has also been removed, although the central hut is still present. Across the remainder of the range the firing positions at the western end generally appear to have remained unchanged, while those to the east of the Site, closer to the targets and butts, appear to have undergone maintenance and are still clearly in use.

- 4.5.66 The range remained in military use until the 1980s, with last use by the Ministry of Defence in 1995. It is now used as a firing range for the Metropolitan Police Training Facility. A shooting stand (**TQ 67 SE 1252**) was located 890m east of the EIA Boundary and would have been incorporated into Milton Rifle Range. Excavations around the shooting stand found bullets which were of calibres used by the British Army, highlighting its use as a military training facility at the start of the 20th century.

Modern (1901 to Present)

- 4.5.67 The modern landscape of the Site saw little change until the construction of the Eastcourt Marshes Electricity Substation. The Study area shows development in this period attributing to urban housing, industry and transport infrastructure such as roads and railway. Second World War defences are well represented within the study area with numerous records within the Kent HER.
- 4.5.68 There was development to the dock and coastal area of Gravesend, with a causeway (**TQ 67 SE 1032**) is visible on the 3rd edition Ordnance Survey map of 1908 580m west of the Site boundary, comprising of wood and steel and is extant. A mooring post (**TQ 67 SE 1033**) is located 160m north west of the Site boundary, comprising of three piles with posts in a triangular shape with cross timbers situated on the Thames foreshore. A hard (**TQ 67 SE 1048**) was located on the Thames foreshore 970m east of the Site boundary, comprising of irregular small boulders and retained by angled posts which would have been used to beach vessels on.
- 4.5.69 Two Halts are within the study area and would have served as stopping points along the Gravesend West Railway Line. Denton Halt railway station (**TQ 67 SE 217**) was located 900m west of the EIA Boundary and is no longer extant. Milton Range halt (**TQ 67 SE 342**) was located 700m east of the Site boundary, and is no longer extant.
- 4.5.70 Eight non-designated heritage assets are located within the study area that pertain to World War Two defence, similar to that of Tilbury the landscape held strategic importance for defending the local area and London from both aerial and naval attacks. An air raid warden post (**TQ 67 SE 346**) is located 470m south of the EIA Boundary comprising a concrete structure with fittings, the building would have been used to provide early warning of air raids to Gravesend. A searchlight battery (**TQ 67 SE 89**), originally interpreted as a Bronze Age settlement was located 610m south of the Site boundary. The battery comprised of two curvilinear embanked enclosures with embanked entrances and offset banks that were likely to have supported sandbags, with searchlights at the centre of one enclosure and a light anti-aircraft machine gun within the other enclosure. Denton Heavy Anti-aircraft Battery (**TQ 67 SE 1209**) was located at Mark Lane 770m west of the Site boundary, comprising of four 4.5' guns south of North Kent railway. The battery formed part of a network of anti-aircraft defences and was decommissioned in 1945 and later removed in 1985. A road block (**TQ 67 SE 1161**) was located on Lower Higham Road 1km south east of the Site boundary, and would have formed part of the anti-invasion defences. Two concrete platforms (**TQ 67 SE 1045**) are located on the Thames foreshore 150m north west of the Site boundary, they are believed to be bases for navigational beacons used during the Second World War to aid ships sailing up and down the Thames. A barrage balloon location (**TQ 67 SE 1021**) was located 550m north east of the Site boundary, the balloon was located over the Thames and would have provided a defence against dive-bombing aircraft. Denton Sewage Works Battle Headquarters (**TQ 67 SE 1196**) was located 510m south west of the Site Boundary, the headquarters was part of the overall defence network of the local area and would have been manned by the local Home Guard regiment, the building was decommissioned around the end of the war and the sewage works occupies its location. Finally the crash site of a Hawker Hurricane (**TQ 67 SE 292**) is located 320m west of the Site boundary. The fighter plane is recorded as having crashed into Barton's Timber Wharf on the 15th October 1940, however all attempts to locate the wreck have proved unsuccessful.

- 4.5.71 A George V pillar box (**TQ 67 SE 306**) is located 360m south west of the Site boundary. The pillar box is located on the corner of Waterton Avenue and Denton Street, with it being constructed between 1933 to 1936.

Undated

- 4.5.72 Two salt working sites (**TQ 67SE 1013**) and (**TQ 67 SE 1014**) were recorded 110m west and 350m south east of the EIA Boundary respectively. Although not dated on the Kent HER, these are likely attributed to the Late Iron Age/Roman period as these were common along the Thames and utilised the Thames to produce salt as a domestic and trade resource.
- 4.5.73 An undated hoard (**MKE113306**) chance find was located 950m south of the Site boundary, supplementary information for this non-designated asset shows that it was found during the 1961 excavations around Chalk Roman Villa. It is likely that the hoard is associated with the Roman period due to its proximity to Chalk Roman Villa.
- 4.5.74 Evidence of a shipwreck (**TQ 67 SE 1044**) was located 70m north west of the Site boundary. While designated as a wreck, supplementary evidence attributes the oval stone bank found running at an angle from the foreshore to be associated with cargo or ballast from a vessel. It is unknown as to when this non-designated heritage asset is from but it is like post-medieval or later with the intense use of the Thames for shipping in these periods.
- 4.5.75 A post-built structure (**TQ 67 SE 1047**) was located 770m north east of the Site boundary. Consisting of a row of 12 abraded small wooden posts running from the foreshore into the water, no date has been ascribed to this structure, but it is likely post-medieval or later in date and was used by ships mooring along the Thames.
- 4.5.76 A brick tank (**TQ 67 SE 278**) was located 800m south of the Site boundary. This comprises a brick-built structure, possibly used as a water tank. It was noted during a walkover survey in 2003 and visible on the 1932 Ordnance Survey map. Modern urban development is now located at the point where the brick tank was recorded, and it appears to no longer be extant.

Historic map regression

- 4.5.77 The earliest available cartographic data for this Site is within a 1694 levels survey of the area conducted by George Russell of Rochester. The levels survey shows that the Site is situated within areas of enclosed marshland fields, with the field boundaries marked at ditches and sewer drains, all of which link and lead to the estuary to the north. There is no indication as to how these fields were utilised, although it is suspected they would have been either arable or livestock farmland. Within the 1840 Tithe Map of Chalk, the field boundaries appear to be largely the same as the 17th century, with the largest changes being with construction of the canal to the south of the Site.
- 4.5.78 The tithe apportionments do not provide names of the different fields; however, it is possible to have an indication of land use through the occupier of the fields. It appears that throughout the 19th century the majority of the marshland was under agriculture and tenanted out to farmers. This is true until the 1860s, when areas of this marshland were taken on by the War Department, leading to the establishment of Milton Firing Range in 1862.
- 4.5.79 There are no plans available of the firing range, however, the site is visible within all OS maps from the 1897 2nd edition OS map, the 1908 3rd edition OS map, and the revised edition OS map of 1932. The earlier 1863 Essex Sheet OS map shows no evidence of the range, and instead depicts a sheepfold within one of the fields, indicating they were used for sheep grazing. Within these maps, minimal changes are occurring within the Site or within the surrounding areas.

Historic Landscape Character

- 4.5.80 Several sources were consulted to inform the assessment, including the following:

- National Character Area Profile: 81. Greater Thames Estuary;
- KCC Historic Landscape Characterisation;
- Historic Ordnance Survey maps; and
- Information from the heritage walkover to identify elements that contribute to an understanding of the historic landscape.

4.5.81 In general, the local area is relatively flat and low-lying, and is characterised by industrial development to the west and post-medieval residential to the south and south west, with the site itself being a pocket of open, managed coastal wetland.

4.5.82 The proposed development lies within the Greater Thames Estuary Character Area of the National Character Area Project 'coastal managed wetland' (Natural England 2013). The key characteristics and features of the character area are:

- Predominantly flat, low-lying coastal landscape where extensive open spaces are dominated by the sky, and the pervasive presence of water and numerous coastal estuaries extend the maritime influence far inland;
- Eastern edge of the London Basin with its underlying geology of the extensive London Clay, containing important sites for geodiversity including fossiliferous deposits, and overlain by productive loamy soils derived from intertidal alluvial muds;
- Geological contrast and variety along the coastline provided by Sheppey, a long, low island rising from a stretch of very flat marsh along the Swale Estuary in Kent with low, steep clay cliffs facing towards Essex, and Mersea Island in the Blackwater Estuary in Essex;
- Coastline of major geomorphological interest for its coastal processes. Accretion of material carried by the sea from the north recharges intertidal coastal habitats, which are subject to coastal squeeze from rising sea levels;
- Open grazing pastures patterned by a network of ancient and modern reed-fringed drainage ditches and dykes, numerous creeks and few hedges or fences, with tree cover a rarity;
- Traditional unimproved wet pasture grazed with sheep and cattle combined with extensive drained and ploughed arable land protected from floods by sea walls, with some areas of more mixed agriculture on higher ground;
- Strong feelings of remoteness and wilderness persist on extensive salt marshes, mudflats and reclaimed farmed marshland, which support internationally important plants, invertebrates and populations of breeding and overwintering birds, notably overwintering Brent geese;
- Open mosaic habitats on brownfield sites support nationally important invertebrate assemblages and key populations of rare invertebrate species;
- Distinctive landmarks of coastal military heritage including Napoleonic military defences, forts and 20th-century pillboxes;
- Some of the least settled parts of the English coast with numerous small villages and hamlets on higher ground and marsh edges reflecting medieval patterns and the coastal economy;
- Highly urbanised areas within London and on marsh edges subject to chaotic activity of various major developments including ports, waste disposal, marine dredging, housing regeneration, mineral extraction and prominent power stations plus numerous other industry-related activities;
- Increasing development pressures around major settlements and especially towards London, with urban, industrial and recreational sites often highly visible within the low-lying marshes; and
- Major historical and current transport link to Inner London provided by the River Thames, with an extensive network of road and rail bridges spanning its reaches within the city.

4.5.83 The historic landscape character types identified within the study area are noted within The Kent Historic Landscape Characterisation (Kent County Council 2001).

- 4.5.84 The proposed development lies within the Greater Thames Estuary Character Area of the National Character Area Project 'coastal managed wetland' (Natural England 2013). It also lies within Historic Landscape Character Area 28 (HLCA 28) of the Kent Historic Landscape Character (Kent County Council 2001).
- 4.5.85 The Historic Landscape Character Area 6 (HCLA 6) is identified along the northern coast and marshland, the landscape is described as: *Relatively balanced mix of reclaimed marsh and coastal landscape types typifying the relationship between humans and the marine environment. Areas situated closer to the mouth of the Thames, i.e. the area around the Hoo peninsula, contain a greater degree of industrial activity. It is likely that this belt continued further east towards HLCA 19 (Wantsum Channel) but the expansion of Whitstable and Herne Bay town (part of HLCA 22, Former Blean Forest) has overlain any evidence of this.*
- 4.5.86 Historic elements of the landscape can still be seen within the study area. Buildings such as The Readers (**NHLE 1089019**), 1 Chalk Road (**NHLE1089043**), 44 Chalk Road (**NHLE1341493**) and 54-58 Vicarage Lane (**NHLE1-89005**) demonstrating the urban development of Gravesend in the post-medieval period. The Site has not been a vital aspect of the historical landscape of Gravesend, with only the development of Milton Rifle Range and the Eastcourt Marshes Electricity Substation developed within its boundaries.
- 4.5.87 The Site comprises a single historic landscape characterisation type 5.3 Reclaimed Marsh – Small Regular Enclosures. This HLC type is defined by its small land parcels of marshland and low lying grassland which are bounded by drainage ditches and the Thames. Despite being altered by the construction of the Milton Rifle Range and existing Eastcourt Marshes Electricity Substation the Site largely retains its rectangular shape bounded to the east and south by drainage ditches, and is still legible as part of a wider pattern of small rectilinear enclosed fields extending along the southern bank of the River Thames.
- 4.5.88 To the west of the Site, there are existing buildings that fit an industrial designation, with several industrial buildings along the Thames foreshore associated with Gravesend Docks. The Site has remained as 'small regular enclosure' the industrial landscape to the west has seen growth and redevelopment through the post-medieval and modern periods, that have expanded on Gravesend Docks and its associated industries.

5 Assessment of the Baseline

- 5.1.1 This DBA has established the historic environment baseline conditions for the Scheme and its surrounding study area, and the following sections presents the results of that assessment for the Tilbury and Gravesend tunnel headhouses and SEC sites and the Port of Tilbury Haulage Route.

5.2 Tilbury Tunnel Headhouse and SEC

Previous Ground disturbance

- 5.2.1 The previous ground disturbance of the Site is attributed to a lay down area constructed to the north east of Site, this involved alterations to the ground level and concrete overlain, a coal and fuel waste storage area associated with Tilbury power station was also located to the north east and involved reduction in ground level with concrete formed over. Access roads through the centre of site towards the electrical substation have possibly been constructed below natural ground level. Towards the location of the shaft site, an area of hard standing is visible, it is likely this area contains made ground beneath the concrete. Immediately east of the Site is a small field that appears to have had the ground level raised but it is unknown if the ground below the raise has been affected. East of the Site is another area of raised ground raised but it is unknown if the ground below the raise has been affected. Finally, towards the south east an area of marshland has been quarried which reduced the ground level, which was subsequently reinstated, the process of quarrying is likely to have disturbed the below ground level.

Assessment of Archaeological Potential

- 5.2.2 This section assesses the potential for unrecorded buried archaeological remains and surface artefacts to be present within the EIA Boundary. The assessment of archaeological potential is based on the data available at the time of writing and takes into consideration the known archaeological assets within the EIA Boundary and surrounding study area, and the historical and cartographic evidence presented in the baseline. The lack of instances of particular archaeological periods within The Scheme and study areas may reflect limited archaeological investigation to date, rather than a real absence of activity.
- 5.2.3 A single designated heritage asset, the Tilbury Fort Scheduled Monument on the southwestern edge of the study area. Two listed buildings are recorded within the study area; the grade II* listed Officers' Barracks (**NHLE 1375568**) is located within Tilbury fort and the grade II listed Tilbury Clock Tower War Memorial (**NHLE1471691**) located at the western edge of the study area.
- 5.2.4 Thirty-one non-designated heritage assets, dating from the Palaeolithic to modern periods are located within the 1km Study Area. None of these assets are recorded within the Site itself, however historic mapping suggests that the former medieval seawall (**MEX6629**) may have once extended across the Site. The significance of those heritage assets which have potential to be affected by the Proposed Development and the potential for previously unknown archaeological remains to survive within the Site are assessed below:
- **Palaeoenvironmental Remains** – The geoarchaeological deposit model undertaken to inform this DBA (Quest 2023) modelled the depth of deposits within the Site and the wider study area, and to assess the potential for Mesolithic and later prehistoric alluvium and peat deposits to be located within the Site. These stratigraphic layers sequence the changing sea-level, landscape development and may contain evidence for human occupation of the area during the Holocene period. The Site is therefore considered to have a **high** potential for the survival of palaeoenvironmental remains dating to the Mesolithic to Iron Age periods including organic alluvium and peat deposits.
 - **Palaeolithic and Mesolithic** – Archaeological remains from these periods are rare nationally with only one chance find recorded within the study area 800m to the west of the Site boundary.

The Site is therefore considered to have a **low** potential for the recovery of Palaeolithic or Mesolithic remains including isolated find of stone tools.

- **Neolithic and Bronze Age** – While chance finds of lithic artefacts have been recovered from the enclosed fields north of Tilbury Fort approximately 850m north west of the Site boundary. The Site is assessed as having a **low** potential for the survival of Neolithic or Bronze Age artefacts or in situ occupation evidence.
- **Iron Age and Roman** – There are three findspots of Romano British pottery found within the study area, with a settlement remains dating from the 1st-2nd century 500m east of the Site boundary. The Site is therefore considered to have a **moderate** potential for the discovery of Iron Age or Roman remains associated with the settlement to the east of the Site.
- **Early-medieval and medieval** – During the early medieval and medieval periods the Site would have been located on low lying marshland to the south of West Tilbury. The medieval sea wall (**MEX6630**), which is not visible above ground is the only recorded archaeological feature dating from this period within the study area. The Site is assessed as having a **moderate** potential for the survival of buried medieval remains associated with the former seawall.
- **Post-medieval** – The Site remained marginal river coastal marsh until the mid-20th century it was then used for the construction of West Tilbury Power Station. 750m to the west Tilbury Fort was constructed in the 16th century and was a permanent fixture to the present. No evidence for post-medieval settlement has been recorded during the desk-based assessment and the Site is therefore assessed as having a **low** potential for the survival of post-medieval remains.
- **Modern** – The Site remained undeveloped agricultural land until the construction of the now demolished West Tilbury Power Station in the late 1950s and 1960s. The north west corner of the Site comprised part of the coal and waste fuel ash storage area of the power station and the proposed tunnel shaft and head house location were developed as hardstanding yard areas associated with the power station. The Site is therefore assessed as having a **low** potential for the survival of remains associated with power station.

Assessment of Heritage Significance

- 5.2.5 The NPPF stresses the importance of identifying and assessing the heritage significance (heritage value) of any heritage asset and its setting that may be affected by the Proposed Development. Once heritage significance has been established, the impact of any proposal can be appropriately assessed. Heritage assets within the northern headhouse and SEC compound at Tilbury are shown on Figure 2.

Designated Heritage Assets

- 5.2.6 The Tilbury Fort Scheduled Monument (**NHLE 1021092**) includes the buried remains of an Henrician blockhouse fort, which was replaced by a larger star fort and battery constructed in the late 17th century, which saw alterations in the 19th and 20th centuries. The fort, designed by Sir Bernard de Gomme one of the leading military architects of the period, survives as the best example of a 17th century coastal fort in Britain, exhibiting defensive principles pioneered in the Low Countries with the complicated outer works providing an example of Dutch military design which is extremely rare in England. Tilbury fort has considerable archaeological, architectural and historic interest which contribute to its high heritage significance. The setting of the fort is defined by its strategic location on the north bank of the River Thames, incorporating wide views and fields of fire across the river, originally complementing that of a sister Henrician blockhouse fort at Gravesend, and the landward defences to the rear of the fort, despite being surrounded by modern dockland and industrial development. The inter-relationship of the low earthen banks and brick curtain wall, position of the batteries, bastions, outer works and double moat are also part of the setting of the monument and contribute to the understanding of the asset and its significance. Due to the rare survival and unique design of the fort, this asset has **high** heritage significance.
- 5.2.7 The grade II* listed Officers Barracks Tilbury Fort Officers Barracks (**NHLE 1375568**) is located within the Tilbury Fort Scheduled Monument, just beyond the study area. The barracks were

commissioned by the Ordnance Board in 1772 and are believed to have been constructed on the site of the late 17th century officer range. The barracks originally comprised a terrace of 22, two-storey, officers houses, which were altered to provide seven officers houses during 19th century. The barracks survive as a good example of Ordnance Board housing of the late 17th century and are of additional interest due the terraced plan of the officer quarters. The asset has strong architectural and historical interest, and group value as an integral structure within Tilbury Fort. The setting of the barracks is defined by the interior of the fort and the surrounding brick and earthen defences which make a clear contribution to the **high** heritage significance of the asset.

- 5.2.8 The Tilbury Clock Tower War Memorial (**NHLE 1471691**) is a grade II listed building located in Civic Square Tilbury. Constructed in 1934 the memorial comprises a tall white painted, square tower with Roman Ionic corner pilasters above which round clock faces are set on each side of the tower. The asset has strong historical interest as a focal point commemorating the *'tragic impact of world events on the local community, and the sacrifice it made in the conflicts of the 20th Century'* and architectural interest derived from its *'high quality design, monumental in scale, and a central feature of the masterplan for the area in the 1930s'* (Historic England 2023; <https://historicengland.org.uk/listing/the-list/list-entry/1471691?section=official-list-entry> Accessed November 2023). The setting of the asset is defined by the adjacent municipal buildings and public space which define Civic Square, with which it forms an integral element of the 1930's design, and wider urban surroundings of the and adjacent wide tree lined streets. This setting makes a strong contribution to the **medium** heritage significance in the asset.

Non-designated Heritage Assets

- 5.2.9 The medieval sea wall (**MEX6629**) recorded on the Essex HER towards the eastern extent of the Site would have comprised an earthen bank, which André and Chapman's map of 1777 depicts extending east-west across the Site close to the proposed tunnel shaft and headhouse. No evidence for upstanding earthwork remains were noted during the site walkover and it is likely that any evidence for the seawall within the Site survives as below ground archaeological remains. Earthen seawalls of this type are a common and well understood feature along Britain's coasts and rivers. The asset has modest archaeological and historic interest contributing to the local understand of the reclamation, management and land use of the West Tilbury Marshes from the medieval period onwards. As such the asset is considered to be of **low** heritage significance.
- 5.2.10 Pillbox (**MEX31812**) is an Essex Lozenge anti-shell design unique to Essex located approximately 100m south of the Site. The pillbox survives as an unusual example of the Second World War defensive structures along the River Thames and has modest archaeological and historic interest. The setting of the asset is considered to comprise its riverside location provide strategic views and a field of fire across River Thames and the low water line on the approach to batteries at Tilbury Fort as part of the network of defensive structures created to defend the Thames Estuary and London. The pillbox is assessed as being of **low** heritage significance contributing to local research objectives.

Previously unknown archaeological remains

- 5.2.11 There is potential for the Proposed Development to impact on previously unknown archaeological and palaeoenvironmental remains. Deposit modelling has identified three layers of peat, comparison with radiocarbon dates obtained from similar deposits recorded on near-by investigations suggest that the lowest horizon may date to the Mesolithic period, the middle layer may have formed during the Mesolithic, Neolithic and Bronze Age, and the upper layer may date to the Iron Age. There is also potential for the peat horizons to contain archaeological remains in the form of lithic artefacts and possibly waterlogged wooden or organic remains relating human occupation of the marshes during the Mesolithic to Iron Age.
- 5.2.12 Any peat deposits and associated archaeological remains identified within the Site would hold archaeological interest derived from their ability to contribute to local and regional research frameworks, particularly palaeoenvironmental and environmental data to inform further deposit modelling, the understand relative sea level change, landscape development, settlement and

resource exploitation within the Lower Thames Valley. Any surviving archaeological or palaeoenvironment remains are therefore considered to be of **medium** heritage significance.

- 5.2.13 Evidence Iron Age and Roman remains has been observed within the study area associated with salt production and rural settlement. These remains have archaeological interest with potential to contribute to the understanding of rural settlement patterns, land management, salt manufacture and trade at a local and regional level and as such could be of up to **medium** heritage significance
- 5.2.14 Medieval, post-medieval and modern archaeological remains are relatively few compared to the earlier periods, but may have modest archaeological and historic interest contributing to the local understand of the reclamation, management and land use of the West Tilbury Marshes from the medieval period onwards. Any such surviving remains are considered to be of **low** heritage significance.

Historic Landscape Character

- 5.2.15 The Site is located within the Historic Landscape of Thurrock described as a largely urban-edge landscape bordered by former marshes along the Thames. The Site is defined as predominately comprising coastal managed wetland, with industrial to the west, coastal drained enclosure to the north and modern agricultural land to the east. The Site forms part of the industrial character on its western side as part of the former Tilbury power station and extant sealing end compound.
- 5.2.16 The northern and western boundaries of the Site are defined by an access track likely used for Tilbury Power Station, with the west of site forming the concrete surface of the now demolished Tilbury Power Station, and mineral extraction to the east. To the east the site is defined by a drainage ditch on a north-south alignment, beyond which lie restored grassland of the former mineral extraction and waste fuel ash heaps of the power station. A medieval seawall is described within the vicinity but was not visible during the site visit. The characteristically square shape of the land-parcel does reflect the line of the pre-industrial coastline. The layout of the western side of Site has not changed since the establishment of Tilbury Power Station, and the remaining layout has seen little impact from access tracks and footpaths since the post-medieval period and will not change after the development. The historic landscape character of the Site is therefore considered to be of **low** value and have a **low** sensitivity to change.

5.3 Port of Tilbury Haulage Routes

Previous Ground disturbance

- 5.3.1 The previous ground disturbance of the Site is attributed to the construction and development of Tilbury Docks, this involved alteration to the ground level with areas of reclaimed marshland excavated to create the docks and construction of access routes and dock infrastructure. Land raising and excavation of the docks is likely to have resulted in archaeological deposits predating the post-medieval period either having been completely removed or being buried at some depth below the current ground surface.

Assessment of Archaeological Potential

- 5.3.2 The assessment of archaeological potential is based on the data available at the time of writing and takes into consideration the known archaeological assets within the Site and surrounding study area, and the historical and cartographic evidence presented in the baseline. The lack of instances of particular archaeological periods within the study areas may reflect limited archaeological investigation to date, rather than a real absence of activity.
- 5.3.3 There are no designated heritage assets within the 1km study area.
- **Palaeoenvironmental Remains** – The geoarchaeological deposit model undertaken to inform this DBA (Quest 2023) modelled the depth of deposits within the Site and the wider study area. Previous investigations within Tilbury Docks have recorded a sequence of alluvial deposits

containing multiple peat horizons, The sequence records the changing sea-level, landscape development and may contain evidence for human occupation of the area during the Holocene period. The Site is therefore considered to have a **high** potential for the survival of paleoenvironmental remains dating to the Mesolithic to Iron Age periods buried beneath the current port facilities.

- **Palaeolithic and Mesolithic** – Archaeological remains from these periods are rare nationally with one chance find (**MEX6172**) recorded within the study area 670m to the south of the Site boundary. The Site is therefore considered to have a **low** potential for the recovery of Palaeolithic or Mesolithic remains including isolated finds of stone tools.
- **Neolithic and Bronze Age** – While chance finds of lithic artefacts have been recovered from the south of Tilbury Dock, 500m south of the Site boundary. The assessed study area has a **low** potential for the recovery of Neolithic or Bronze Age artefacts or in situ occupation evidence.
- **Iron Age and Roman** – Two non-designated heritage assets from the Roman period are recorded within the study area, 180m east of the Site boundary. Given that these finds were found in material excavated during the construction of Tilbury Docks, it is considered that there is a **low** potential for the discovery of Iron Age or Roman remains.
- **Early-medieval and Medieval** – During the early medieval and medieval periods the Site would have been located on low lying marshland to the south west of West Tilbury. Two findspots dating from the early-medieval was recorded within the study area, 880m north east of the Site boundary. The Site is assessed as having a **low** potential for the survival of buried early-medieval and medieval remains.
- **Post-medieval** – The Site saw the development of Tilbury Dock in the latter 19th century, with marshland being reclaimed and the docks excavated and adjoining furniture installed. All heritage assets within the study area are associated with the docks, therefore there is a **moderate** potential for material relating to the docks and associated buildings within the Site.
- **Modern** – The Site remained as Tilbury Docks through this period to present. All heritage assets from this period are associated with Second World War defence or staging areas or the D-Day landings. Therefore there is a **low** potential for the survival of previously unknown remains associated with Second World War defences or staging areas within the proposed haulage routes.

Assessment of Heritage Significance

- 5.3.4 The NPPF stresses the importance of identifying and assessing the heritage significance (heritage value) of any heritage asset and its setting that may be affected by the Proposed Development. Once heritage significance has been established, the impact of any proposal can be appropriately assessed. Heritage assets within the Port of Tilbury are shown on Figure 6.

Non-designated Heritage Assets

- 5.3.5 Until the development of Tilbury Docks, the Site was reclaimed marshland used for agricultural purposes. Prehistoric (**MEX6172, MEX5935, MEX5939 and MEX6168**) and Roman (**MEX6221 and MEX6234**) chance finds from within Tilbury Dock are noted as potentially originating in buried surfaces from when the sea level was lower, with the docks construction and dredging disturbing these surfaces. These artefacts have been removed from their original context following their discovery and are no longer present within the study area. While the record of their location contributes to the understanding of the potential for further archaeological remains within the Site they are no longer considered to have heritage significance in the same way as in situ remains or assets.
- 5.3.6 The D-day Embarkation Hard's NZ1-NZ5 (**MEX1041241, MEX1041242, MEX1041243, MEX1041244 and MEX104245**) were situated within Tilbury Docks. The remains of the hards were either removed following the war or in the case of NZ1 incorporated into the main dock. Any surviving

remains of the hards will have moderate historic and archaeological interest contributing to local and regional research objectives and are assessed as being of **medium** heritage significance.

Previously unknown archaeological remains

- 5.3.7 The Essex HER highlights chance finds from the Palaeolithic, Neolithic and Roman periods within the docks, likely recovered during its construction. Given the likelihood that these chance finds were discovered from reworked or disturbed buried land surfaces. Isolated findspots of artefacts dating to these periods are likely to have limited archaeological interest and are assessed as being of **low** heritage significance
- 5.3.8 There also potential for deeply stratified alluvial deposits, including organic alluviums and peat to survive beneath the current port facilities. Any peat deposits and associated archaeological remains identified within the Site would hold archaeological interest derived from their ability to contribute to local and regional research frameworks, particularly palaeoenvironmental and environmental data to inform further deposit modelling, the understand relative sea level change, landscape development, settlement and resource exploitation within the Lower Thames Valley. Any surviving archaeological or palaeoenvironment remains are therefore considered to be of **medium** heritage significance.

Historic Landscape Character

- 5.3.9 The Site is located within the Historic Landscape of Thurrock described as a largely urban-edge landscape bordered by former marshes along the Thames. The Site is defined as predominately comprising industrial and dockland. The Site forms part of the industrial character as part of Tilbury Docks and it's contemporary industrial buildings. The layout of the docks has not changed since its establishment in the late 19th century, with little impact from access tracks and industrial buildings from the post-medieval period and will not change after the development. The historic landscape character of the Site is therefore considered to be of **low** value and have a **low** sensitivity to change.

5.4 Gravesend Tunnel Headhouse and Sealing End Compound

- 5.4.1 The DBA has identified seven designated heritage assets all grade II listed buildings within the Study Area. Fifty-four non-designated heritage assets dating from the Neolithic to modern periods are recorded within the Study Area. Of these, a single non-designated heritage asset the post-medieval to modern Milton Rifle Range (**TQ 67 SE 1185**) extends across the Site. Two further non-designated heritage assets the Thames and Medway Canal (**TQ 67 SE 20**) and associated swing bridge (**TQ 67 SE 49**) are located immediately south of the Site boundary. The significance of those heritage assets which have potential to be affected by the Proposed Development and the potential for previously unknown archaeological remains to survive within the Site are assessed below.

Previous Ground disturbance

- 5.4.2 The previous ground disturbance of the Site is attributed to the creation of Milton Rifle Range (**TQ 67 SE 1185**) and the construction of the existing Eastcourt Marshes Electricity Substation and corresponding overhead power line pylons. The topography of the Site consists of relatively flat ground across the area with a gentle sloping north to the Thames foreshore. Ground disturbance is relatively minor across the site with the impacts of the rifle range and electricity substation focused towards the northern and eastern extent of the Site. While Milton Rifle Range forms the eastern boundary of the Site, a portion of the south west corner of Milton Rifle Range will form the location of a new line of overhead power lines and corresponding pylons.

Assessment of Archaeological Potential

5.4.3 The assessed archaeological potential of the southern tunnel headhouse and SEC site by period is summarised below:

- **Paleoenvironmental Remains** – The geoarchaeological deposit model undertaken to inform this DBA (Quest 2023) identified potential for the survival of lower and middle peat deposits dating to the Mesolithic and later Mesolithic to Bronze Age periods. The stratigraphic sequence record changing sea-levels, landscape development and may contain evidence for human occupation of the area during the Holocene period. The Site is therefore considered to have a **high** potential for the survival of paleoenvironmental remains dating to the Mesolithic to Bronze Age periods including organic peat and alluvial deposits.
- **Palaeolithic and Mesolithic** – Archaeological remains from these periods are rare nationally and no heritage assets dating to the Palaeolithic or Mesolithic are recorded within the study area. The Site is therefore considered to have a **low** potential for the recovery of Palaeolithic or Mesolithic remains including isolated find of stone tools.
- **Neolithic and Bronze Age** – One Neolithic chance find of lithic artefacts has been recovered 780m south west of the EIA Boundary within the study area suggesting that the site has a **low** potential for the recovery of Neolithic or Bronze Age artefacts or in situ occupation evidence.
- **Iron Age and Roman** – Iron Age archaeological evidence was found 780m south of the EIA Boundary consisting of pottery, animal bones and structural daub (**TQ 67 SE 238**) and (**TQ 67 SE 239**). Roman archaeological remains were found 490m south west and 1km south of the Site boundary. The archaeological evidence found to the south of was associated with Chalk Villa and those to the south west were Roman material culture, however both of these concentrations are located at some distance from the Site. The Site is therefore considered to have a **low** potential for the discovery of Iron Age or Roman remains.
- **Early-medieval and medieval** – During the early medieval and medieval periods the Site would have been located on drained marshland used for agricultural purposes east of Gravesend. Archaeological remains are recorded within the study area, with medieval ridge and furrow observed 200m west of the Site boundary. The Site is assessed as having a **low** potential for the survival of early medieval and medieval remains.
- **Post-medieval** – The Site remained marginal river marsh until the end of the 19th century it was subsequently used to construct the Milton Rifle Range. It is therefore assessed as having a **low** potential for the survival of post-medieval agricultural or settlement remains. However, there is a **high** potential for the survival of remains associated with the earthen firing positions and 19th century operation of the Milton Rifle Range.
- **Modern** – No non-designated heritage assets are recorded within the Site. The Eastcourt Marshes Electricity Substation was built in the 20th century to the immediate west of Milton Rifle Range which sees use to the present day as part of the Metropolitan Police Specialist Training. The proposed location of the headhouse and SEC remain grassland within the enclosed marshland. The Site is therefore assessed as having a **low** potential for the survival of remains associated with Milton Rifle Range.

Assessment of Heritage Significance

5.4.4 Heritage assets within the southern headhouse and SEC compound at Gravesend are shown on Figure 4.

Designated Heritage Assets

5.4.5 The Readers (**NHLE 1089019**) is a grade II listed building located approximately 750m south of the Site boundary. The building comprises a T-shaped timber-framed house with roughcast infilling and curved braces on the first floor. It is thought to have originated as a 15th or 16th century hall house with the roof retaining its smoke louvres. The heritage significance of the asset is derived from its architectural and historic interest, within its suburban corner plot setting, surrounded by mixed

modern residential housing adding little to its significance. As a result, Readers is assessed as being of **medium** heritage significance.

- 5.4.6 54-58 Vicarage Lane (**NHLE 1089005**) is a grade II listed range of three 18th century cottages located approximately 900m south of the Site boundary. The two southern cottages were originally a farmhouse, with the northmost cottage being a later addition. The cottages have a functional relationship as a group, as well as their architectural and historic interest. The present setting of the cottages is suburban within modern residential development. The asset is therefore assessed as being of **medium** heritage significance.
- 5.4.7 1 Chalk Road (**NHLE 1089043**) is a grade II listed building approximately 1km south of the EIA Boundary and is an early 19th century cottage with weatherboarding to its northern and southern faces. Architectural features including two sash windows with intact glazing bars, doorcase with a small flat hood supported on brackets and a four panelled door, survive. Above the door is a small tablet with a mask of Dickens and the inscription "*Charles Dickens, Born 1812, Died 1870 spent his honeymoon in this house (1836)*". The significance of the building is derived from its architectural interest and local vernacular style and the historical association with Charles Dickens and Kate Hogarth, and the attribution that early chapters of '*Pickwick*' were written at the property. The current setting of the asset comprises a suburban area with later houses and roads being constructed around it. The setting provides context for residential development throughout the 20th century but adds little to the significance of the asset, which is assessed as being of **medium** heritage significance.
- 5.4.8 The grade II listed 44 Chalk Road (**NHLE 1341493**) is situated approximately 1km south of the Site boundary. A red brick 18th century farmhouse of two storeys plus attics, tiled hipped roof with three hipped dormer windows, surviving architectural features such as moulded wooden eaves cornice, five sash windows with intact glazing bars, doorcase with rectangular fanlight and flat hood over supported on brackets provide the architectural interest of the asset. Its historic interest is enhanced by the claim that this may also have been Dickens honeymoon cottage. The current setting of the asset comprises a suburban area surrounded by later modern residential buildings in addition to an industrial building 40m to the north west. The setting provides context for residential development throughout the 20th century, but adds little to the significance of the asset, which is assessed as being of medium heritage significance.
- 5.4.9 Granary at Little Filborough Farm (**NHLE 1089062**) is a grade II, 18th century granary located approximately 1km south-east of the Proposed Development. The asset is one-storey high and covered in weatherboarding, with a hipped tiled roof; the structure is supported on saddle stones. The setting of the asset is considered to be the local agricultural fields in which the asset was set and interrelationship with Filborough Farmhouse (**NHLE 1089020**) and Barn to Northwest of Filborough Farmhouse (**NHLE 1341481**), with which it holds a group value as part of the same 18th century farm complex. The asset is considered to have **medium** heritage significance derived from its historical and architectural significance as a surviving example of an 18th century granary.
- 5.4.10 A grade II listed, 18th century Barn to North West of Filborough Farm (**NHLE 1341481**) is located approximately 1km south-east of the Proposed Development. The asset is one storey high and clad in weatherboarding with a hipped slate roof. The setting of the asset is considered to be the local agricultural fields in which it is located and served. The setting of the asset is considered to be the local agricultural fields in which the asset was set and interrelationship with Filborough Farmhouse (**NHLE 1089020**) and Granary at Little Filborough Farm (**NHLE 1089062**) with which it holds a group value as part of the same 18th century farm complex. The asset is considered to have **medium** heritage significance based on its historical and architectural significance as a surviving example of an 18th century barn.
- 5.4.11 Filborough Farmhouse (**NHLE 1089020**) is an 18th century, grade II listed building, located approximately 1km south-east of the Proposed Development. The farmhouse is a restored timber framed building, built with roughcast infilling with the ground floor partially rebuilt in red brick. The farmhouse also displays a tile hipped roof. The setting of the asset is considered to be the local agricultural fields in which the asset was set and interrelationship with Barn to North West of

Filborough Farm (**NHLE 1341481**) and Granary at Little Filborough Farm (**NHLE 1089062**) with which it holds a group value as part of the same 18th century farm complex. The asset is considered to have **medium** heritage significance on its historical and architectural significance as a surviving example of an 18th century farmhouse.

Non-designated Heritage Assets

- 5.4.12 There is one extant non-designated heritage asset within the Site identified from HER data and cartographic sources.
- 5.4.13 The Site is wholly located within the former extent of Milton Rifle Range (**TQ 67 SE 1185**) which extends 980m eastwards across Eastcourt Marshes. The western end of the firing range extends within the Site and there is potential for the survival of surface earthworks of former firing positions and buried remains of the miniature rifle range within the Site boundary. These would likely hold, regional (**medium**) heritage significance and would hold historical and archaeological interest as defined in the NPPF. The setting of the asset predominantly comprises agricultural and riverside landscape of the marshes including the adjacent Thames and Medway Canal and associated military assets. This setting has been eroded to the east by the industrial and urban fringe of Gravesend and by the existing electricity pylons which run across the south west corner of the range. The setting provides context for the military use of the once remote Eastcourt Marshes from the post-medieval period which has mostly remained open fields and agricultural land. The Site is considered to contribute to the special interest or setting of the asset.

Previously unknown archaeological remains

- 5.4.14 There is potential for the Proposed Development to impact on previously unknown archaeological and palaeoenvironmental remains contained within lower and middle peat horizons should they survive within the Site. There is also potential for the peat horizons to contain archaeological remains in the form of lithic artefacts and possibly waterlogged wooden or organic remains relating human occupation of the marshes during the Mesolithic to Bronze Age.
- 5.4.15 Any peat deposits and associated archaeological remains identified within the Proposed Development would hold archaeological interest derived from their ability to contribute to local and regional research frameworks, particularly palaeoenvironmental and environmental data to inform further deposit modelling, the understand relative sea level change, landscape development, settlement and resource exploitation within the Lower Thames Valley. Any surviving archaeological or palaeoenvironment remains are therefore considered to be of **medium** heritage significance.
- 5.4.16 Evidence Iron Age and Roman remains has been observed within the study area associated with salt production and rural settlement. These remains have archaeological interest with potential to contribute to the understanding of rural settlement patterns, land management, salt manufacture and trade at a local and regional level and as such could be of up to **medium** heritage significance.
- 5.4.17 Medieval, post-medieval and modern archaeological remains are relatively few compared to the earlier periods but may have modest archaeological and historic interest contributing to the local understand of the reclamation, management and land use of the West Tilbury Marshes from the medieval period onwards. Any such surviving remains are considered to be of **low** heritage significance.

Archaeological Potential

Historic Landscape Character

- 5.4.18 The Site is located within the Historic Landscape character area of Northern Coast and Marshland described as a balanced mix of reclaimed marsh and coastal landscape. The Site is defined as predominately comprising reclaimed marshland which extends eastward, with industrial to the west and enclosed agricultural fields to the south and. The Site forms part of the small regular enclosures

derived from reclaimed marsh character which can be seen extending eastwards along the Thames foreshore.

- 5.4.19 The eastern, northern and western boundaries of the Site are defined by an access track likely used for the Eastcourt Marshes Electricity Substation and a boundary between the substation and Milton Rifle Range. To the south the site is defined by an access road on an east-west alignment, which is adjacent to the Thames and Medway Canal to the south. The characteristically rectangular shape of the land-parcel does reflect the line of the pre-industrial coastline. The historic layout of the Site has not changed since the establishment of Eastcourt Marshes Electricity Substation, and the remaining layout has seen little impact from access tracks, field boundaries and footpaths since the post-medieval period and will not change after the development. The historic landscape character of the Site is therefore considered to be of **low** value and have a **low** sensitivity to change.

6 Conclusion and Recommendations

- 6.1.1 AECOM has been commissioned by National Grid to undertake a Historic Environment Desk-based assessment (DBA) to inform the Environmental Statement prepared in support of the planning application for the Proposed Development.
- 6.1.2 The assessment has identified the baseline historic environment resource for the Proposed Development in order to identify all known designated and non-designated heritage assets within the Site and has determined the potential for as yet previously unknown buried archaeological remains to be present within the EIA boundary. This DBA includes an assessment of the heritage significance, using NPPF terminology, of the known and potential heritage resources that may be impacted by the Proposed Development. The aims and purpose of the Desk-Based Assessment have been met in accordance with the ClfA Standard and guidance for historic environment desk-based assessment (ClfA 2020).

6.2 Tilbury SEC Tunnel Headhouse

- 6.2.1 There is one scheduled monument within 1km of the study area, one grade II listed building and one grade II* listed building within 1km of the study which share unique setting and characteristics. Tilbury Fort (**NHLE1021092**) and Officer Barracks at Tilbury Fort (**NHLE1375568**) are both located to the east of the study area. Due to the urban nature of the landscape which surrounds the assets and the distance from the Site, the proposed development is not thought to significantly change the setting of the scheduled monument and listed building. There may be views of the Proposed Development from the top of the fort over the industrial landscape to the site although it is considered this would not result in a significant change to the setting. The grade II listed Tilbury Clock Tower War Memorial (**NHLE 1471691**), located with 1930s designed civic heart of Tilbury approximately 960m north west of the Site, is not anticipated to be affected by the Proposed Development.
- 6.2.2 There are 31 non-designated heritage assets recorded within the 1km study area around the Tilbury section of the proposed development. Two non-designated heritage assets are recorded within the Site, the now demolished Tilbury Power Station (**MEX1032967**) was located immediately to the west with its associated coal heaps extending into the north western part of the Site. The area of the former coal heaps has, since demolition of the power station, been levelled and surfaced for use as an export car storage facility. The Proposed Development would utilise this area as a construction compound and lay down area, as such it is unlikely there would be any physical impacts on this asset. A findspot Roman pottery (**MEX6254**) is also recorded within the redline boundary above the proposed new cable tunnel and to the south of the proposed headhouse and SEC.
- 6.2.3 Further findspots of Roman artefacts (**MEX6630**) and (**MEX6255**), as well as a Roman settlement (**MEX6102**) were located south and east of the Site boundary respectively. There is potential for unknown archaeological remains to survive within the Site related to Roman archaeology found to the east of Site. These areas of potential buried archaeological remains could undergo physical

impacts during the construction of the Proposed Development. Any surviving features would be physically affected by the construction of the Proposed Development, namely the construction of the tunnel shaft, headhouse and groundworks to facilitate the construction of the Proposed Development. There is also potential for the continuation of the medieval sea wall (**MEX6629**) which is recorded 70m east of the EIA Boundary into the Site, any surviving sections of the sea wall below ground level have the potential to be physically affected by the proposed development.

- 6.2.4 There is potential for construction of the cable tunnel drive shaft to remove part of the extensive alluvial sequence within the Site, this includes layers of lower, middle and upper peat which may preserve palaeoenvironmental and archaeological remains dating from the Mesolithic, Neolithic/Bronze Age and Iron Age periods identified by the Geoarchaeological Deposit modelling (Quest 2023). These deposits have potential to provide important information on sea-level change and potential human interaction with the landscape of the Lower Thames during the last 10,000 years.
- 6.2.5 Further assessment of the potential impact upon the archaeological and palaeoarchaeological resource within the Site could be undertaken in the form of intrusive evaluation and investigation. Given the high potential for made ground and overlying building surfaces i.e. concrete lay down areas, geophysical (magnetometer) survey is unlikely to provide beneficial results. Given the Site's location along the Thames estuary and its important palaeoenvironmental deposits, it is recommended that a geoarchaeological borehole investigation is undertaken to assess the survival and significance of any palaeoenvironmental remains and to inform the scope of any further archaeological investigations. Any further archaeological investigations or mitigation measures will inform the understanding of the presence/absence, extent, date, depth, preservation and significance of surviving archaeological remains within the site. The scope and specification of any archaeological investigations or mitigation measures to reduce impacts arising from the Proposed Development would be set out in a Written Scheme of Investigation prepared in consultation with the Historic Environment Officer at Essex County Council, Historic England and approved by the local planning authority.

6.3 Port of Tilbury Haulage Routes

- 6.3.1 This desk-based assessment has confirmed that there are no designated heritage assets within the 1km study area surrounding the proposed Port of Tilbury Haulage Routes and that there are 29 non-designated heritage assets within the study area. Of these two extend within the EIA boundary. The first comprises the recorded location and potential buried archaeological remains of Daniel Defoe's 17th/18th Century brick and pantile works (**MEX1033045**), the second comprises the location on Tilbury main dock of the Second World War P.L.U.T.O. (Pipeline Under The Ocean) assembly site (**MEX31779**) which produced the pipeline laid under the English Channel to supply fuel to the allied forces in France following D-Day. Tilbury docks were also used as D-Day embarkation areas NZ1 (**MEX 1041241**), NZ2 (**MEX1041242**), NZ3 (**MEX1041243**), NZ4 (**MEX1041243**) and NZ5 (**MEX1041245**), all of which are recorded within the study area.
- 6.3.2 The use of the existing road network within the Port of Tilbury to haul tunnel spoil to Berth 5 would not result in any impact to the physical remains/fabric of these assets and, given the busy nature of the docks which includes daily plant and vehicle movements is not anticipated to affect the setting of significance of any of the non-designated heritage assets identified. As such it is recommended that the Port of Tilbury Haulage Routes are not assessed further and that they are scoped out of the ES chapter for Tilbury.

6.4 Gravesend SEC and Tunnel Headhouse

- 6.4.1 The DBA has confirmed that there are no designated heritage assets located within the Gravesend site, although there are seven grade II listed buildings within the 1km study area. There are also 54 non-designated assets recorded within the 1km study area with the Gravesend headhouse and SEC

being wholly located with the western extent of the post medieval to modern Milton Rifle Range (**TQ 67 SE 1185**).

- 6.4.2 The seven grade II listed buildings within the 1km study area, 54-58 Vicarage Lane (**NHLE1089005**), Readers Lower Higham Road (**NHLE1089019**), 1 Chalk Road (**NHLE1089043**) and 44 Chalk Road (**NHLE131493**), and the 18th farm complex comprising Farmhouse (**NHLE1089020**), Granary (**NHLE1089062**) and the Barn (**NHLE1341481**) to north west of Filborough Farm. These assets are all located between 820-1000m of the Site. Due to the urban setting of some of the assets, the nature of the likely impacts arising from construction of the Proposed Development and the distance from the Site, the Proposed Development is not thought likely to significantly change the setting or significance of the listed buildings.
- 6.4.3 Constructed on Eastcourt Marsh in 1862 Milton Rifle Range (**TQ 67 SE 1185**) had by 1895 extended into the land required for the Proposed Development. This DBA has identified the earthwork and buried remains of the 700 yard firing position, C20th miniature rifle range and associated range structures within footprint of the proposed new headhouse, SEC and new terminal pylon, all of which have potential to be affected by construction of the Proposed Development.
- 6.4.4 Undated evidence for possible Late Iron Age/Roman salt works are recorded (**TQ 67 SE 1013**) 120m west and (**TQ 67 SE 1014**) 330m south east of the EIA Boundary respectively, given the prevalence of salterns or 'red hill' sites along the Thames foreshore there is potential for as yet unknown below ground archaeology relating to this activity to be located within the site. Maritime related non-designated assets such as a possible ballast wreck (**TQ 67 SE 1044**) and concrete platforms (**TQ 67 SE 1045**) located 40m north west of the EIA Boundary on the Thames foreshore will not be impacted by the Proposed Development.
- 6.4.5 There is potential for construction of the cable tunnel reception shaft to remove part of the extensive alluvial sequence within the Site, this includes layers of lower, and middle peat recorded in the immediate vicinity identified by the Geoarchaeological Deposit modelling (Quest 2023). These deposits have the potential to preserve palaeoenvironmental and archaeological remains dating from the Mesolithic, Neolithic and Bronze Age periods which may provide important information on sea-level change and potential human interaction with the landscape of the Lower Thames during the last 10,000 years.
- 6.4.6 Further assessment of the potential impact upon the archaeological and paleoarchaeological resource within the Site could be undertaken in the form of intrusive evaluation and investigation. Given the Site's location along the Thames estuary and its important palaeoenvironmental deposits, it is recommended that a geoarchaeological borehole investigation is undertaken to assess the survival and significance of any palaeoenvironmental remains and to inform the scope of any further archaeological investigations. The earthwork and near-surface remains associated with Milton Rifle Range should also be investigated and recorded, such investigations may include, but would not be limited to earthwork survey and trial trench evaluation. Any further archaeological investigations or mitigation measures would inform the understanding of the presence/absence, extent, date, depth, preservation and significance of surviving archaeological remains within the site. The scope and specification of any archaeological investigations or mitigation measures to reduce impacts arising from the Proposed Development would be set out in a Written Scheme of Investigation prepared in consultation with the Archaeological Officer at Kent County Council, Historic England and approved by the local planning authority.

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Appendix A Tilbury Headhouse and SEC Gazetteers

Gazetteer of Designated Heritage Assets

Asset ID (NHLE)	Designation	Grade	Name	Period	Description	NGR
1375568	Listed Building	II*	Officers Barracks Tilbury Fort	Believed to have been rebuilt on the site of the late C17 officers' range, itself rebuilt in 1742, and is a good and rare example of Ordnance Board housing at this time. It is also of interest for its use of the terrace plan for providing officers' lodgings. Part of one of the finest and most complete late C17 forts in England, it is listed as a free-standing building independent from the Scheduled fortifications and attached structures.	Post-medieval	TQ 65154 75336
1471691	Listed Building	II	Tilbury Clock Tower War Memorial	A First World War clock tower memorial, with added names from Second World War, the Malaysian Emergency and the Falklands Conflict. A tall square tower with Roman Ionic corner pilasters supporting a deep entablature, set on a low pedestal and crowned by a block with a round clock face on each side and a ball finial.	Modern	TQ 64364 76278
1021092	Scheduled Monument	N/A	Tilbury Fort	A late 17th century coastal fort, designed at a time when artillery had become the dominant feature of warfare and therefore built with massive low earthworks, resilient to the shock of bombardment, instead of stone fortifications. The layout and construction was geared to the optimum siting of cannon at the forward batteries which, in conjunction with batteries on the opposing bank of the Thames, could create a field of fire spanning the estuary providing defence for the river itself and the capital. The systems of bastions and complicated outworks defending the batteries from the rear is principally a Dutch design, extremely rare in England, and Tilbury is the best preserved and most complete example of the type.	Post-medieval	TQ 65152 75504

Gazetteer of Non-Designated Heritage Assets

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MEX6025	Burial	West Tilbury	Roman burials with iron and bronze bracelets found 1910 at West Tilbury. Approximate location given	Roman	TQ 66000 77000
MEX6047	Road; Ditch	Tilbury Fort, West Tilbury	The earliest road and causeway was located on the redan outwork. There was no dating evidence but a map of 1588 shows a north-south road here running to the ferry which was originally beside the Henrician blockhouse. "It may well have been the route to the ferry from West Tilbury village before the 16th century". Two posts were found below the road, which "presumably were associated with the earlier use of the marsh". There was a substantial ditch on both sides of the road.	Medieval	TQ 65147 75477
MEX6052	Battery	Tilbury Fort	By 1905 "Tilbury had been provided with two 6in breach loading converted guns in the south-east bastion and four 12-pounder quick firing on the curtain, their concrete emplacements being built over earlier RML positions". The guns stayed until after World War II. The fort was used as a mobilisation store (part of the London Mobilisation Centre scheme) between 1889 and 1903. A 19th century date as well as 20th century that were part of the foundations for the redevelopment of the fort.	Modern	TQ 65147 75477
MEX6102	Settlement; Hut Circle; Wood; Floor; Oven; Trackway	East Tilbury Foreshore	Below 'present' high tide level, remains of settlement of hut circles, associated with much 1st-2nd century pottery. In 1920 3 adjacent huts and fragmentary remains of a 4th nearby were visible. The two largest circles had 3 rings of stakes forming a frame for wattlework which was still preserved below the mud. Between the 2 inmost stake rings were the remains of a stone ring, a similar ring seemed to have been outside the outer stake ring. One hut had traces of a partition, another had a small circular platform in the middle, probably a support for a central pole. The latter hut had a piece of floor-planking, close by this were foundations for an oven with hard clay walls, no indication of its function however. The smallest circle appeared to have an entrance marked by two thick posts. In and around the huts were fragments of clay daub for covering walls. The stone rings can't have gone up to a great height. Many roofing tile fragments may indicate roofing. East of the huts, a shallow channel ran north east-south west with traces of flanking stakes. This may have been a former trackway from the old river edge. The foreshore for c100yds either side of the huts was covered with pottery, including 1st-2nd century Samian. Most pottery was "of native type, with marked late Celtic elements"-eg cordons, bosses, incised linear patterns-"and represents the production of native manufacturers working under Roman influence". No wasters were noticed, there was no evidence that pottery was made on the site. The site "may have been a landing-place for traffic from Kent or elsewhere", the amount of pottery "seems excessive for the ordinary requirements of a small hut settlement".	Roman	TQ 67290 75645
MEX6254	Findspot	West Tilbury - Foreshore	Found 1968(?), Romano British pottery rim sherds.	Roman	TQ 66600 75500
MEX6255	Findspot	West Tilbury	Roman Samian ware found in 1912 on banks of Thames, c1 mile east of Tilbury fort. Evidently to be connected with site at East Tilbury (see TQ67-008, 1694). Much pottery found in 1912, including Samian, 'Salopian' and 'Durobrivian' wares. Most of them belonged to the 2nd half of the 1st century. In number this exceeds many important forts.	Roman	TQ 66700 75600

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MEX6469	Findspot	Find from Tilbury Fort, West Tilbury	Worked flint found, possibly Palaeolithic. A Palaeolithic implement found at Tilbury dock in 1913 now in the British Museum is possibly from this same site.	Palaeolithic	TQ 65200 75300
MEX6567	Findspot	West Tilbury Marsh	Neolithic flint axe from West Tilbury marsh. In Thurrock Museum. Also at Thurrock, polished flint axe from the Thames at Tilbury.	Neolithic	TQ 65200 76000
MEX6627	House	Tilbury – Wick House	Wick House.	Unknown	TQ 66461 76046
MEX6629	Sea Defences	Tilbury	Medieval sea wall.	Medieval	TQ 66552 75754
MEX6630	Findspot	Tilbury Foreshore	Roman pottery reported from foreshore along frontage. Notable collection of RB Burial material by P Benton of Southend-on-Sea..	Roman	TQ 66500 75400
MEX6632	Saltern; Red Hill	West side of East Tilbury Marshes	Potential red hill, Briquetage and sherds	Unknown	TQ 67131 76518
MEX31803	Spigot Mortar Emplacement	Spigot Mortar Base, NW Bastion, Tilbury	The NW bastion of Tilbury Fort has a spigot mortar pedestal positioned just 2' from the northern wall. The wall is only 56" high and the pedestal has been built so that the pintle is 6" below the top of it - the 29mm mortar would have been able to fire northwards across the parapet. The pintle is typically in fine condition but the iron cage inside the pedestal is now showing through the top as the concrete has deteriorated.	Modern	TQ 65147 75477
MEX31804	Spigot Mortar Emplacement	Spigot Mortar Base, SE Bastion, Tilbury Fort	The SE bastion of Tilbury Fort has two pre-WWII 6" gun pits and the eastern pit has been converted to a spigot mortar position. The pit is constructed of concrete and is 12' in diameter. In the centre a 7' square x 2' high concrete platform has been constructed. On top of this a standard spigot mortar pedestal has been built so that the stainless steel pintle is 6" below the level of the parapet. Thus the mortar could have fired across the parapet onto the eastern approaches and the Thames. The iron cage inside the pedestal is now showing through due to deterioration of the concrete	Modern	TQ 65147 75477
MEX31805	Road Barrier	Road Barrier (destroyed), Near Level Crossing, Fort Road, West Tilbury	Contemporary records state, "Blocks and sockets. Near Level Crossing Fort Road. This is thought to mean Fort Road. However, the road now crosses the railway via a bridge constructed 70 yards to the NE. The level crossing no longer remains and no blocks or sockets were found at the time of the site visit. An aerial photograph taken in April 1944 clearly shows this road barrier crossing Fort Road. Five anti-tank cubes can be seen on the W side of the road between a wide ditch and the carriageway, and two more are between the carriageway and a similar ditch on the E side. All the cubes form a straight line. The ditches are extensive across the nearby terrain and were clearly excavated as anti-tank barriers and anti-glider ditches	Modern	TQ 65302 76379

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MEX31806	Tett Turret?; Alan Williams Turret?	Turret (destroyed), Allotments, Fort Road	Turret. Allotments, Fort Road. Map ref. 096951" (Mil.Ed.). These allotments were to the NE of the former level crossing which no longer exists and a new road bridge now crosses the site of the allotments. It is not known which type of turret this entry refers to.	Modern	TQ 65336 76429
MEX31812	Pillbox	Pillbox, South of Tilbury Power Station	An unusual pillbox standing on the mud at the river's edge. A 28' long x 15' wide double-ended octagon with the entrance on the W side - but built 3' high on top and across the middle is a 22" thick wall. This was probably intended as an extra firing position. This wall projects some 5' each side of the pillbox. The entire structure is now sinking into the mud which has filled the interior.	Modern	TQ 66320 75360
MEX39665	Oyster Beds	Oyster Beds east of Tilbury Power Station	A linear series of oyster beds appearing on vertical aerial photography from 1953 and 1955 (RAF 1953 series is low level and shows good detail).	Unknown	TQ 67001 76281
MEX39674	Aircraft Obstruction	Anti-glider ditches SE of Bowaters Farm	Spread of anti-glider ditches to the North and North-East of Tilbury Power Station.	Modern	TQ 66053 76835
MEX41440	Blockhouse; Fort; Chapel; Gatehouse; Bastion Outwork; Battery; Road; Ditch;	Tilbury Fort	16th C, rebuilt 1672 in quadrangular form with salient angle bastions and a double moat. Much of the rampart walls are of 17th century brick but the only, more or less, unaltered buildings are the south gatehouse and a small chapel. The former is 2-storied and has an inscription. The chapel on the north side of the fort is small, 17th century built brick. Built in 1682 against the Dutch and French, primarily utilitarian, but also for display. The south gateway is similar to one at Plymouth Citadel, the type derives from 17th C France. Site of a blockhouse of Henry VIII, c1540, was the scene of the review of troops by Elizabeth I in 1588. Under Charles II it became a regular fort, armed and bastioned, in 1667. Its armament was reduced in 1716, by 1859 it had been reduced to 32 guns. It was extended in 1861, the 17th century powder tower was demolished to be replaced by a new magazine and a new battery was installed. By 1867 it was being re-armed with heavy, rifled guns - a process that was not finished until 1888. Under the urging of General Gordon (Commander, Royal Engineers from 1866), new earthworks were built to take brick embrasures though not all were occupied, it seems. By 1905 the fort had been provided with 2 6" converted breech-loaders and 4 12-pounder quick- firing guns, which remained until after World War II. In the 1890s the fort was one of the mobilisation centres for the London Defence Positions, existing ordnance stores being used	Post- medieval	TQ 65147 75477
MEX1032122	Findspot	East or West Tilbury	Fragment of a Roman lamp with lion relief. Site not plotted, exact location unknown.	Roman	TQ 66000 77000
MEX1032745	Pipeline	Stanford Le Hope STW Water Pipeline	A watching brief was carried out along the length of the pipeline which stretched approximately 7km from a point to the north-east of Tilbury Fort to the sewage works off Broad hope Road, north-east of Stanford Le Hope. the width of the pipeline easement was 20m. No surviving archaeological remains were encountered. the pipeline passed	Modern	TQ 663 761

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
			close by several sites of archaeological importance. In several places the topsoil strip revealed areas that had been heavily disturbed by modern activity.		
MEX1032967	Coal Fired Power Station; Oil Fired Power Station	Tilbury Power Station	Located on north bank of Thames Estuary and forms part of Thames corridor industrial landscape. Two power stations A and B, each with full complement of ancillary buildings. Tilbury A is similar in layout to many mid twentieth century power stations with boilers and related plant located in long rectangular building; attached to one side is the parallel Turbine Hall. Site laid out to face Thames, with offices and control rooms in range around quadrangle attached to south end of much larger boiler house. Coal and oil was delivered by ships to a reinforced concrete jetty built parallel to shore. Tilbury B dwarfs the earlier station. When built Tilbury B was cited as a prototype of the forthcoming generation of 2000MW power stations. Architecturally similar to other power stations of the period. Overall layout similar to Tilbury A with taller Boiler House orientated N/S to west of adjoining Turbine Hall and with Offices and Control Rooms at south end. Tilbury A first planned by County of London Electricity Supply Co in 1947 and completed for CEGB in 1958. Tilbury B completed 1969. The boilers in A and B were built to burn coal but were soon adapted to burn heavy oil.	Modern	TQ 65987 75917
MEX1036402	Landing Stage; Ferry Terminal	Tilbury landing stage and passenger terminal	Description of passenger Ferry terminal building from 1928.	Modern	TQ 67300 75100
MEX1037738	Farm; Open Site	Biosolids Dryer at Tilbury sewage works	A desk based assessment and Borehole survey were carried out in advance of a proposed biosolid dryer at Tilbury. No archaeological remains were uncovered and the impact on the surrounding archaeology was considered negligible however they did identify paleoenvironmental remains and by previous association there is the possibility for the survival of bronze Age features. The deposits were identified at a depth of 4.00meters. They were not located in the report or indicated on a map. A Watching brief revealed made ground on top of a peat layer and alluvial deposits. Archaeological features were encountered. These consisted of the remains of wall foundations and fence posts, most probably associated with the farm (Marsh Farm) that occupied this site prior to the construction of the water treatment works. Marsh Farm is mapped on the 1777 map.	Post-medieval	TQ 65541 75611
MEX1038594	Officers' Quarters	Officers Barracks Tilbury Fort	Terrace of approximately 22 C18 officers' houses within Tilbury Fort.	Post-medieval	TQ 65154 75336
MEX1040412	Pond	Tilbury Pond Wildlife Site, Tilbury	Archaeological monitoring of trial pits and groundworks for a pond and bund revealed no archaeological finds or features. A thin layer of peat was present across the site which conforms to the general deposit model along the marshland of the Thames Estuary	Unknown	TQ 6595 076700

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MEX1040428	Pond	Tilbury Wildlife Pond Site, Tilbury	Archaeological monitoring of trial pits and groundworks for a pond revealed no archaeological finds or features, although a modern pit could be part of a WWII anti-glider ditch.	Unknown	TQ 65911 76626
MEX1042105	Marsh	Marsh	An area of much improved grazing marsh sited to the north of Tilbury Fort. The part of the marsh adjacent to the fort is designated as part of the scheduled area of the fort. It includes the former site of Tilbury market place, which was sited adjacent to the ferry crossing and the World's End inn. The marsh also contains ditches linked to the forts water-filled moat and is bisected by the road to the fort.	Medieval to Post-medieval	TQ 65164 75759
MEX1041248	Military Camp	D-Day Assembly Area, Tilbury	D-Day assembly area.	Modern	TQ 64626 76615
AEC001	Saltern; Red Hills	Thurrock FGP Site	Roman salt production site comprising six red hills surrounded by large water channels and associated clay lined, pits ovens, salt making kilns, post holes and a large quantity finds ranging from pottery, glass, lead weights, a whetstone, rotary quern and several coins which date activity on the site to the 1 st to 3 rd centuries AD.	Roman	TQ 66148 76637

Gazetteer of Previous Archaeological Investigations (Events)

Event ID	Name	Organisation	Location	NGR
EEX41441	Salvage Excavation, Tilbury Fort	NA	Tilbury Fort	TQ 6510 7545
EEX41442	Salvage Excavation, Tilbury Fort	NA	Tilbury Fort	TQ 6510 7545
EEX52636	West Tilbury Commons	Archaeological Advisory Group (now Historic Environment – ECC)		TQ 655 770
EEX52855	Stanford Le Hope STW Water Pipeline	Field Archaeology Group - ECC		TQ 669 789
EEX52891	Tilbury Fort	Leisure Services Department, Newham Museum Service	Tilbury Fort	TQ 651 753
EEX53549	West Powder Magazine Roof, Tilbury Fort	Field Archaeology Group - ECC		TQ 651 754
EEX54327	Borehole survey at Tilbury waste water treatment works	Cambridge Archaeological Unit		TQ 655 755
EEX54884	Tilbury Fort – Monitoring 9culvert works)	Suffolk County Council	Tilbury Fort	TQ 6511 7532
EEX54885	Tilbury Fort - Monitoring (surface wate drain)	Suffolk County Council	Tilbury Fort	TQ 6511 7532
EEX56725	Tilbury C power Station: geoarchaeological watching brief, historic borehole review and walk over survey	Wessex Archaeology		TQ 6587 7574
EEX6048	Salvage Excavation, Tilbury Fort	NA		TQ 6510 7545
EEX59539	Tilbury II Archaeological Evaluation	Wessex Archaeology		TQ 6518 7600
EEX55618	Archaeological Watching Brief at the site of the Biosolids Dyer project	Oxford Archaeology		TQ 655 756
EEX55947	Tilbury Wildlife Pond Site	Field Archaeology Group - ECC		TQ 659 767
EEX55950	Tilbury Wildlife Pond site	Field Archaeology Group - ECC		TQ 659 766

Event ID	Name	Organisation	Location	NGR
EEX55585	Tilbury Power Station: Archaeological Evaluation and Monitoring Interim Report	Essex County Council		TQ 654 762
EEX56482	Thurrock Unitary Authority WWII site survey by Fred Nash September 2012	Essex County Council		TQ 6530 7637
EEX59528	A report on geoarchaeological monitoring of geotechnical site investigation	Museum of London Archaeology Service		TQ 6509 7522

Appendix B Gravesend Headhouse and SEC Gazetteers

Gazetteer of Designated Heritage Assets

Asset ID (NHLE)	Designation	Grade	Name	Period	Description	NGR
1089005	Listed Building	II	54-58, Vicarage Lane	Post-medieval	The 2 southern cottages were originally a farmhouse. The northern cottage appears to have been added. 2 storeys brown and red brick. Hipped tiled roof with 3 hipped dormers. Moulded wooden eaves cornice and brick stringcourse. 3 sashes with glazing bars intact and some blanks. Cambered head linings to ground floor windows. Louvred shutters to No 56. 3 simple cambered doorcases. Modern 2 storey brick extension to rear.	TQ 67128 73078
1089019	Listed Building	II	Readers, Lower Higham Road	Medieval	A T-shaped timber-framed house with roughcast infilling and curved braces on the 1st floor. Probably a C15 or C16 Hall house as the roof retains its smoke louvres. The central protruding 2 storey extension has a gable end, now tiled, with a casement window and Tudor arched stone doorcase with blank spandrels. Outside chimneystack. Right side modern extension.	TQ 67593 73188
1089043	Listed Building	II	1, Chalk Road	Post-medieval	This is the cottage most usually said to be the one where Charles Dickens and Kate Hogarth spent their honeymoon in 1836. Early C19. 2 storeys faced with weatherboarding. Tiled roof. 2 sashes with glazing bars intact. Doorcase with small flat hood over supported on brackets. 4 panelled door. Over this is a tablet with a mask of Dickens and the inscription "Charles Dickens, Born 1812, Died 1870 spent his honeymoon in this house (1836). Here also were written some early chapters of "Pickwick".	TQ 67003 73055
1341493	Listed Building	II	44, Chalk Road	Post-medieval	2 storeys and attics red brick once painted. Brick stringcourse. Hipped tiled roof has 3 hipped dormers, Moulded wooden eaves cornice. 5 sashes with glazing bars intact. Doorcase with rectangular fanlight and flat hood over supported on brackets. This is another house for which a claim has been made that it was the Dickens honeymoon cottage.	TQ 67134 73010
1089062	Listed Building	II	Granary at Little Filborough Farm	Post-medieval	18th century granary, one storey tarred weatherboarded. Hipped tiled roof, supported on staddle stones.	TQ 68250 73188
1341481	Listed Building	II	Barn to North West of Filborough Farmhouse	Post-medieval	18 th century barn to the north west of Filborough Farmhouse. One storey weatherboarded, half-hipped slate roof.	TQ 68250 73168

Asset ID (NHLE)	Designation	Grade	Name	Period	Description	NGR
1089020	Listed Building	II	Filborough Farmhouse	Post- medieval	A restored timber-framed building with roughcast infilling, part of the ground floor rebuilt in red brick. Modern hipped tiled roof with pentice portion in the centre of the front. The west end of the 1 st floor oversails slightly on the protruding ends of the floor joists.	TQ 68263 73154

Gazetteer of Non-Designated Heritage Assets

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
TQ 67 SE 1251	Smock Mill	Denton Mill, Gravesend (former site)	Denton Mill was a probable smock mill built to grind corn, constructed before 1840. It was demolished prior to 1897.	Post-medieval	TQ 6641 7427
TQ 67 SE 1252	Shooting Stand	Shooting Butts at former Milton Rifle Ranges, Shorne Marshes	In advance of a new 950m security trench, in April 2013 fieldwork was done along the proposed ditch by Archaeology South-East particularly at the intersection between the security trench and the old shooting butts at the end of Milton Rifle Ranges. The proximity to Shornemead Fort and the old rifle range (built 1859/60) led to predominant finds of bullets of a range of calibres of British Army issue. The work also uncovered some post-medieval pottery and brick fragments (both post-Medieval).	Post-medieval	TQ 6834 7437
MKE113306	Findspot	Hoard	In 1961, during the excavation of a Romano-British building: Layer 3 shows that the hollow site was levelled with rubbish from elsewhere. The amount of early pottery shows that this is not a gradual accumulation of rubbish in situ; it represents not the demolition of a building but the clearance of an old rubbish dump. Mr. R. Reece has suggested that a forgotten coin-hoard was scattered in the process; the hoard, he suggests, had been buried about 360. By c.395 the tiny coins would have become so corroded as to escape notice. Unusual however amongst the irregular coins are the number of 'Falling horseman' copies, and especially the numbers under 10 mm. in diameter. Since the archaeological evidence is consistent with these coins all being from one deposit, it is best to assume that we are dealing with a hoard probably of regular coins and copies, deposited about 360, and redeposited and scattered at a later date. This would remove the copies from the list of individual finds, returning the site to numismatic normality.	Roman	TQ 67600 72980
TQ 67 SE 343	Bridge	Bridge No. 3 over the Thames and Medway canal	Site of swing bridge no. 3 on the Thames and Medway Canal, carrying Mark Lane over the canal. The canal was later filled in to the West of the bridge. No remains visible in the 2005 coastal survey, there is a street built over the site.	Post-medieval	TQ 6640 7413
TQ 67 SE 345	Swing Bridge	Bridge no. 5, Thames and Medway canal	Site of swing bridge no. 5 on the Thames and Medway Canal carrying a footpath over the canal to the Lower Higham Rd. to the South. The bridge house formerly stood on the North side of the canal and the foundations can be seen (1995). A new bridge may be constructed on the site. A modern wooden bridge. No more house remains are visible.	Post-medieval	TQ 6824 7385

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
TQ 67 SE 15	Ditch, Inhumation, Pit, Villa and Baths	Chalk Roman Villa	A Roman building, possibly a villa, excavated in 1962 and found to have been destroyed by fire during the late 3rd century AD. Also found were several pits including the graves of 3 infants and a rubbish tip with up to mid 1st century AD pottery, some of which may have been Iron Age. East of this site a chalk wall, a hypocaust and a number of tiles had been excavated in 1959. This site was later built over but at a later date, remains of a complex Roman bath house with hypocausts was discovered nearby, west of Castle Lane.	Roman	TQ 6763 7298
TQ 67 SE 18	Inhumation	Romano-British burial found AD 1959	A human skull and fragments of Roman pottery, probably 2nd c., were uncovered during building operations on the site of the house known as West Filborough at Lower Higham Road, Chalk. The pottery was placed in Gravesend library. This find was made in 1959 at appx. TQ 67727310, when footings for the house on the south side of Darenth Drive were being cut in the former orchard of West Filborough.	Roman	TQ 6772 7310
TQ 67 SE 346	Air Raid Wardens Post	Air raid warden post, Gravesend	Concrete air raid wardens post, structure appears complete, but with fittings removed. Now incorporated into a shed.	Modern	TQ 6729 7351
TQ 67 SE 36	Findspot	Roman pottery findspot	A heap of 2nd century pottery, including Samian ware, was found between two layers of alluvium during earth-moving in Denton Marshes.	Roman	TQ 667 739
TQ 67 SE 41	Findspot	Mesolithic or Neolithic flintwork, Denton	Tranchet axe. Find is in Herne Bay Museum. Archaeological evaluation prior to construction of Denton Relief Road in 1999 produced 3 pieces of worked flint one of which suggested Mesolithic or neolithic origin.	Early Mesolithic to Late Neolithic	TQ 665 739
TQ 67 SE 44	Findspot	Roman beaker found at Chalk	Poppy-head beaker, as 'black fine-grained coarse ware'. A fragment of a second is in chestnut brown sandy fabric, burnished and fired light grey-brown. The treatment of the base is characteristic of those from the Upchurch Marshes, among which sandy fabric is occasionally found.	Roman	TQ 676 730
TQ 67 SE 49	Swing Bridge	Swing bridge on Thames and Medway Canal	This bridge is over a section of the Thames and Medway Canal which is still in water. There is a large cast iron counter weight on the landward N end of the bridge but there is no sign of cables or gearing for operating the bridge. As it appears to be only an accommodation bridge it was probably opened by hand. The bridge has been restored.	Post-medieval to Modern	TQ 6757 7395

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
TQ 67 SE 89	Searchlight Battery	Second World War searchlight battery, formerly interpreted as a Bronze Age settlement	A WW2 searchlight installation visible as two adjacent curvilinear embanked enclosures with diameters of c.12.5m. Both have two opposing entrances and a slight outer ditch. The north-easterly enclosure had a slight central mound about 1m across which is thought to be the sound locator. This emplacement also had an embanked entrance with offset banks (perhaps sandbags) creating a zig-zag entrance to the NE for emergency air raid protection. The southern enclosure housed the searchlight. Subsequently levelled and visible as a cropmark, appearing as two incomplete ditched curvilinear enclosures with no trace of an inner bank. Immediately to the south of the searchlight emplacement was a single weapons pit for a LAMG (Light Anti-aircraft machinegun) to protect the searchlight.	Modern	TQ 6691 7360
TQ 67 SE 238	Pit	Late Iron Age Pit, Gravesend	A large late iron age pit, 3.5 m across with step sides. It was not fully excavated. It contained fragments of late iron age pottery, some structural daub and animal bones, some showing signs of butchery	Late Iron Age	TQ 6686 7330
TQ 67 SE 239	Field System	Late Iron Age - Roman Field Boundaries, Gravesend	Sections of ditches representing a 1st century field system. A single ditch was found containing late 2nd to 3rd century Roman pottery, possibly indicating the agricultural use of the area through the 1st to 3rd century. Due to the scale of the archaeological work, the extent of the ditches could not be determined	Late Iron Age to Roman	TQ 6687 7330
TQ 67 SE 242	Manor House	Medieval Manor House (Site of) Gravesend	Evidence of a medieval manor house was discovered in the form of a double cellared structure of chalk walls against the exposed natural chalk face, but with a flint wall along the western and northern sides. These may represent different phases of construction. At a later date, between the 16th and 17th centuries, the building was extended to the east incorporating an additional cellar. The new southern wall extension was constructed using both brick and dressed chalk. The few finds from the backfill of both cellars date the building's destruction to between 1730 and 1780. The building was replaced by West Court (TQ 67 SE 242) built in 1739	Medieval to Post-medieval	TQ 6671 7338
TQ 67 SE 286	Findspot	Prehistoric evidence from Lion Business Park Near Gravesend Kent	Work involved the excavation of ten shallow trenches and five deep test pits. Finds included pieces of worked flint and fragments of burnt unworked flint, animal bones, waterlogged plant remains and carbonised plant remains, charcoal and Neolithic/Bronze Age pottery sherds. This work followed on from a geoarchaeological assessment and survey of the site.	Later Prehistoric	TQ 66655 73732

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
TQ 67 SE 1104	Farmhouse (Listed Building)	No.54-58 (1700 to 1975)	Work involved the excavation of ten shallow trenches and five deep test pits. Finds included pieces of worked flint and fragments of burnt unworked flint, animal bones, waterlogged plant remains and carbonised plant remains, charcoal and Neolithic/Bronze Age pottery sherds. This worked followed on from a geoarchaeological assessment and survey of the site.	Post-medieval to Modern	TQ 6712 7307
TQ 67 SE 1114	Hall House (Listed Building)	Readers	A T-shaped timber-framed house with roughcast infilling and curved braces on the 1st floor. Probably a C15 or C16 Hall house as the roof retains its smoke louvres. The central protruding 2 storey extension has a gable end, now tiled, with a casement window and Tudor arched stone doorcase with blank spandrels. Outside chimneystack. Right side modern extension.	Medieval to Modern	TQ 6759 7318
TQ 67 SE 241	Manor House and Farm House	Former site of West Court	Manor house built in 1739, extended in the later 19th century at the eastern end and with wooden bays added to its south facing façade. The house had three bays facing to the south into gardens and orchards with outbuildings to the northwest. These outbuildings included a granary, oasthouse, barn and cartsheds. The house was occupied until 1984 after which it fell into disrepair, was vandalised and suffered two fires before finally being demolished in 1991.	Post-medieval to Modern	TQ 66755 73366
TQ 67 SE 1196	Battle Headquarters	Denton Sewage Works Battle Headquarters, Mark Lane, Gravesend	Second World War Battle Headquarters (for Defended Locality DL21) at Denton Sewage Works, Mark Lane, Gravesend. Adjacent to the Denton Heavy Anti-aircraft gun battery, this formed part of the anti-invasion defences and had probably been established in 1940. It would have involved the adaptation of sewage works premises but the nature of this is unknown. The Battle Headquarters, manned by the Home Guard, would have been decommissioned by 1944. There are no known remains.	Modern	TQ 6680 7380
TQ 67 SE 1161	Roadblock	Lower Higham Road Second World War road block, Chalk	Second World War road block on the Lower Higham Road between Church Lane and Castle Lane, Chalk. This was part of the local anti-invasion defences. No longer extant.	Modern	TQ 6806 7319
TQ 67 SE 301	Saltern and Mound	Probable and possible salterns, Shorne Marshes	Mounds, probably a saltmounds, and associated banks, possibly evaporation channels. Some still visible on 2016 aerial photographs.	Undated	TQ 6880 7411
TQ 67 SE 217	Railway Station	Site of Denton Halt	Site of Denton Halt railway station, now demolished. Debris from the station was dumped into the disused Thames and Medway canal.	Modern	TQ 6642 7408

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MKE84361	Farmstead	West Court	A regular multiyard farmstead, no longer extant.	Post-medieval	TQ 6674 7344
MKE84362	Farmstead	Great Clane Lane	A regular multiyard farmstead, no longer extant.	Post-medieval	TQ 6708 7314
MKE84363	Farmstead	Yard north of Readers	Regular courtyard with working agricultural buildings on three sides and with additional detached elements to the main plan. No longer extant	Post-medieval	TQ 6759 7321
TQ 67 SE 342	Railway Station	Site of Milton Range halt	Site of Milton Range halt, concrete platform visible from the road.	Post-medieval to Modern	TQ 68 73
TQ 67 SE 382	Ditch	Romano-British ditch, east of Allen's Mead, Gravesend	A short section of Romano-British ditch was the only feature found during evaluation of land at Dalefield Way. The ditch measured 2.49m wide and 1.15m deep. The ditch contained a single primary fill 2308 and two secondary fills (SF) 2306 & 2307, which each contained frequent rounded and sub-rounded chalk. SF2306 contained pottery, fired clay, slag and struck flint with the pottery being dated to the Romano-British period.	Roman	TQ 6702 7336
TQ 67 SE 1044	Wreck	An oval stone bank running at an angle from the foreshore to the water. About 20m x 1.5 m. and 0.5 m high. Possibly cargo or ballast from a vessel	An oval stone bank running at an angle from the foreshore to the water. About 20m x 1.5 m. and 0.5 m high. Possibly cargo or ballast from a vessel.	Undated	TQ 67190 74355
TQ 67 SE 1045	Platform	Two concrete platforms near the Sea Training Centre, Gravesend	Two concrete squared platforms 2.5m x 2.5m, 0.6 m high. Possibly wartime remains, base for navigational beacons.	Modern	TQ 67215 74349
TQ 67 SE 1047	Post Built Structure	Row of small posts, foreshore by Eastcourt Marshes	A row of small wooden posts running from the foreshore into the water. About 3m long. Posts may be squared, but it is hard to be certain as they are quite abraded. 12 posts are still visible, their height up to 0.02m, and they are about 0.1m in diameter.	Undated	TQ 68250 74569

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
TQ 67 SE 1048	Hard	Possible Hard, Shorne Marshes	Level area retained by angled posts and made up by irregular small boulders. May be the remains of a hard standing for vessels to beach on.	Modern	TQ 68457 74627
TQ 67 SE 1001	Findspot	Roman finds from evaluation at Gravesend WTW	Romano-British pottery and other finds of the period were recovered, suggesting dumping on marshy ground of domestic refuse from nearby settlement. Finds included Samian, possible terra nigra and coarse wares, probably dating to about AD 100, as well as bone, shell and building material. No signs of rolling nor of any cut feature.	Roman	TQ 66601 73998
TQ 67 SE 1003	Feature	Roman/Prehistoric remains and possible Roman feature, Denton	Archaeological evaluation during road building located Roman and prehistoric remains in a small possibly Roman feature.	Roman	TQ 6650 7391
TQ 67 SE 1024	Site	Ship breaking activity by Gravesend	Derelict boats along shore, signs of ship breaking going on. At the mapped point no derelict boats are visible.	Post-medieval to Modern	TQ 66281 74348
TQ 67 SE 1019	Ridge and Furrow	Ridge and furrow, near Gravesend	Ridge and furrow. Area built over by the Metropolitan police training centre.	Undated	TQ 67163 74196
TQ 67 SE 1004	Windmill	Windmill, Gravesend	Windmill, shown on a chart of 1852. Built over with modern works.	Post-medieval	TQ 6648 7419
TQ 67 SE 1005	Wharf	Denon Wharf, Gravesend	Denton Wharf, shown on a chart of 1852. No access onto the wharf area. It is now a container yard although area still appears to be a wharf.	Post-medieval	TQ 6662 7423
TQ 67 SE 1014	Salt Works	Salt workings	Salt workings, evident on documentary evidence and photographs from the Environment Agency 2000.	Undated	TQ 67735 73841
TQ 67 SE 1013	Salt Works	Salt workings near Gravesend	Salt workings, evident on documentary evidence and photographs from the Environment Agency 2000. Area built over with a Metropolitan Police training centre.	Undated	TQ 67222 74171
TQ 67 SE 1018	Quay	Quay, near to the 'Ship & Lobster', Denton	Quay, near to the 'Ship & Lobster', Denton indicated on the 1st edition OS map. The quay is still in use and has probably been rebuilt.	Post-medieval	TQ 66549 74324

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
TQ 67 SE 1040	Jetty	Jetty, near to the 'Ship & Lobster', Denton	Jetty, near to the 'Ship & Lobster', Denton indicated on the 1st edition OS map. The 19th century jetty is demolished. A new concrete and steel jetty/pier has been built directly on its western side. Remains of the old jetty are visible in the form of two parallel rows of timber posts running into the water (about. 5m -6m width, and 20m length). A rubble slipway is visible between the old and the new jetty	Post-medieval	TQ 66584 74344
TQ 67 SE 1032	Causeway	Causeway, Gravesend	Causeway marked on the 3rd edition OS map. A wood and steel causeway still in use, in good condition.	Modern	TQ 66722 74339
TQ 67 SE 1033	Pile	Mooring post on foreshore by Shorne Marshes	Post marked on the 3rd edition OS map. Three squared piles in a triangular setting with two smaller cross timbers lying on the foreshore surface in between the posts. The posts show signs of wear, especially in the middle from ropes. Up to 1.5 m high, and 0.3m x 0.3m.	Modern	TQ 68209 74549
TQ 67 SE 277	Enclosure	Cropmarks, Westcourt Marshes	Four broadly circular cropmarks, possibly related to a putative Bronze Age enclosure, identified from aerial photographs c. 100m directly to the west 4 x 25m polygons assigned on the GIS each centred on one crop mark. The report suggests that these cropmarks may relate to four features identified on a 1995 aerial photograph. Reviewed and re-interpreted as WW2 searchlight battery TQ 67 SE 89.	Bronze Age	TQ 66833 73601
TQ 67 SE 278	Structure	Brick Tank	A brick built structure, 2.0m x 1.0m x 0.40m, possibly used as a water tank (?) Probably the same structure indicated on the 1932 OS map and labelled 'tank'.	Undated	TQ 6705 7324
TQ 67 SE 20	Thames and Medway Canal	The Thames and Medway Canal. Originally intended as a means of avoiding coastal attacks on shipping.	The Thames and Medway Canal. Originally intended as a means of avoiding coastal attacks on shipping. It was a particularly expensive undertaking and never successful, the original motivation having passed by the time of completion and all budgets being exceeded in the process. Eventually, a railway was built utilising the tunnel and the canal was effectively and subsequently actually cut into two sections. The northern half remained in use for some time whilst the southern length quickly fell out of use.	Post-medieval	TQ 69963 71859
TQ 67 SE 1209	Anti Aircraft Battery	Denton Heavy anti aircraft battery, Mark Lane, Denton, Gravesend, Kent	Second World War heavy anti aircraft battery for 4 x 4.5-in. guns in a field south of the North Kent railway and east of Mark Lane at Denton, Gravesend. It formed part of the Thames South grouping of anti-aircraft gun defences. Built in 1938, it consisted of four standard octagonal concrete emplacements arranged on the points of an imaginary trapezium, to which was centred a rectangular concrete command post, having both surface and contained operational elements. The domestic site	Modern	TQ 6640 7391

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
			appears to have been about 100m NE of the battery. Decommissioned in 1945, it became derelict and the last remnants were removed in c. 1985.		
TQ 67 SE 1185	Building	Milton 19th/20th century rifle range, Eastcourt Marshes, Gravesend	Continued use of the 1862 military Milton Rifle Range, on Eastcourt Marshes, east of Gravesend. It consists of a succession of low earthen mound firing points, a target mound and markers' gallery, as well as a weather shelter. The butts were modified in the 1890s and perhaps again later. It continued in use for military rifle training until around 1980 and perhaps afterwards, when there was certainly private use. It is now the firing range element of the Metropolitan Police Training Facility, with substantial survivals of the original structures.	Post-medieval	TQ 6793 7415
TQ 67 SE 306	Pillar Box	George V pillar box, Waterton Avenue / Denton Street	A George V pillar box, Waterton Avenue / Denton Street. Letter Box Study Group Box Type: 27/2. Dates from 1933 to 1936	Modern	TQ 6606 7395
TQ 67 SE 55	Settlement	Denton Deserted Medieval Village	Desert medieval village at Denton. Maurice Beresford and J.G.Hurst eds. Deserted Medieval Villages, 1971, lists 69 places for Kent in their County Gazetteers of Deserted Medieval Villages.	Medieval	TQ 66 73
TQ 67 SE 292	Crash Site	Crash site of Hawker Hurricane V6550	Crash site of Hawker Hurricane V6550. It crashed into Barton's Timber Wharf, Albion Place, Gravesend at approximately 1pm on 15th October 1940. The pilot was not recovered and an attempt to locate the wreck in 2007 was unsuccessful. The precise crash site is unknown.	Modern	TQ 661 742
TQ 67 SE 1002	Land Reclamation	19th century remains at Waterton Avenue	A watching brief on groundworks prior to house construction recorded compacted late 19th century rubbish across the entire site to a depth of 1.1m. The site lies adjacent to Westcourt Marshes and peaty deposits below the rubbish layer suggest it was also once marshland.	Post-medieval	TQ 6620 7398

Previous Archaeological Investigations (Events)

Event ID	Name	Organisation	Location	NGR
EKE3947	Chalk Roman Villa	Ministry of Works		TQ 6760 7298
EKE3948	Chalk Roman Villa	Ministry of Works		TQ 6760 7298
EKE3949	Excavation at Chalk, 1974-5	Ministry of Works		TQ 6760 7298
EKE3951	Excavation at Chalk, 1978/9	Springhead Excavation Group		TQ 6760 7298
EKE8295	Comma Oil & Chemicals Limited, Gravesend - Report On Soil Investigation	Evans & Langford		TQ 6635 7389
EKE8432	Watching brief at 7 Manor Close, Chalk	Unknown	7 Manor Close	TQ 67643 72980
EKE8607	Evaluation of land adjacent to North West Kent College playing fields	Essex County Council Field Archaeology Unit	Dering Way, Gravesend	TQ 6687 7329
EKE8633	Watching Brief at Comma Works	Archaeology South-East	Mark Lane	TQ 6637 7394
EKE8724	Watching Brief and Borehole Survey, Denton Relief Road, Gravesend	Oxford Archaeology		TQ 66554 73855
EKE8749	Evaluation at Westcourt Marshes, Gravesend	Museum of London Archaeology		TQ 67076 73487
EKE8797	Investigation at Damigos Road, Gravesend	Pre-Construct Archaeology	Damigos Road	TQ 6675 7335
EKE9270	Evaluation at Lion Business Park Near Gravesend	Oxford Archaeology		TQ 66642 73750
EKE9777	Desktop study of proposed development on Eastcourt Marshes	Unknown	Gravesham	TQ 67901 74130
EKE9779	Report on condition of ground sub-surface at Westcourt Marshes, Gravesend, for Fort Knight plc prior to construction	Geotechnics-Materials Limited		TQ 67041 73587

Event ID	Name	Organisation	Location	NGR
EKE9780	Ground Investigation off Lower Higham Road, Gravesend	Soils Ltd	Lower Higham Road	TQ 66915 73387
EKE9781	Ground Investigation for the Denton Relief Road, Gravesend	Babtie		TQ 66592 73721
EKE9782	Borehole survey at Denton Marshes, Gravesend	Oxford Archaeology		TQ 66656 73781
EWX6586	Field Evaluation at Gravesend WTW	Wessex Archaeology	Gravesend Wastewater Treatment Works, Denton, Kent	TQ 667 740
EWX6597	Watching brief during construction, Gravesend WTW	Wessex Archaeology	Gravesend Wastewater Treatment Works, Denton, Kent	TQ 6672 7398
EWX6628	Evaluation of the line of Denton Relief Road	Institute of Archaeology, University of London		TQ 6656 7375
EWX9136	Desk based assessment at Eastcourt Marshes	Victor Smith		TQ 6780 7420
EWX9136	Desk based assessment of Westcourt Marshes	Museum of London Archaeology		TQ 6693 7364
EWX9176	Desk based assessment of Westcourt Marshes, Gravesend	Museum of London Archaeology		TQ 6693 7364
EKE10278	Historic Environment of the North Kent Coast: Rapid Coastal Zone Assessment Survey Phase 1	Wessex Archaeology		TR 010 753
EKE10622	Evaluation at Westcourt Marshes, Gravesend	Museum of London Archaeology		TQ 6691 7341
EKE11241	Watching brief along the Thames and Medway Canal, Gravesend	Alan Ward		TQ 6642 7413
EKE11511	Evaluation at Damigos Road	LBH Wembley	Damigos Road	TQ 6675 7336
EKE12218	Desk based assessment of the Thames and Medway Canal	Museum of London Archaeology		TQ 6996 7186
EKE13035	Desk based assessment of land north of Dalefield Way, Gravesend	Canterbury Archaeological Trust		TQ 6681 7361

Event ID	Name	Organisation	Location	NGR
EKE13239	Historic landscape characterisation and historic seascape characterisation, Hoo Peninsula Historic Landscape Project	Nicola Bannister		TQ 7988 7665
EKE13337	Test pitting as part of a Paleoenvironmental Evaluation, Isle of Grain (2008)	Archaeology South-East		TQ 7745 7470
EKE14761	Archaeological survey of mineral extraction sites around the Thames Estuary	Kent County Council		TQ 7887 7117
EKE15020	Hoo Peninsula, Kent. Hoo Peninsula Historic Landscape Project	English Heritage		TQ 7810 7537
EKE15021	Hoo Peninsula, Kent. Hoo Peninsula Historic Landscape Project	English Heritage		TQ 7855 7550
EKE15400	Hoo Peninsula, North Kent Coast, Thames Estuary:45 A Paleoenvironmental Review of the Development of the Peninsula	English Heritage		TQ 7940 7581
EKE15826	Archaeological Evaluation Report, Land at Dalefield Way	CgMs Consulting		TQ 6708 7336
EKE15872	Dalefield Way, Denton, Gravesend, Kent, Archaeological Evaluation	Thames Valley Archaeological Services		TQ 6704 7356
EKE16356	Archaeological survey, monitoring and excavation at RSPB Shorne Marshes	Archaeology South-East		TQ 6871 7449
EKE17269	Desk-based assessment (component of Environmental Statement): Grain to Shorne Gas Pipeline	National Grid		TQ 7745 7470
EKE17316	Fieldwalking programme: Grain to Shorne Gas Pipeline	Canterbury Archaeological Trust		TQ 7745 7470
EKE17318	Magnetometry survey along route of Grain to Gravesend gas pipeline	Stratascan		TQ 7745 7470

Event ID	Name	Organisation	Location	NGR
EKE21323	Gravesend Waste Water Treatment Works, desk based assessment	Wessex Archaeology		TQ 6672 7399
EKE8817	Architectural and Historic Building Record, Albion Parade	Essex County Council Field Archaeology Unit	Albion Parade	TQ 6573 7421
EKE9369	Attempt to locate a crashed 1940 Hawker Hurricane	Medway Aircraft Preservation Society (MAPS)	Barton's Timber Wharf, Albion Place, Gravesend	TQ 66105 74246
EWX6609	Watching Brief at Waterton Avenue, Gravesend	Essex County Council	Waterton Avenue, Gravesend	TQ 6620 7398
EWX8094	North Kent Coast Rapid Coastal Zone Assessment Survey Phase II: Field Assessment (Pilot)	Wessex Archaeology		TQ 97377 72644
EWX8626	Survey, North Kent Coastal Zone: Phase II, Year Two	Wessex Archaeology	North Kent	TQ 9737 7264
EWX9133	Gravesend Canal Basin Preliminary Ground Condition Statement in support of development proposals	Wardell Armstrong Consulting Group	TQ 6574 7421	EWX9133

Appendix C Port of Tilbury Haulage Route Gazetteers

Gazetteer of Non-Designated Heritage Assets

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MEX1032172	Ditches	World War Two Anti-aircraft Ditches North of Little Thurrock Marshes	Aerial photography shows an extant, circular, ditched enclosure 10m in diameter. A small mound with central depression and various ditches related to drainage. The field is also crossed by anti-aircraft ditches, no destroyed by residential development.	Modern	TQ 6347 7734
MEX1033045	Brickworks	Daniel Defoe's Brickworks in Tilbury	Brick and pantile works including claypits, drying floors, foundations of kilns and supporting buildings.	Post-medieval	TQ 6338 7626
MEX1033094	Hospital	Tilbury Cottage Hospital	Erected for the port of Tilbury and Grays by John Passmore Edwards. Small, single-storey cottage, providing eight beds built by a local contractor. Sited just outside the lower entrance to Tilbury Docks, the hospital was completed in 1897, whereupon, it was presented by the committee of the London and India Docks. In 1925 a new kitchen, operating theatre, boiler house and new male/female war blocks were added.	Post-medieval	TQ 641 757
MEX1041241	Embarkation Hard	D-Day Embarkation Hard 'NZ1 Main Dock West' (destroyed), Tilbury Docks	In the preparation period leading up to D-Day as many as 68 concrete "embarkation hards" were built around the coast to accommodate the many landing craft which would be required to transport men and tanks across the Channel to France. Construction work began in 1942 and by mid 1943 they had been completed, each holding up to four LCT's (Landing Craft, Troops) or LST's (Landing Ship, Tanks).	Modern	TQ 6300 7556
MEX1041242	Embarkation Hard	D-Day Embarkation Hard 'NZ2 Main Dock West' (destroyed), Tilbury Docks	In the preparation period leading up to D-Day as many as 68 concrete "embarkation hards" were built around the coast to accommodate the many landing craft which would be required to transport men and tanks across the Channel to France. Construction work began in 1942 and by mid 1943 they had been completed, each holding up to four LCT's (Landing Craft, Troops) or LST's (Landing Ship, Tanks).	Modern	TQ 6312 7555
MEX1041243	Embarkation Hard	D-Day Embarkation	In the preparation period leading up to D-Day as many as 68 concrete "embarkation hards" were built around the coast to accommodate the many landing craft which would be required to transport men and tanks across the	Modern	TQ 6333 7580

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
		Hard 'NZ3 Main Dock West' (destroyed), Tilbury Docks	Channel to France. Construction work began in 1942 and by mid 1943 they had been completed, each holding up to four LCT's (Landing Craft, Troops) or LST's (Landing Ship, Tanks).		
MEX1041244	Embarkation Hard	D-Day Embarkation Hard 'NZ4 Main Dock West' (destroyed), Tilbury Docks	In the preparation period leading up to D-Day as many as 68 concrete "embarkation hards" were built around the coast to accommodate the many landing craft which would be required to transport men and tanks across the Channel to France. Construction work began in 1942 and by mid 1943 they had been completed, each holding up to four LCT's (Landing Craft, Troops) or LST's (Landing Ship, Tanks).	Modern	TQ 6352 7594
MEX1041245	Embarkation Hard	D-Day Embarkation Hard 'NZ5 Main Dock West' (destroyed), Tilbury Docks	In the preparation period leading up to D-Day as many as 68 concrete "embarkation hards" were built around the coast to accommodate the many landing craft which would be required to transport men and tanks across the Channel to France. Construction work began in 1942 and by mid 1943 they had been completed, each holding up to four LCT's (Landing Craft, Troops) or LST's (Landing Ship, Tanks).	Modern	TQ 6371 7602
MEX1041246	Shelter	Eight Air Raid Shelters (destroyed), Ellerman Road Broadway, Tilbury	An aerial photograph taken in April 1944 shows a line of eight air raid shelters on the E side of Ellerman Road Broadway, Tilbury. They are semi-sunken, earthed over and are probably of the modular.	Modern	TQ 6368 7642
MEX1041248	Assembly Area	D-Day Assembly Area, Tilbury	From the junction of St. Chad's Road / Feenan Highway in the north to Dock Road in the south, from Toronto Road in the west to Parker Avenue in the east, every spare space on grass verges, between houses, on recreation grounds and on unbuilt land, was packed full with tents. Most of them were bell tents, thousands of them, with some large ridge-tents. There were Nissen huts and air raid shelters (although these were probably built as communal shelters in 1940/41) and large quantities of small unidentifiable structures, no doubt latrines, kitchens and all the paraphernalia of a temporary army encampment.	Modern	TQ 6462 7661
MEX1043326	Findspot	A Portable Antiquities Scheme	A Portable Antiquities Scheme findspot of unknown date	Unknown	TQ 64 76

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
		findspot of unknown date			
MEX31777	Caissons	Mulberry Harbour Construction Site (destroyed), Tilbury Dock	Where there are no granaries on the bank of the River Thames there were, during World War Two, two basins for the construction of Mulberry Harbour caissons. Visible on aerial photography taken in 1946.	Modern	TQ 6224 7661
MEX31779	Factory	P.L.U.T.O. Line Construction & Assembly Site (destroyed), Tilbury Main Dock	Tilbury Dock was a P.L.U.T.O (Pipeline Under The Ocean) assembly site and the drums, known as Conuns, were designed and constructed there. In total, 16 lines were laid to France, each up to 70 miles long.	Modern	TQ 6298 7617
MEX31790	Spigot Mortar	Spigot Mortar Site (destroyed), Dock Road	Contemporary records state, "Spigot Mortar, adjoining east side of Dock Road. Since World War Two the road has been widened and some of the land has been built on, no sign of this emplacement is visible.	Modern	TQ 6334 7664
MEX34893	Buildings	Site of Former Buildings Near Tilbury Junctions	Site of buildings visible on historic mapping of 1777. Sit of farmstead and tileworks, reputed to be associated with Daniel Defoe.	Post-medieval	TQ 644 756
MEX5916	Findspot	Neolithic flint axehead	Neolithic flint axehead. In Colchester Museum	Neolithic	TQ 64 76
MEX5935	Findspot	Tilbury Dock	Neolithic flint flake found at Tilbury Dock in 1883	Neolithic	TQ 6368 7557
MEX5939	Findspot	Tilbury Dock	Neolithic flint pick found in the Dock in 1884, now in Thurrock Museum.	Neolithic	TQ 6368 7557
MEX5940	Findspot	Tilbury Marshes	Anglo-Saxon bronze bowl, found in 1925, now in Southend Museum	Early Medieval	TQ 64 77
MEX5957	Findspot	West Tilbury	A bronze buckle, of uncertain date, found at Tilbury. Now in Gravesend Museum in the Arnold Collection	Unknown	TQ 64 77
MEX6168	Findspot	Tilbury - Original Dock Area	Neolithic flint pick found in 1884, now in Thurrock Museum	Neolithic	TQ 633 753

Asset ID (Pref ID)	Type	Name	Description	Period	NGR
MEX6172	Findspot	Tilbury - Original Dock Area	Two hand-axes and one unretouched flake, possibly palaeolithic, found at Tilbury Dock in 1913. By typology, situation and condition are of last glacial age. One is flat-butt and cordate in type, "generally associated with Mousterian industries". It was dredged from the Thames, is slightly rolled and stained so presumably was swept from a buried surface when the sea level was low and incorporated in buried channel deposits of the river. Is figured in source 10, though the scale is wrong. Other find is black, unrolled, "may actually have come off a buried land surface"	Palaeolithic	TQ 632 753
MEX6221	Findspot	Tilbury - Original Dock Area	Roman remains found, possible 1st and/or 2nd century AD.	Roman	TQ 635 754
MEX6234	Findspot	Tilbury - Central Dock	Roman tiles, flint blocks, potsherds, bones and oyster shells were found in the excavations for the Central Dock at Tilbury in 1883. Found scattered over an area of 40 yards or more, lay on a mossy grass-grown surface seven foot down.	Roman	TQ 635 760
MEX1042099	Landscape	West and East Tilbury Marsh	A small, heavily improved grazing marsh, situated on the north-west edge of the built up area of Tilbury, with cultivated land to the north and east. The marsh contains a surviving counter wall and ditch. Cropmarks have revealed the below ground presence of WWII anti landing ditches. The vegetation is improved grassland and current land use is grazing and recreation.	Medieval	TQ 6510 7705
MEX6015	Findspot	Tilbury	Palaeolithic implements found at Tilbury.	Prehistoric	TQ 65 76
MEX1032117	Drainage Ditch	West Tilbury REVOKED	Drainage ditches cut into Thames Flood Plain.	Unknown	N/A
MEX1032121	Drainage Ditch	West Tilbury Commons	A watching brief on drainage ditches dug on West Tilbury Common revealed no archaeological deposits or finds. Alluvial deposits were visible in all ditches viewed	Unknown	TQ 6564 7742
MEX1034095	Negative Evidence	Land to the north of Riverside Station, Tilbury	Trial trenching and test pits failed to reveal any archaeological features.	Unknown	TQ 6479 7574

Previous Archaeological Investigations (Events)

Event ID	Name	Organisation	Location	NGR
EEX56688	London Distribution Park, Geoarchaeological Assessment	Quaternary Scientific (QUEST)	London Distribution Park	TQ 6372 7709
EEX54328	Bastion Staircase, Tilbury Fort	Field Archaeology Group - ECC	Tilbury Fort	TQ 6410 7545

Appendix D Site Visit Photos

Tilbury Site Visit Photos



Plate 1: Tilbury Fort gatehouse looking north.



Plate 2: The grade II* listed Officers Barracks within Tilbury Fort, looking northeast.



Plate 3: View eastwards towards the proposed northern headhouse and SEC compound from the Tilbury Fort Scheduled Monument



Plate 4: View west, back across the Scheduled Monument towards Tilbury Fort and the grade II* listed Officers Barracks from Bill Mercy Creek.



Plate 5: View of the non-designated Second World War pillbox looking southeast.



Plate 6: View of the proposed headhouse and SEC compound location, looking north.



Plate 7: View from the public right of way, west across the southern part of the Site towards the Tilbury Fort Scheduled Monument, which is obscured by the modern container port facility.

Gravesend Site Visit Photos



Plate 8: A view northwest along the Thames and Medway Canal from swing bridge (TQ 67 SE 49)



Plate 9: View from the canal towpath, across Milton Rifle range towards the proposed location of the southern headhouse and SEC compound.



Plate 10: View of the proposed southern headhouse and SEC compound site from public access just south of the Site boundary.



Plate 11: View southeast back towards the Thames and Medway Canal and swing bridge. Medway Canal and swing bridge.

Appendix E Figures

Figure 1 – Site Location Plan

Figure 2 – Tilbury Heritage Assets

Figure 3 – Tilbury Previous Archaeological Investigations

Figure 4 – Gravesend Heritage Assets

Figure 5 – Gravesend Previous Archaeological Investigations

Figure 6 – Tilbury Docks Heritage Assets

Figure 7 – Tilbury Docks Previous Archaeological Investigations

Figure 8 – Andre and Chapman Map of Essex 1777

Figure 9 – West Tilbury Tithe Map 1838

Figure 10 – Ordnance Survey 2nd Edition Map 1897

Figure 11 – [George Ruscett] Levels Map of Gravesend 1694

Figure 12 – Gravesend Tithe Map 1840

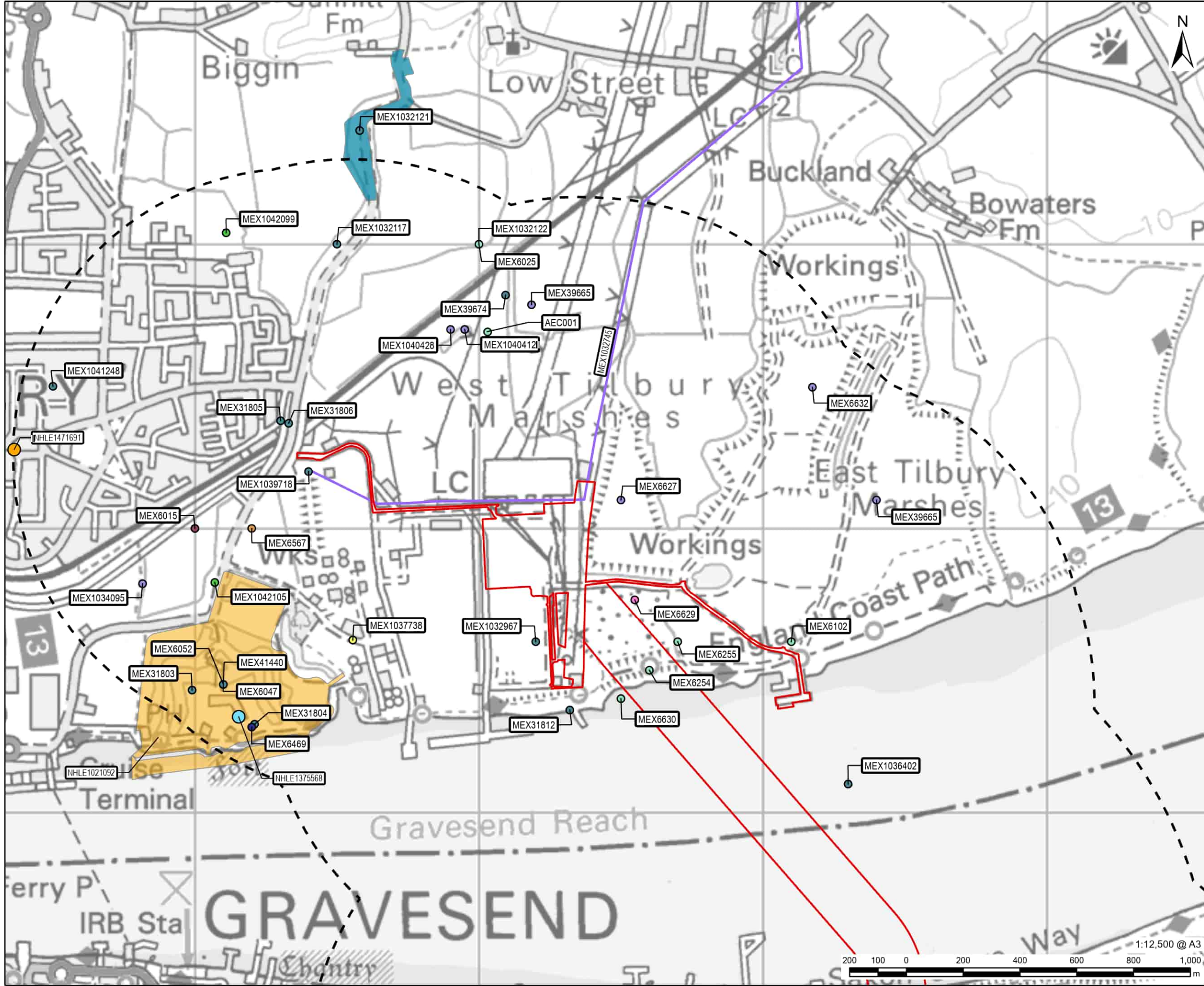
Figure 13 – Ordnance Survey 2nd Edition Map 1898

Figure 14 – Ordnance Survey 3rd Edition Map 1908

Figure 15 – Ordnance Survey 1951 Edition Map



Figure 1



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LEGEND

Red Line Boundary
1km Study Area
Scheduled Monument

Listed Building
Grade II
Grade II*

Non-Designated Asset (Point)
Medieval
Medieval to Post Medieval
Modern
Neolithic
Palaeolithic
Post Medieval
Prehistoric
Roman
Unknown

Non-Designated Asset (Line)
Unknown

Non-Designated Asset (Polygon)
Modern

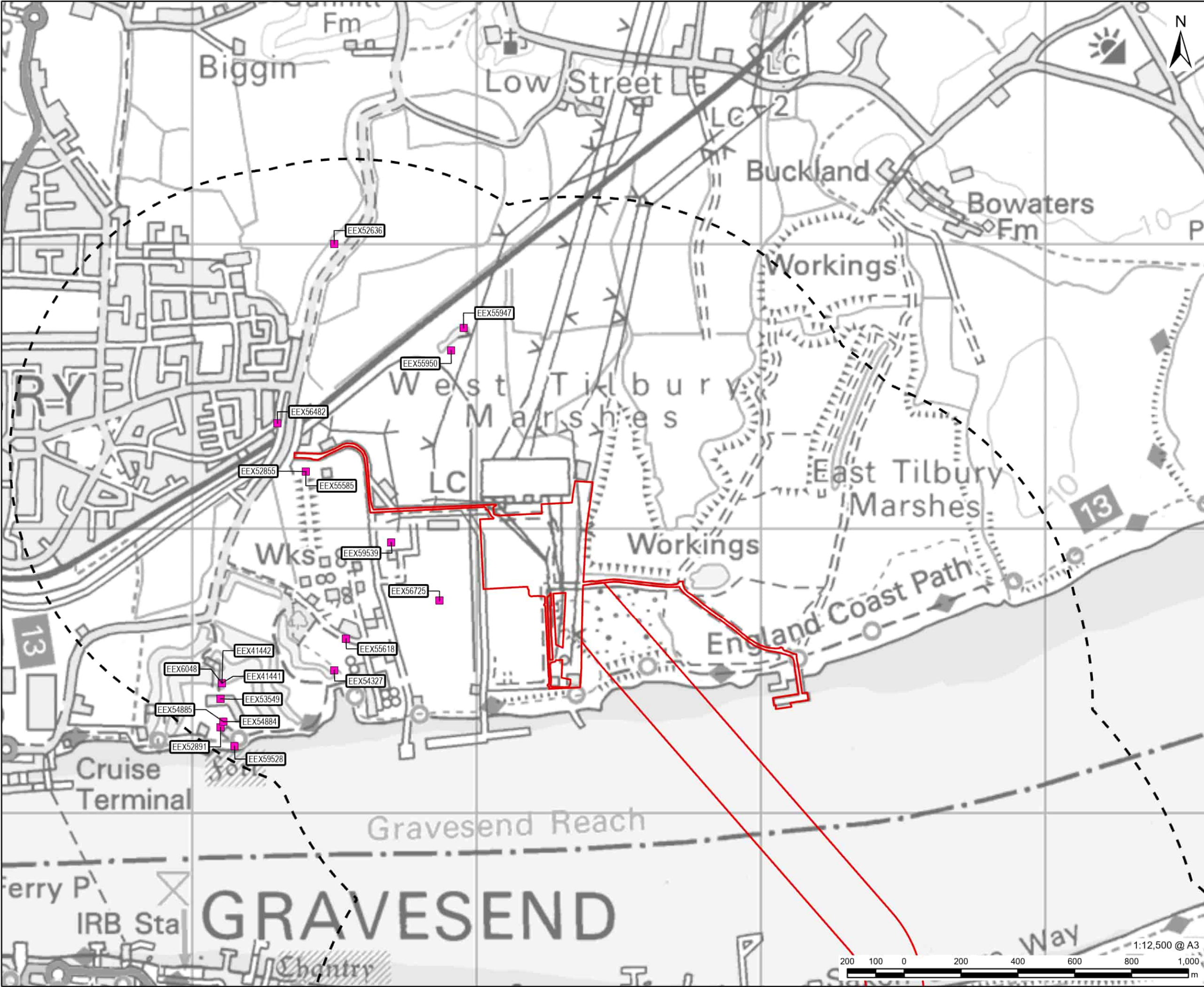
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FIGURE TITLE
Tilbury Designated and Non-Designated Heritage Assets

FIGURE NUMBER
Figure 2



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- Red Line Boundary
- 1km Study Area
- Event

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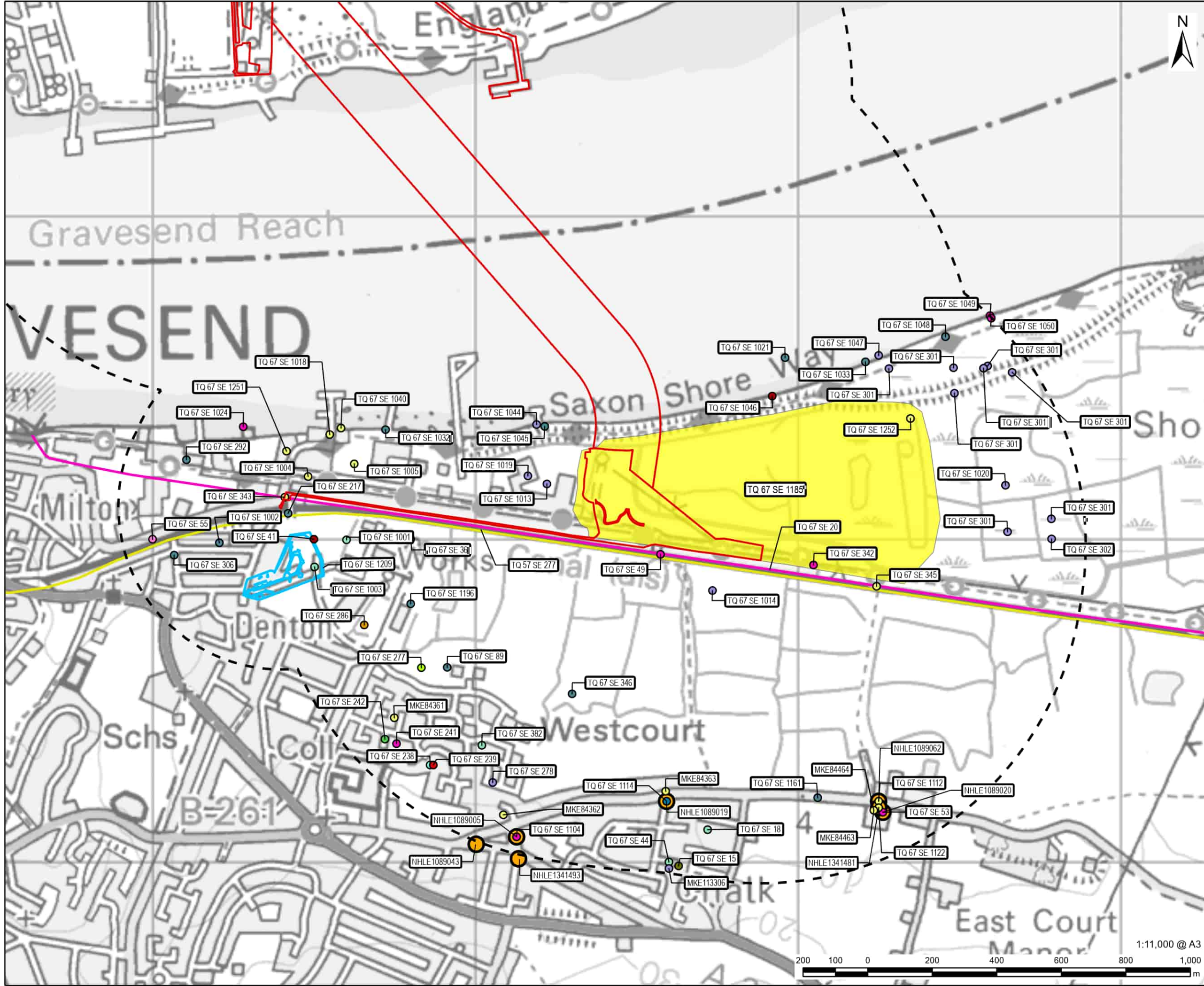
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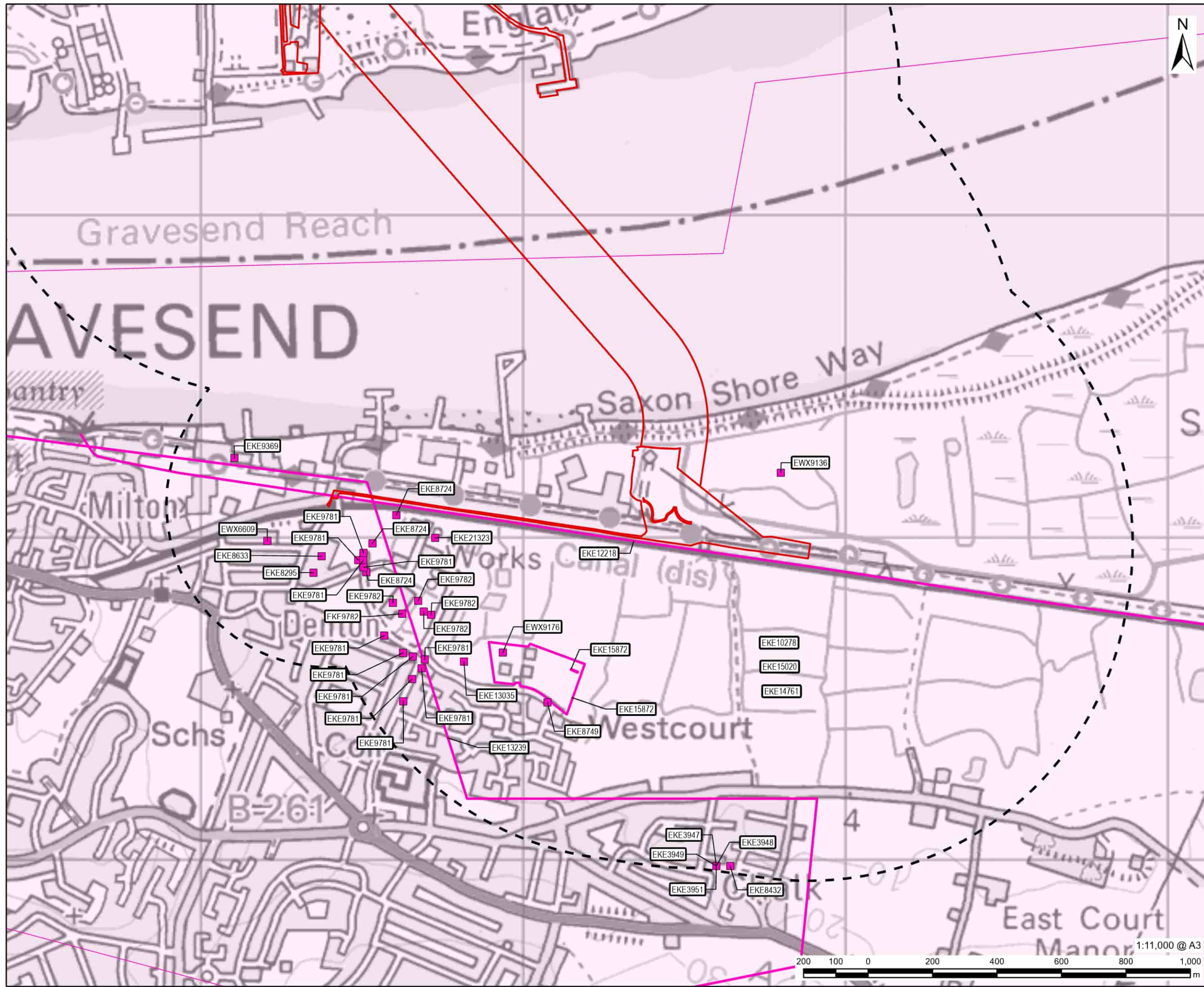
FIGURE TITLE

Tilbury (Essex) Events

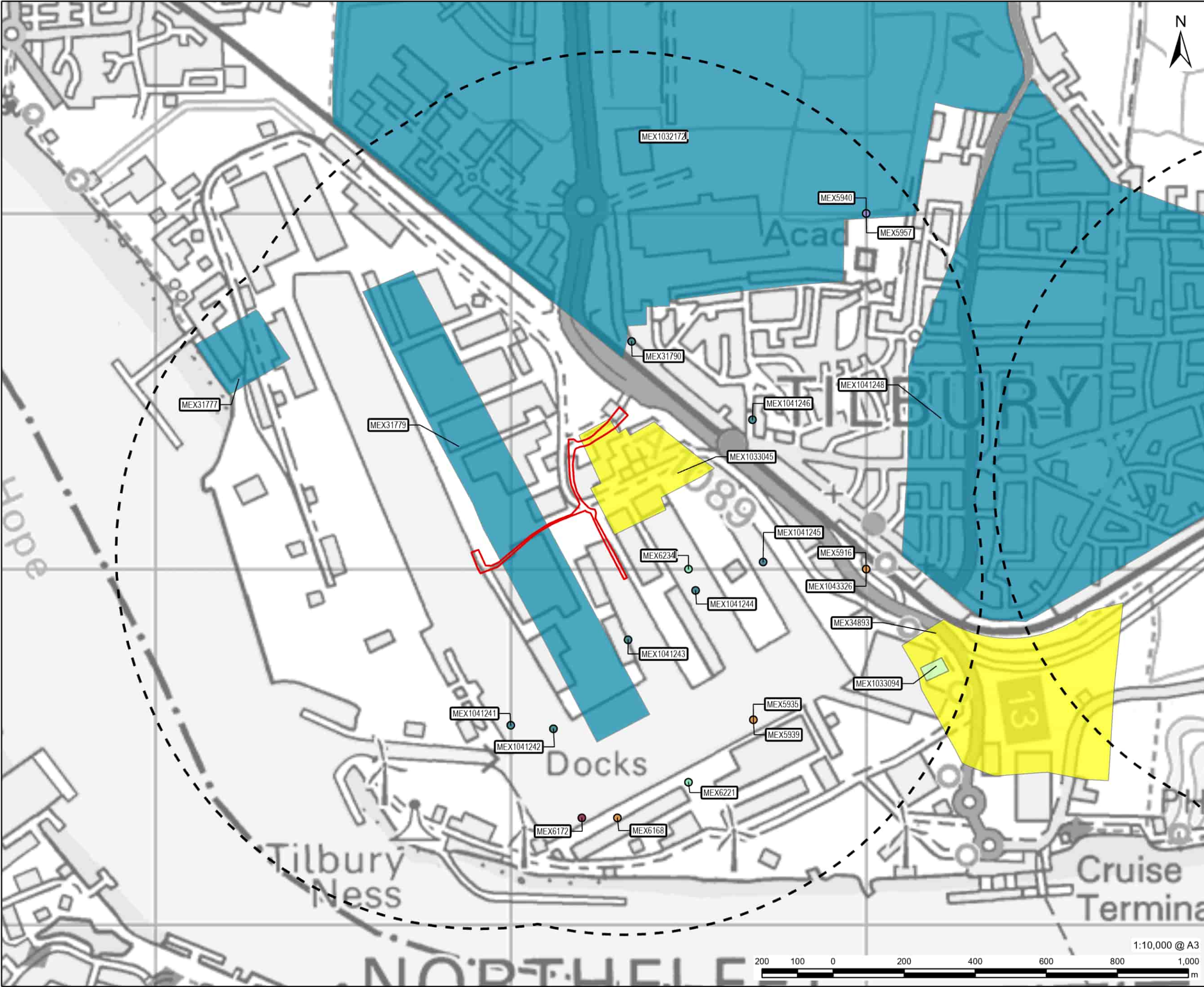
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Figure 3





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Red Line Boundary

1km Study Area

Non-Designated Asset (Point)

- Modern
- Neolithic
- Prehistoric
- Roman
- Unknown

Non-Designated Asset (Polygon)

- Modern
- Post Medieval
- Post Medieval to Modern

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FIGURE TITLE

Tilbury Docks Non-Designated Heritage Assets

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Figure 6



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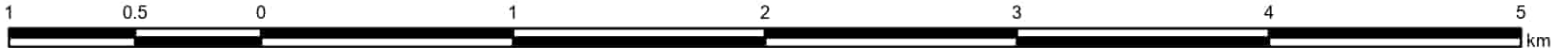
FIGURE TITLE

Andre and Chapman Map of Essex 1777

FIGURE NUMBER

Figure 8

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FIGURE TITLE
West Tilbury Tithe Map 1838

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Figure 9

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FIGURE TITLE

Ordnance Survey 2nd edition Map 1897

FIGURE NUMBER

Figure 10



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FIGURE TITLE

[George Ruscett] Levels map of
Gravesend 1694

FIGURE NUMBER
Figure 11



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FIGURE TITLE	
Gravesend Tithe Map 1840	
FIGURE NUMBER	
Figure 12	



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Ordnance Survey 2nd Edition 1898	
FIGURE NUMBER	
Figure 13	



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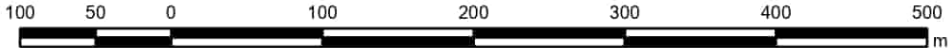
Ordnance Survey 3rd Edition 1908

FIGURE NUMBER

Figure 14



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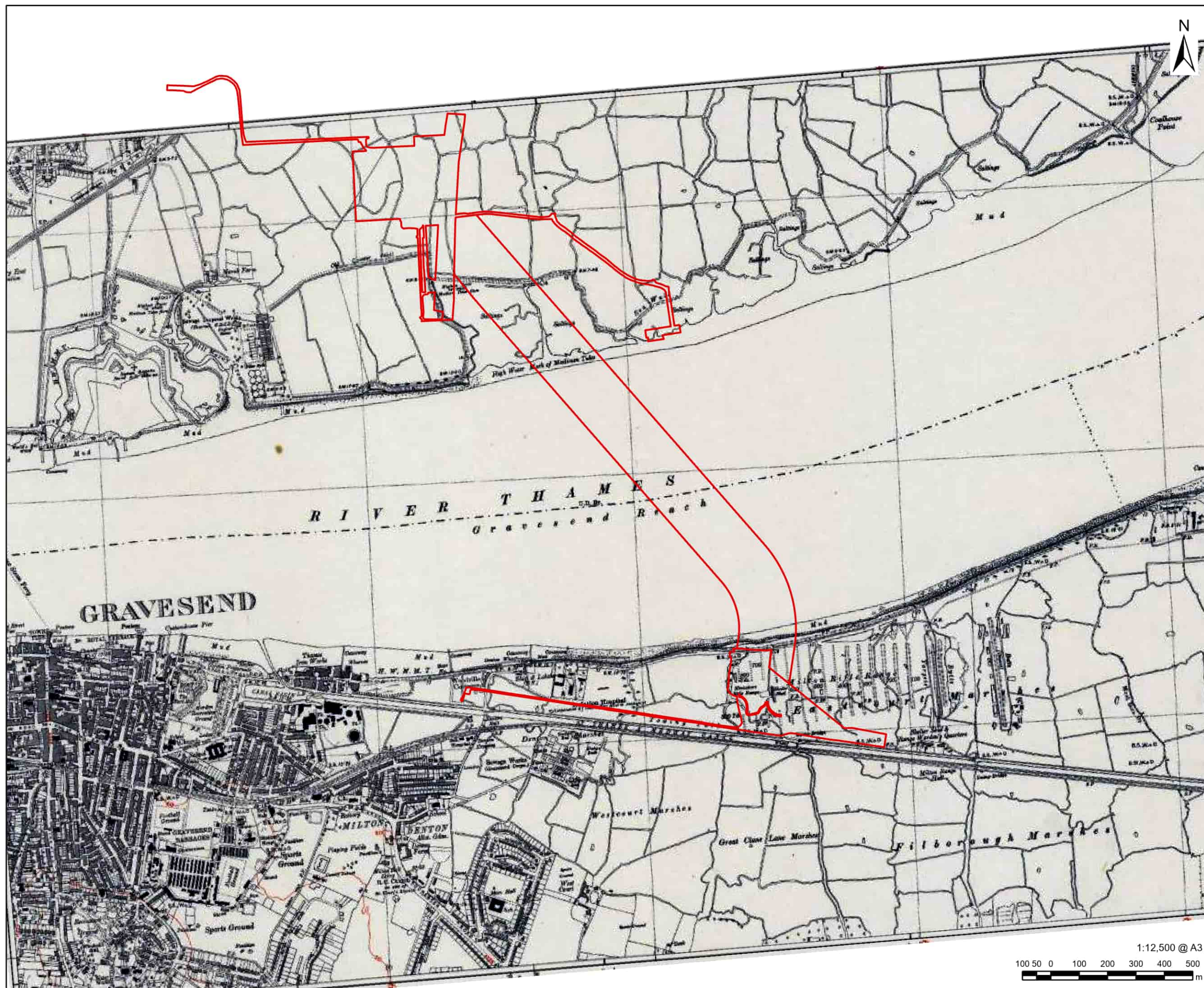


Figure 15

