

Bramford to Twinstead Reinforcement

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Version History

Date	Issue	Status	Description / Changes
April 2023	A	Final	For DCO submission
December 2023	B	Final	Updates to reflect completed trial trenching results and feedback received from third parties at Deadline 3 and 4.
January 2024	C	Final	Updated to address comments made by Interested Parties at Deadline 6.

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1. Introduction

1.1 Overview

- 1.1.1 National Grid Electricity Transmission plc (here on referred to as National Grid) has made an application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km (18 miles), the majority of which would follow the general alignment of the existing overhead line network.
- 1.1.2 This Outline Written Scheme of Investigation (OWSI) has been produced to support the application for development consent, with the accompanying Environmental Statement (ES) under the Planning Act 2008.

1.2 Purpose of this Report

- 1.2.1 The Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011) states in paragraph 5.8.21 that '*where appropriate, the IPC [Infrastructure Planning Commission] should impose requirements on a consent that such work is carried out in a timely manner in accordance with a WSI [Written Scheme of Investigation]...and has been agreed in writing with the relevant Local Authority (... and English Heritage [now Historic England]...) and that the completion of the exercise is properly secured*'.
- 1.2.2 The OWSI has been produced to fulfil this policy statement and is secured through Requirement 6 of the draft Development Consent Order (DCO) (**application document 3.1**). The scope of mitigation set out within this document is based on the outputs of the desk and field surveys including the trial trench investigations.
- 1.2.3 The OWSI builds on the Archaeological Framework Strategy (AFS) (**application document 7.9**), which provides the principles for the scope of pre-application archaeological desk based and field surveys and the proposed outline scope for post-application field surveys and archaeological mitigation strategy should development consent be granted.
- 1.2.4 The desk studies comprise Environmental Statement (ES) Appendix 8.1 Historic Environment Baseline (**application document 6.2.8**), Appendix 8.1 Annex A Historic Environment Gazetteer (**application document 6.3.8.1.1**), Appendix 8.2 Historic Environment Impact Assessment (**application document 6.3.8.2**) and Appendix 8.2 Annex A Hintlesham Hall Assessment (**application document 6.3.8.2.1**). These desk studies ran parallel to an aerial investigation and mapping (AIM) exercise (Essex Place Services, 2021), a palaeoenvironmental and geoenvironmental study (Headland Archaeology, 2023), a geophysical survey (Headland Archaeology, 2023) and archaeological trial trenching (Cotswold Archaeology, 2023).
- 1.2.5 The OWSI seeks to provide the parameters by which the mitigation will be undertaken, including providing initial details on where the mitigation would be applied and how this would be implemented, with reference to future Detailed Written Schemes of Investigations (DWSI). As stated in Requirement 6(2) '*no stage of the authorised development must commence until a DWSI of areas of archaeological interest relevant*

to that stage (if any) as identified within the OWSI or identified through evaluation work as set out in the OWSI has been submitted to and approved by the County Archaeologist’.

1.2.6 The OWSI builds on the results of the non-intrusive and intrusive archaeological investigations and desk-based assessment completed to date. This includes geophysical survey and trial trenching which has been carried out within the Order Limits, mainly in the underground cable sections.

1.2.7 The field surveys were completed in November 2023 and have focused on the large areas of ground disturbance and topsoil stripping (underground cable sections, the main site compound, the grid supply point (GSP) substation and the cable sealing end (CSE) compounds) and anomalies identified in the AIM and geophysical surveys. This OWSI has been updated with results of this work. The detailed methodologies of the future mitigation are not set out in this document but will be set out within DWSI based on the assumptions provided in the AFS. The DWSI will be provided to the Local Authority Advisors for approval in advance of each phase of field work.

1.3 Aims and Objectives

1.3.1 As noted within Section 1.3 of the AFS (**application document 7.9**), there are two overarching principles that apply to considering the approach to predicted effects on archaeological remains, these are to:

- Protect and retain *in situ* any high value archaeological remains that may be found; or
- Excavate (preservation by record) archaeological remains that may be found where retention *in situ* is not warranted.

1.3.2 The archaeological research objectives set out within the East of England Regional Research Framework available online at <https://researchframeworks.org/eoe/> will also be referenced where relevant as this report is updated.

1.3.3 Archaeological mitigation is not proposed in the following areas (as shown on Figure 1: Proposed Archaeological Mitigation):

- Locations where the 132kV or 400kV overhead lines are to be removed. The works in these areas will be limited to the pylon bases, which would have disturbed the soil during construction;
- Modification works to the existing 132kV or 400kV overhead line. There will be works to the pylons and conductors of the existing overhead lines and in some areas adding arcing horns to the existing pylons. It is not anticipated that these works would require ground disturbance;
- Area subject to a trenchless crossing. Although the drill pits are anticipated to be subject to archaeological mitigation, the line of the trenchless crossing would not be. This is because the trenchless crossings have been proposed in locations where the environment above the crossing is sensitive and the design has sought to avoid impacts to this area; and
- Environmental planting areas. Planting is proposed in a number of areas across the Order Limits including embedded planting around the CSE compounds and the GSP substation and additional mitigation planting to compensate for vegetation lost.

1.4 Definitions Used within this Report

1.4.1 The following definitions and terms are used within this report:

- National Grid: This refers to the organisation responsible for delivering the mitigation set out within the OWSI. National Grid will appoint a main works contractor and suitably qualified Archaeological Contractor to advise (on its behalf) on the delivery of the OWSI. National Grid will also employ an Archaeological Clerk of Works to coordinate the archaeological works on site and who will provide a link between National Grid, the Main Works Contractor and the Archaeological Contractor;
- UK Power Networks (UKPN): This refers to the existing Distribution Network Operator who is responsible for maintaining the lower voltage network within the region. UKPN or their appointed contractor may undertake the works to the 132kV overhead line removal or other works relating to its network pursuant to the DCO;
- Main Works Contractor: This refers to the contractor(s) appointed by National Grid and/or UKPN to deliver the construction works as defined within the DCO, including associated works;
- Archaeological Contractor: This refers to the contractor(s) appointed by National Grid to coordinate and implement the archaeological mitigation. The organisation will preferably be Registered Archaeological Organisation under the Chartered Institute for Archaeologists (CIfA); and
- Local Authority Advisors: This refers to the archaeological advisory services at Suffolk County Council (Suffolk County Council Archaeological Service) and Essex County Council (Essex Place Services), who advise the local planning authorities and the project on archaeological matters. The former cover archaeological advice for Babergh and Mid Suffolk District Councils in Suffolk and the latter covers Braintree District Council in Essex.

1.5 Structure of this Report

1.5.1 General considerations in relation to archaeological mitigation are set out in Chapter 2 of this report. The report is then structured into four types of mitigation, all of which have been identified within the AFS. The approaches set out in this report would be used to mitigate adverse effects on archaeological remains during the construction and operational phases, namely:

- Retention *in situ* (Chapter 3) – This is where known archaeological remains are preserved in place wherever possible;
- Targeted Archaeological Open Area Excavation (OAE) (Chapter 4) – This is a targeted programme of controlled, intrusive fieldwork with defined objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design;
- Archaeological Strip, Map and Sample (SMS) (Chapter 5) – This is where a suitably qualified archaeologist watches the removal of overburden material (the ‘strip’) ahead of the construction works. Any exposed features are ‘mapped’ and a ‘sample’ of the feature is excavated; and

- Archaeological Watching Brief (Chapter 6) – This is where a programme of observation (monitoring) and investigation is carried out during intrusive ground works as part of the construction programme. It allows for the preservation through record of archaeological deposits which may be damaged or destroyed during the normal course of construction works. Watching briefs can be proactive (archaeological-led or supervised machine strip) or reactive (periodic inspection of groundworks underway).

1.5.2 In addition, the OWSI sets out the mitigation proposals in relation to the geoarchaeological and palaeoenvironmental assessment (GPA). This is covered in Chapter 7 of the OWSI. Chapters 8 and 9 outline the work that would be undertaken post-excavation in terms of reporting and archiving.

2. General Considerations

2.1 Introduction

2.1.1 The Archaeological Contractor will be appointed by and contracted to National Grid, either directly or through the Main Works Contractor.

2.1.2 This chapter sets out the general considerations that will apply to all archaeological mitigation set out within the OWSI. It covers health and safety considerations and also communications with third parties.

2.2 Roles and Responsibilities

2.2.1 National Grid will be responsible for:

- Appointing a suitably qualified and experienced Archaeological Contractor, with experience in undertaking and delivering archaeological works on large-scale infrastructure projects and working in East Anglia and its varied geologies;
- For implementing the measures set out in the AFS and the OWSI;
- Producing DWSI for the archaeological mitigation work through the Archaeological Contractor;
- Maintaining regular communication with the nominated Archaeological Contractor during archaeological site work;
- Leading any necessary consultation with the Local Authority Advisors and any other relevant bodies, including notifications of any changes in key personnel within National Grid or its contractors.

2.2.2 The Local Authority Advisors (Suffolk County Council Archaeological Service for councils in Suffolk and Essex Place Services for councils in Essex) will be responsible for:

- Reviewing and approving the DWSI prepared by the Archaeological Contractor. The DWSI will contain adequate notice periods by which the Local Authority Advisors will be informed of the commencement of archaeological work in any one area;
- Where necessary, set briefs or specifications to guide the DWSI, where warranted;
- Monitoring the archaeological fieldwork to confirm that the DWSI is being adhered to. In this capacity they will 'sign-off' areas that have been completed and the aims of the DWSI fulfilled in terms of the fieldwork carried out; and
- Reviewing and approving post-excavation documents.

2.3 Archaeological Contractor Requirements

2.3.1 The Archaeological Contractor will be an experienced professional body competent to carry out multiple archaeological interventions of different types across a large-scale development. As some of these interventions will be simultaneous, the organisation will need access to sufficient qualified staff to fulfil all the obligations in this OWSI.

- 2.3.2 The Archaeological Contractor will design the archaeological fieldwork in DWSI, which will be in accordance with the OWSI and will carry out the mitigation works to the relevant ClfA guidance (ClfA 2012, 2020a, 2020b, 2023a, 2023b, 2023c and 2023d).
- 2.3.3 The Archaeological Contractor's site staff will have passed all the relevant construction industry certifications and staff will wear appropriate personal protective equipment for the task in hand and in accordance with National Grid policy.
- 2.3.4 National Grid will provide the Local Authority Advisors with details of the Archaeological Contractor appointed for the project.

2.4 Detailed Written Schemes of Investigation

2.4.1 Requirement 6: Archaeology of the draft DCO (**application document 3.1**) states:

'6.(1) The authorised development must be undertaken in accordance with the AFS and the OWSI.

6.(2) No stage of the authorised development must commence until a Detailed Written Scheme of Investigation of areas of archaeological interest relevant to that stage (if any) as identified within the OWSI or identified through evaluation work as set out in the OWSI has been submitted to and approved by the County Archaeologist.

6.(3) Any detailed archaeological works must be carried out in accordance with the approved DWSI for that stage.

6.(4) The DWSI must be in accordance with the OWSI and must identify areas where archaeological works are required and the measures to be taken to protect, record or preserve any significant archaeological remains that may be found and must include an implementation timetable.'

2.4.2 The DWSI will include the following, along with further specific requirements set out in Chapters 4 to 7:

- Reference to relevant national and local professional guidance;
- Reference the commitments to archaeological mitigation as set out in the project Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**);
- Preparation of regular updates on fieldwork and post-excavation to National Grid for forwarding to the Local Authority Advisors;
- Provision for site monitoring visits by the Local Authority Advisors;
- An assessment of significance and research questions;
- The programme of methodology of site investigation and recording;
- The programme for post-investigation assessment;
- Provision to be made for analysis of the site investigation and recording;
- Provision to be made for archive deposition of the analysis and records of the site investigation;
- Nomination of a competent person or persons/organisation to undertake the works set out within DWSI either in the field or at post-excavation stage, to include

management, environmental, geoarchaeological and artefactual specialists who will have regional experience;

- An implementation timetable for fieldwork; and
- Delivery timelines for the post-excavation reporting, in line with the wording in Section 8 of this OWSI.

2.4.3 The DWSI will include reference to the archaeological research objectives set out within the East of England Regional Research Framework where relevant.

2.5 Health and Safety

2.5.1 The project will be managed in accordance with all relevant health and safety legislation, including the Health and Safety at Work Act, 1974, Health and Safety Policy and the Workplace (Health, Safety and Welfare) Regulations 1992 (as amended).

2.5.2 The Archaeological Contractor will need to provide health and safety documentation demonstrating how they would safely deliver the mitigation work in accordance with National Grid's own policies. This will include but would not be limited to the production of task method statements and risk assessments. A method statement will be completed by staff prior to undertaking site tasks and will be compiled on a daily basis and updated as and when there is a change to the specified task.

2.5.3 The Workplace (Health, Safety and Welfare) Regulations 1992 (as amended) require the following welfare requirements which will be met by the Archaeological Contractor:

'20. – (1) Suitable and sufficient sanitary conveniences shall be provided at readily accessible places.

21. – (1) Suitable and sufficient washing facilities, including showers if required by the nature of the work for health reasons, shall be provided at readily accessible places.

22. – (1) An adequate supply of wholesome drinking water shall be provided for all persons at work in the workplace.

23. – (1) Suitable and sufficient accommodation shall be provided:

(a) for the clothing of any person at work which is not being worn during working hours; and

(b) for special clothing which is worn by any person at work but which is not taken home.

25. – (1) Suitable and sufficient rest facilities shall be provided at readily accessible places.'

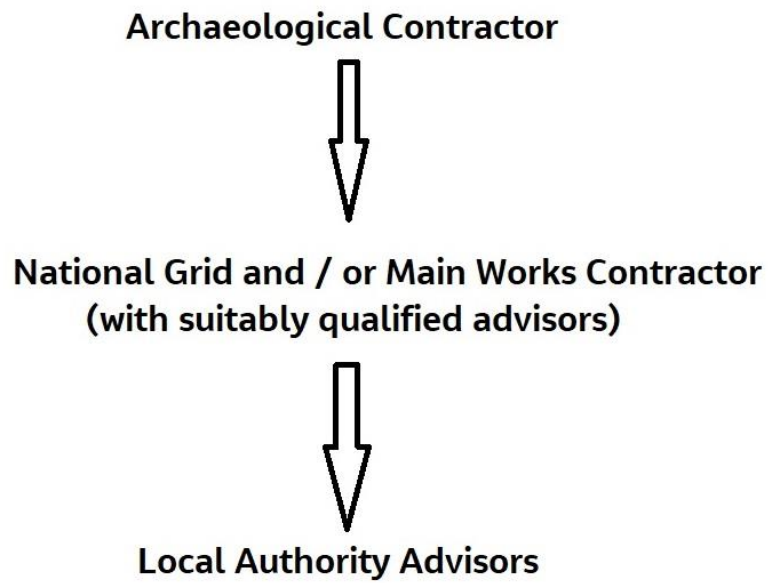
2.5.4 In addition, a first aid kit will always be available on site with an accompanying accident book.

2.6 Communications

2.6.1 The chain for communicating information regarding the work set out within the OWSI will be as set out in Illustration 2.1. This will be adhered to during all phases of the project, from site set up, to onsite work and post-excavation phases.

2.6.2 Frequency of communication between all parties will depend on the nature and stage of the archaeological mitigation being undertaken.

Illustration 2.1 – Communication Chain



Weekly Reporting

2.6.3

The Archaeological Contractor will provide weekly reports to National Grid and the Main Works Contractor on progress with project design, fieldwork preparation, implementation, post-excavation analysis and processing and reporting.

3. Preservation *in situ*

3.1 Introduction

3.1.1 The retention of archaeological remains, otherwise known as ‘preservation *in situ*’ is the term used to refer to the conservation of an archaeological asset in its original location. It can describe situations when a site is preserved as part of a project, for example by the following measures:

- Avoidance through routeing studies so that the project components are located away from known archaeological features and remains;
- Avoidance of the archaeological remains through a minor variation (within either the Order Limits or the Limits of Deviation) in the proposed working area;
- Use of trenchless (non-opencut) techniques, where practicable; and
- Protection of subsoil within the working area (e.g. trackway panels, topsoil retention, or other suitable technique).

3.1.2 The project has already avoided known heritage features as far as reasonably practicable, including scheduled monuments and listed buildings, as part of the options appraisal process. Further details on the options appraisal process and the heritage assets and features that were considerations can be found in ES Chapter 3: Alternatives Considered (**application document 6.2.3**).

3.1.3 Preservation *in situ* has been achieved through amendments to the alignment and through the development and refinement of the Order Limits to avoid known features identified during the archaeological surveys. No areas of preservation *in situ* are proposed based on the results of the completed trial trench investigations.

3.2 Locations

3.2.1 Given the results of the trial trenching (completed in November 2023) there are no locations where preservation *in situ* is proposed within the Order Limits.

4. Targeted Archaeological Open Area Excavation

4.1 Introduction

4.1.1 The Chartered Institute for Archaeologists (CIfA) define archaeological excavation as ‘...a programme of intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site.’ (CIfA, 2023a).

4.1.2 The aim of Archaeological Open Area Excavation (OAE) is to preserve by record archaeological remains that may be altered, damaged or destroyed by construction works. This method of mitigation is applied in areas of the project where archaeological trial trenching (ATT) has located the presence of important archaeological remains warranting excavation. It is undertaken in advance of construction prior to the Main Works Contractor occupying the area in question.

4.1.3 Archaeological OAE is a targeted programme of controlled, intrusive fieldwork with defined objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design. The principal difference between this approach to mitigation and archaeological SMS (described in Chapter 5) is generally in the timing of implementation and the fixed, pre-defined limits within which the excavation is carried out.

4.1.4 Targeted Archaeological OAE mitigates construction impacts on known archaeological remains within a given area, for example remains pre-determined by ATT. Hand-excavation, recording and interpretation are used to provide preservation by record. More detailed objectives are:

- To identify, fully investigate, and record any such archaeological remains to the extent possible by the methods put forward in this OWSI;
- To determine (so far as possible) the stratigraphic sequence and dating of the deposits or features identified; and
- To establish the economic and environmental context, and the content of investigated archaeological deposits and features.

4.2 Locations

4.2.1 Currently, targeted Archaeological OAE is proposed in two locations within the Order Limits as shown on Figure 1: Proposed Archaeological Mitigation:

- Section G: South of Workhouse Green, where evidence from the trenched evaluation indicates an area of Roman activity; and
- Section G: Either side of Moat Lane west of Lamarsh, where intensive cropmark activity located in the HER has been tested by trench evaluation and proven to contain Iron Age and Roman archaeology.

4.3 Detailed Written Scheme of Investigation

4.3.1 The Archaeological Contractor will produce DWSI for areas of archaeology requiring targeted archaeological OAE. These will be issued to the Local Authority Advisors for comment and approval prior to the commencement of fieldwork. The DWSI will use methodological parameters regarding the methods of overburden removal, hand excavation, environmental sampling etc set out below.

4.3.2 The excavation and recording policies set out below are in line with good practice and adhere to the ClfA universal guidance for archaeological excavation (ClfA, 2023b).

- Overburden Removal – the method of overburden removal will be detailed in the Archaeological Contractor’s DWSI, which will include the provision for separation of topsoil and subsoil during excavation;
- Hand Excavation Policy – the Archaeological Contractor’s DWSI will stipulate a strategy for identifying archaeological remains and how they will carry out archaeological hand-excavation of the same in accordance with an agreed sampling strategy;
- Archaeological Recording – the Archaeological Contractor’s DWSI will contain detailed methodologies for the production of hand-written and drawn records and photography in accordance with current professional guidance and good practice;
- Environmental Sampling Policy – the Archaeological Contractor’s DWSI will contain detailed methodologies for the collection of soil samples, the treatment of waterlogged remains and the most appropriate methods of scientific dating. The Archaeological Contractor’s DWSI will also detail the proposed treatment of human remains, as well as stipulating the need to obtain a project-wide burial licence from the Ministry of Justice prior to the commencement of fieldwork; and
- Artefact Policies – the retrieval, conservation and analysis of archaeological artefacts will be detailed in the Archaeological Contractor’s DWSI. This will include the treatment of small finds and treasure.

5. Archaeological Strip, Map and Sample Excavation

5.1 Introduction

5.1.1 The aim of the Strip Map and Sample (SMS) excavation is to preserve the archaeological remains by record in areas of known archaeology and archaeological potential identified from ATT within the construction footprint. This will assist in defining the true extent of archaeological remains that will then be subject to focussed hand-excavation strategies.

5.1.2 SMS excavation is a form of excavation usually tied in with the Main Works Contractor's overburden removal at the outset of the construction phase (and prior to the main construction activities) yet is done under controlled archaeological conditions in the relevant areas. This method of mitigation is typically applied where large areas of land require archaeological mitigation within the construction programme. Areas of SMS excavation can lead to OAE where the archaeological resource warrants its implementation.

5.1.3 This method is undertaken across areas with a moderate to high archaeological potential and with the Main Works Contractor machinery under immediate direction from an archaeological banksman.

5.1.4 More detailed objectives are to:

- Remove the overburden across defined mitigation areas agreed with the Local Authority Advisors under archaeological supervision by the methods put forward in this OWSI;
- Identify any archaeological remains present and define their extents in relation to the Order Limits, Limits of Deviation and construction footprints; and
- Quantify the archaeological remains within the Order Limits, thereby defining where targeted excavation is necessary to achieve the necessary level of preservation by record.

5.1.5 SMS excavation is proposed where impacts from the project would likely affect either a known area of more dispersed archaeological remains where no defined concentrations of features have been identified, or an area where a moderate risk of archaeological remains has been assessed but where ATT has not been able to confirm their full extent. In this regard, SMS excavation differs from OAE in that the latter is focussed on well-defined areas of important archaeology identified from archaeological trial trenching.

5.1.6 There may also be discrete areas of SMS within the overhead line sections, for example if the pylon and crane bases are in archaeologically sensitive areas. These areas will be agreed with the Local Authority Advisors.

5.2 Locations

5.2.1 SMS excavation will be applied in areas of the project where the presence of archaeological remains warrant preservation by record and the project is anticipated to require topsoil removal. Areas identified for SMS excavation are shown on Figure 1: Proposed Archaeological Mitigation and include:

- Section E: area of SMS just to the east of the River Box adjacent (north-east of) to the approximate HDD pits
- Section F: Leavenheath/Assington, immediately to the north of Leavenheath village in the location of the proposed construction compound where potentially prehistoric remains were identified during ATT, including a cremation burial; and
- Section G: Stour Valley, to the east of St Edmund's Hill, where kiln remains were found during ATT.

5.3 Detailed Written Scheme of Investigation

- 5.3.1 The Archaeological Contractor will produce a DWSI for areas of archaeology requiring SMS mitigation. These will be submitted to the Local Authority Advisors for comment and approval prior to the commencement of earthworks. The DWSI will use the methodological parameters set out above (Section 4.3) and supplement these where necessary, with location or asset-specific approaches.
- 5.3.2 The DWSI for each SMS area will have contingency included that would allow time to develop the SMS into OAE should the archaeological resource warrant it, or scale-back or stop the SMS altogether given no archaeological remains. The DWSI will include the Local Authority Advisor responsibility of agreeing 'sign-off' of particular SMS areas.

6. Archaeological Watching Brief

6.1 Introduction

- 6.1.1 A watching brief (also known as Archaeological Monitoring and Recording) is defined here as the monitoring of groundworks undertaken by the Main Works Contractor during overburden stripping.
- 6.1.2 Watching brief areas includes coverage of the excavation for underground cable trenches, pylon bases, temporary access routes, permanent access routes, laydown areas and construction compounds.
- 6.1.3 The aims of the archaeological watching brief are to mitigate the impact of construction on archaeological remains by investigation and recording. More detailed objectives are:
- To provide an appropriate procedure for the identification and treatment of any archaeological remains discovered during construction;
 - To investigate any archaeological remains present and define their extent and character in relation to the working area;
 - To determine (so far as possible) the stratigraphic sequence and dating of the deposits or features identified; and
- 6.1.4 Where unexpected significant archaeological remains are identified during the archaeological watching brief, groundworks will stop at that location and the Local Authority Advisor will be notified immediately. Amendments to the DWSI may be required and could include additional mitigation, such as the implementation of an OAE or SMS as described in Chapter 4 and 5. The updated DWSI and mitigation strategy will be approved by the Local Authority Advisor prior to the groundworks recommencing and the archaeological fieldwork will need to be completed to the satisfaction of the Local Authority Advisor before main construction works can commence at that location.

6.2 Locations

- 6.2.1 Watching brief will be implemented in areas of topsoil removal, where ground has not previously been disturbed, along the sections of underground cables and new overhead lines (construction of new pylon bases and new stone temporary access routes) where archaeological remains are present, or potentially present, with the exception of those areas where preservation *in situ*, OAE or SMS will be carried out, or areas within the cable undergrounding sections where the ATT has demonstrated that there is no archaeological interest. These areas are shown on Figure 1: Proposed Archaeological Mitigation.
- 6.2.2 An area of proposed watching brief mitigation is also proposed at the grid supply point (GSP) substation (Figure 1: Proposed Archaeological Mitigation), where some undated archaeological features were located during ATT.

6.3 Detailed Written Scheme of Investigation

- 6.3.1 The Archaeological Contractor will produce a DWSI for areas of archaeology requiring a watching brief. These will be submitted to the Local Authority Advisors for comment and approval prior to the commencement of earthworks. The DWSI will use the

methodological parameters set out above (Section 4.3) and supplement these where necessary, with location or asset-specific approaches and will also adhere to the ClfA universal guidance for archaeological monitoring and recording (ClfA, 2023d).

7. Geoarchaeological and Palaeoenvironmental Investigation and Mitigation

7.1 Introduction

- 7.1.1 A geoarchaeological and palaeoenvironmental assessment (GPA) has been undertaken using desk-based data and the results of ground investigation data undertaken on the project. The GPA was undertaken by geoarchaeological specialists using a wide range of approaches that develop an understanding of the geological, geographic and environmental contributions to site and landscape formation.
- 7.1.2 Geoarchaeological and palaeoenvironmental mitigation would be applied where the desk-based work, watching brief and deposit modelling undertaken to date, together with the detailed design, indicate that potential geoarchaeological or palaeoenvironmental deposits would be negatively affected. More detailed objectives are to:
- Retrieve stratigraphic information to inform a detailed deposit model of the mitigation locations, either through exploratory boreholes or trial pit excavation;
 - Retrieve organic material for environmental processing and scientific dating;
 - Establish a record and interpretation of past environments; and
 - Disseminate the results through deposition of an ordered archive, the deposition of a detailed report(s) at the regional Historic Environment Record and reporting at a level of detail appropriate to the significance of the results.
- 7.1.3 Geoarchaeological and palaeoenvironmental mitigation is separate to the collection of soil samples during Archaeological OAE, SMS and watching brief and may be aligned with ongoing geotechnical investigations.

7.2 Locations

- 7.2.1 The GPA has identified that geoarchaeological and palaeoenvironmental remains are most likely to be encountered within the river valleys crossed by the project. As the overhead line sections would have a small construction footprint (limited to pylon bases set back from the floodplain), the GPA has identified that the mitigation should be focused on the main river valleys which would be crossed by underground cables.
- 7.2.2 The trenchless crossings beneath the River Box and the River Stour have the potential to affect deposits of potentially high geoarchaeological significance and therefore the geoarchaeological and palaeoenvironmental mitigation will be undertaken at the following locations shown on Figure 1: Proposed Archaeological Mitigation:
- Section E: River Box (within the drill pits for the trenchless crossing): The archaeological watching brief (Oxford Archaeology, 2013) identified peat deposits at depths of 1.5m - 3.0m below ground level (bgl) at the River Box; and
 - Section G: River Stour (within the drill pits for the trenchless crossing): The existing borehole record within the Stour Valley indicates the presence of complex deposits of potentially high geoarchaeological significance. Peat deposits have been found at

1.7m - 1.9m bgl during archaeological monitoring (Oxford Archaeology, 2013). The available data has allowed a very complex depositional sequence to be identified in the River Stour valley (Headland Archaeology, 2023).

- 7.2.1 No further locations are anticipated as the remaining construction works are unlikely to disturb floodplain deposits with the potential for geoarchaeological and palaeoenvironmental remains.
- 7.2.2 The Stour valley has been modelled accurately with the results of project-wide geotechnical ground investigation. The mitigation at the River Stour will be limited to retrieving soil samples for environmental analysis during excavation of the trenchless crossing pits during construction.
- 7.2.3 As there has currently been limited ground investigations at the River Box, further data gathering is proposed at the trenchless crossing send and receive locations either side of the River Box as part of the future ground investigations that would be undertaken during detailed design. Additional data will be gathered during the ground investigations to inform an update to the deposit model as well as the retrieval of samples suitable for scientific analysis.

7.3 Detailed Written Scheme of Investigation

- 7.3.1 The Archaeological Contractor will produce a DWSI for the Stour Valley and River Box for the geoarchaeological mitigation. This will be submitted to the Local Authority Advisors for comment and approval prior to implementation.

8. Dissemination

8.1 Introduction

- 8.1.1 A single Post-Excavation Assessment (PXA) Report and an Updated Project Design (UPD), as defined in the Management of Research Projects in the Historic Environment (MoRPHE) (Historic England, 2015b) will be produced by the Archaeological Contractor on completion of the mitigation fieldwork.
- 8.1.2 The Local Authority Advisors will be consulted during PXA and UPD production, and will approve the documents for use.
- 8.1.3 Together with the PXA Report and UPD, the Archaeological Contractor will submit a statement of resources required to complete the works recommended in the UPD.
- 8.1.4 An Archive Report will be produced based on the scope and schedules in the PXA Report and UPD, as detailed above. This will be submitted to the Local Authority Advisors for approval.

8.2 Post-Excavation Assessment Report

- 8.2.1 The results of the archaeological studies will be summarised in the PXA Report and analytical programmes. The PXA Report must be completed for all stages within 12 months from the end of construction. The PXA Report will be issued to the Local Authority Advisors for review and approval.
- 8.2.2 The PXA Report will be prepared in line with the principles set out in Appendix 1 in MoRPHE (Historic England, 2015b), and will include as a minimum:
 - A non-technical summary;
 - Site code and project number;
 - Planning Reference number and Historic Environmental Record event codes;
 - Dates when the fieldwork took place;
 - A description of the background to, and circumstances of the work;
 - A brief description of the previously known archaeology of each site;
 - A description of the methodology used;
 - An objective description of the results ('factual data' in Appendix 1 of MoRPHE (Historic England, 2015b));
 - A specialist assessment of each category of data ('statement of potential' in Appendix 1; P2 of MoRPHE);
 - Details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive;
 - An assessment of the archaeological significance of the deposits identified, in relation to other sites in the region;
 - A conclusion with recommendations for further post-excavation work, if required;

- A statement of the storage and curation requirements for each category of data;
- General and detailed plans at appropriate scales, showing the location of each site accurately positioned on an up-to-date Ordnance Survey base;
- Plans of each site at appropriate scales, with keys and north points;
- Detailed plans and sections of individual features where necessary;
- All scales used on any drawings will be standard scales such as would appear on a normal scale ruler;
- A copy of the specification and/or project design; and
- References and bibliography of all sources used.

8.2.3 Fully geo-referenced data files will form part of the final, approved PXA Report submitted to the Local Authority Advisors. These will include digital vector plans of excavation areas, recorded archaeological features and excavated sections, which should be provided as geo-referenced (EPSG:27700) ESRI shape or QGIS GPK files. These files should have the relevant attributes attached to them, including:

- HER Parish Code;
- Primary Reference Number (e.g. Section Number, Context Number, Sample Number, Small Find/Registered Artefact Number, etc);
- Group or Feature Number; and
- Archaeological Period and Phases.

8.3 Updated Project Design

8.3.1 The UPD will set out the further analytical and archiving works required (if any) to achieve the potential identified in the PXA Report and will make a recommendation as to the scope of further reporting works, including the form of any publication required.

8.3.2 The UPD will make provision for the analysis, publication, timeline and dissemination of results, together with archive deposition and will be completed alongside the PXA Report.

8.3.3 The programme, task list and table of resources required to complete the works in the UPD will be accompanied by a costed task/resource table attached as an Appendix. This will include costs for publication.

8.3.4 The UPD will include details relating to the publication of the results, whether this is in a regional archaeological journal or monograph.

8.4 Archive Report

8.4.1 Where the conclusion of the post-fieldwork assessment is that detailed analysis is required, it will proceed in line with the principles set out in Section 3.7 of MoRPHE (Historic England, 2015b). The post-fieldwork analysis will only begin following approval of the UPD in consultation with the Local Authority Advisors and the output will be the Archive Report(s) and a research archive, which will be produced in accordance with Section 3.7 and Appendix 1 of MoRPHE respectively, along with relevant reports for publication.

- 8.4.2 The Archive Report will be produced in line with the PXA Report and UPD and the scope set out therein. It will be produced within the timescales specified in the programme provided in the approved UPD.
- 8.4.3 The Archaeological Contractor will allow for updating the Local Authority Advisors during the post-fieldwork analysis phase. Where necessary, National Grid and the Archaeological Contractor can arrange meetings with the Local Authority Advisors to discuss the results in matters arising for the production of the Archive Report.
- 8.4.4 The post-fieldwork analysis will consist of detailed work on the stratigraphy, artefacts and environmental data and will lead to the production of fully synthetic and integrated report texts.
- 8.4.5 The draft Archive Report (marked 'Draft') will be submitted to the Local Authority Advisors for review by National Grid. In finalising the report the Archaeological Contractor will consider any comments made by the Local Authority Advisors. The final report will be delivered to the Local Authority Advisors in electronic .pdf format, all inclusive of figures and other appendices.

8.5 Publication Report

- 8.5.1 In line with paragraph 5.8.20 in NPS EN-1 (DECC, 2011), the developer is required to publish the results of the archaeological work. This may range from technical volumes (thematic or period-based) to popular booklets, and could include temporary exhibitions, work with schools or web-based initiatives. The East Anglian Archaeology monograph series would be considered as a potential route for publication.
- 8.5.2 Where publication of a report in an academic journal or as a monograph has been recommended in the Archive Report and agreed with the Local Authority Advisors, this should be accepted for publication within a timescale specified on the programme within the final UPD and agreed in advance with the Local Authority Advisors. The publication draft will be issued to the Local Authority Advisors for review prior to approval.
- 8.5.3 One digital copy of the draft Publication Report will be submitted to the local authority advisor for information. In finalising the report, the Archaeological Contractor will consider any comments made by the Local Authority Advisors received within ten working days.

8.6 Outreach

- 8.6.1 Avenues for community outreach will be explored during the project development and may comprise activities such as:
- Presentations for local community groups;
 - Temporary exhibitions;
 - Work with schools; and
 - Web-based (including social media) initiatives.
- 8.6.2 The need for, and scope of, such outreach activity will depend upon the ultimate scope of mitigation carried out and will be discussed with the Local Authority Advisors.
- 8.6.3 Outreach opportunities will be included in the DWSI.

9. Archiving

- 9.1.1 The PXA Report and UPD will not be approved until project archiving has been secured. This includes the provision for digital archives, which will be part of the archive policy in the Archaeological Contractor's DWSI. This may include archiving with the Archaeological Data Service or similar provider. The Archaeological Contractor will complete archive deposition forms for each local authority area.
- 9.1.2 The Archaeological Contractor will integrate the archives from all project archaeological mitigation into a single archive.
- 9.1.3 Archive consolidation will be undertaken following the conclusion of fieldwork. The site record will be checked, cross-referenced, and indexed as necessary.
- 9.1.4 The archive (finds and records) will be retained by the Archaeological Contractor before being deposited with the appropriate repository. A security copy of the archive will be made in an appropriate medium. All archive preparation will be undertaken in accordance with guidelines published by the ClfA on behalf of the Archaeological Archives Forum (ClfA, 2012).

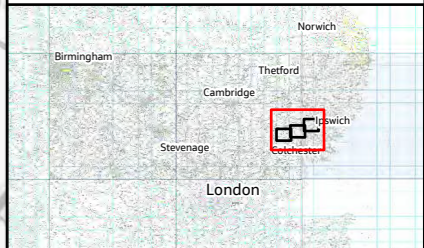
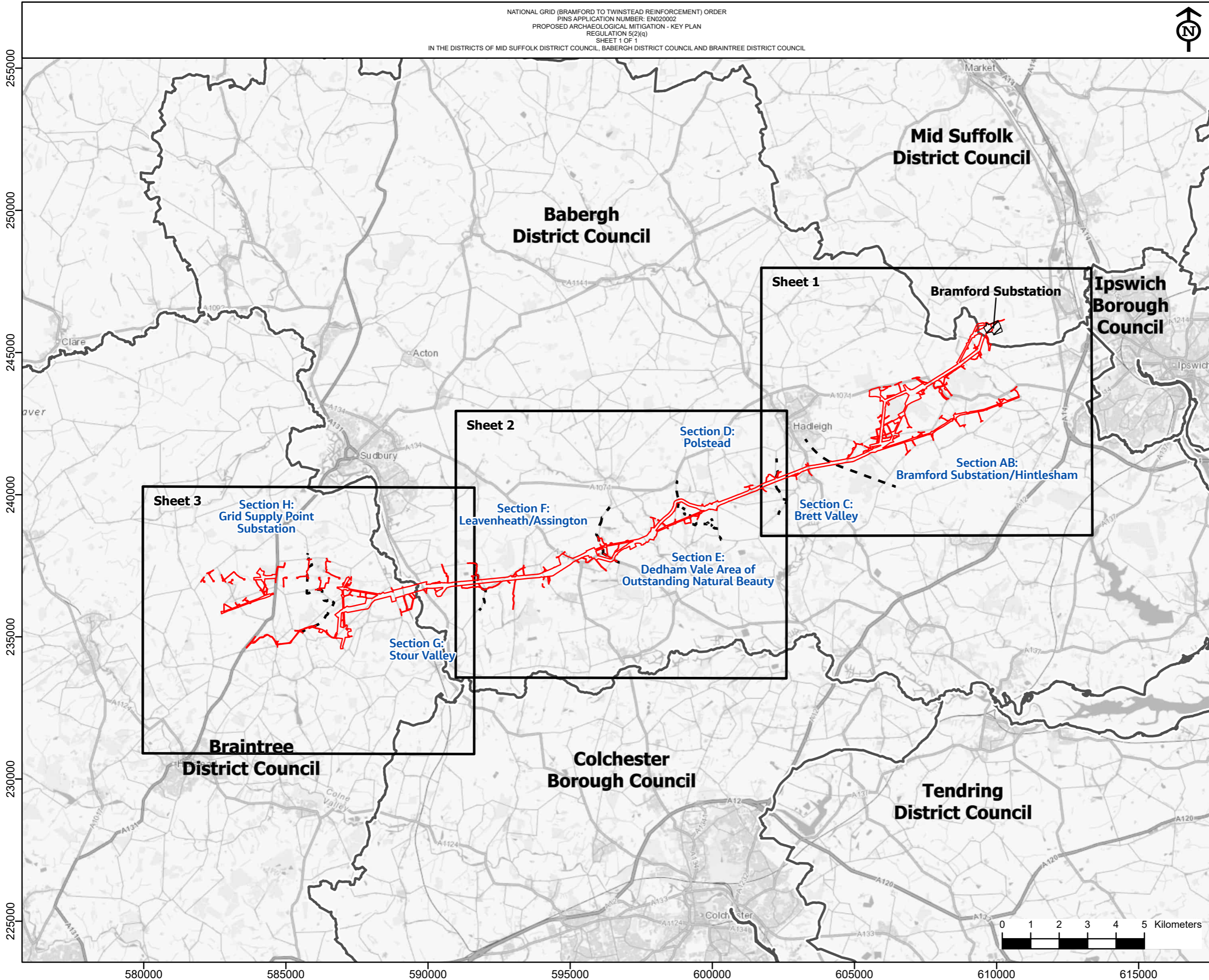
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Legend

- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation



NG Investment No. ETX/01142

B	11/2023	Rev B for Deadline 5	PM	JG	CW
A	04/2023	Rev A for DCO Application	PM	JG	CW
ISSUE	DATE	REMARKS	DRWN	CHKD	APPD

PROJECT: Bramford to Twinstead Reinforcement

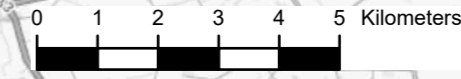


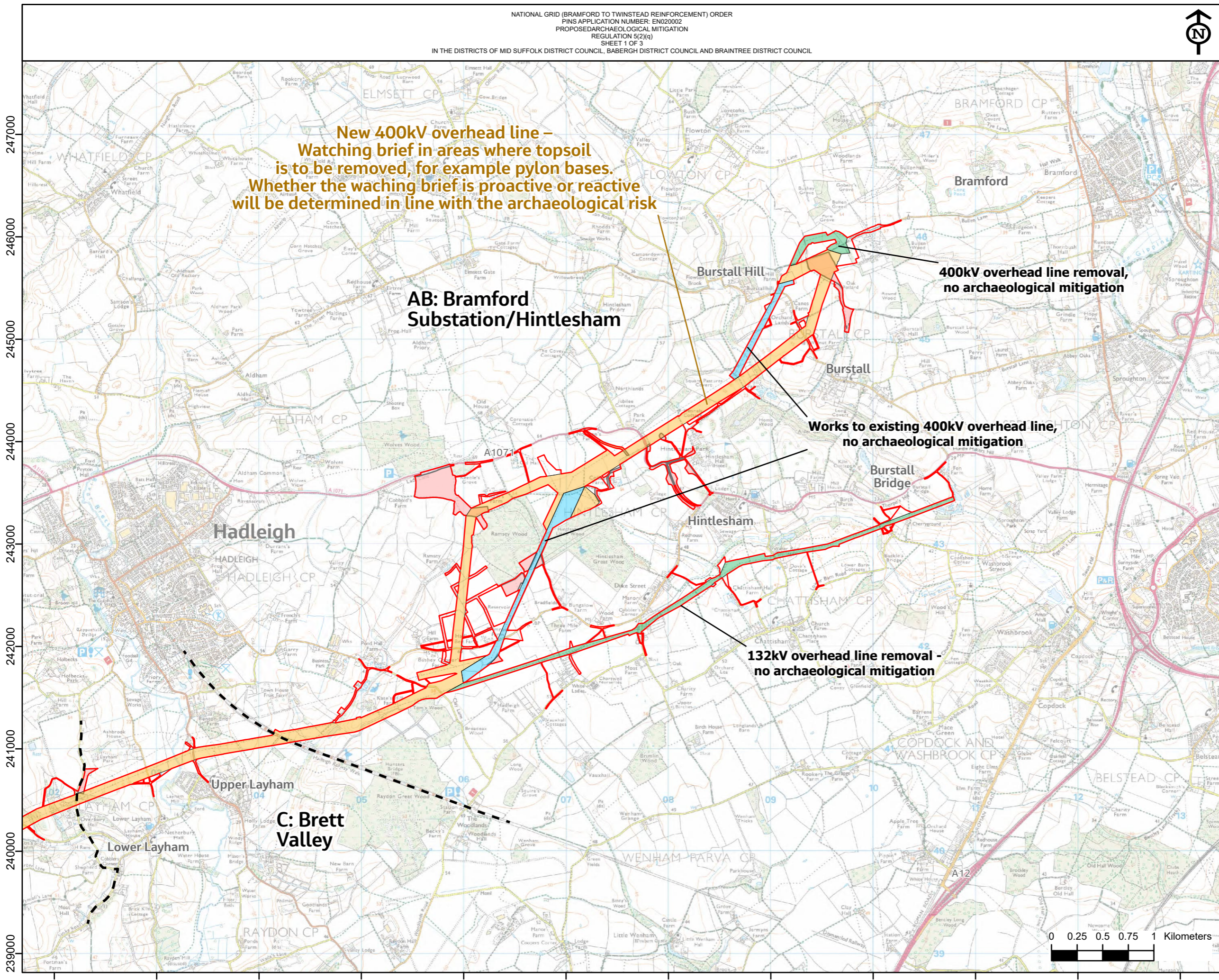
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Proposed Archaeological Mitigation - Key Plan

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge GIS

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NG DRAWING No. BT-JAC-020631-500-0150 SHEET NO. 1 NO. OF SHEETS 1 ISSUE: B





- Section boundaries
- Order Limits
- Completed archaeological trial trenching
- Geoarchaeological mitigation
- Strip, map and sample
- Open area excavation
- Watching brief (in areas of topsoil strip)
- Trenchless crossings
- Proposed overhead line removal
- Works to existing overhead line
- Areas of planting (no mitigation proposed)



NG Investment No. ETX/01142

B	12/2023	Rev B for Deadline 5	PM	JG	CW
A	04/2023	Rev A for DCO Application	PM	JG	CW
ISSUE	DATE	REMARKS	DRWN	CHKD	APPD

PROJECT: Bramford to Twinstead Reinforcement

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TITLE: Figure 1
Proposed
Archaeological Mitigation

CIRCUIT / SITE :
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– Braitree – Bulls Lodge

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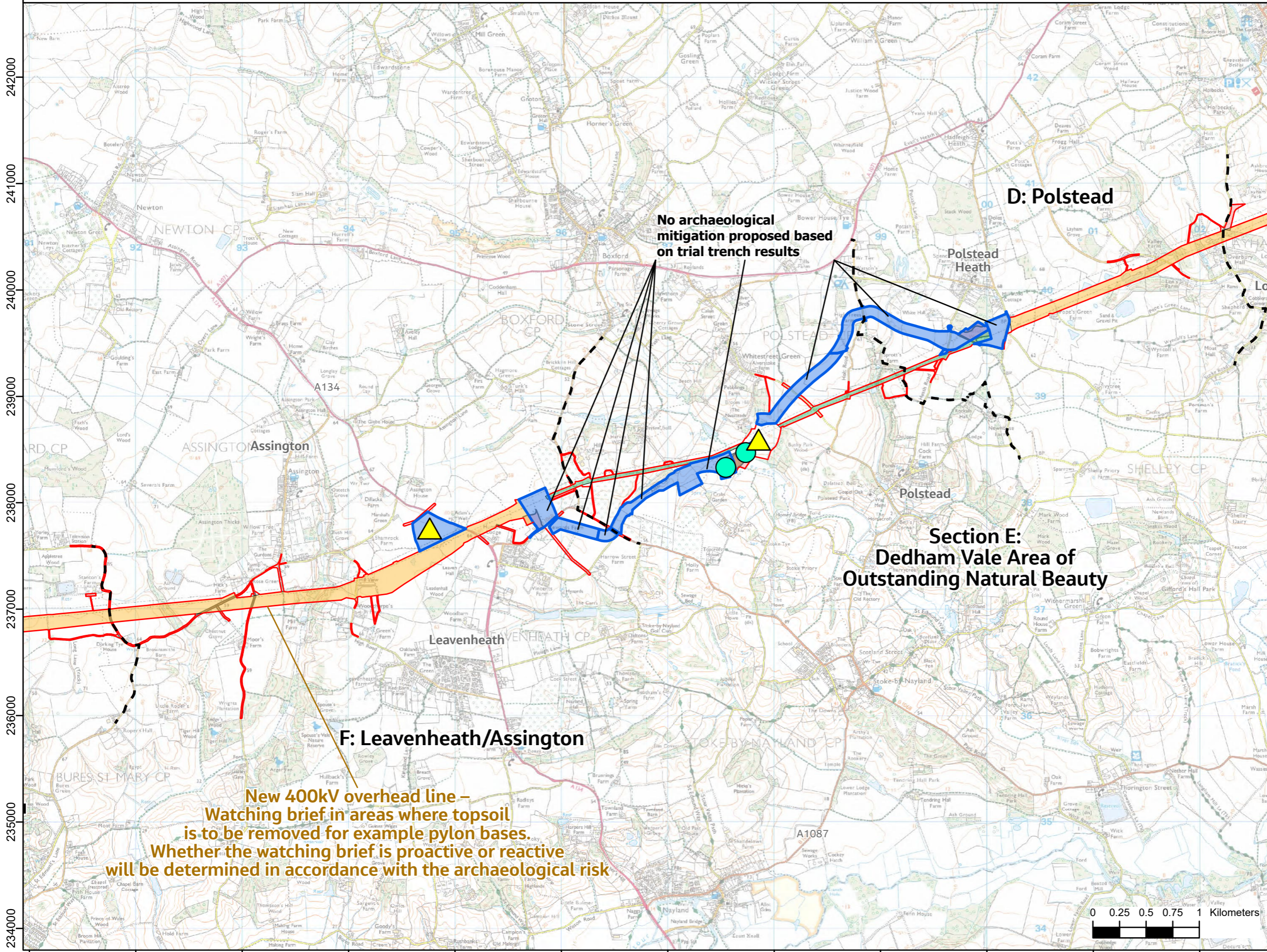
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GIS	A3
SHEET NO. 1	NO. OF SHEETS 3
ISSUE: B	



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No archaeological mitigation proposed based on trial trench results

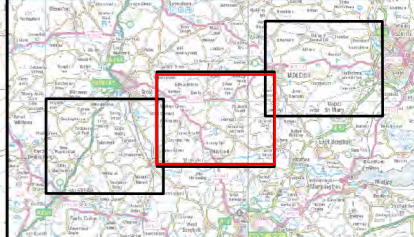
D: Polstead

Section E:
 Dedham Vale Area of
 Outstanding Natural Beauty

F: Leavenheath/Assington

New 400kV overhead line –
 Watching brief in areas where topsoil
 is to be removed for example pylon bases.
 Whether the watching brief is proactive or reactive
 will be determined in accordance with the archaeological risk

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A	04/2023	Rev A for DCO Application	PM	JG	CW
ISSUE	DATE	REMARKS	DRWN	CHKD	APPD

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 1
 Proposed Archaeological Mitigation

CIRCUIT / SITE :
 Bramford – Pelham & Bramford – Baintree – Bulls Lodge

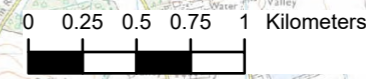
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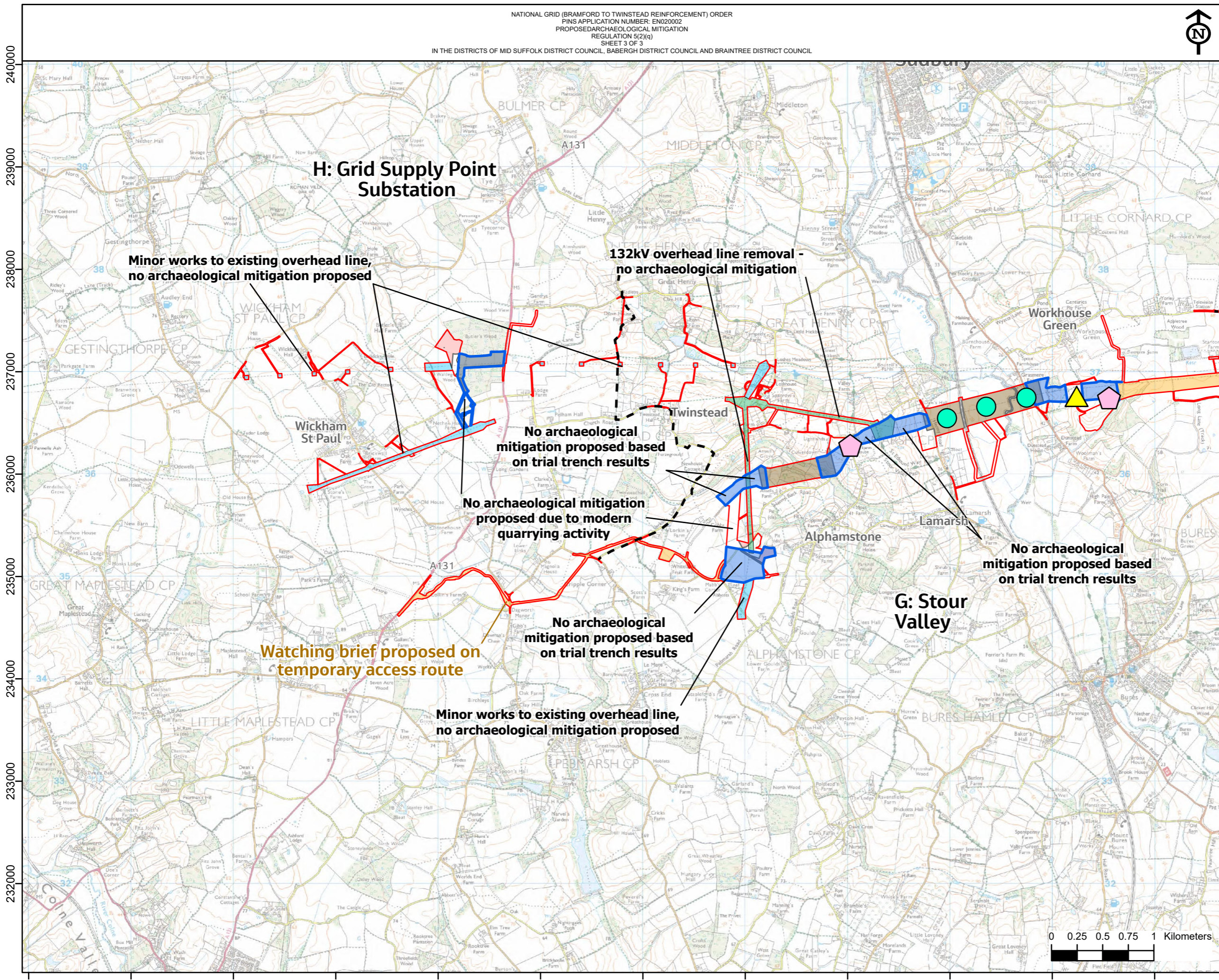
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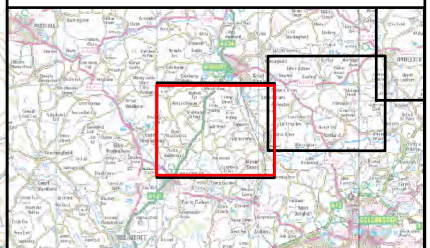




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ISSUE	DATE	REMARKS	DRWN	CHKD	APPD

PROJECT: Bramford to Twinstead Reinforcement

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TITLE: Figure 1
Proposed
Archaeological Mitigation

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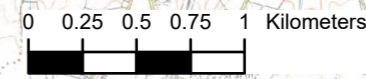
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