

GRAIN TO TILBURY CABLE TUNNEL REPLACEMENT PROJECT

Written Scheme of Investigation for Archaeological Monitoring & Recording

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1 Introduction

1.1 Purpose of this Document

This Written Scheme of Investigation (WSI) presents the proposed operational procedures and standards for archaeological monitoring and recording of the soil strip at Gravesend, Kent, of the conventional mechanical excavation of the uppermost 4-5 metres of the deposits within the footprint of the vertical tunnel shafts ('headhouses') at both Tilbury (Essex) and Gravesend, and of the arisings produced by the Vertical Shaft Machine at both Tilbury and Gravesend (Figures 1-3).

1.2 Commissioning Bodies

This WSI was commissioned by National Grid and the archaeological works governed by this WSI will be commissioned by Ferrovial Bemo Joint Venture.

A copy of this WSI will be presented to the Historic Environment Advisor for Essex (EHEA) and the Senior Archaeologist for Kent County Council's Heritage Conservation Team (KCCHCT) or approval prior to work commencing.

1.3 The Scheme

The scheme involves the proposed construction of a new cable tunnel beneath the River Thames between Gravesend and Tilbury to provide additional transmission capacity. Above-ground infrastructure, in the form of a new Cable Sealing End Compound and a new head house building, will be constructed along with associated electricity infrastructure, access, parking, boundary treatment and overhead gantry structures for future overhead lines. The works also include the construction of a temporary compound for the duration of the project to provide parking, staff welfare facilities, delivery vehicle parking, and equipment and machinery storage, including boundary treatment and lighting. (Essex County Council Reference – 23/01502/FUL and Gravesend Borough Council Reference – 20231313).

1.4 Archaeological and Planning Background

Desk-Based Assessment

A desk-based assessment was produced by AECOM (2023) as part of the environmental statement and was submitted, along with the planning application, to EHEA and KCCHCT for consultation.

EHEA's response was as follows:

- 1) *No development or preliminary groundworks of any kind shall take place until a programme of archaeological investigation by trial trenching and excavation has been secured in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the local planning authority.*
- 2) *No development or preliminary groundworks of any kind shall take place until the completion of the programme of archaeological investigation identified in the WSI agreed.*
- 3) *The applicant will submit a final archaeological report or (if appropriate) a Post Excavation Assessment report and an Updated Project Design which has been approved in writing by the Local Planning Authority. This shall be done within 6 months of the date of completion of the archaeological fieldwork unless otherwise agreed in advance in writing by the Local Planning Authority. This will result in the completion of post excavation analysis, preparation of a full site archive and report ready for deposition at the local museum, and submission of a publication report.*

Place Services have had pre application discussions with the heritage consultants dealing with this application. It is agreed that the development has the potential to have an adverse effect during the development phase, however the final operations phase of the development will only have a relatively modest overall change to the setting of the designated heritage assets.

The development does however have the potential for an impact on unknown archaeology or non-designated heritage assets present within the footprint of the tunnel head and compound and access routes. Recent excavations immediately to the north east have identified an extensive complex of Roman salt production areas which is under excavation at present. The deep excavation for the tunnel will also likely interact with the important Thames palaeoenvironmental deposits. A written Scheme of Investigation has been provided within the application which has previously submitted to both Historic England and ourselves for comment. These deposits have relative significance in term of the valuable information they contain, and, in this context, we would consider them to be [sic].

A recognised professional team of archaeologists and geoarchaeologists should undertake the work. The archaeological work would consist of a programme of trial trenching across the development area followed by open area excavation on the archaeological deposits identified. It will also comprise the completion of the geoarchaeological assessment as defined within the WSI submitted with the application followed by any work that is required to record or excavate the deposits impacted by the proposed tunnel shaft. All works should be undertaken by a ClfA registered archaeological contractor.

KCCHCT responded as follows:

It is recognised that the development would impact surface-level and below-ground deposits with archaeological and palaeo-environmental interest, the non-designated Milton Rifle Range and other, presently unidentified archaeological remains and I therefore recommend that if planning permission is granted the following condition is applied to any forthcoming consent:

To evaluate and mitigate the impacts of development on heritage assets with archaeological and palaeo-environmental interest:

- A. Prior to any development ground works the applicant (or their agents or successors in title) shall secure and have reported a programme of archaeological field evaluation works, in accordance with a Specification and written timetable which has been submitted to and approved in writing by the local planning authority.*
- B. Following completion of archaeological field evaluation works, no development groundworks shall take place until the applicant or their agents or successors in title, has secured the implementation of any safeguarding measures to ensure preservation in situ of important archaeological remains and/or archaeological mitigation excavation and recording in accordance with a Specification and timetable which has been submitted to and approved by the local planning authority.*
- C. The archaeological safeguarding measures, mitigation excavation and recording shall be completed in accordance with the agreed Specification and timetable.*
- D. Within 6 months of the completion of archaeological works a Post-Excavation Assessment Report shall be submitted to and approved in writing by the local planning authority. The*

Post-Excavation Assessment Report shall be in accordance with Kent County Council's requirements and include:

- A) A description and assessment of the results of all archaeological investigations that have been undertaken in that part (or parts) of the development;*
- b) An Updated Project Design outlining measures to analyse, report and disseminate the findings of the archaeological investigations, together with an implementation strategy and timetable for the same;*
- c) A scheme detailing the arrangements for providing and maintaining an archaeological site archive and its deposition following completion.*
- d) The measures outlined in the Post-Excavation Assessment Report shall be implemented in full and in accordance with the agreed timings.*

Reason: To ensure that features of archaeological and palaeo-environmental interest are properly examined and recorded in accordance with relevant Local and the National Planning Policy.

LiDAR and Earthwork Survey

Mola undertook a UAV-based LiDAR survey and ground-based earthwork survey at the Milton Rifle Range site, Gravesend, on behalf of Network Archaeology and in support of the proposed development, in May 2024.

This revealed that despite the Milton Rifle Range having diminished over time to roughly a quarter of its original size, the remnants of the firing mounds survive within the site area along with some later earthen structures in the southern area. It identified the possibility that some building remains related to a shelter shed may survive in the approximate centre of the site to the east side of a north-south waterway.

The survey report argued that a V-shaped feature extending from the SEC may also be of archaeological interest as it might relate to 16th century military defences like a blockhouse or other defensive structure comparable to the nearby Tilbury Fort structure. Subsequent trial trenching undertaken by Network Archaeology in support of the Grain to Tilbury cable tunnel replacement project, however, confirmed that the V-shaped feature was almost certainly related to the construction of the existing above-ground electrical infrastructure at Gravesend.

The survey also found that most of the built structures, such as the firing butt steel target wall and butt to the east (outside the site boundary) remain in situ. Although the target machinery has been replaced by similar but later apparatus and the foundation structure has (some) later concrete, the original late 19th century machinery remains. It also found that the late 19th century ditches and waterways surrounding the butts and target wall have largely been filled in (MOLA 2024).

Trial Trenching

In June 2024, Network Archaeology undertook an archaeological trial-trench evaluation in support of the proposed development. Two trial trenches were excavated within the footprint of the proposed new headhouse at Tilbury, whereas three trial trenches were excavated within the footprint of the proposed new head house at Gravesend.

At Tilbury, no structures, features, or deposits of archaeological interest were identified within either trial trenches; only made ground and modern services were present. At Gravesend, although no archaeological features were identified, alluvium was recorded in all three trenches whilst disturbed ground was identified within Trench 1 and made ground within Trench 3. All these deposits were considered to be of post-medieval or modern date (Network Archaeology 2024).

Geoarchaeological Borehole Study

A geoarchaeological borehole study was undertaken by ARCA, on behalf of Network Archaeology, in June 2024, in support of the proposed development. Two boreholes were sunk within the footprint of each of the two head houses (machine-excavated pits on the sites of the vertical tunnel shafts), one at Tilbury and one at Gravesend, using a dynamic probe rig operated by a geotechnical subcontractor.

Continuous cores were collected from the base of a 1.2m below ground level (bgl) inspection pit, through Holocene intertidal and alluvial stratigraphy to the interface with Pleistocene gravel strata (Shepperton Gravel). Holocene stratigraphy at the Gravesend headhouse (ARCA BH01–BH02) was found to be 12.40m thick (extending to -10.19m OD) and that at the Tilbury headhouse (ARCA BH03–BH04) 16.68m (-13.91m OD). Three organic strata (termed ‘Lower’, ‘Middle’ and ‘Upper Peat’) sandwiched between grey silt/clays were found above the Pleistocene gravel on both sites, while two possible palaeosols (one associated with sands overlying the Shepperton Gravel and the other at the top of the Middle Peat) were also present on the Gravesend site.

The peat layers were ¹⁴C dated to c. 7450–5950 cal. BC (Tilbury Lower Peat), 5700–5450 cal. BC (Gravesend Lower Peat), 4400–3500 cal. BC (Gravesend Middle Peat) and 3450–850 cal. BC (Tilbury Middle Peat), while the Upper Peat must date to the Iron Age or later. Diatom assessment indicates that the grey silt/clays between the peats formed in an intertidal environment, i.e. most probably mud flats, albeit that some freshwater input is associated with the top of the Middle Peat.

The Tilbury and Gravesend sequences sampled in the geoarchaeological boreholes are assessed as having a moderate archaeological potential. This assessment is on the basis of the indirect evidence for human manipulation of the landscape provided in the pollen dataset, the possible presence of palaeosols and the (albeit low) possibility of encountering Mesolithic remains akin to ‘Tilbury Man’. Palaeoenvironmental potential is assessed as high given the generally good preservation of microfossils, the chronological range of organic strata that span the Late Mesolithic and Neolithic, the absence of previous geoarchaeological field investigation at Gravesend and the present lack of post-1980 analytical or published geoarchaeological/palaeoenvironmental work for the Tilbury and Gravesend area (ARCA 2024).

1.5 Scope of Archaeological Works

The scope of the work governed by this WSI can be summarised as follows:

1. Archaeological monitoring and recording of the soil strip at Gravesend. Soil will be stripped across the footprint of the temporary construction compound, temporary working areas, and the footprint of the permanent works. Approximately 29,400m² (2.94ha) of land will be stripped.
2. Archaeological monitoring and recording of the conventional mechanical excavation of the uppermost 4-5m of the vertical tunnel shafts (‘headhouses’) at Tilbury and Gravesend.
3. Retrieval of any archaeological remains contained within the arisings generated by the Vertical Shaft Sinking Machine (VSM), down to the Pleistocene, Shepperton Gravels, at both Tilbury and Gravesend.
4. Study of the findings of the above works to characterise and date any archaeological remains and the production of a client report on the results of the archaeological works.

In format and content, this WSI conforms to current best practice and the guidance outlined in Management of Research Projects in the Historic Environment (Historic England, 2015a), the

Chartered Institute for Archaeologists' (ClfA) Standard for archaeological monitoring and recording (2023), ClfA Universal guidance for archaeological monitoring and recording (2023), and the Guidelines for Archaeological Projects in Greater London (Historic England 2015b).

This WSI sets out the strategy and methods by which the archaeological contractor will implement the programme of **archaeological** works. A separate WSI (Arca 2025) will govern the associated **geoarchaeological/ palaeoenvironmental** works.

2 Site Information

2.1 Location, Geology and Topography

The proposed development areas (PDAs) are located to the southeast of Tilbury, Essex (NGR 566312 175888, and to the north of the village of Denton, northeast of Gravesend, Kent (NGR 567416 174134 (Figure 1).

The Essex site lies within industrial wasteland to the south of Tilbury electrical substation and is bounded to the west by Power Station Road and to the south by Ash Field Road. The Kent site is located to the north of the village of Denton, north-east of Gravesend, Kent (NGR 567416 174134, Figures 1, 2 & 3). The Kent site is bounded to the north by the River Thames and the south by the Thames and Medway Canal. The Eastcourt Marshes Electricity Substation lies to the immediate north of the Gravesend head house. Industrial complexes are located to the west with the Milton Rifle Range to the east (Figures 1, 2 & 3). Topographically, both sites lie on relatively flat ground at between 3m and 4m above Ordnance Datum (aOD), at Tilbury, and between 3m and 4m aOD, at Gravesend.

The bedrock geology at each location comprises chalk of the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation, with superficial deposits of clay, silt, sand, and peat also recorded (British Geological Survey). The soils are recorded as loamy and clayey coastal flats with naturally high groundwater (LandIS).

3 Aims and Objectives

3.1 Aims

The general aim of the archaeological monitoring and recording exercise is to characterise, date and establish the significance of any deposits, features and structures of archaeological or palaeoenvironmental interest that the proposed development will adversely affect, and to produce a report on the findings of that exercise.

The specific aims of the archaeological monitoring and recording exercise are to:

- Identify, investigate, record, characterise and date any remains of archaeological interest that survive and predate the construction of the modern industrial infrastructure at Tilbury and Gravesend.
- Identify, investigate, record, date and characterise any organic (peat) deposits identified during the works, principally those exposed during the initial 4-5m of excavation on the sites of the vertical shafts at Tilbury and Gravesend using conventional mechanical excavation techniques.
- Identify, investigate, record, date and characterise any archaeological remains preserved within or on land surfaces beneath any organic peat deposits identified during the works, principally those exposed during the initial 4-5m of excavation on the sites of the vertical shafts at Tilbury and Gravesend using conventional mechanical excavation techniques.
- Recover, characterise and date any artefacts present within the arisings generated by the Vertical Shaft Machine and establish their provenance within the deposit sequence.

3.2 Resources and Timetable

NAL will ensure that they have adequate and appropriate management procedures in place to ensure that risks to programme related but not restricted to access, more extensive remains and better-preserved deposits than anticipated, exceptional finds and interruptions from prolonged periods of inclement weather or restrictions caused by animal disease, are addressed efficiently and effectively. These risks will be kept under constant review by the archaeological contractor to ensure that the aims and objectives are met within the agreed timescales and budget, where practicable. The archaeological contractor will give immediate warning should any agreed programme date not be achievable.

All personnel involved in the project will be suitably qualified and experienced professionals.

All staff will be fully briefed and made aware of the work required under this WSI and will understand the aims and objectives of the archaeological investigations and the methodologies to be employed.

3.3 Programme & resourcing

Gravesend soil strip

- Programme: May/June 2025 - TBC
- Planned resources: 1x monitoring archaeologist (additional resource will be deployed, as required).

Conventional mechanical excavation of headhouses

Tilbury

- Programme: June 2025
- Planned resources: 1x monitoring archaeologist and 1x palaeoarchaeologist (ARCA)

Gravesend

- Programme: August 2025
- Planned resources: 1x monitoring archaeologist and 1x palaeoarchaeologist (ARCA)

Monitoring of VSM arisings

Tilbury

- Programme: October 2025
- Planned resources: 1x monitoring archaeologist, supported by 1x palaeoarchaeologist (ARCA)

Gravesend

- Programme: December 2025 – January 2026
- Planned resources: 1x monitoring archaeologist, supported by 1x palaeoarchaeologist (ARCA)

4 Fieldwork Procedures

4.1 Introduction

This chapter details the standards and methods that will be adopted during the archaeological monitoring and recording works.

The archaeological works will conform to the standards and regulations of professional conduct outlined in the Guidelines for Archaeological Projects in Greater London (Historic England 2105b), the ClfA Code of Conduct (ClfA 2022), the ClfA Regulations for Professional Conduct (ClfA 2021) and the ClfA Standards and Guidance for an Archaeological Field Evaluation (ClfA 2020).

The archaeological contractor will prepare and submit a Risk Assessment and Method Statement (RAMS) for the works before the commencement of the fieldwork. The draft RAMS will be submitted to Ferrovial Bemo Joint Venture for their review and approval.

4.2 Investigation and Recording

General requirements

Unique site codes for the fieldwork will be allocated by NAL prior to its start.

Prior to the start of fieldwork, the archaeological contractor will contact KCCHCT and EHEA to obtain event numbers for the sites and Maidstone Museum and Thurrock Museum for accession codes. The event numbers will be referenced on all relevant site and post-excavation pro-forma forms.

The archaeological contractor will ensure that the archaeological investigations are undertaken in an organised, efficient, and professional manner. The archaeological contractor will have full regard to the safety of all its personnel on site, and the personnel of any other contractors with whom we may share the site. The safety of any member of the public we may come into contact with will also be prioritised, as will the avoidance of nuisance to the public. The archaeological contractor will ensure that any necessary health and safety training and inductions are completed.

All paper and digital records made during the course of the fieldwork, and the treatment of artefacts and environmental remains, will be reviewed continuously and informed by specialist

input. Record checking and collation will be completed at regular intervals, as appropriate, and before an area is considered complete, abandoned, backfilled or the site closed.

4.3 Methods

Archaeological Monitoring and recording of the Gravesend soil strip

Mechanical excavation

Ferrovial Bemo JV is responsible for providing all earth-moving plant and all bankspersons. The operation of the plant will be guided by qualified staff.

The area to be stripped will be scanned using a Cable Avoidance Tool (CAT & Genny) by Ferrovial Bemo JV prior to and at intervals during mechanical excavation, for the purpose of detecting live services that may be affected by the works.

Mechanical excavators fitted with toothless ditching buckets will be used to remove undifferentiated topsoil/subsoil or recent overburden material under constant archaeological supervision in approximately 100mm spits, until archaeological features or geological deposits are encountered. If required for construction purposes, the 19th-century linear earthwork in the south-eastern part of temporary construction compound (Figure 2) will be removed down to the uppermost archaeological horizon or geological deposits, whichever are encountered first.

Initially, where present, the topsoil will be removed, followed by the subsoil. The excavated soil will be moved to storage areas through a combination of mechanical excavators fitted with toothless buckets, and dumpers. For some excavation areas, these will be taken to a designated soil-storage area. For other areas, they will be stored next to the area of excavation.

The subsoil will be stripped down to the top of the first significant archaeological horizon or to the natural geology, whichever is reached first.

Mechanical excavation will cease when the first archaeologically significant horizon is reached, or when the absence of any such horizon has been adequately demonstrated.

The stripped surface will be left clean and suitable for the identification of any archaeological remains that may be present. All overburden (topsoil and subsoil) will be removed and stored in a way that allows for clear identification of archaeological horizons or features.

Stripped areas will be allowed to weather for a minimum of 24hrs after stripping, regardless of whether archaeological features are visible or not. This will allow for the detection of ephemeral features or features that only become apparent after weathering.

No machinery (or vehicles) will be allowed to track over any stripped areas until archaeological monitoring and recording has been completed to the satisfaction of the Senior Archaeologist for Kent County Council's Heritage Conservation Team (KCCHCT).

Where archaeological features of a fragile or sensitive nature have been identified, pedestrian access will be restricted by temporary fencing and signage, as appropriate.

Throughout the machine-stripping, a metal-detector scan will be carried out by an experienced metal-detector operator, and retrieved artefacts spatially recorded using a survey-grade differential GPS.

Spoil management and storage

Soil management and storage will be the responsibility of the main works contractor.

Once the archaeological monitoring and recording has been 'signed off' as complete to an acceptable standard by KCCHCT, the area will be handed over to the main works contractor in an as-is state. The archaeological contractor will undertake no reinstatement of excavated soils.

Investigation and Recording

General requirements

All work will comply with ClfA's Standard for archaeological excavation and Universal guidance for archaeological excavation (ClfA 2023a and 2023b).

The archaeological monitoring and recording of the Gravesend soil strip will comply with and meet the minimum standards for strip, map and sample mitigation as set out in Kent County Council's current Manual of Specifications Part B.

Prior to the start of fieldwork, the archaeological contractor will contact KCCHCT to obtain an Event Number for the site and Maidstone Museum for a site accession code. The Event Number will be referenced on all relevant site and post-excavation pro-forma forms.

An online OASIS record will be initiated immediately prior to the start of the fieldwork and completed when the final report is submitted to all relevant parties.

The archaeological monitoring and recording will characterise the full archaeological sequence down to undisturbed geological deposits. A matrix of the sequence will be created on site.

Provision will be made for sampling deposits for the analysis of palaeoenvironmental remains and for dating deposits, artefacts and ecofacts, where appropriate.

All human remains within the archaeological excavation area will be fully excavated and removed from site unless otherwise agreed with the Client and KCCHCT.

Upon the completion of the archaeological fieldwork, the archaeological contractor will undertake a programme of post-excavation assessment, analysis and reporting, as appropriate, within a time frame agreed with the KCCHCT and the Client.

Survey

Following topsoil stripping, a pre-excavation plan of all visible features will be produced, using differential Global Positioning System (dGPS) equipment to sub-0.02m accuracy. Should local grids be used to facilitate detailed recording, these will be accurately located to Ordnance Survey coordinates using a differential Global Positioning System (dGPS) to sub-0.02m accuracy, as necessary.

All data recorded by dGPS will be downloaded, checked for accuracy, and backed up before the surveyed features are excavated or otherwise lost.

Hand-investigation

The method for archaeological excavation covers all mitigation work involving the recording and retrieval of archaeological remains that will be preserved by record during archaeological monitoring and recording.

The archaeological work will focus on obtaining a thorough record and good understanding of the stratigraphic sequence.

An archaeological sampling strategy will be developed and applied if significant archaeological features are encountered during the archaeological works. The proposed scope outlined below will be subject to review and potential change following stripping, in agreement with relevant stakeholders.

Table 1: Proposed feature proportions to be excavated

Type	Description	Proportion of each feature to be excavated
Linear features (main body)	Agricultural	10%*
Linear features (main body) (excluding intersections and termini)	Non-structural settlement, industrial, funerary	20%*
Linear features, incl. beam slots (main body) (Mesolithic to Early Bronze Age inclusive)	Structural	100%*
Linear features, incl. beam slots (main body)	Structural	50%*
Ring Ditches or gullies (excluding termini)	Settlement, industrial, funerary, agricultural	100%*
Linear features (bends, termini)	All types	100%*
Discrete features (Mesolithic to Early Bronze Age inclusive)	Pits <1.5m diameter, postholes, other small features	100%*
Discrete features (all other periods)	Pits, postholes, other small features	50%*
Discrete features	Pits >1.5m diameter	50%*
Stone, masonry structures (simple)	Walls, buildings	50%*
Stone, masonry structures (complex)	Walls, buildings	100%*
Complex remains relating to masonry and non-masonry structures	All types	100%*

Type	Description	Proportion of each feature to be excavated
Funerary	Human, animal	100%*
Discrete special deposits	Settlement, industrial, funerary (e.g., middens, industrial waste, pyre deposits)	100%*
Palaeolithic remains and prehistoric flint scatters	All types	100%*

*The % given in the table above refer to the % fill of features/structures

The advice of the Historic England Science Advisor (South-East region) will be sought on appropriate scientific dating techniques prior to the commencement of archaeological investigation of any as-yet-unknown significant archaeological remains.

Each ancient human burial, including cremations, and each ancient animal burial will be fully excavated. Human remains will only be excavated after obtaining the relevant Ministry of Justice Licence, as required by the Burials Act of 1857 (amended 1981).

Pits or post-holes will be fully excavated if they are particularly rich in environmental or artefactual remains or have the potential to contain human remains.

Pits and post-holes will be fully excavated if dating material is not recovered from the initial 50% sample.

Bulk deposits (such as large soil spreads) may be removed by machine, under strict archaeological control, after they have been suitably sampled by hand excavation and recording, if a suitable method for doing so can be agreed with the Winchester City Archaeologist.

Naturally derived soil horizons will also be investigated, as advised by a specialist Geoarchaeologist from ARCA. It is likely that investigations will focus upon deposits that are organically preserved and laid down within archaeological periods. Emphasis will likely be placed upon the recording and sampling of peat, palaeochannels and alluvial formations, to gain an understanding of the natural environment before, during and after any human occupation of adjacent or inter-stratified landscapes.

Palaeolithic remains and prehistoric flint scatters will be 100% excavated. Excavation methods will be advised by a recognised specialist acceptable to the KCCHCT. Excavation methods agreed by all parties will be inserted into an updated version of this WSI. Nevertheless, the excavation methods are likely to include the following elements:

- All palaeolithic remains will be surveyed in three dimensions to an accuracy of +/- 100mm or better using a survey-grade GPS, and fully excavated.
- The extents of any flint scatters will be identified and surveyed in three dimensions to an accuracy of +/- 100mm or better using a survey-grade GPS.
- A numbered grid will be imposed upon the scatter. Grid intervals will be agreed with the specialist but are unlikely to exceed 1m x 1m.
- The scatter will be 100% excavated by numbered grid square in spits of an agreed thickness, which are unlikely to exceed 50mm.
- All lithics above an agreed size threshold (typically >10mm) and all tools and microliths will be surveyed in three dimensions to an accuracy of +/- 100mm or better using a survey-grade GPS and numbered and bagged separately.
- Debitage below an agreed size threshold (typically <10mm) will be recovered and bagged in bulk by numbered grid square and spit.
- Deposits containingdebitage excavated in spits by grid square will be dry sieved on site where practicable and wet sieved off site where not and the recovereddebitage will be bagged in bulk by numbered grid square and spit.

Recording

The location of archaeological remains and interventions in those remains will be recorded using a survey-grade dGPS.

Hand-drawn measured plans and sections will use appropriate scales (normally 1:20 and 1:10 respectively) and will record the above Ordnance Datum (aOD) height of the principal strata.

All features will be planned at a scale of 1:20 and either digitally or hand drawn and located on appropriate scale plans. Hand-drawn plans will show the limits of the excavation and will display at least two Ordnance Survey grid points, which will be ascertained using a survey-grade dGPS.

Complex archaeological remains, where there is much detail to be recorded very accurately and often quickly, such as burials and complex structures, and where a 3D perspective view may be useful in understanding their form, function and interrelationships with other features and structures on site, may be recorded photogrammetrically.

Drone photography may be used to capture aerial views of the interrelationships of features and structures across whole or parts of sites, and to place them within their landscape contexts.

All archaeological cuts, fills, layers, and structural elements will be allocated unique context numbers. These will be recorded on pro-forma context sheets detailing character, contextual relationships, a detailed description, associated finds, interpretation, and cross referencing to the drawn, photographic and finds records. On-site matrices will be compiled during the strip, map and sample excavations such that the results of the written stratigraphical records may be fully analysed and phased. Records will be created either using paper and card forms or using digital devices.

All photographs will be listed and indexed on record sheets.

A record or index will be maintained of all site drawings. All site drawings will contain the following information: site name, site number and code, scale, plan or section number, orientation, date and the name of the compiler.

Photographic Record

A photographic record of the investigations will be made of all excavated areas and all archaeological features and deposits and will include appropriately sized scales.

All photographs will be recorded on photographic indexes and will be referenced on the appropriate context sheets.

The photographic record will include photographs and images of all archaeological features (pre- and post-excavation), working shots and photographs for publication purposes.

Photographic records will include information detailing: site code, date, context(s), section number, a north arrow and a scale unless they are to be used for publication purposes. All photographs will be listed and indexed on context record sheets.

The primary photographic record will comprise digital photography, as follows:

- The camera used will have a minimum sensor size (APS-C) of 22mm by 15mm.
- The camera used will have a sensor that exceeds 10 Mega Pixels.
- All photographs will be taken in a raw format (.raw or .nef, for example). Photographs will not be taken in .jpg format.
- All photographs will be converted from raw format to uncompressed .tiff at 8 bit.
- Digital photographs will not be manipulated or altered prior to inclusion in a project archive.
- File names will meet the requirements of Maidstone Museum.

Metal Detectors

All stripped areas and excavated soils will be scanned using a metal detector supplied by the archaeological contractor and used by a trained operator. Artefacts will be collected from topsoil and from unstratified contexts and recorded via a survey grade dGPS. Where artefacts appear to be within secure contexts, they will only be removed during the hand-investigation of the contexts in question.

4.4 Finds

Bulk and registered finds

All stratified finds and unstratified finds with the potential to elucidate the nature of on-site activity and site-formation processes will be collected and bagged. Finds will either be 'bulk' collected by stratigraphic unit or individually 'registered', as appropriate. All bags will be labelled with the project code and context number. Initial handling and packaging will conform to best practice (Watkinson & Neale 1998).

National guidance documents will be consulted to provide a strategy for the excavation, field treatment and conservation of any delicate organic materials (English Heritage, 2012, 2010, 2008).

Treasure

All finds that qualify as "treasure" under the Treasure Act 1996 (as amended) will be excavated and removed from site to a secure location on the day of their discovery. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft. All finds of "treasure" will be reported to Ferrovial Bemo JV and

KCCHCT within 2 days of discovery and notified to the local coroner within 14 days of their discovery.

The finds liaison officer for Kent is: Isabelle Diggle – isabelle.diggle@kent.gov.uk

Human remains

All human remains within the archaeological excavation area will be fully excavated and removed from site unless otherwise agreed with the Client and KCCHCT.

If there is any doubt over the antiquity of the remains, work will cease, and the Police will be contacted.

4.5 Environmental Sampling

An initial sampling strategy is set out below. Where appropriate, the advice of the relevant Historic England Regional Science Advisor will be sought if required in relation to the collection of palaeoenvironmental material, industrial residues, or other relevant scientific material.

The sampling strategy outlined below will be kept under review throughout the evaluations to ensure it remains relevant to the deposits encountered on site. The purpose of sampling at the evaluation stage is to identify the range of environmental materials present, their preservation, significance, and distribution. Sampling will target the following, where present, as a minimum:

- Buildings, ditches, pits, gullies, and postholes;
- Burials;
- Floor surfaces where they survive and have not been truncated;
- Deposits associated with industrial or manufacturing processes;
- Deposits representing the main phases of activity (to assess whether there are changes in rates of deposition, material survival over time); and
- Boundary features.

All samples will be screened for hammerscale and other indicators of industrial processes. Where significant concentrations are identified, this information should be fed back to the field team, so that where necessary, further samples can be taken to help to define any areas of metalworking, or other industrial processes;

Sampling will not target only charcoal-rich and wet deposits but will target the full range of features outlined above. This will ensure that samples are recovered from a representative sample of contexts.

It is possible that unanticipated deposits or features will be encountered during the evaluations. The sampling strategy will be revised, as required, to ensure those features are adequately and appropriately sampled.

All samples will be taken to address a specific question. The purpose of the sample and the question(s) it has been taken to address will be recorded on the archaeological contractor's proforma sample record sheet.

Samples will be taken using ten-litre plastic buckets (with lids and handles), or strong polythene bags (double bagged) secured at the neck, for the recovery of bulk 'disturbed' environmental samples.

For non-waterlogged deposits, bulk samples will normally comprise between 40-60 litres. Each bulk sample will contain sediment derived from a single context. Where waterlogged deposits are encountered, sample sizes will usually be between 10 and 20 litres. Samples of this size are typically sufficient to recover a representative sample of macrofossils. Samples will be protected from temperatures below 5°C and above 25°C and from wetting and drying due to weather exposure.

Sampling and processing will conform to national guidelines (Association for Environmental Archaeology 1995; English Heritage 2011; Dobney, K., Hall, A., Kenward, H. and Milles, A. 1992; Murphy, P.L. and Wiltshire, P.E.J., 1994).

Archaeological Monitoring and Recording of the Conventional Mechanical Excavation of the Initial 4-5m of the Vertical Shafts ('Headhouses') at Tilbury and Gravesend

The focus of these investigations will be threefold:

- Recording of the stratigraphic sequence in section
- Investigating, recording and sampling any archaeological remains revealed by the mechanical excavation
- Sampling of any organic remains (peat) for palaeoenvironmental assessment.

Mechanical Excavation

Ferrovia Bemo JV is responsible for providing all earth-moving plant and all bankspersons. The operation of the plant will be guided by qualified archaeological contractor staff, where safe to do so.

The area to be stripped will be scanned using a Cable Avoidance Tool (CAT & Genny) by Ferrovia Bemo JV prior to and at intervals during mechanical excavation, for the purpose of detecting live services that may be affected by the works.

Mechanical excavators fitted with toothless ditching buckets will be used to remove all deposits down to the top of the first significant archaeological horizon, or to a termination depth of 4-5m below ground level, whichever is encountered first.

Investigation and Recording

The methods set out in detail above, in relation to the monitoring and recording of the soil strip at Gravesend, will be employed in respect of the monitoring and recording of the headhouses at Tilbury and Gravesend, as far as it is practicable and safe to do so.

Treasure

All finds that qualify as “treasure” under the Treasure Act 1996 (as amended) will be excavated and removed from site to a secure location on the day of their discovery. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft. All finds of “treasure” will be reported to Ferrovia Bemo JV and KCCHCT/EHEA within 2 days of discovery and notified to the local coroner within 14 days of their discovery.

The finds liaison officer for Kent is - Isabelle Diggle – isabelle.diggle@kent.gov.uk

The finds liaison officer for Essex is - Lori Rogerson – lori.rogerson@colchester.gov.uk

Human Remains

All human remains within the archaeological excavation area will be fully excavated and removed from site unless otherwise agreed with the Client and KCCHCT/EHEA.

If there is any doubt over the antiquity of the remains, work will cease, and the Police will be contacted.

Archaeological Monitoring and Recording of the Vertical Shaft Sinking Machine (VSM) Arisings

The shaft will be sealed and flooded as it is excavated by the VSM, so the excavations will not be monitorable by an archaeologist.

The monitoring archaeologist will examine the arisings produced by the VSM at the ground surface and will collect any material of archaeological interest, such as flint tools or debitage, they may contain.

The monitoring archaeologist will record any material of archaeological interest retrieved from the arisings as a Registered Find, shall assign a Registered Find number, shall record the nature of the deposits it was recovered from, as revealed by the arisings it was contained within, and shall liaise with the drilling control room to ascertain the depth at which the arisings containing the Registered Find were cut by the VSM. All this information will be recorded on the Registered Find pro-forma record sheet.

Monitoring, Progress Reporting and Meetings

The archaeological contractor will notify KCCHCT and EHEA at least one week in advance of fieldwork within their areas of interest. Arrangements will also be agreed to facilitate compliance monitoring.

The fieldwork will be subject to monitoring visits by KCCHCT and EHEA, who will have access to the sites, site records or any other information. The work will be inspected to ensure that it is being carried out to the required standards and that it will achieve the stated aims and objectives.

Progress reports will be provided, where necessary, to Ferrovial Bemo JV by the archaeological contractor during each phase of fieldwork. These progress reports will summarise the following:

- Progress measured against the baseline
- Key significant archaeological findings
- Status and progress of ongoing works
- An outline programme of works to be undertaken in the following month
- Photos and plans, as appropriate.

Progress meetings between Ferrovial Bemo JV, KCCHCT and EHEA may be held on site as necessary during the fieldwork.

4.6 Completion of Fieldwork

Every effort will be made on the part of the archaeological contractor to minimise the risk of delay to the construction works programme.

Regular site meetings will take place between Ferrovial Bemo JV, as necessary.

4.7 Health, Safety & Environment

All work will be carried out in compliance with the Health and Safety at Work Act 1974 and its related regulations and codes of practice.

A Risk Assessment and Method Statement (RAMS) will be prepared in advance of site works and submitted to Ferrovial Bemo JV. The RAMS will detail any identified constraints to groundworks, including the location of live services, Tree Preservation Orders and public footpaths. Once approved, it will be issued and briefed out to all on-site archaeological personnel by the Senior Site Representative (SSR). The SSR will be responsible for reviewing and updating the assessment on a regular basis throughout the fieldwork.

The SSR will be responsible for properly planning and supervising all work, giving due consideration to the identification of danger areas, risk avoidance, suitably trained staff, safe access/egress, condition of work surfaces, selection and maintenance of suitable work equipment and daily inspections of working areas.

Personal Protective Equipment, including, as minimum, high-visibility fluorescent flame-retardant clothing, steel capped safety boots, a hard hat, safety gloves and light eye protection will be worn by staff at all times. Any additional PPE requirements will be stipulated in the archaeological contractor's project RAMS and in the site-specific Risk Assessment packs.

All site personnel will hold a valid Construction Safety Certificate Scheme card.

4.8 Quality Standards

The archaeological works will conform to the standards and regulations of professional conduct outlined in the ClfA Code of Conduct (ClfA 2022), the ClfA Regulations for Professional Conduct (ClfA 2021), the ClfA Standards and Guidance for an Archaeological Field Evaluation (ClfA 2020), the Guidelines for Archaeological Projects in Greater London (Historic England 2015b), the

Association of local government archaeological officers (ALGAO 2003) and the Regional Research Framework (Kent County Council).

The archaeological contractor is a ClfA Registered Archaeological Organisation (RAO).

4.9 Inductions & Tool-box Talks

The SSR will receive a copy of this WSI and all relevant documentation and will be responsible for communicating the archaeological requirements, the recording procedures and related health, safety and environmental issues to the project team and any sub-contractors via toolbox talks.

4.10 Documentation

All archaeological staff will be required to familiarise themselves with the following:

- This WSI;
- Company Health & Safety Policy;
- RAMS; and
- Site Recording Manual and site recording forms

4.11 Insurance

The archaeological contractor carries appropriate levels of public liability, employers' liability and professional liability insurances, details of which are available on request.

5 Reporting

5.1 Overview

A programme of post-fieldwork assessment and reporting will be initiated upon completion of archaeological fieldwork. This will include the preparation, processing, research, assessment, analysis, and investigative conservation necessary to prepare a stable project archive for long-term preservation in a usable form. This work will be conducted in accordance with current national guidelines (Historic England 2006).

The relevant results of the geoarchaeological investigations that will be undertaken by ARCA alongside the archaeological works governed by this WSI will be incorporated into the archaeological assessment and any subsequent archaeological analysis process, so that the final report can synthesise the relevant results of both disciplines.

5.2 Overall Project Reporting

Preliminary archive consolidation

Upon the completion of the fieldwork, the document archive will be checked, made internally consistent, ordered, indexed, and quantified, and a grouped and phased matrix of contexts will be prepared if applicable. Stable finds will be washed, marked and re-bagged. Unstable finds will be subject to remedial conservation. A full archive catalogue will be prepared.

The archive will conform to current national standards (Historic England, 2009).

Specialist reports

Any finds and samples will be sent to appropriate specialists for assessment, along with stratigraphic information and copies of relevant plans and sections. A list of the proposed specialists is provided in Table 3, below.

Specialist reports will include:

- An objective presentation of data (including tabulation of data in relation to site phasing and contexts).
- Interpretation and assessment of the archaeological significance of remains, in relation to other sites in the region; and

- Assessment of potential for analysis.

All reports will reference existing relevant, publicly accessible collections/type series, for descriptive and analytical purposes.

Processing, assessment and reporting of finds, samples, human remains, technological residues and waterlogged organic remains etc. will be undertaken in accordance with relevant national standards.

A copy of any palaeo-environmental investigation or industrial residue assessments/analyses will be sent to the Historic England Science Advisor.

5.3 Archive Report

The report will include as a minimum:

- Non-technical summary,
- Introduction – including a description of the scheme and its physical environment, the planning background, archaeological and historical background and aims and objectives of the project,
- Methods,
- A description of the results,
- An interpretation and discussion of the results,
- Conclusions – including consideration of the archaeological evidence from within the site set in its broader landscape setting, assessment of the methods employed and confidence rating in the results,
- References,
- Location plans tying the results into the Ordnance Survey national grid,
- Detail plans and sections,
- Plan showing both actual and, where possible, predicted archaeological deposits, in relation to previous site data (e.g., geophysical survey data),
- Plates,
- Appendices (e.g., specialist reports, survey reports),
- Details on composition and location of archive.
- Publication of the report via OASIS

5.4 Report Dissemination and Programme

A list of report recipients and a provisional reporting programme is presented in the table below. This may be subject to change.

Table 2: Report recipients and provisional programme

Item	Timescale	Format	Organisation
Archive report (1 st draft)	6 months after fieldwork completion	Digital file	Ferrovial Bemo JV
Archive report (2 nd draft)	2 weeks after comments	Digital file	Ferrovial Bemo JV, EHEA, KCCHCT
Archive report (final)	2 weeks after comments	1 bound copy (on request) PDF file (300 dpi)	Ferrovial Bemo JV, EHEA, KCCHCT
Digest of results	1 week after final issue	On-line submission	OASIS

5.5 Copyright and Confidentiality

Copyright of all documents will remain in the ownership of the archaeological contractor under the Copyright Designs and Patent Act, 1988, although they will grant an exclusive licence to the client in respect of this work, to reproduce all or part of any report, drawing or other documentation produced by them as part of this project. The archaeological contractor retains the right to be identified as the author in any such reports, drawings, or documentation.

Any other arrangements concerning copyright and confidentiality will be agreed with the client.

6 Archive Deposition

6.1 Recipient Museum

In the first instance, Ferrovia Bemo JV, KCCHCT and EHEA of the discovery of any significant artefacts. As Thurrock Museum are currently at capacity and are not accepting new deposits, and there is no museum available within Kent to accept a deposit, the site archive will be digitised and uploaded to the national digital repository held by the Archaeology Data Service (ADS) for permanent deposition in accordance with national guidelines (Ferguson & Murray 1997, Walker 1990, ADS 2011) as well as any guidance provided by the repository. If significant finds are recovered the archaeological contractor will liaise with Kent County Council and Essex Museums.

Copies of this report will be submitted to Kent and Essex County Councils and National Grid and will also be uploaded to the Archaeology Data Service (ADS) and OASIS websites.

6.2 Archive Preparation

On completion of the reporting stages of the project, the archives will be prepared for long-term storage, and in a format agreed in advance with the recipient museums, as required, and in accordance with national guidelines (Walker 1990; Museums & Galleries Commission 1992; Society of Museum Archaeologists 1995; Ferguson & Murray 1997; ClfA 2014e) and the guidelines for preparation and deposition of archaeological archives in Essex (Museums Essex).

6.3 Contents of Archive

The deposited archive will include all written, drawn, and photographic records, including copies of relevant reports, and, with the permission of landowners, any finds generated from the archaeological works.

Digital data

Digitally generated material will be supplied 'as is' (i.e., in its native format). Hand drawn / written material of A4 size or smaller will be submitted as scanned copies, at a resolution of 150dpi, and for all hand drawn material of larger than A4 size, at a resolution of 150dpi and at 300dpi.

Excluded items

The following will be excluded from the deposited archive:

- Items declared by a Coroner's Inquest to be "treasure."
- Finds which the legal owner(s) resolve to retain; and
- Finds which have been discarded.
- An appropriate record will be kept of any archive excluded from deposition.

7 Staffing

7.1 Management Responsibilities

The Project Manager will be responsible for:

- Assigning appropriate resources to enable the implementation of this WSI.
- Assessing and monitoring performance of staff, adherence to objectives, timetables, and budgets.
- Ensuring adherence to any external and internal management and monitoring systems set up as part of the project documentation.
- Communicating with all relevant parties and authorities, and
- Addressing, investigating, and resolving any enquiries or complaints from relevant parties and authorities.

The Senior Site Representative (SSR) will be responsible for:

- Implementing this WSI.
- Managing health, safety, and environmental issues.
- Ensuring that quality standards are achieved.
- Undertaking staff inductions, toolbox talks and conducting safety audits/reviews.
- Liaising with the Principal Contractor and the archaeological contractor's sub-contractors, and
- Maintaining and safeguarding the integrity of the archaeological archive.

The GIS Manager will be responsible for:

- Collating, securing the integrity and processing of site survey data;

7.2 Key Staff for the Evaluation

A summary of anticipated key staff is provided below.

Table 3: Key staff

Name	Post

7.3 Proposed Sub-contractors

Table 1: Table of proposed specialists

Specialism	Name
Artefacts	
Animal Bone	Matilda Holmes
Animal Bone (Worked)	Ian Riddler
Briquettage	Sarah Percival
CBM	Zoe Tomlinson
Clay Tobacco Pipe	Johanna Gray/ Mike Wood
Charcoal	Dana Challinor
Flint	Rebecca Devaney
Fired Clay	Zoe Tomlinson
Glass	Johanna Gray/ Mike Wood
Human Remains	Malin Holst
Leather	Quita Mould
Metalwork	Rebecca Sillwood
Pottery (Prehistoric)	Peter Chowne
Pottery (Roman)	Ian Rowlandson
Pottery (Post-Roman)	Luke Barber
PPR (Slag)	Lynne Keys
Stone (Tools)	Ruth Shaffrey
Stone (Burnt)	Raquel Margalef
Textiles	Dr Sue Harrington
Wood (Waterlogged, Dry)	Michael Bamforth
Palaeo-Environmental/Ecofacts/Soil Samples	
Soil - Bulk Environmental Samples	Val Fryer
Archaeo-botany	Dr C Spence
Geoarchaeology	ARCA
Geochemical Analysis	Chris Carey
Pollen Analysis	Chris Carey
Insect Analysis	Enid Allison
Conservation and X-Ray	
X-ray	York Archaeology
Conservation of artefacts	York Archaeology
Scientific Procedures	
Organic Residue Analysis	Julie Dunne
Petrography	Imogen Wood
Radiocarbon dating (C14)	SUERC

7.4 General Provisions

The archaeological contractor will undertake the works according to this WSI and any subsequent written variations. Wherever practicable, no variation from or changes to the WSI will occur except by prior consultation with the client and archaeological officer.

The archaeological contractor will immediately notify the client of any evidence of damage to the excavations.

This WSI is valid for a period of six months, after which it will be reviewed by the archaeological contractor and may need to be revised, updated, or amended to accommodate changes to policy, legislation, standards and guidance, good practice, changes in design associated with the project or following the results of on-going archaeological fieldwork.

8 Bibliography

Secondary sources:

AECOM	2023	National Grid Cable Tunnel Replacement Project Environmental Statement Volume VI Appendix 9.1: Historic Environment Desk Based Assessment	
ARCA	2024	TKRE Cable Replacement Project (Tilbury to Gravesend): geoarchaeological borehole study	University of Winchester
ARCA	2025	TKRE Cable Replacement Project (Tilbury to Gravesend): Geoarchaeological Watching Briefs on Geotechnical Boreholes and Shaft Excavation, Written Scheme of Investigation	University of Winchester
Chartered Institute for Archaeologists	2014a	Code of Approved Practice for The Regulation of Contractual Arrangements in Field Archaeology	CIfA, Reading
Chartered Institute for Archaeologists	2014b	Standards and Guidance for The Collection, Documentation, Conservation and Research of Archaeological Materials	CIfA, Reading
Chartered Institute for Archaeologists	2020a	Standard and guidance for archaeological field evaluations	CIfA, Reading
Chartered Institute for Archaeologists	2020b	Standard and Guidance for The Creation, Compilation, Transfer and Deposition of Archaeological Archives	CIfA, Reading
Chartered Institute for Archaeologists	2021	Regulations for Professional Conduct. Chartered Institute for Archaeologists	CIfA, Reading
Chartered Institute for Archaeologists	2022	Code of Conduct: Professional Ethics in Archaeology. Chartered Institute for Archaeologists	CIfA, Reading

Chartered Institute for Archaeologists	2023	Standard for archaeological excavation	CIfA, Reading
Chartered Institute for Archaeologists	2023	Universal guidance for archaeological excavation	CIfA, Reading
Chartered Institute for Archaeologists	2023	Standard for archaeological monitoring and recording	CIfA, Reading
Chartered Institute for Archaeologists	2023	Universal guidance for archaeological monitoring and recording	CIfA, Reading
Department for Culture, Media and Sport	1996	The Treasure Act 1996 Code of Practice (2nd Revision)	
Dobney, K., Hall, A., Kenward, H. and Milles, A.	1992	A Working Classification of Sample Types for Environmental Archaeology	Circaea 9.1 (1992 for 1991), pg. 24-26
Ferguson L.M. & Murray D.M.	1997	Archaeological Documentary Archives: Preparation, Curation and Storage, Paper 1,	Institute of Field Archaeologists' Manchester
Historic England	1991	Exploring Our Past	London
Historic England	1997	Historic England Archaeology Division Research Agenda (Unpublished draft)	London
Historic England	2008	Investigative Conservation: Guidance on How the Detailed Examination of Artefacts from Archaeological Sites Can Shed Light on Their Manufacture and Use	London
Historic England	2009	Management of Research Projects in the Historic Environment and MoRPHE Project Planning Note 3: Excavation	London
Historic England	2010	Waterlogged Wood: Guidelines on the Recovery, Sampling, Conservation and Curation of Waterlogged Wood.	London
Historic England	2011	Environmental Archaeology: A Guide to the Theory and Practice of Methods, from sampling and recovery to post excavation (second edition) (Centre for Archaeology Guidelines)	London

Historic England	2012	Waterlogged Organic Artefacts Guidelines on their Recovery, Analysis and Conservation	London
Historic England	2014	Human Bones from Archaeological Sites: A guideline for best practice for producing human osteological assessments and analytical reports	London
Historic England	2014b	Animal Bones and Archaeology: Guidelines for Best Practice.	London
Historic England	2015a	Geoarchaeology: Using earth sciences to understand the archaeological record	London
Historic England	2015b	Guidelines for Archaeological Projects in Greater London	Greater London Archaeological Advisory Service
HM Government	2008	The Planning Act 2008	https://www.legislation.gov.uk/ukpga/2008/29/section/14
Kent County Council	n.d.	Manual of Specifications Part B, Mitigation – Strip, Map and Sample Requirements	Kent County Council
McKinley J.I. & Roberts C.	1993	Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains	Institute of Field Archaeologists Technical Paper 13
Ministry of Business, Energy and Industrial Strategy	2021	Draft Overarching National Policy Statement for Energy (EN-1)	https://www.gov.uk/government/publications/national-planning-policy-framework--2
MOLA	2024	UAV-based LiDAR survey and ground-based earthwork survey at the Milton Rifle Range - Tilbury Tunnel project Gravesend, Gravesham, Kent	MOLA
Murphy, P.L. and Wiltshire, P.E.J.,	1994	A guide to sampling archaeological deposits for environmental analysis.	
Museums & Galleries Commission	1992	Standards in the Museum Care of Archaeological Collections	London
Network Archaeology	2020	Health, Safety and Welfare Policy	Network Archaeology

Society of Museum Archaeologists	1995	Towards an accessible archaeological archive - the transfer of archaeological archives to museums: guidelines for use in England, Northern Ireland, Scotland and Wales	Society for Museum Archaeologists, London
UKIC	2001	Excavated Artefacts and Conservation	United Kingdom Institute for Conservation, Conservation Guidelines No. 1, revised
Walker, K.	1990	Guidelines for the preparation of excavation archives for long-term storage.	United Kingdom Institute for Conservation, Archaeology Section (London)
Watkinson, D & Neal A. V	1998	First Aid for Finds	Rescue Publications, Hertford

Website sources:

ADS (Archaeological Data Service), 2011	Archaeology Data Service / Digital Antiquity - Guides to Good Practice	https://archaeologydataservice.ac.uk/
AHDS, undated	Digital Archives from Excavation and Fieldwork: Guide to Good Practice Second Edition	http://ads.ahds.ac.uk/project/goodguides/excavation/
BGS (British Geological Survey) 2023	Geology of Britain viewer	https://mapapps.bgs.ac.uk/geologyofbritain/home.html
British Geological Survey, undated	Geology of Britain viewer	http://mapapps.bgs.ac.uk/geologyofbritain/home.html
CifA	The Selection Toolkit for Archaeological Archives	http://cifa.heritech.net/selection-toolkit
Historic England	National Heritage List for England	https://historicengland.org.uk/listing/the-list/
Heritage Gateway	Heritage Gateway	https://www.heritagegateway.org.uk/gateway/
Kent County Council	The South East Research Framework	https://www.kent.gov.uk/leisure-and-community/history-and-heritage/south-east-research-framework
LandIS	Soilscapes Viewer	https://www.landis.org.uk/soilscapes/
Museums Essex	Archaeological Archives in Essex: Guidelines for preparation and deposition	https://museumsessexorg.files.wordpress.com/2022/03/museums-essex_archaeology-deposition-guidelines_2022.pdf
Natural England	Agricultural Land Classification maps	https://publications.naturalengland.org.uk/publication/130044?category=5954148537204736

APPENDIX A

WSI Receipt Confirmation

Project Name: GRAIN TO TILBURY CABLE TUNNEL REPLACEMENT PROJECT

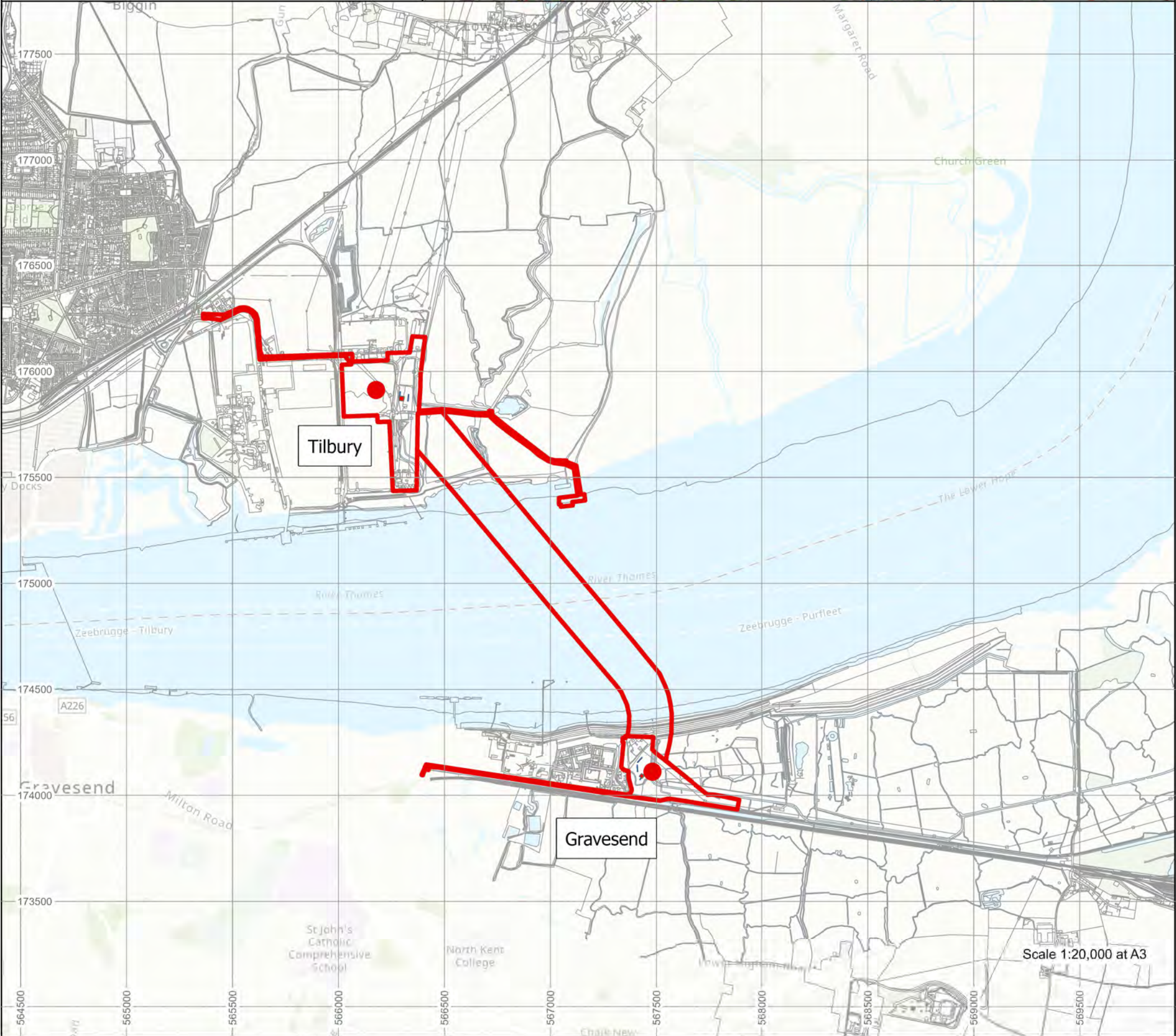
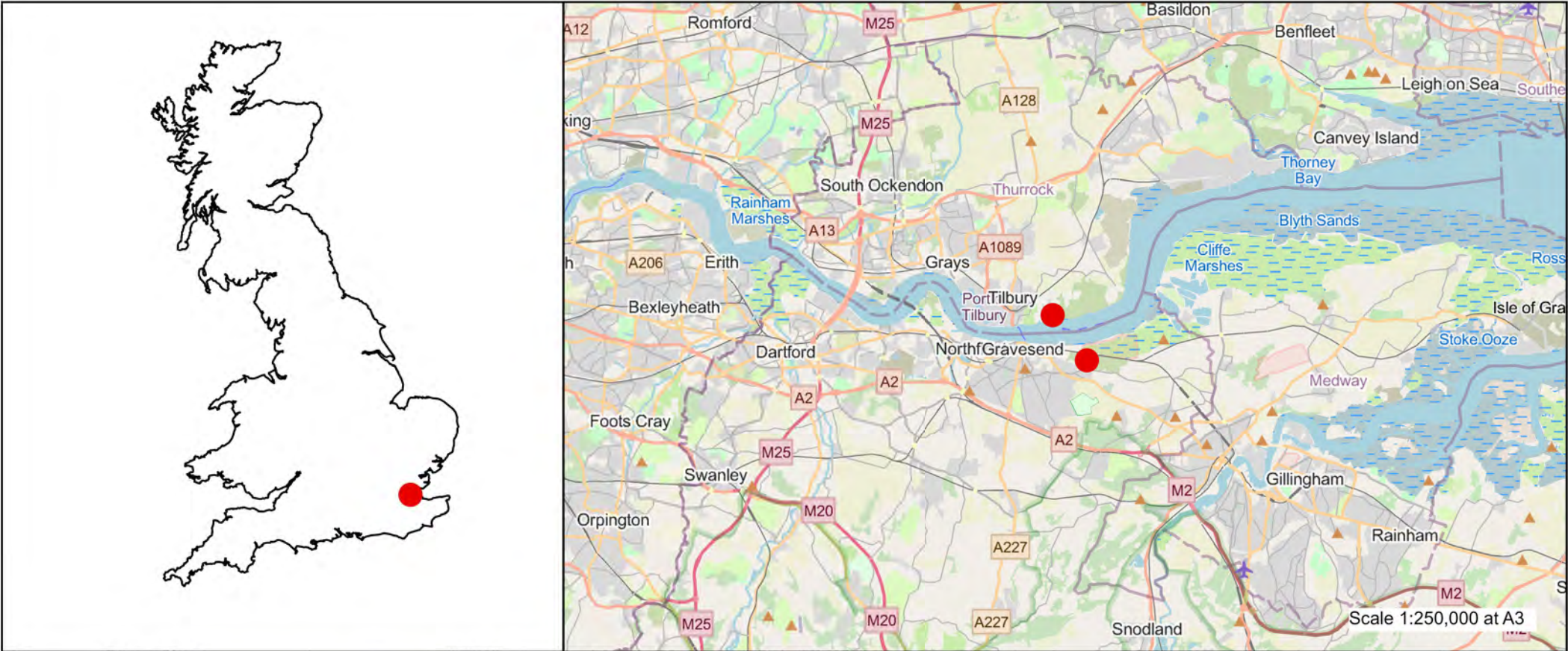
Project Code: GTT36

Staff confirmation of receipt of WSI

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APPENDIX B

Figures



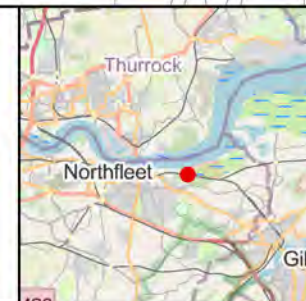
 Credits: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri Contains OS data © Crown copyright and database right 2025	● Site Locations □ Redline Boundary	Grain to Tilbury cable tunnel replacement project Figure 1 Site Location	 0 500m Site Code: GTT36 Drawn By: A. Gaunt Approved By: P. Townend Date: 03/04/2025 Ver: 1.00 Scale at A3: 1:20,000
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Credits: Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri
Contains OS data © Crown copyright and database right 2025

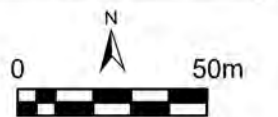
- Redline Boundary
- 2024 Trial Trench Locations
- Vertical Shaft Location
- New Infrastructure
- Construction Compound

Earthwork

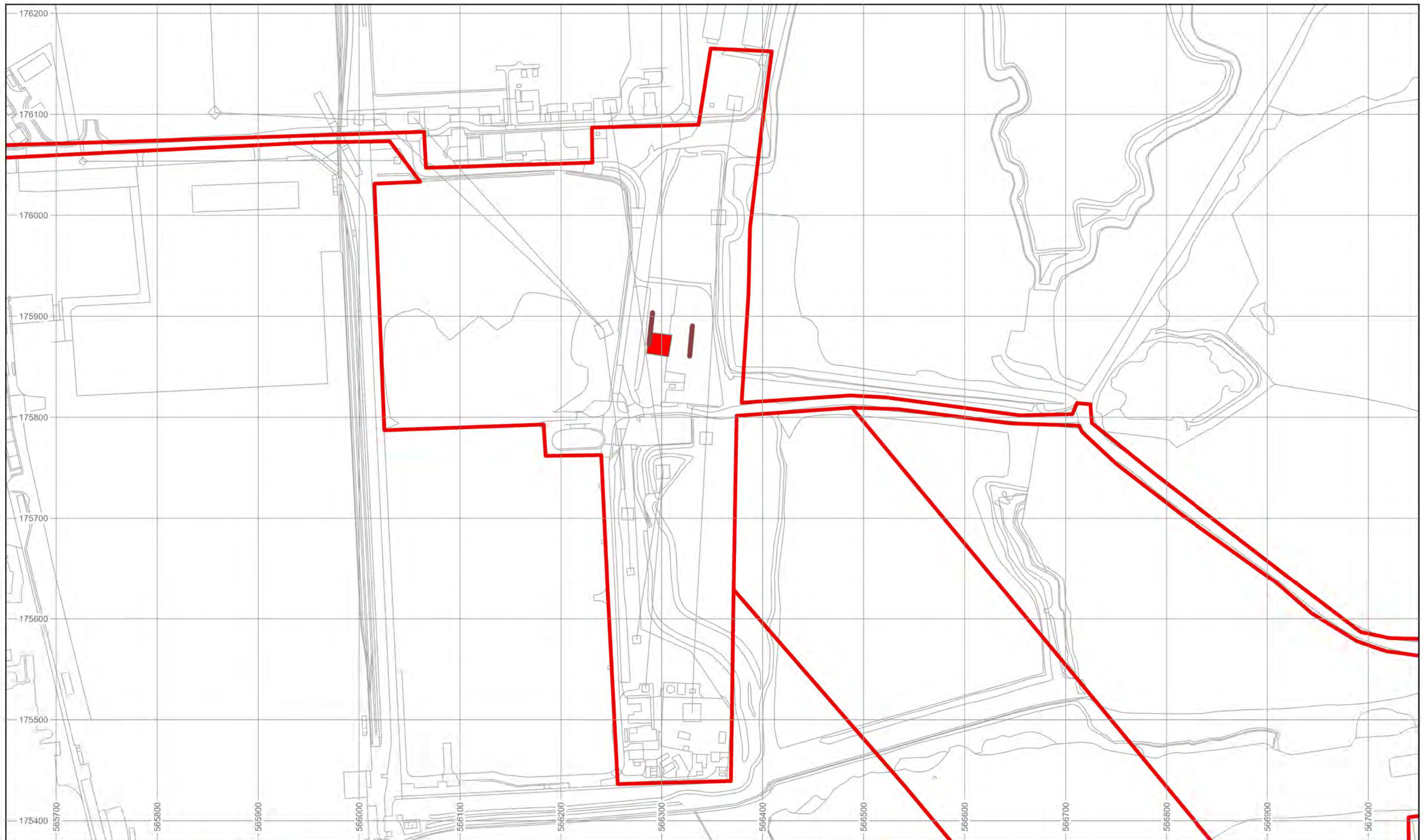


Grain to Tilbury cable
tunnel replacement
project

Figure 2
Gravesend Site Location

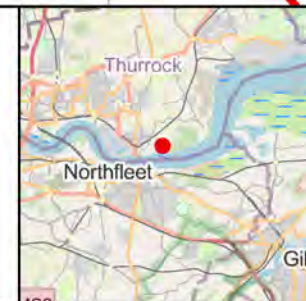


Site Code: GTT36
Drawn By: A. Gaunt
Approved By: P. Townend
Date: 03/04/2025
Ver: 1.00
Scale at A3: 1:2,000



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- Redline Boundary
- 2024 Trial Trench Locations
- Vertical Shaft Location



Grain to Tilbury cable
tunnel replacement
project

Figure 3
Tilbury Site Location



Site Code: GTT36
Drawn By: A. Gaunt
Approved By: P. Townend
Date: 03/04/2025
Ver: 1.00
Scale at A3: 1:3,500